

POLLUTION CONTROL BOARD

NOTICE OF PROPOSED AMENDMENTS

1) Heading of the Part: Primary Drinking Water Standards

2) Code citation: 35 Ill. Adm. Code 611

3) <u>Section numbers:</u>	<u>Proposed action:</u>
611.102	Amend
611.130	Amend
611.611	Amend
611.612	Amend
611.645	Amend
611.680	Repealed
611.720	Amend
611.APPENDIX F	Amend

4) Statutory authority: 415 ILCS 5/7.2, 17, 17.5, and 27

5) A complete description of the subjects and issues involved: The following briefly describes the subjects and issues involved in the docket R12-4 rulemaking, which amends only Part 611. A comprehensive description is contained in the Board's opinion and order of February 2, 2012, proposing amendments in docket R12-4, which opinion and order is available from the address below.

This proceeding updates the Illinois Safe Drinking Water Act (SDWA) rules to correspond with amendments adopted by the United States Environmental Protection Agency (USEPA) that appeared in the Federal Register during a single update period. The docket and time period that is involved in this proceeding is the following:

R12-4	Federal SDWA amendments that occurred during the period January 1, 2011 through June 30, 2011.
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The R12-4 docket amends rules in Part 611 only. The following table briefly summarizes the federal action in the update period:

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**Pollution Control Board**

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June 24, 2011 (76 Fed. Reg. 37014)	USEPA approved alternative testing methods for use in demonstrating compliance with the drinking water standards. USEPA added 11 alternative methods for analyzing various inorganic and organic chemical parameters and one radionuclide. USEPA included corrections to the listings for two earlier-approved alternative methods.
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Tables appear in the Board's opinion and order of February 2, 2012 in docket R12-4 that list numerous corrections and amendments that are not based on current federal amendments. The tables contain deviations from the literal text of the federal amendments underlying these amendments, as well as corrections and clarifications that the Board made in the base text involved. Persons interested in the details of those corrections and amendments should refer to the February 2, 2012 opinion and order in docket R12-4.

Section 17.5 of the Environmental Protection Act [415 ILCS 5/17.5] provides that Section 5-35 of the Administrative Procedure Act [5 ILCS 100/5-35] does not apply to this rulemaking. Because this rulemaking is not subject to Section 5-35 of the IAPA, it is not subject to First Notice or to Second Notice review by the Joint Committee on Administrative Rules (JCAR).

- 6) Published studies or reports, and sources of underlying data, used to compose this rulemaking: None
- 7) Will this rulemaking replace any emergency rulemaking currently in effect? No
- 8) Does this rulemaking contain an automatic repeal date? No
- 9) Does this rulemaking contain incorporations by reference? Yes. The current amendments revise existing incorporations by reference and add several new incorporations by reference to correspond with USEPA's summary approvals of new alternative equivalent analytic methods and corrections to previously approved alternative equivalent analytic methods.
- 10) Statement of statewide policy objectives: These proposed amendments do not create or enlarge a State mandate, as defined in Section 3(b) of the State Mandates Act [30 ILCS 805/3(b)].

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- 11) Are there any other amendments pending on this Part? No
- 12) Time, Place and manner in which interested persons may comment on this proposed rulemaking: The Board will accept written public comment on this proposal for a period of 45 days after the date of this publication. Comments should reference docket R12-4 and be addressed to:

John T. Therriault, Assistant Clerk  
Illinois Pollution Control Board  
State of Illinois Center, Suite 11-500  
100 W. Randolph St.  
Chicago, IL 60601

Please direct inquiries to the following person and reference docket R12-4:

Michael J. McCambridge  
Staff Attorney  
Illinois Pollution Control Board  
100 W. Randolph 11-500  
Chicago, IL 60601

Phone: 312/814-6924  
E-mail: [mccambm@ipcb.state.il.us](mailto:mccambm@ipcb.state.il.us)

Request copies of the Board's opinion and order at 312-814-3620, or download a copy from the Board's Website at <http://www.ipcb.state.il.us>

- 13) Initial regulatory flexibility analysis:
- A) Types of small businesses, small municipalities, and not-for-profit corporations affected: This rulemaking may affect those small businesses, small municipalities, and not-for-profit corporations that own or operate a public water supply.
- B) Reporting, bookkeeping or other procedures required for compliance: The existing rules and proposed amendments require extensive reporting, bookkeeping and other procedures, including the preparation of reports, water analyses, and maintenance of operating records.

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- C) Types of professional skills necessary for compliance: Compliance with the existing rules and proposed amendments may require the services of an attorney, certified public accountant, chemist, and registered professional engineer.
- 14) Regulatory agenda on which this rulemaking was summarized July 2011

The full text of the Proposed Amendments begins on the next page:

**EXEMPT**

JCAR350611-1202656r01

TITLE 35: ENVIRONMENTAL PROTECTION  
SUBTITLE F: PUBLIC WATER SUPPLIES  
CHAPTER I: POLLUTION CONTROL BOARD

PART 611  
PRIMARY DRINKING WATER STANDARDS

SUBPART A: GENERAL

10	Section	
11	611.100	Purpose, Scope, and Applicability
12	611.101	Definitions
13	611.102	Incorporations by Reference
14	611.103	Severability
15	611.105	Electronic Reporting
16	611.107	Agency Inspection of PWS Facilities
17	611.108	Delegation to Local Government
18	611.109	Enforcement
19	611.110	Special Exception Permits
20	611.111	Relief Equivalent to SDWA Section 1415(a) Variances
21	611.112	Relief Equivalent to SDWA Section 1416 Exemptions
22	611.113	Alternative Treatment Techniques
23	611.114	Siting Requirements
24	611.115	Source Water Quantity
25	611.120	Effective Dates
26	611.121	Maximum Contaminant Levels and Finished Water Quality
27	611.125	Fluoridation Requirement
28	611.126	Prohibition on Use of Lead
29	611.130	Special Requirements for Certain Variances and Adjusted Standards
30	611.131	Relief Equivalent to SDWA Section 1415(e) Small System Variance
31	611.160	Composite Correction Program
32	611.161	Case-by-Case Reduced Subpart Y Monitoring for Wholesale and Consecutive Systems

SUBPART B: FILTRATION AND DISINFECTION

37	Section	
38	611.201	Requiring a Demonstration
39	611.202	Procedures for Agency Determinations
40	611.211	Filtration Required
41	611.212	Groundwater under Direct Influence of Surface Water
42	611.213	No Method of HPC Analysis
43	611.220	General Requirements

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- 44 611.230 Filtration Effective Dates
- 45 611.231 Source Water Quality Conditions
- 46 611.232 Site-Specific Conditions
- 47 611.233 Treatment Technique Violations
- 48 611.240 Disinfection
- 49 611.241 Unfiltered PWSs
- 50 611.242 Filtered PWSs
- 51 611.250 Filtration
- 52 611.261 Unfiltered PWSs: Reporting and Recordkeeping
- 53 611.262 Filtered PWSs: Reporting and Recordkeeping
- 54 611.271 Protection during Repair Work
- 55 611.272 Disinfection Following Repair
- 56 611.276 Recycle Provisions

57  
58 SUBPART C: USE OF NON-CENTRALIZED TREATMENT DEVICES

- 59
- 60 Section
- 61 611.280 Point-of-Entry Devices
- 62 611.290 Use of Point-of-Use Devices or Bottled Water

63  
64 SUBPART D: TREATMENT TECHNIQUES

- 65
- 66 Section
- 67 611.295 General Requirements
- 68 611.296 Acrylamide and Epichlorohydrin
- 69 611.297 Corrosion Control

70  
71 SUBPART F: MAXIMUM CONTAMINANT LEVELS (MCLs) AND  
72 MAXIMUM RESIDUAL DISINFECTANT LEVELS (MRDLs)

- 73
- 74 Section
- 75 611.300 Old MCLs for Inorganic Chemical Contaminants
- 76 611.301 Revised MCLs for Inorganic Chemical Contaminants
- 77 611.310 State-Only Maximum Contaminant Levels (MCLs) for Organic Chemical
- 78 Contaminants
- 79 611.311 Revised MCLs for Organic Chemical Contaminants
- 80 611.312 Maximum Contaminant Levels (MCLs) for Disinfection Byproducts (DBPs)
- 81 611.313 Maximum Residual Disinfectant Levels (MRDLs)
- 82 611.320 Turbidity (Repealed)
- 83 611.325 Microbiological Contaminants
- 84 611.330 Maximum Contaminant Levels for Radionuclides
- 85 611.331 Beta Particle and Photon Radioactivity (Repealed)

86

87 SUBPART G: LEAD AND COPPER

- 88
- 89 Section
- 90 611.350 General Requirements
- 91 611.351 Applicability of Corrosion Control
- 92 611.352 Corrosion Control Treatment
- 93 611.353 Source Water Treatment
- 94 611.354 Lead Service Line Replacement
- 95 611.355 Public Education and Supplemental Monitoring
- 96 611.356 Tap Water Monitoring for Lead and Copper
- 97 611.357 Monitoring for Water Quality Parameters
- 98 611.358 Monitoring for Lead and Copper in Source Water
- 99 611.359 Analytical Methods
- 100 611.360 Reporting
- 101 611.361 Recordkeeping

102

103 SUBPART I: DISINFECTANT RESIDUALS, DISINFECTION BYPRODUCTS,  
104 AND DISINFECTION BYPRODUCT PRECURSORS

- 105
- 106 Section
- 107 611.380 General Requirements
- 108 611.381 Analytical Requirements
- 109 611.382 Monitoring Requirements
- 110 611.383 Compliance Requirements
- 111 611.384 Reporting and Recordkeeping Requirements
- 112 611.385 Treatment Technique for Control of Disinfection Byproduct (DBP) Precursors

113

114 SUBPART K: GENERAL MONITORING AND ANALYTICAL REQUIREMENTS

- 115
- 116 Section
- 117 611.480 Alternative Analytical Techniques
- 118 611.490 Certified Laboratories
- 119 611.491 Laboratory Testing Equipment
- 120 611.500 Consecutive PWSs
- 121 611.510 Special Monitoring for Unregulated Contaminants (Repealed)

122

123 SUBPART L: MICROBIOLOGICAL MONITORING  
124 AND ANALYTICAL REQUIREMENTS

- 125
- 126 Section
- 127 611.521 Routine Coliform Monitoring
- 128 611.522 Repeat Coliform Monitoring
- 129 611.523 Invalidation of Total Coliform Samples

- 130 611.524 Sanitary Surveys
- 131 611.525 Fecal Coliform and E. Coli Testing
- 132 611.526 Analytical Methodology
- 133 611.527 Response to Violation
- 134 611.531 Analytical Requirements
- 135 611.532 Unfiltered PWSs
- 136 611.533 Filtered PWSs

137  
 138 SUBPART M: TURBIDITY MONITORING AND ANALYTICAL REQUIREMENTS

- 139  
 140 Section  
 141 611.560 Turbidity

142  
 143 SUBPART N: INORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

- 144  
 145 Section  
 146 611.591 Violation of a State MCL  
 147 611.592 Frequency of State Monitoring  
 148 611.600 Applicability  
 149 611.601 Monitoring Frequency  
 150 611.602 Asbestos Monitoring Frequency  
 151 611.603 Inorganic Monitoring Frequency  
 152 611.604 Nitrate Monitoring  
 153 611.605 Nitrite Monitoring  
 154 611.606 Confirmation Samples  
 155 611.607 More Frequent Monitoring and Confirmation Sampling  
 156 611.608 Additional Optional Monitoring  
 157 611.609 Determining Compliance  
 158 611.610 Inorganic Monitoring Times  
 159 611.611 Inorganic Analysis  
 160 611.612 Monitoring Requirements for Old Inorganic MCLs  
 161 611.630 Special Monitoring for Sodium  
 162 611.631 Special Monitoring for Inorganic Chemicals (Repealed)

163  
 164 SUBPART O: ORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

- 165  
 166 Section  
 167 611.640 Definitions  
 168 611.641 Old MCLs  
 169 611.645 Analytical Methods for Organic Chemical Contaminants  
 170 611.646 Phase I, Phase II, and Phase V Volatile Organic Contaminants  
 171 611.647 Sampling for Phase I Volatile Organic Contaminants (Repealed)  
 172 611.648 Phase II, Phase IIB, and Phase V Synthetic Organic Contaminants



- 173 611.650 Monitoring for 36 Contaminants (Repealed)
- 174 611.657 Analytical Methods for 36 Contaminants (Repealed)
- 175 611.658 Special Monitoring for Organic Chemicals (Repealed)

176  
177           SUBPART P: THM MONITORING AND ANALYTICAL REQUIREMENTS

- 178
- 179 Section
- 180 611.680 Sampling, Analytical, and other Requirements (Repealed)
- 181 611.683 Reduced Monitoring Frequency (Repealed)
- 182 611.684 Averaging (Repealed)
- 183 611.685 Analytical Methods
- 184 611.686 Modification to System (Repealed)
- 185 611.687 Sampling for THM Potential (Repealed)
- 186 611.688 Applicability Dates (Repealed)

187  
188           SUBPART Q: RADIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

- 189
- 190 Section
- 191 611.720 Analytical Methods
- 192 611.731 Gross Alpha
- 193 611.732 Beta Particle and Photon Radioactivity
- 194 611.733 General Monitoring and Compliance Requirements

195  
196           SUBPART R: ENHANCED FILTRATION AND DISINFECTION:  
197                           SYSTEMS THAT SERVE 10,000 OR MORE PEOPLE

- 198
- 199 Section
- 200 611.740 General Requirements
- 201 611.741 Standards for Avoiding Filtration
- 202 611.742 Disinfection Profiling and Benchmarking
- 203 611.743 Filtration
- 204 611.744 Filtration Sampling Requirements
- 205 611.745 Reporting and Recordkeeping Requirements

206  
207   SUBPART S: GROUNDWATER RULE

- 208 Section
- 209 611.800 General Requirements and Applicability
- 210 611.801 Sanitary Surveys for GWS Suppliers
- 211 611.802 Groundwater Source Microbial Monitoring and Analytical Methods
- 212 611.803 Treatment Technique Requirements for GWS Suppliers
- 213 611.804 Treatment Technique Violations for GWS Suppliers
- 214 611.805 Reporting and Recordkeeping for GWS Suppliers

215

216 SUBPART T: REPORTING AND RECORDKEEPING

- 217
- 218 Section
- 219 611.830 Applicability
- 220 611.831 Monthly Operating Report
- 221 611.832 Notice by Agency (Repealed)
- 222 611.833 Cross Connection Reporting
- 223 611.840 Reporting
- 224 611.851 Reporting MCL, MRDL, and other Violations (Repealed)
- 225 611.852 Reporting other Violations (Repealed)
- 226 611.853 Notice to New Billing Units (Repealed)
- 227 611.854 General Content of Public Notice (Repealed)
- 228 611.855 Mandatory Health Effects Language (Repealed)
- 229 611.856 Fluoride Notice (Repealed)
- 230 611.858 Fluoride Secondary Standard (Repealed)
- 231 611.860 Record Maintenance
- 232 611.870 List of 36 Contaminants (Repealed)

233

234 SUBPART U: CONSUMER CONFIDENCE REPORTS

- 235
- 236 Section
- 237 611.881 Purpose and Applicability
- 238 611.882 Compliance Dates
- 239 611.883 Content of the Reports
- 240 611.884 Required Additional Health Information
- 241 611.885 Report Delivery and Recordkeeping

242

243 SUBPART V: PUBLIC NOTIFICATION OF DRINKING WATER VIOLATIONS

- 244
- 245 Section
- 246 611.901 General Public Notification Requirements
- 247 611.902 Tier 1 Public Notice: Form, Manner, and Frequency of Notice
- 248 611.903 Tier 2 Public Notice: Form, Manner, and Frequency of Notice
- 249 611.904 Tier 3 Public Notice: Form, Manner, and Frequency of Notice
- 250 611.905 Content of the Public Notice
- 251 611.906 Notice to New Billing Units or New Customers
- 252 611.907 Special Notice of the Availability of Unregulated Contaminant Monitoring
- 253 Results
- 254 611.908 Special Notice for Exceedence of the Fluoride Secondary Standard
- 255 611.909 Special Notice for Nitrate Exceedences above the MCL by a Non-Community
- 256 Water System
- 257 611.910 Notice by the Agency on Behalf of a PWS
- 258 611.911 Special Notice for Cryptosporidium

259		
260		SUBPART W: INITIAL DISTRIBUTION SYSTEM EVALUATIONS
261		
262	Section	
263	611.920	General Requirements
264	611.921	Standard Monitoring
265	611.922	System-Specific Studies
266	611.923	40/30 Certification
267	611.924	Very Small System Waivers
268	611.925	Subpart Y Compliance Monitoring Location Recommendations
269		
270		SUBPART X: ENHANCED FILTRATION AND DISINFECTION –
271		SYSTEMS SERVING FEWER THAN 10,000 PEOPLE
272		
273	Section	
274	611.950	General Requirements
275	611.951	Finished Water Reservoirs
276	611.952	Additional Watershed Control Requirements for Unfiltered Systems
277	611.953	Disinfection Profile
278	611.954	Disinfection Benchmark
279	611.955	Combined Filter Effluent Turbidity Limits
280	611.956	Individual Filter Turbidity Requirements
281	611.957	Reporting and Recordkeeping Requirements
282		
283		SUBPART Y: STAGE 2 DISINFECTION BYPRODUCTS REQUIREMENTS
284		
285	Section	
286	611.970	General Requirements
287	611.971	Routine Monitoring
288	611.972	Subpart Y Monitoring Plan
289	611.973	Reduced Monitoring
290	611.974	Additional Requirements for Consecutive Systems
291	611.975	Conditions Requiring Increased Monitoring
292	611.976	Operational Evaluation Levels
293	611.977	Requirements for Remaining on Reduced TTHM and HAA5 Monitoring Based
294		on Subpart I Results
295	611.978	Requirements for Remaining on Increased TTHM and HAA5 Monitoring Based
296		on Subpart I Results
297	611.979	Reporting and Recordkeeping Requirements
298		
299		SUBPART Z: ENHANCED TREATMENT FOR CRYPTOSPORIDIUM
300	Section	
301	611.1000	General Requirements

302	611.1001	Source Water Monitoring Requirements: Source Water Monitoring
303	611.1002	Source Water Monitoring Requirements: Sampling Schedules
304	611.1003	Source Water Monitoring Requirements: Sampling Locations
305	611.1004	Source Water Monitoring Requirements: Analytical Methods
306	611.1005	Source Water Monitoring Requirements: Approved Laboratories
307	611.1006	Source Water Monitoring Requirements: Reporting Source Water Monitoring
308		Results
309	611.1007	Source Water Monitoring Requirements: Grandfathering Previously Collected
310		Data
311	611.1008	Disinfection Profiling and Benchmarking Requirements: Requirements When
312		Making a Significant Change in Disinfection Practice
313	611.1009	Disinfection Profiling and Benchmarking Requirements: Developing the
314		Disinfection Profile and Benchmark
315	611.1010	Treatment Technique Requirements: Bin Classification for Filtered Systems
316	611.1011	Treatment Technique Requirements: Filtered System Additional
317		Cryptosporidium Treatment Requirements
318	611.1012	Treatment Technique Requirements: Unfiltered System Cryptosporidium
319		Treatment Requirements
320	611.1013	Treatment Technique Requirements: Schedule for Compliance with
321		Cryptosporidium Treatment Requirements
322	611.1014	Treatment Technique Requirements: Requirements for Uncovered Finished
323		Water Storage Facilities
324	611.1015	Requirements for Microbial Toolbox Components: Microbial Toolbox Options
325		for Meeting Cryptosporidium Treatment Requirements
326	611.1016	Requirements for Microbial Toolbox Components: Source Toolbox Components
327	611.1017	Requirements for Microbial Toolbox Components: Pre-Filtration Treatment
328		Toolbox Components
329	611.1018	Requirements for Microbial Toolbox Components: Treatment Performance
330		Toolbox Components
331	611.1019	Requirements for Microbial Toolbox Components: Additional Filtration Toolbox
332		Components
333	611.1020	Requirements for Microbial Toolbox Components: Inactivation Toolbox
334		Components
335	611.1021	Reporting and Recordkeeping Requirements: Reporting Requirements
336	611.1022	Reporting and Recordkeeping Requirements: Recordkeeping Requirements
337	611.1023	Requirements to Respond to Significant Deficiencies Identified in Sanitary
338		Surveys Performed by USEPA or the Agency
339		
340	611.APPENDIX A	Regulated Contaminants
341	611.APPENDIX B	Percent Inactivation of G. Lamblia Cysts
342	611.APPENDIX C	Common Names of Organic Chemicals
343	611.APPENDIX D	Defined Substrate Method for the Simultaneous Detection of Total
344		Coliforms and Eschericia Coli from Drinking Water

345 611.APPENDIX E Mandatory Lead Public Education Information for Community Water  
 346 Systems  
 347 611.APPENDIX F Mandatory Lead Public Education Information for Non-Transient Non-  
 348 Community Water Systems  
 349 611.APPENDIX G NPDWR Violations and Situations Requiring Public Notice  
 350 611.APPENDIX H Standard Health Effects Language for Public Notification  
 351 611.APPENDIX I Acronyms Used in Public Notification Regulation  
 352 611.TABLE A Total Coliform Monitoring Frequency  
 353 611.TABLE B Fecal or Total Coliform Density Measurements  
 354 611.TABLE C Frequency of RDC Measurement  
 355 611.TABLE D Number of Lead and Copper Monitoring Sites  
 356 611.TABLE E Lead and Copper Monitoring Start Dates  
 357 611.TABLE F Number of Water Quality Parameter Sampling Sites  
 358 611.TABLE G Summary of Section 611.357 Monitoring Requirements for Water Quality  
 359 Parameters  
 360 611.TABLE H CT Values (mg·min/ℓ) for Cryptosporidium Inactivation by Chlorine  
 361 Dioxide  
 362 611.TABLE I CT Values (mg·min/ℓ) for Cryptosporidium Inactivation by Ozone  
 363 611.TABLE J UV Dose Table for Cryptosporidium, Giardia lamblia, and Virus  
 364 Inactivation Credit  
 365 611.TABLE Z Federal Effective Dates

367 AUTHORITY: Implementing Sections 7.2, 17, and 17.5 and authorized by Section 27 of the  
 368 Environmental Protection Act [415 ILCS 5/7.2, 17, 17.5, and 27].  
 369

370 SOURCE: Adopted in R88-26 at 14 Ill. Reg. 16517, effective September 20, 1990; amended in  
 371 R90-21 at 14 Ill. Reg. 20448, effective December 11, 1990; amended in R90-13 at 15 Ill. Reg.  
 372 1562, effective January 22, 1991; amended in R91-3 at 16 Ill. Reg. 19010, effective December 1,  
 373 1992; amended in R92-3 at 17 Ill. Reg. 7796, effective May 18, 1993; amended in R93-1 at 17  
 374 Ill. Reg. 12650, effective July 23, 1993; amended in R94-4 at 18 Ill. Reg. 12291, effective July  
 375 28, 1994; amended in R94-23 at 19 Ill. Reg. 8613, effective June 20, 1995; amended in R95-17  
 376 at 20 Ill. Reg. 14493, effective October 22, 1996; amended in R98-2 at 22 Ill. Reg. 5020,  
 377 effective March 5, 1998; amended in R99-6 at 23 Ill. Reg. 2756, effective February 17, 1999;  
 378 amended in R99-12 at 23 Ill. Reg. 10348, effective August 11, 1999; amended in R00-8 at 23 Ill.  
 379 Reg. 14715, effective December 8, 1999; amended in R00-10 at 24 Ill. Reg. 14226, effective  
 380 September 11, 2000; amended in R01-7 at 25 Ill. Reg. 1329, effective January 11, 2001;  
 381 amended in R01-20 at 25 Ill. Reg. 13611, effective October 9, 2001; amended in R02-5 at 26 Ill.  
 382 Reg. 3522, effective February 22, 2002; amended in R03-4 at 27 Ill. Reg. 1183, effective January  
 383 10, 2003; amended in R03-15 at 27 Ill. Reg. 16447, effective October 10, 2003; amended in  
 384 R04-3 at 28 Ill. Reg. 5269, effective March 10, 2004; amended in R04-13 at 28 Ill. Reg. 12666,  
 385 effective August 26, 2004; amended in R05-6 at 29 Ill. Reg. 2287, effective January 28, 2005;  
 386 amended in R06-15 at 30 Ill. Reg. 17004, effective October 13, 2006; amended in R07-2/R07-11  
 387 at 31 Ill. Reg. 11757, effective July 27, 2007; amended in R08-7/R08-13 at 33 Ill. Reg. 633,

388 effective January 2, 2009; amended in R10-1/R10-17/R11-6 at 34 Ill. Reg. 19848, effective  
389 December 7, 2010; amended in R12-4 at 36 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_.

390

391

SUBPART A: GENERAL

392

393 **Section 611.102 Incorporations by Reference**

394

395 a) Abbreviations and short-name listing of references. The following names and  
396 abbreviated names, presented in alphabetical order, are used in this Part to refer to  
397 materials incorporated by reference:

398

399 "AMI Turbiwell Method" means "Continuous Measurement of Turbidity  
400 Using a SWAN AMI Turbiwell Turbidimeter," available from NEMI or  
401 from SWAN Analytische Instrumente AG.

402

403 "ASTM Method" means a method published by and available from the  
404 American Society for Testing and Materials (ASTM).

405

406 "Colisure Test" means "Colisure Presence/Absence Test for Detection and  
407 Identification of Coliform Bacteria and Escherichia Coli in Drinking  
408 Water," available from Millipore Corporation, Technical Services  
409 Department.

410

411 "Colitag® Test" means "Colitag® Product as a Test for Detection and  
412 Identification of Coliforms and E. coli Bacteria in Drinking Water and  
413 Source Water as Required in National Primary Drinking Water  
414 Regulations," available from CPI International.

415

416 "Chromocult® Method" means "Chromocult® Coliform Agar  
417 Presence/Absence Membrane Filter Test Method for Detection and  
418 Identification of Coliform Bacteria and Escherichia coli in Finished  
419 Waters," available from EMD Chemicals Inc.

420

421 "Determination of Inorganic Oxyhalide" means "Determination of  
422 Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using  
423 Ion Chromatography with the Addition of a Postcolumn Reagent for Trace  
424 Bromate Analysis," available from NTIS.

425

426 "Dioxin and Furan Method 1613" means "Tetra- through Octa-Chlorinated  
427 Dioxins and Furans by Isotope-Dilution HRGC/HRMS," available from  
428 NTIS.

429

430 "E\*Colite Test" means "Charm E\*Colite Presence/Absence Test for  
431 Detection and Identification of Coliform Bacteria and Escherichia coli in  
432 Drinking Water," available from Charm Sciences, Inc. and USEPA, Water  
433 Resource Center.

434  
435 "EC-MUG" means "Method 9221 F: Multiple-Tube Fermentation  
436 Technique for Members of the Coliform Group, Escherichia coli  
437 Procedure (Proposed)," available from American Public Health  
438 Association and American Waterworks Association.

439  
440 "EML Procedures Manual" means "EML Procedures Manual, HASL  
441 300," available from USDOE, EML.

442  
443 "Enterolert" means "Evaluation of Enterolert for Enumeration of  
444 Enterococci in Recreational Waters," available from American Society for  
445 Microbiology.

446  
447 "Georgia Radium Method" means "The Determination of Radium-226 and  
448 Radium-228 in Drinking Water by Gamma-ray Spectrometry Using HPGE  
449 or Ge(Li) Detectors," Revision 1.2, December 2004, available from the  
450 Georgia Tech Research Institute.

451  
452 "GLI Method 2" means GLI Method 2, "Turbidity," Nov. 2, 1992,  
453 available from Great Lakes Instruments, Inc.

454  
455 "Guidance Manual for Filtration and Disinfection" means "Guidance  
456 Manual for Compliance with the Filtration and Disinfection Requirements  
457 for Public Water Systems using Surface Water Sources," March 1991,  
458 available from USEPA, NSCEP.

459  
460 "Hach FilterTrak Method 10133" means "Determination of Turbidity by  
461 Laser Nephelometry," available from Hach Co.

462  
463 "Hach SPDANS 2 Method 10225" means "Hach Company SPADNS 2  
464 (Arsenic-free) Fluoride Method 10225 – Spectrophotometric  
465 Measurement of Fluoride in Water and Wastewater," available from the  
466 Hach Co.

467  
468 "Hach TNTplus 835/836 Method 10206" means "Hach Company TNTplus  
469 835/836 Nitrate Method 10206 – Spectrophotometric Measurement of  
470 Nitrate in Water and Wastewater," available from the Hach Co.

471

472 "ITS Method D99-003" means Method D99-003, Revision 3.0, "Free  
473 Chlorine Species (HOCl and OCl) by Test Strip," available from  
474 Industrial Test Systems, Inc.  
475  
476 "Kelada 01" means "Kelada Automated Test Methods for Total Cyanide,  
477 Acid Dissociable Cyanide, And Thiocyanate," Revision 1.2, available  
478 from NTIS.  
479  
480 "m-ColiBlue24 Test" means "Total Coliforms and E. coli Membrane  
481 Filtration Method with m-ColiBlue24® Broth," available from USEPA,  
482 Water Resource Center and Hach Company.  
483  
484 "Method ME355.01" means "Determination of Cyanide in Drinking Water  
485 by GC/MS Headspace Analysis," available from NEMI or from H&E  
486 Testing Laboratory.  
487  
488 "Mitchell Method M5271" means "Determination of Turbidity by Laser  
489 Nephelometry," available from NEMI and Leck Mitchell, PhD.  
490  
491 "Mitchell Method M5331" means "Determination of Turbidity by LED  
492 Nephelometry," available from NEMI and Leck Mitchell, PhD.  
493  
494 "Modified Colitag™ Method" means "Modified Colitag™ Test Method  
495 for Simultaneous Detection of E. coli and other Total Coliforms in Water,"  
496 available from NEMI and CPI International.  
497  
498 "NA-MUG" means "Method 9222 G: Membrane Filter Technique for  
499 Members of the Coliform Group, MF Partition Procedures," available  
500 from American Public Health Association and American Waterworks  
501 Association.  
502  
503 "NCRP Report Number 22" means "Maximum Permissible Body Burdens  
504 and Maximum Permissible Concentrations of Radionuclides in Air and in  
505 Water for Occupational Exposure," available from NCRP.  
506  
507 "New Jersey Radium Method" means "Determination of Radium 228 in  
508 Drinking Water," available from the New Jersey Department of  
509 Environmental Protection.  
510  
511 "New York Radium Method" means "Determination of Ra-226 and Ra-  
512 228 (Ra-02)," available from the New York Department of Public Health.  
513



514 "OI Analytical Method OIA-1677" means "Method OIA-1677, DW  
515 Available Cyanide by Flow Injection, Ligand Exchange, and  
516 Amperometry," available from ALPKEM, Division of OI Analytical.  
517

518 "ONPG-MUG Test" (meaning "minimal medium ortho-nitrophenyl-beta-  
519 d-galactopyranoside-4-methyl-umbelliferyl -beta-d-glucuronide test"),  
520 also called the "Autoanalysis Colilert System," is Method 9223, available  
521 in "Standard Methods for the Examination of Water and Wastewater,"  
522 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., from American Public Health Association and  
523 the American Water Works Association.  
524

525 "Orion Method AQ4500" means "Determination of Turbidity by LED  
526 Nephelometry," available from Thermo Scientific.  
527

528 "Palintest ChloroSense" means "Measurement of Free and Total Chlorine  
529 in Drinking Water by Palintest ChloroSense," available from NEMI or  
530 Palintest Ltd.  
531

532 "Palintest Method 1001" means "Method Number 1001," available from  
533 Palintest, Ltd. or the Hach Company.  
534

535 "QuikChem Method 10-204-00-1-X" means "Digestion and distillation of  
536 total cyanide in drinking and wastewaters using MICRO DIST and  
537 determination of cyanide by flow injection analysis," available from  
538 Lachat Instruments.  
539

540 "Readycult® 2000" means "Readycult Coliforms 100 Presence/Absence  
541 Test for Detection and Identification of Coliform Bacteria and Escherichia  
542 coli in Finished Waters," v. 1.0, available from EMD Chemicals Inc.  
543

544 "Readycult® 2007" means "Readycult® Coliforms 100 Presence/Absence  
545 Test for Detection and Identification of Coliform Bacteria and Escherichia  
546 coli in Finished Waters," v. 1.1, available from EMD Chemicals Inc.  
547

548 "SimPlate Method" means "IDEXX SimPlate TM HPC Test Method for  
549 Heterotrophs in Water," available from IDEXX Laboratories, Inc.  
550

551 ~~"Systea Easy (1 Reagent)" means "Systea Easy (1 Reagent) Nitrate~~  
552 ~~Method," available from NEMI or Systea Scientific LLC.~~  
553

554 "Standard Methods" means "Standard Methods for the Examination of  
555 Water and Wastewater," available from the American Public Health  
556 Association or the American Waterworks Association.

557  
558 "Standard Methods Online" means the website maintained by the Standard  
559 Methods Organization (at [www.standardmethods.org](http://www.standardmethods.org)) for purchase of the  
560 latest versions of methods in an electronic format.  
561  
562 "Syngenta AG-625" means "Atrazine in Drinking Water by  
563 Immunoassay," February 2001 is available from Syngenta Crop  
564 Protection, Inc.  
565  
566 "Systea Easy (1-Reagent)" means "Systea Easy (1-Reagent) Nitrate  
567 Method," available from NEMI or Systea Scientific LLC.  
568  
569 "Technical Bulletin 601" means "Technical Bulletin 601, Standard  
570 Method of Testing for Nitrate in Drinking Water," July 1994, available  
571 from Analytical Technology, Inc.  
572  
573 "Technicon Methods" means "Fluoride in Water and Wastewater,"  
574 available from Bran & Luebbe.  
575  
576 "USEPA Asbestos Method 100.1" means Method 100.1, "Analytical  
577 Method for Determination of Asbestos Fibers in Water," September 1983,  
578 available from NTIS.  
579  
580 "USEPA Asbestos Method 100.2" means Method 100.2, "Determination  
581 of Asbestos Structures over 10-mm in Length in Drinking Water," June  
582 1994, available from NTIS.  
583  
584 "USEPA Environmental Inorganic Methods" means "Methods for the  
585 Determination of Inorganic Substances in Environmental Samples,"  
586 August 1993, available from NTIS.  
587  
588 "USEPA Environmental Metals Methods" means "Methods for the  
589 Determination of Metals in Environmental Samples," available from  
590 NTIS.  
591  
592 "USEPA Inorganic Methods" means "Methods for Chemical Analysis of  
593 Water and Wastes," March 1983, available from NTIS.  
594  
595 "USEPA Interim Radiochemical Methods" means "Interim Radiochemical  
596 Methodology for Drinking Water," EPA 600/4-75/008 (revised), March  
597 1976. Available from NTIS.  
598

599 "USEPA Method 1600" means "Method 1600: Enterococci in Water by  
600 Membrane Filtration Using Membrane-Enterococcus Indoxyl-b-D-  
601 Glucoside Agar (mEI)," available from USEPA, Water Resource Center.  
602

603 "USEPA Method 1601" means "Method 1601: Male-specific (F<sup>+</sup>) and  
604 Somatic Coliphage in Water by Two-step Enrichment Procedure,"  
605 available from USEPA, Water Resource Center.  
606

607 "USEPA Method 1602" means "Method 1602: Male-specific (F<sup>+</sup>) and  
608 Somatic Coliphage in Water by Single Agar Layer (SAL) Procedure,"  
609 available from USEPA, Water Resource Center.  
610

611 "USEPA Method 1604" means "Method 1604: Total Coliforms and  
612 Escherichia coli in Water by Membrane Filtration Using a Simultaneous  
613 Detection Technique (MI Medium)," available from USEPA, Water  
614 Resource Center.  
615

616 "USEPA NERL Method 200.5 (rev. 4.2)" means Method 200.5, Revision  
617 4.2, "Determination of Trace Elements in Drinking Water by Axially  
618 Viewed Inductively Coupled Plasma – Atomic Emission Spectrometry,"  
619 October 2003, EPA 600/R-06/115. Available from USEPA, Office of  
620 Research and Development.  
621

622 "USEPA NERL Method 415.3 (rev. 1.1)" means Method 415.3, Revision  
623 1.1, "Determination of Total Organic Carbon and Specific UV Absorbance  
624 at 254 nm in Source Water and Drinking Water," USEPA, February 2005,  
625 EPA 600/R-05/055. Available from USEPA, Office of Research and  
626 Development.  
627

628 "USEPA NERL Method 415.3 (rev. 1.2)" means Method 415.3, Revision  
629 1.2, "Determination of Total Organic Carbon and Specific UV Absorbance  
630 at 254 nm in Source Water and Drinking Water," USEPA, August 2009,  
631 EPA 600/R-09/122. Available from USEPA, Office of Research and  
632 Development.  
633

634 "USEPA NERL Method 549.2" means Method 549.2, Revision 1.0,  
635 "Determination of Diquat and Paraquat in Drinking Water by Liquid-Solid  
636 Extraction and High Performance Liquid Chromatography with  
637 Ultraviolet Detection," June 1997. Available from USEPA, Office of  
638 Research and Development.  
639

640 "USEPA OGWDW Methods" means the methods listed as available from  
641 the USEPA, Office of Ground Water and Drinking Water (Methods 302.0,

642 317.0 (rev. 2.0), 326.0 (rev. 1.0), 327.0 (rev. 1.1), 334.0, 515.4 (rev. 1.0),  
 643 524.3 (rev. 1.0), 531.2 (rev. 1.0), 552.3 (rev. 1.0), 557, 1622 (99), 1622  
 644 (01), 1622 (05), 1623 (99), 1623 (01), and 1623 (05)). Available from  
 645 NTIS; USEPA, NSCEP; or USEPA, OGWDW.

646  
 647 "USEPA Organic Methods" means "Methods for the Determination of  
 648 Organic Compounds in Drinking Water," December 1988 (revised July  
 649 1991) (Methods 508A (rev. 1.0) and 515.1 (rev. 4.0)); "Methods for the  
 650 Determination of Organic Compounds in Drinking Water – Supplement  
 651 I," July 1990 (Methods 547, 550, and 550.1); "Methods for the  
 652 Determination of Organic Compounds in Drinking Water – Supplement  
 653 II," August 1992 (Methods 548.1 (rev. 1.0), 552.1 (rev. 1.0), and 555 (rev.  
 654 1.0)); and "Methods for the Determination of Organic Compounds in  
 655 Drinking Water – Supplement III," August 1995 (Methods 502.2 (rev.  
 656 2.1), 504.1 (rev. 1.1), 505 (rev. 2.1), 506 (rev. 1.1), 507 (rev. 2.1), 508  
 657 (rev. 3.1), 508.1 (rev. 2.0), 515.2 (rev. 1.1), 524.2 (rev. 4.1), 525.2 (rev.  
 658 2.0), 531.1 (rev. 3.1), 551.1 (rev. 1.0), and 552.2 (rev. 1.0)). Available  
 659 from NTIS; USEPA, NSCEP; or USEPA, EMSL.

660  
 661 "USEPA Organic and Inorganic Methods" means "Methods for the  
 662 Determination of Organic and Inorganic Compounds in Drinking Water,  
 663 Volume 1," EPA 815/R-00/014, PB2000-106981, August 2000. Available  
 664 from NTIS.

665  
 666 "USEPA Radioactivity Methods" means "Prescribed Procedures for  
 667 Measurement of Radioactivity in Drinking Water," EPA 600/4-80/032,  
 668 August 1980. Available from NTIS.

669  
 670 "USEPA Radiochemical Analyses" means "Radiochemical Analytical  
 671 Procedures for Analysis of Environmental Samples," March 1979.  
 672 Available from NTIS.

673  
 674 "USEPA Radiochemistry Procedures" means "Radiochemistry Procedures  
 675 Manual," EPA 520/5-84/006, December 1987. Available from NTIS.

676  
 677 "USEPA Technical Notes" means "Technical Notes on Drinking Water  
 678 Methods," available from NTIS and USEPA, NSCEP.

679  
 680 "USGS Methods" means "Methods of Analysis by the U.S. Geological  
 681 Survey National Water Quality Laboratory – Determination of Inorganic  
 682 and Organic Constituents in Water and Fluvial Sediments," available from  
 683 NTIS and USGS.

684

685 "Waters Method B-1011" means "Waters Test Method for the  
686 Determination of Nitrite/Nitrate in Water Using Single Column Ion  
687 Chromatography," available from Waters Corporation, Technical Services  
688 Division.  
689

690 b) The Board incorporates the following publications by reference:  
691

692 ALPKEM, Division of OI Analytical, P.O. Box 9010, College Station, TX  
693 77842-9010, telephone: 979-690-1711, Internet: [www.oico.com](http://www.oico.com).  
694

695 "Method OIA-1677 DW, Available Cyanide by Flow Injection,  
696 Ligand Exchange, and Amperometry," EPA 821/R-04/001,  
697 January 2004 (referred to as "OI Analytical Method OIA-1677"),  
698 referenced in Section 611.611.

699 BOARD NOTE: Also available online for download from  
700 [www.epa.gov/waterscience/methods/method/cyanide/1677-](http://www.epa.gov/waterscience/methods/method/cyanide/1677-2004.pdf)  
701 [2004.pdf](http://www.epa.gov/waterscience/methods/method/cyanide/1677-2004.pdf).  
702

703 APHA. American Public Health Association, 1015 Fifteenth Street NW,  
704 Washington, DC 20005 202-777-2742.  
705

706 "Standard Methods for the Examination of Water and  
707 Wastewater," 17<sup>th</sup> Edition, 1989 (referred to as "Standard Methods,  
708 17<sup>th</sup> ed."). See the methods listed separately for the same  
709 references under American Waterworks Association.  
710

711 "Standard Methods for the Examination of Water and  
712 Wastewater," 18<sup>th</sup> Edition, 1992, including "Supplement to the 18<sup>th</sup>  
713 Edition of Standard Methods for the Examination of Water and  
714 Wastewater," 1994 (collectively referred to as "Standard Methods,  
715 18<sup>th</sup> ed."). See the methods listed separately for the same  
716 references under American Waterworks Association.  
717

718 "Standard Methods for the Examination of Water and  
719 Wastewater," 19<sup>th</sup> Edition, 1995 (referred to as "Standard  
720 Methods, 19<sup>th</sup> ed."). See the methods listed separately for the  
721 same references under American Waterworks Association.  
722

723 "Standard Methods for the Examination of Water and  
724 Wastewater," 20<sup>th</sup> Edition, 1998 (referred to as "Standard Methods,  
725 20<sup>th</sup> ed."). See the methods listed separately for the same  
726 references under American Waterworks Association.  
727

728 "Standard Methods for the Examination of Water and  
729 Wastewater," 21<sup>st</sup> Edition, 2005 (referred to as "Standard Methods,  
730 21<sup>st</sup> ed."). See the methods listed separately for the same  
731 references under American Waterworks Association.

732  
733 American Society for Microbiology, 1752 N Street N.W., Washington,  
734 DC 20036, 202-737-3600:

735  
736 "Evaluation of Enterolert for Enumeration of Enterococci in  
737 Recreational Waters," Applied and Environmental Microbiology,  
738 Oct. 1996, vol. 62, no. 10, p. 3881 (referred to as "Enterolert"),  
739 referenced in Section 611.802.

740  
741 BOARD NOTE: At the table to 40 CFR 141.402(c)(2), USEPA  
742 approved the method as described in the above literature review.  
743 The method itself is embodied in the printed instructions to the  
744 proprietary kit available from IDEXX Laboratories, Inc.  
745 (accessible on-line and available by download from [www.asm.org](http://www.asm.org),  
746 as "Enterolert™ Procedure"). ASTM approved the method as  
747 "Standard Test Method for Enterococci in Water Using  
748 Enterolert™," which is available in two versions from ASTM:  
749 ASTM Method D6503-99 (superseded) and ASTM Method  
750 D6503-99. While it is more conventional to incorporate the  
751 method as presented in the kit instructions or as approved by  
752 ASTM by reference, the Board is constrained to incorporate the  
753 version that appears in the technical literature by reference, which  
754 is the version that USEPA has explicitly approved.

755  
756 AWWA. American Water Works Association et al., 6666 West Quincy  
757 Ave., Denver, CO 80235 (303-794-7711).

758  
759 "National Field Evaluation of a Defined Substrate Method for the  
760 Simultaneous Enumeration of Total Coliforms and Escherichia coli  
761 for Drinking Water: Comparison with the Standard Multiple Tube  
762 Fermentation Method," S.C. Edberg, M.J. Allen & D.B. Smith,  
763 Applied Environmental Microbiology, vol. 54, iss. 6, pp 1595-  
764 1601 (1988), referenced in Appendix D to this Part.

765  
766 "Standard Methods for the Examination of Water and  
767 Wastewater," 13<sup>th</sup> Edition, 1971 (referred to as "Standard Methods,  
768 13<sup>th</sup> ed.").

769  
770 Method 302, Gross Alpha and Gross Beta Radioactivity in

771	Water (Total, Suspended, and Dissolved), referenced in
772	Section 611.720.
773	
774	Method 303, Total Radioactive Strontium and Strontium 90
775	in Water, referenced in Section 611.720.
776	
777	Method 304, Radium in Water by Precipitation, referenced
778	in Section 611.720.
779	
780	Method 305, Radium 226 by Radon in Water (Soluble,
781	Suspended, and Total), referenced in Section 611.720.
782	
783	Method 306, Tritium in Water, referenced in Section
784	611.720.
785	
786	"Standard Methods for the Examination of Water and
787	Wastewater," 17 <sup>th</sup> Edition, 1989 (referred to as "Standard Methods,
788	17 <sup>th</sup> ed.").
789	
790	Method 7110 B, Gross Alpha and Gross Beta Radioactivity
791	in Water (Total, Suspended, and Dissolved), referenced in
792	Section 611.720.
793	
794	Method 7500-Cs B, Radioactive Cesium, Precipitation
795	Method, referenced in Section 611.720.
796	
797	Method 7500- <sup>3</sup> H B, Tritium in Water, referenced in Section
798	611.720.
799	
800	Method 7500-I B, Radioactive Iodine, Precipitation
801	Method, referenced in Section 611.720.
802	
803	Method 7500-I C, Radioactive Iodine, Ion-Exchange
804	Method, referenced in Section 611.720.
805	
806	Method 7500-I D, Radioactive Iodine, Distillation Method,
807	referenced in Section 611.720.
808	
809	Method 7500-Ra B, Radium in Water by Precipitation,
810	referenced in Section 611.720.
811	
812	Method 7500-Ra C, Radium 226 by Radon in Water
813	(Soluble, Suspended, and Total), referenced in Section

814 611.720.  
815  
816 Method 7500-Ra D, Radium, Sequential Precipitation  
817 Method (Proposed), referenced in Section 611.720.  
818  
819 Method 7500-Sr B, Total Radioactive Strontium and  
820 Strontium 90 in Water, referenced in Section 611.720.  
821  
822 Method 7500-U B, Uranium, Radiochemical Method  
823 (Proposed), referenced in Section 611.720.  
824  
825 Method 7500-U C, Uranium, Isotopic Method (Proposed),  
826 referenced in Section 611.720.  
827  
828 "Standard Methods for the Examination of Water and  
829 Wastewater," 18<sup>th</sup> Edition, 1992 (referred to as "Standard Methods,  
830 18<sup>th</sup> ed."").  
831  
832 Method 2130 B, Turbidity, Nephelometric Method,  
833 referenced in Section 611.531.  
834  
835 Method 2320 B, Alkalinity, Titration Method, referenced in  
836 Section 611.611.  
837  
838 Method 2510 B, Conductivity, Laboratory Method,  
839 referenced in Section 611.611.  
840  
841 Method 2550, Temperature, Laboratory and Field Methods,  
842 referenced in Section 611.611.  
843  
844 Method 3111 B, Metals by Flame Atomic Absorption  
845 Spectrometry, Direct Air-Acetylene Flame Method,  
846 referenced in Sections 611.611 and 611.612.  
847  
848 Method 3111 D, Metals by Flame Atomic Absorption  
849 Spectrometry, Direct Nitrous Oxide-Acetylene Flame  
850 Method, referenced in Section 611.611.  
851  
852 Method 3112 B, Metals by Cold-Vapor Atomic Absorption  
853 Spectrometry, Cold-Vapor Atomic Absorption  
854 Spectrometric Method, referenced in Section 611.611.  
855  
856 Method 3113 B, Metals by Electrothermal Atomic



857	Absorption Spectrometry, Electrothermal Atomic
858	Absorption Spectrometric Method, referenced in Sections
859	611.611 and 611.612.
860	
861	Method 3114 B, Metals by Hydride Generation/Atomic
862	Absorption Spectrometry, Manual Hydride
863	Generation/Atomic Absorption Spectrometric Method,
864	referenced in Section 611.611.
865	
866	Method 3120 B, Metals by Plasma Emission Spectroscopy,
867	Inductively Coupled Plasma (ICP) Method, referenced in
868	Sections 611.611 and 611.612.
869	
870	Method 3500-Ca D, Calcium, EDTA Titrimetric Method,
871	referenced in Section 611.611.
872	
873	Method 3500-Mg E, Magnesium, Calculation Method,
874	referenced in Section 611.611.
875	
876	Method 4110 B, Determination of Anions by Ion
877	Chromatography, Ion Chromatography with Chemical
878	Suppression of Eluent Conductivity, referenced in Section
879	611.611.
880	
881	Method 4500-CN <sup>-</sup> C, Cyanide, Total Cyanide after
882	Distillation, referenced in Section 611.611.
883	
884	Method 4500-CN <sup>-</sup> E, Cyanide, Colorimetric Method,
885	referenced in Section 611.611.
886	
887	Method 4500-CN <sup>-</sup> F, Cyanide, Cyanide-Selective Electrode
888	Method, referenced in Section 611.611.
889	
890	Method 4500-CN <sup>-</sup> G, Cyanide, Cyanides Amenable to
891	Chlorination after Distillation, referenced in Section
892	611.611.
893	
894	Method 4500-Cl D, Chlorine, Amperometric Titration
895	Method, referenced in Section 611.531.
896	
897	Method 4500-Cl E, Chlorine, Low-Level Amperometric
898	Titration Method, referenced in Section 611.531.
899	

900	Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric
901	Method, referenced in Section 611.531.
902	
903	Method 4500-Cl G, Chlorine, DPD Colorimetric Method,
904	referenced in Section 611.531.
905	
906	Method 4500-Cl H, Chlorine, Syringaldazine (FACTS)
907	Method, referenced in Section 611.531.
908	
909	Method 4500-Cl I, Chlorine, Iodometric Electrode Method,
910	referenced in Section 611.531.
911	
912	Method 4500-ClO <sub>2</sub> C, Chlorine Dioxide, Amperometric
913	Method I, referenced in Section 611.531.
914	
915	Method 4500-ClO <sub>2</sub> D, Chlorine Dioxide, DPD Method,
916	referenced in Section 611.531.
917	
918	Method 4500-ClO <sub>2</sub> E, Chlorine Dioxide, Amperometric
919	Method II (Proposed), referenced in Section 611.531.
920	
921	Method 4500-F <sup>-</sup> B, Fluoride, Preliminary Distillation Step,
922	referenced in Section 611.611.
923	
924	Method 4500-F <sup>-</sup> C, Fluoride, Ion-Selective Electrode
925	Method, referenced in Section 611.611.
926	
927	Method 4500-F <sup>-</sup> D, Fluoride, SPADNS Method, referenced
928	in Section 611.611.
929	
930	Method 4500-F <sup>-</sup> E, Fluoride, Complexone Method,
931	referenced in Section 611.611.
932	
933	Method 4500-H <sup>+</sup> B, pH Value, Electrometric Method,
934	referenced in Section 611.611.
935	
936	Method 4500-NO <sub>2</sub> <sup>-</sup> B, Nitrogen (Nitrite), Colorimetric
937	Method, referenced in Section 611.611.
938	
939	Method 4500-NO <sub>3</sub> <sup>-</sup> D, Nitrogen (Nitrate), Nitrate Electrode
940	Method, referenced in Section 611.611.
941	
942	Method 4500-NO <sub>3</sub> <sup>-</sup> E, Nitrogen (Nitrate), Cadmium

943	Reduction Method, referenced in Section 611.611.
944	
945	Method 4500-NO <sub>3</sub> <sup>-</sup> F, Nitrogen (Nitrate), Automated
946	Cadmium Reduction Method, referenced in Section
947	611.611.
948	
949	Method 4500-O <sub>3</sub> B, Ozone (Residual) (Proposed), Indigo
950	Colorimetric Method, referenced in Section 611.531.
951	
952	Method 4500-P E, Phosphorus, Ascorbic Acid Method,
953	referenced in Section 611.611.
954	
955	Method 4500-P F, Phosphorus, Automated Ascorbic Acid
956	Reduction Method, referenced in Section 611.611.
957	
958	Method 4500-Si D, Silica, Molybdosilicate Method,
959	referenced in Section 611.611.
960	
961	Method 4500-Si E, Silica, Heteropoly Blue Method,
962	referenced in Section 611.611.
963	
964	Method 4500-Si F, Silica, Automated Method for
965	Molybdate-Reactive Silica, referenced in Section 611.611.
966	
967	Method 6651, Glyphosate Herbicide (Proposed), referenced
968	in Section 611.645.
969	
970	Method 7110 B, Gross Alpha and Beta Radioactivity
971	(Total, Suspended, and Dissolved), Evaporation Method for
972	Gross Alpha-Beta, referenced in Section 611.720.
973	
974	Method 7110 C, Gross Alpha and Beta Radioactivity
975	(Total, Suspended, and Dissolved), Coprecipitation Method
976	for Gross Alpha Radioactivity in Drinking Water
977	(Proposed), referenced in Section 611.720.
978	
979	Method 7500-Cs B, Radioactive Cesium, Precipitation
980	Method, referenced in Section 611.720.
981	
982	Method 7500- <sup>3</sup> H B, Tritium, Liquid Scintillation
983	Spectrometric Method, referenced in Section 611.720.
984	
985	Method 7500-I B, Radioactive Iodine, Precipitation

986	Method, referenced in Section 611.720.
987	
988	Method 7500-I C, Radioactive Iodine, Ion-Exchange
989	Method, referenced in Section 611.720.
990	
991	Method 7500-I D, Radioactive Iodine, Distillation Method,
992	referenced in Section 611.720.
993	
994	Method 7500-Ra B, Radium, Precipitation Method,
995	referenced in Section 611.720.
996	
997	Method 7500-Ra C, Radium, Emanation Method,
998	referenced in Section 611.720.
999	
1000	Method 7500-Ra D, Radium, Sequential Precipitation
1001	Method (Proposed), referenced in Section 611.720.
1002	
1003	Method 7500-Sr B, Total Radioactive Strontium and
1004	Strontium 90, Precipitation Method, referenced in Section
1005	611.720.
1006	
1007	Method 7500-U B, Uranium, Radiochemical Method
1008	(Proposed), referenced in Section 611.720.
1009	
1010	Method 7500-U C, Uranium, Isotopic Method (Proposed),
1011	referenced in Section 611.720.
1012	
1013	Method 9215 B, Heterotrophic Plate Count, Pour Plate
1014	Method, referenced in Section 611.531.
1015	
1016	Method 9221 A, Multiple-Tube Fermentation Technique
1017	for Members of the Coliform Group, Introduction,
1018	referenced in Sections 611.526 and 611.531.
1019	
1020	Method 9221 B, Multiple-Tube Fermentation Technique
1021	for Members of the Coliform Group, Standard Total
1022	Coliform Fermentation Technique, referenced in Sections
1023	611.526 and 611.531.
1024	
1025	Method 9221 C, Multiple-Tube Fermentation Technique
1026	for Members of the Coliform Group, Estimation of
1027	Bacterial Density, referenced in Sections 611.526 and
1028	611.531.

1029  
1030 Method 9221 D, Multiple-Tube Fermentation Technique  
1031 for Members of the Coliform Group, Presence-Absence (P-  
1032 A) Coliform Test, referenced in Section 611.526.  
1033  
1034 Method 9221 E, Multiple-Tube Fermentation Technique  
1035 for Members of the Coliform Group, Fecal Coliform  
1036 Procedure, referenced in Sections 611.526 and 611.531.  
1037  
1038 Method 9222 A, Membrane Filter Technique for Members  
1039 of the Coliform Group, Introduction, referenced in Sections  
1040 611.526 and 611.531.  
1041  
1042 Method 9222 B, Membrane Filter Technique for Members  
1043 of the Coliform Group, Standard Total Coliform Membrane  
1044 Filter Procedure, referenced in Sections 611.526 and  
1045 611.531.  
1046  
1047 Method 9222 C, Membrane Filter Technique for Members  
1048 of the Coliform Group, Delayed-Incubation Total Coliform  
1049 Procedure, referenced in Sections 611.526 and 611.531.  
1050  
1051 Method 9222 D, Membrane Filter Technique for Members  
1052 of the Coliform Group, Fecal Coliform Membrane Filter  
1053 Procedure, referenced in Section 611.531.  
1054  
1055 Method 9223, Chromogenic Substrate Coliform Test  
1056 (Proposed) (also referred to as the variations "Autoanalysis  
1057 Colilert System" and "Colisure Test"), referenced in  
1058 Sections 611.526; and 611.531.  
1059  
1060 Method 9223 B, Chromogenic Substrate Coliform Test  
1061 (Proposed), referenced in Section 611.1004.  
1062  
1063 "Supplement to the 18<sup>th</sup> Edition of Standard Methods for the  
1064 Examination of Water and Wastewater," American Public Health  
1065 Association, 1994.  
1066  
1067 Method 6610, Carbamate Pesticide Method, referenced in  
1068 Section 611.645.  
1069  
1070 "Standard Methods for the Examination of Water and  
1071 Wastewater," 19<sup>th</sup> Edition, 1995 (referred to as "Standard Methods,

19<sup>th</sup> ed.").

1072	
1073	
1074	Method 2130 B, Turbidity, Nephelometric Method,
1075	referenced in Section 611.531.
1076	
1077	Method 2320 B, Alkalinity, Titration Method, referenced in
1078	Section 611.611.
1079	
1080	Method 2510 B, Conductivity, Laboratory Method,
1081	referenced in Section 611.611.
1082	
1083	Method 2550, Temperature, Laboratory, and Field
1084	Methods, referenced in Section 611.611.
1085	
1086	Method 3111 B, Metals by Flame Atomic Absorption
1087	Spectrometry, Direct Air-Acetylene Flame Method,
1088	referenced in Sections 611.611 and 611.612.
1089	
1090	Method 3111 D, Metals by Flame Atomic Absorption
1091	Spectrometry, Direct Nitrous Oxide-Acetylene Flame
1092	Method, referenced in Section 611.611.
1093	
1094	Method 3112 B, Metals by Cold-Vapor Atomic Absorption
1095	Spectrometry, Cold-Vapor Atomic Absorption
1096	Spectrometric Method, referenced in Section 611.611.
1097	
1098	Method 3113 B, Metals by Electrothermal Atomic
1099	Absorption Spectrometry, Electrothermal Atomic
1100	Absorption Spectrometric Method, referenced in Sections
1101	611.611 and 611.612.
1102	
1103	Method 3114 B, Metals by Hydride Generation/Atomic
1104	Absorption Spectrometry, Manual Hydride
1105	Generation/Atomic Absorption Spectrometric Method,
1106	referenced in Section 611.611.
1107	
1108	Method 3120 B, Metals by Plasma Emission Spectroscopy,
1109	Inductively Coupled Plasma (ICP) Method, referenced in
1110	Sections 611.611 and 611.612.
1111	
1112	Method 3500-Ca D, Calcium, EDTA Titrimetric Method,
1113	referenced in Section 611.611.
1114	

1115	Method 3500-Mg E, Magnesium, Calculation Method,
1116	referenced in Section 611.611.
1117	
1118	Method 4110 B, Determination of Anions by Ion
1119	Chromatography, Ion Chromatography with Chemical
1120	Suppression of Eluent Conductivity, referenced in Section
1121	611.611.
1122	
1123	Method 4500-Cl D, Chlorine, Amperometric Titration
1124	Method, referenced in Sections 611.381 and 611.531.
1125	
1126	Method 4500-Cl E, Chlorine, Low-Level Amperometric
1127	Titration Method, referenced in Sections 611.381 and
1128	611.531.
1129	
1130	Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric
1131	Method, referenced in Sections 611.381 and 611.531.
1132	
1133	Method 4500-Cl G, Chlorine, DPD Colorimetric Method,
1134	referenced in Sections 611.381 and 611.531.
1135	
1136	Method 4500-Cl H, Chlorine, Syringaldazine (FACTS)
1137	Method, referenced in Sections 611.381 and 611.531.
1138	
1139	Method 4500-Cl I, Chlorine, Iodometric Electrode Method,
1140	referenced in Sections 611.381 and 611.531.
1141	
1142	Method 4500-ClO <sub>2</sub> C, Chlorine Dioxide, Amperometric
1143	Method I, referenced in Section 611.531.
1144	
1145	Method 4500-ClO <sub>2</sub> D, Chlorine Dioxide, DPD Method,
1146	referenced in Sections 611.381 and 611.531.
1147	
1148	Method 4500-ClO <sub>2</sub> E, Chlorine Dioxide, Amperometric
1149	Method II, referenced in Sections 611.381 and 611.531.
1150	
1151	Method 4500-CN <sup>-</sup> C, Cyanide, Total Cyanide after
1152	Distillation, referenced in Section 611.611.
1153	
1154	Method 4500-CN <sup>-</sup> E, Cyanide, Colorimetric Method,
1155	referenced in Section 611.611.
1156	
1157	Method 4500-CN <sup>-</sup> F, Cyanide, Cyanide-Selective Electrode

1158	Method, referenced in Section 611.611.
1159	
1160	Method 4500-CN <sup>-</sup> G, Cyanide, Cyanides Amenable to
1161	Chlorination after Distillation, referenced in Section
1162	611.611.
1163	
1164	Method 4500-F <sup>-</sup> B, Fluoride, Preliminary Distillation Step,
1165	referenced in Section 611.611.
1166	
1167	Method 4500-F <sup>-</sup> C, Fluoride, Ion-Selective Electrode
1168	Method, referenced in Section 611.611.
1169	
1170	Method 4500-F <sup>-</sup> D, Fluoride, SPADNS Method, referenced
1171	in Section 611.611.
1172	
1173	Method 4500-F <sup>-</sup> E, Fluoride, Complexone Method,
1174	referenced in Section 611.611.
1175	
1176	Method 4500-H <sup>+</sup> B, pH Value, Electrometric Method,
1177	referenced in Section 611.611.
1178	
1179	Method 4500-NO <sub>2</sub> <sup>-</sup> B, Nitrogen (Nitrite), Colorimetric
1180	Method, referenced in Section 611.611.
1181	
1182	Method 4500-NO <sub>3</sub> <sup>-</sup> D, Nitrogen (Nitrate), Nitrate Electrode
1183	Method, referenced in Section 611.611.
1184	
1185	Method 4500-NO <sub>3</sub> <sup>-</sup> E, Nitrogen (Nitrate), Cadmium
1186	Reduction Method, referenced in Section 611.611.
1187	
1188	Method 4500-NO <sub>3</sub> <sup>-</sup> F, Nitrogen (Nitrate), Automated
1189	Cadmium Reduction Method, referenced in Section
1190	611.611.
1191	
1192	Method 4500-O <sub>3</sub> B, Ozone (Residual) (Proposed), Indigo
1193	Colorimetric Method, referenced in Section 611.531.
1194	
1195	Method 4500-P E, Phosphorus, Ascorbic Acid Method,
1196	referenced in Section 611.611.
1197	
1198	Method 4500-P F, Phosphorus, Automated Ascorbic Acid
1199	Reduction Method, referenced in Section 611.611.
1200	



1201	Method 4500-Si D, Silica, Molybdosilicate Method,
1202	referenced in Section 611.611.
1203	
1204	Method 4500-Si E, Silica, Heteropoly Blue Method,
1205	referenced in Section 611.611.
1206	
1207	Method 4500-Si F, Silica, Automated Method for
1208	Molybdate-Reactive Silica, referenced in Section 611.611.
1209	
1210	Method 5310 B, TOC, Combustion-Infrared Method,
1211	referenced in Section 611.381.
1212	
1213	Method 5310 C, TOC, Persulfate-Ultraviolet Oxidation
1214	Method, referenced in Section 611.381.
1215	
1216	Method 5310 D, TOC, Wet-Oxidation Method, referenced
1217	in Section 611.381.
1218	
1219	Method 5910 B, UV Absorbing Organic Constituents,
1220	Ultraviolet Absorption Method, referenced in Section
1221	611.381.
1222	
1223	Method 6251 B, Disinfection Byproducts: Haloacetic
1224	Acids and Trichlorophenol, Micro Liquid-Liquid
1225	Extraction Gas Chromatographic Method, referenced in
1226	Section 611.381.
1227	
1228	Method 6610, Carbamate Pesticide Method, referenced in
1229	Section 611.645.
1230	
1231	Method 6651, Glyphosate Herbicide (Proposed), referenced
1232	in Section 611.645.
1233	
1234	Method 7110 B, Gross Alpha and Gross Beta
1235	Radioactivity, Evaporation Method for Gross Alpha-Beta,
1236	referenced in Section 611.720.
1237	
1238	Method 7110 C, Gross Alpha and Beta Radioactivity
1239	(Total, Suspended, and Dissolved), Coprecipitation Method
1240	for Gross Alpha Radioactivity in Drinking Water
1241	(Proposed), referenced in Section 611.720.
1242	
1243	Method 7120 B, Gamma-Emitting Radionuclides, Gamma

1244	Spectrometric Method, referenced in Section 611.720.
1245	
1246	Method 7500-Cs B, Radioactive Cesium, Precipitation
1247	Method, referenced in Section 611.720.
1248	
1249	Method 7500- <sup>3</sup> H B, Tritium, Liquid Scintillation
1250	Spectrometric Method, referenced in Section 611.720.
1251	
1252	Method 7500-I B, Radioactive Iodine, Precipitation
1253	Method, referenced in Section 611.720.
1254	
1255	Method 7500-I C, Radioactive Iodine, Ion-Exchange
1256	Method, referenced in Section 611.720.
1257	
1258	Method 7500-I D, Radioactive Iodine, Distillation Method,
1259	referenced in Section 611.720.
1260	
1261	Method 7500-Ra B, Radium, Precipitation Method,
1262	referenced in Section 611.720.
1263	
1264	Method 7500-Ra C, Radium, Emanation Method,
1265	referenced in Section 611.720.
1266	
1267	Method 7500-Ra D, Radium, Sequential Precipitation
1268	Method, referenced in Section 611.720.
1269	
1270	Method 7500-Sr B, Total Radiactive Strontium and
1271	Strontium 90, Precipitation Method, referenced in Section
1272	611.720.
1273	
1274	Method 7500-U B, Uranium, Radiochemical Method,
1275	referenced in Section 611.720.
1276	
1277	Method 7500-U C, Uranium, Isotopic Method, referenced
1278	in Section 611.720.
1279	
1280	Method 9215 B, Heterotrophic Plate Count, Pour Plate
1281	Method, referenced in Section 611.531.
1282	
1283	Method 9221 A, Multiple-Tube Fermentation Technique
1284	for Members of the Coliform Group, Introduction,
1285	referenced in Sections 611.526 and 611.531.
1286	

1287	Method 9221 B, Multiple-Tube Fermentation Technique
1288	for Members of the Coliform Group, Standard Total
1289	Coliform Fermentation Technique, referenced in Sections
1290	611.526 and 611.531.
1291	
1292	Method 9221 C, Multiple-Tube Fermentation Technique
1293	for Members of the Coliform Group, Estimation of
1294	Bacterial Density, referenced in Sections 611.526 and
1295	611.531.
1296	
1297	Method 9221 D, Multiple-Tube Fermentation Technique
1298	for Members of the Coliform Group, Presence-Absence (P-
1299	A) Coliform Test, referenced in Section 611.526.
1300	
1301	Method 9221 E, Multiple-Tube Fermentation Technique
1302	for Members of the Coliform Group, Fecal Coliform
1303	Procedure, referenced in Sections 611.526 and 611.531.
1304	
1305	Method 9222 A, Membrane Filter Technique for Members
1306	of the Coliform Group, Introduction, referenced in Sections
1307	611.526 and 611.531.
1308	
1309	Method 9222 B, Membrane Filter Technique for Members
1310	of the Coliform Group, Standard Total Coliform Membrane
1311	Filter Procedure, referenced in Sections 611.526 and
1312	611.531.
1313	
1314	Method 9222 C, Membrane Filter Technique for Members
1315	of the Coliform Group, Delayed-Incubation Total Coliform
1316	Procedure, referenced in Sections 611.526 and 611.531.
1317	
1318	Method 9222 D, Membrane Filter Technique for Members
1319	of the Coliform Group, Fecal Coliform Membrane Filter
1320	Procedure, referenced in Section 611.531.
1321	
1322	Method 9222 G, Membrane Filter Technique for Members
1323	of the Coliform Group, MF Partition Procedures,
1324	referenced in Section 611.526.
1325	
1326	Method 9223, Chromogenic Substrate Coliform Test (also
1327	referred to as the variations "Autoanalysis Colilert System"
1328	and "Colisure Test"), referenced in Sections 611.526 and
1329	611.531.

1330  
1331 Method 9223 B, Chromogenic Substrate Coliform Test  
1332 (Proposed), referenced in Section 611.1004.  
1333  
1334 "Supplement to the 19<sup>th</sup> Edition of Standard Methods for the  
1335 Examination of Water and Wastewater," American Public Health  
1336 Association, 1996.  
1337  
1338 Method 5310 B, TOC, Combustion-Infrared Method,  
1339 referenced in Section 611.381.  
1340  
1341 Method 5310 C, TOC, Persulfate-Ultraviolet Oxidation  
1342 Method, referenced in Section 611.381.  
1343  
1344 Method 5310 D, TOC, Wet-Oxidation Method, referenced  
1345 in Section 611.381.  
1346  
1347 "Standard Methods for the Examination of Water and  
1348 Wastewater," 20<sup>th</sup> Edition, 1998 (referred to as "Standard Methods,  
1349 20<sup>th</sup> ed.").  
1350  
1351 Method 2130 B, Turbidity, Nephelometric Method,  
1352 referenced in Section 611.531.  
1353  
1354 Method 2320 B, Alkalinity, Titration Method, referenced in  
1355 Section 611.611.  
1356  
1357 Method 2510 B, Conductivity, Laboratory Method,  
1358 referenced in Section 611.611.  
1359  
1360 Method 2550, Temperature, Laboratory, and Field  
1361 Methods, referenced in Section 611.611.  
1362  
1363 Method 3120 B, Metals by Plasma Emission Spectroscopy,  
1364 Inductively Coupled Plasma (ICP) Method, referenced in  
1365 Sections 611.611 and 611.612.  
1366  
1367 Method 3500-Ca B, Calcium, EDTA Titrimetric Method,  
1368 referenced in Section 611.611.  
1369  
1370 Method 3500-Mg B, Magnesium, EDTA Titrimetric  
1371 Method, referenced in Section 611.611.  
1372

1373	Method 4110 B, Determination of Anions by Ion
1374	Chromatography, Ion Chromatography with Chemical
1375	Suppression of Eluent Conductivity, referenced in Section
1376	611.611.
1377	
1378	Method 4500-CN <sup>-</sup> C, Cyanide, Total Cyanide after
1379	Distillation, referenced in Section 611.611.
1380	
1381	Method 4500-CN <sup>-</sup> E, Cyanide, Colorimetric Method,
1382	referenced in Section 611.611.
1383	
1384	Method 4500-CN <sup>-</sup> F, Cyanide, Cyanide-Selective Electrode
1385	Method, referenced in Section 611.611.
1386	
1387	Method 4500-CN <sup>-</sup> G, Cyanide, Cyanides Amenable to
1388	Chlorination after Distillation, referenced in Section
1389	611.611.
1390	
1391	Method 4500-Cl D, Chlorine, Amperometric Titration
1392	Method, referenced in Section 611.531.
1393	
1394	Method 4500-Cl E, Chlorine, Low-Level Amperometric
1395	Titration Method, referenced in Section 611.531.
1396	
1397	Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric
1398	Method, referenced in Section 611.531.
1399	
1400	Method 4500-Cl G, Chlorine, DPD Colorimetric Method,
1401	referenced in Section 611.531.
1402	
1403	Method 4500-Cl H, Chlorine, Syringaldazine (FACTS)
1404	Method, referenced in Section 611.531.
1405	
1406	Method 4500-Cl I, Chlorine, Iodometric Electrode Method,
1407	referenced in Section 611.531.
1408	
1409	Method 4500-ClO <sub>2</sub> C, Chlorine Dioxide, Amperometric
1410	Method I, referenced in Section 611.531.
1411	
1412	Method 4500-ClO <sub>2</sub> D, Chlorine Dioxide, DPD Method,
1413	referenced in Section 611.531.
1414	

1415	Method 4500-ClO <sub>2</sub> E, Chlorine Dioxide, Amperometric
1416	Method II (Proposed), referenced in Section 611.531.
1417	
1418	Method 4500-F <sup>-</sup> B, Fluoride, Preliminary Distillation Step,
1419	referenced in Section 611.611.
1420	
1421	Method 4500-F <sup>-</sup> C, Fluoride, Ion-Selective Electrode
1422	Method, referenced in Section 611.611.
1423	
1424	Method 4500-F <sup>-</sup> D, Fluoride, SPADNS Method, referenced
1425	in Section 611.611.
1426	
1427	Method 4500-F <sup>-</sup> E, Fluoride, Complexone Method,
1428	referenced in Section 611.611.
1429	
1430	Method 4500-H <sup>+</sup> B, pH Value, Electrometric Method,
1431	referenced in Section 611.611.
1432	
1433	Method 4500-NO <sub>2</sub> <sup>-</sup> B, Nitrogen (Nitrite), Colorimetric
1434	Method, referenced in Section 611.611.
1435	
1436	Method 4500-NO <sub>3</sub> <sup>-</sup> D, Nitrogen (Nitrate), Nitrate Electrode
1437	Method, referenced in Section 611.611.
1438	
1439	Method 4500-NO <sub>3</sub> <sup>-</sup> E, Nitrogen (Nitrate), Cadmium
1440	Reduction Method, referenced in Section 611.611.
1441	
1442	Method 4500-NO <sub>3</sub> <sup>-</sup> F, Nitrogen (Nitrate), Automated
1443	Cadmium Reduction Method, referenced in Section
1444	611.611.
1445	
1446	Method 4500-O <sub>3</sub> B, Ozone (Residual) (Proposed), Indigo
1447	Colorimetric Method, referenced in Section 611.531.
1448	
1449	Method 4500-P E, Phosphorus, Ascorbic Acid Method,
1450	referenced in Section 611.611.
1451	
1452	Method 4500-P F, Phosphorus, Automated Ascorbic Acid
1453	Reduction Method, referenced in Section 611.611.
1454	
1455	Method 4500-Si C, Silica, Molybdosilicate Method,
1456	referenced in Section 611.611.
1457	

1458	Method 4500-Si D, Silica, Heteropoly Blue Method,
1459	referenced in Section 611.611.
1460	
1461	Method 4500-Si E, Silica, Automated Method for
1462	Molybdate-Reactive Silica, referenced in Section 611.611.
1463	
1464	Method 5310 B, TOC, Combustion-Infrared Method,
1465	referenced in Section 611.381.
1466	
1467	Method 5310 C, TOC, Persulfate-Ultraviolet Oxidation
1468	Method, referenced in Section 611.381.
1469	
1470	Method 5310 D, TOC, Wet-Oxidation Method, referenced
1471	in Section 611.381.
1472	
1473	Method 5910 B, UV-Absorbing Organic Constituents,
1474	Ultraviolet Absorption Method, referenced in Sections
1475	611.381 and 611.382.
1476	
1477	Method 6251, Disinfection By-Products: Haloacetic Acids
1478	and Trichlorophenol, referenced in Section 611.381.
1479	
1480	Method 6610, Carbamate Pesticide Method, referenced in
1481	Section 611.645.
1482	
1483	Method 6651, Glyphosate Herbicide (Proposed), referenced
1484	in Section 611.645.
1485	
1486	Method 7110 B, Gross Alpha and Gross Beta
1487	Radioactivity, Evaporation Method for Gross Alpha-Beta,
1488	referenced in Section 611.720.
1489	
1490	Method 7110 C, Gross Alpha and Beta Radioactivity
1491	(Total, Suspended, and Dissolved), Coprecipitation Method
1492	for Gross Alpha Radioactivity in Drinking Water
1493	(Proposed), referenced in Section 611.720.
1494	
1495	Method 7120, Gamma-Emitting Radionuclides, referenced
1496	in Section 611.720.
1497	
1498	Method 7500-Cs B, Radioactive Cesium, Precipitation
1499	Method, referenced in Section 611.720.
1500	

1501	Method 7500- <sup>3</sup> H B, Tritium, Liquid Scintillation
1502	Spectrometric Method, referenced in Section 611.720.
1503	
1504	Method 7500-I B, Radioactive Iodine, Precipitation
1505	Method, referenced in Section 611.720.
1506	
1507	Method 7500-I C, Radioactive Iodine, Ion-Exchange
1508	Method, referenced in Section 611.720.
1509	
1510	Method 7500-I D, Radioactive Iodine, Distillation Method,
1511	referenced in Section 611.720.
1512	
1513	Method 7500-Ra B, Radium, Precipitation Method,
1514	referenced in Section 611.720.
1515	
1516	Method 7500-Ra C, Radium, Emanation Method,
1517	referenced in Section 611.720.
1518	
1519	Method 7500-Ra D, Radium, Sequential Precipitation
1520	Method, referenced in Section 611.720.
1521	
1522	Method 7500-Sr B, Total Radioactive Strontium and
1523	Strontium 90, Precipitation Method, referenced in Section
1524	611.720.
1525	
1526	Method 7500-U B, Uranium, Radiochemical Method,
1527	referenced in Section 611.720.
1528	
1529	Method 7500-U C, Uranium, Isotopic Method, referenced
1530	in Section 611.720.
1531	
1532	Method 9215 B, Heterotrophic Plate Count, Pour Plate
1533	Method, referenced in Section 611.531.
1534	
1535	Method 9221 A, Multiple-Tube Fermentation Technique
1536	for Members of the Coliform Group, Introduction,
1537	referenced in Sections 611.526 and 611.531.
1538	
1539	Method 9221 B, Multiple-Tube Fermentation Technique
1540	for Members of the Coliform Group, Standard Total
1541	Coliform Fermentation Technique, referenced in Sections
1542	611.526 and 611.531.
1543	



1544	Method 9221 C, Multiple-Tube Fermentation Technique
1545	for Members of the Coliform Group, Estimation of
1546	Bacterial Density, referenced in Sections 611.526 and
1547	611.531.
1548	
1549	Method 9221 D, Multiple-Tube Fermentation Technique
1550	for Members of the Coliform Group, Presence-Absence (P-
1551	A) Coliform Test, referenced in Sections 611.526.
1552	
1553	Method 9221 E, Multiple-Tube Fermentation Technique
1554	for Members of the Coliform Group, Fecal Coliform
1555	Procedure, referenced in Sections 611.526 and 611.531.
1556	
1557	Method 9221 F, Multiple-Tube Fermentation Technique for
1558	Members of the Coliform Group, Escherichia Coli
1559	Procedure (Proposed), referenced in Section 611.802.
1560	
1561	Method 9222 A, Membrane Filter Technique for Members
1562	of the Coliform Group, Introduction, referenced in Sections
1563	611.526 and 611.531.
1564	
1565	Method 9222 B, Membrane Filter Technique for Members
1566	of the Coliform Group, Standard Total Coliform Membrane
1567	Filter Procedure, referenced in Sections 611.526 and
1568	611.531.
1569	
1570	Method 9222 C, Membrane Filter Technique for Members
1571	of the Coliform Group, Delayed-Incubation Total Coliform
1572	Procedure, referenced in Sections 611.526 and 611.531.
1573	
1574	Method 9222 D, Membrane Filter Technique for Members
1575	of the Coliform Group, Fecal Coliform Membrane Filter
1576	Procedure, referenced in Section 611.531.
1577	
1578	Method 9222 G, Membrane Filter Technique for Members
1579	of the Coliform Group, MF Partition Procedures,
1580	referenced in Section 611.526.
1581	
1582	Method 9223, Chromogenic Substrate Coliform Test (also
1583	referred to as the variations "Autoanalysis Colilert System"
1584	and "Colisure Test"), referenced in Sections 611.526 and
1585	611.531.
1586	

1587	Method 9223 B, Chromogenic Substrate Coliform Test
1588	(also referred to as the variations "Autoanalysis Colilert
1589	System" and "Colisure Test"), referenced in Sections
1590	611.526, 611.802, and 611.1004.
1591	
1592	Method 9230 B, Fecal Streptococcus and Enterococcus
1593	Groups, Multiple Tube Techniques, referenced in Section
1594	611.802.
1595	
1596	Method 9230 C, Fecal Streptococcus and Enterococcus
1597	Groups, Membrane Filter Techniques, referenced in
1598	Section 611.802.
1599	
1600	"Standard Methods for the Examination of Water and
1601	Wastewater," 21 <sup>st</sup> Edition, 2005 (referred to as "Standard Methods,
1602	21 <sup>st</sup> ed.").
1603	
1604	Method 2130 B, Turbidity, Nephelometric Method,
1605	referenced in Section 611.531.
1606	
1607	Method 2320 B, Alkalinity, Titration Method, referenced in
1608	Section 611.611.
1609	
1610	Method 2510 B, Conductivity, Laboratory Method,
1611	referenced in Section 611.611.
1612	
1613	Method 2550, Temperature, Laboratory, and Field
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1636	referenced in Section 611.611.
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1640	Sections 611.611 and 611.612.
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1649	referenced in Section 611.611.
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1656	Method 4500-Cl D, Chlorine, Amperometric Titration
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1660	Titration Method, referenced in Section 611.381.
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1663	Method, referenced in Section 611.381.
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1666	referenced in Section 611.381.
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1672	referenced in Section 611.381.

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1675	Method I, referenced in Section 611.531.
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1677	Method 4500-ClO <sub>2</sub> E, Chlorine Dioxide, Amperometric
1678	Method II (Proposed), referenced in Section 611.381.
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1680	Method 4500-CN <sup>-</sup> E, Cyanide, Colorimetric Method,
1681	referenced in Section 611.611.
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1683	Method 4500-CN <sup>-</sup> F, Cyanide, Cyanide-Selective Electrode
1684	Method, referenced in Section 611.611.
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1686	Method 4500-CN <sup>-</sup> G, Cyanide, Cyanides Amenable to
1687	Chlorination after Distillation, referenced in Section
1688	611.611.
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1690	Method 4500-F <sup>-</sup> B, Fluoride, Preliminary Distillation Step,
1691	referenced in Section 611.611.
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1693	Method 4500-F <sup>-</sup> C, Fluoride, Ion-Selective Electrode
1694	Method, referenced in Section 611.611.
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1697	in Section 611.611.
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1703	referenced in Section 611.611.
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1705	Method 4500-NO <sub>2</sub> <sup>-</sup> B, Nitrogen (Nitrite), Colorimetric
1706	Method, referenced in Section 611.611.
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1708	Method 4500-NO <sub>3</sub> <sup>-</sup> D, Nitrogen (Nitrate), Nitrate Electrode
1709	Method, referenced in Section 611.611.
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1711	Method 4500-NO <sub>3</sub> <sup>-</sup> E, Nitrogen (Nitrate), Cadmium
1712	Reduction Method, referenced in Section 611.611.
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1715	Cadmium Reduction Method, referenced in Section
1716	611.611.
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1719	Colorimetric Method, referenced in Section 611.531.
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1721	Method 4500-P E, Phosphorus, Ascorbic Acid Method,
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1724	Method 4500-P F, Phosphorus, Automated Ascorbic Acid
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1727	Method 4500-SiO <sub>2</sub> C, Silica, Molybdosilicate Method,
1728	referenced in Section 611.611.
1729	
1730	Method 4500-SiO <sub>2</sub> D, Silica, Heteropoly Blue Method,
1731	referenced in Section 611.611.
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1733	Method 4500-SiO <sub>2</sub> E, Silica, Automated Method for
1734	Molybdate-Reactive Silica, referenced in Section 611.611.
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1736	Method 5310 B, TOC, Combustion-Infrared Method,
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1739	Method 5310 C, TOC, Persulfate-Ultraviolet Oxidation
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1746	Ultraviolet Absorption Method, referenced in Sections
1747	611.381 and 611.382.
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1750	and Trichlorophenol, referenced in Section 611.381.
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1753	Method, referenced in Section 611.645.
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1755	Method 6640 B, Acidic Herbicide Compounds, Micro
1756	Liquid-Liquid Extraction Gas Chromatographic Method,
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1760	Radioactivity, Evaporation Method for Gross Alpha-Beta,
1761	referenced in Section 611.720.
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1763	Method 7110 C, Gross Alpha and Beta Radioactivity
1764	(Total, Suspended, and Dissolved), Coprecipitation Method
1765	for Gross Alpha Radioactivity in Drinking Water
1766	(Proposed), referenced in Section 611.720.
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1793	Method, referenced in Section 611.720.
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1800	referenced in Section 611.720.
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1807	referenced in Sections 611.526 and 611.531.
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1821	A) Coliform Test, referenced in Section 611.526.
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1824	for Members of the Coliform Group, Fecal Coliform
1825	Procedure, referenced in Sections 611.526 and 611.531.
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1838	611.531.
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2167	ASTM Method D6581-00, "Standard Test Method for Bromate, Bromide, Chlorate, and Chlorite in Drinking Water by Chemically Suppressed Ion Chromatography," approved 2000, referenced in Section 611.381.
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ASTM Method D6919-03, "Standard Test Method for Determination of Dissolved Alkali and Alkaline Earth Cations and Ammonium in Water and Wastewater by Ion Chromatography," approved 2003, referenced in Section 611.611.

ASTM Method D6919-09, "Standard Test Method for Determination of Dissolved Alkali and Alkaline Earth Cations and Ammonium in Water and Wastewater by Ion Chromatography," approved 2009, referenced in Section 611.611.

ASTM Method D6888-04, "Standard Test Method for Available Cyanide with Ligand Displacement and Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection," approved 2004, referenced in Section 611.611.

Bran & Luebbe, 1025 Busch Parkway, Buffalo Grove, IL 60089.

"Fluoride in Water and Wastewater," Industrial Method #129-71W, December 1972 (referred to as "Technicon Methods, Method #129-71W"). See 40 CFR 141.23(k)(1), footnote 11 (~~20112010~~), referenced in Section 611.611.

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Charm Sciences, Inc., 659 Andover St., Lawrence, MA 01843-1032:

"Charm E\*Colite Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia coli in Drinking Water," January 9, 1998 (referred to as "E\*Colite Test"), referenced in Section 611.802 (also available from USEPA, Water Resource Center).



2226 CPI International, Inc., 5580 Skylane Blvd., Santa Rosa, CA 95403  
2227 (800-878-7654 /fax: 707-545-7901/Internet address:  
2228 www.cpiinternational.com).

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2231 Coliforms and E. coli Bacteria in Drinking Water and Source  
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2238 referenced in Sections 611.526 and 611.802. See also NEMI.

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2240 EMD Chemicals Inc. (an affiliate of Merck KGaA, Darmstadt, Germany),  
2241 480 S. Democrat Road, Gibbstown, NJ 08027-1297. (800-222-0342/e-  
2242 mail:adellenbusch@emscience.com).

2243  
2244 "Chromocult® Coliform Agar Presence/Absence Membrane Filter  
2245 Test Method for Detection and Identification of Coliform Bacteria  
2246 and Escherichia coli in Finished Waters," November 2000 referred  
2247 to as "Chromocult® Method, Version 1.0, referenced in Sections  
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2261 Atlanta, GA 30332 (404-407-6339).

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2274 H&E Testing Laboratory, 221 State Street, Augusta, ME 04333 (207-287-  
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2277 Method ME355.01, Revision 1, "Determination of Cyanide in  
2278 Drinking Water by GC/MS Headspace Analysis," May 2009,  
2279 referenced in Section 611.611. See also NEMI.  
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2281 The Hach Company, P.O. Box 389, Loveland, CO 80539-0389 (800-227-  
2282 4224/Internet address: www.hach.com).  
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2284 "Lead in Drinking Water by Differential Pulse Anodic Stripping  
2285 Voltammetry," Method 1001, August 1999, referenced in Section  
2286 611.611.  
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2290 10133"), referenced in Section 611.531.  
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2292 "Total Coliforms and E. coli Membrane Filtration Method with m-  
2293 ColiBlue24® Broth," Method No. 10029, Revision 2, August 17,  
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2303 Wastewater," revision 2.0, January 2011 (referred to as "Hach  
2304 TNTplus 835/836 Method 10206"), referenced in Section 611.611.  
2305  
2306 IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, Maine 04092  
2307 (800-321-0207).  
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2309 "IDEXX SimPlate TM HPC Test Method for Heterotrophs in  
2310 Water," November 2000 (referred to as "SimPlate method"),  
2311 referenced in Section 611.531.

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2313 Industrial Test Systems, Inc., 1875 Langston St., Rock Hill, SC 29730.  
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2315 Method D99-003, Revision 3.0, "Free Chlorine Species (HOCl  
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2320 4200).  
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2328 Leck Mitchell, PhD, PE, 656 Independence Valley Dr., Grand Junction,  
2329 CO 81507. See also NEMI.  
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2332 Nephelometry," March 2009, referenced in Section 611.531.  
2333  
2334 Mitchell Method M5331, "Determination of Turbidity by LED  
2335 Nephelometry," March 2009, referenced in Section 611.531.  
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2337 Millipore Corporation, Technical Services Department, 80 Ashby Road,  
2338 Milford, MA 01730 (800-654-5476).  
2339  
2340 Colisure Presence/Absence Test for Detection and Identification of  
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2342 February 28, 1994 (referred to as "Colisure Test"), referenced in  
2343 Section 611.526.  
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2345 NCRP. National Council on Radiation Protection, 7910 Woodmont Ave.,  
2346 Bethesda, MD (301-657-2652).  
2347  
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2350 and in Water for Occupational Exposure," NCRP Report Number  
2351 22, June 5, 1959, referenced in Section 611.101.  
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2357 Using a SWAN AMI Turbiwell Turbidimeter," August 2009. See  
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2361 Drinking Water by GC/MS Headspace Analysis," May 2009,  
2362 referenced in Section 611.611. See also H&E Testing Laboratory.  
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2366 also Leck Mitchell, PhD, PE.  
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2370 also Leck Mitchell, PhD, PE  
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2384 611.381 and 611.531. See also Palintest.  
2385  
2386 "Systea Easy (1-Reagent) Nitrate Method," referenced in Section  
2387 611.611. See also Systea Scientific, LLC.  
2388  
2389 NSF. National Sanitation Foundation International, 3475 Plymouth Road,  
2390 PO Box 130140, Ann Arbor, Michigan 48113-0140 (734-769-8010).  
2391  
2392 NSF Standard 61, section 9, November 1998, referenced in  
2393 Sections 611.126 and 611.356.  
2394  
2395 NTIS. National Technical Information Service, U.S. Department of  
2396 Commerce, 5285 Port Royal Road, Springfield, VA 22161 (703-487-4600  
2397 or 800-553-6847).

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 2399 Dioxin and Furan Method 1613, Revision B, "Tetra- through Octa-  
 2400 Chlorinated Dioxins and Furans by Isotope Dilution  
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 2402 Doc. No. 94-104774, referenced in Section 611.645. See also  
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 2407 2001, EPA 821/B-01-009, referenced in Section 611.611.  
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 2417 May 1973, Doc. No. PB222-154/7BA, referenced in Section  
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 2422 September 1983, Doc. No. PB83-260471, referenced in Section  
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 2427 94-134, June 1994, Doc. No. PB94-201902, referenced in Section  
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 2433 121811, referenced in Sections 611.381, 611.531, and 611.611.  
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 2437 USEPA Environmental Metals Methods, "Methods for the  
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 2439 I," May 1994, EPA 600/R-94-111, Doc. No. PB95-125472,  
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 2449 USEPA Interim Radiochemical Methods, "Interim Radiochemical  
 2450 Methodology for Drinking Water," EPA 600/4-75-008 (revised),  
 2451 Doc. No. PB253258, March 1976, referenced in Section 611.720.  
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 2453 USEPA OGWDW Methods, Method 326.0, Revision 1.0,  
 2454 "Determination of Inorganic Oxyhalide Disinfection By-Products  
 2455 in Drinking Water Using Ion Chromatography Incorporating the  
 2456 Addition of a Suppressor Acidified Postcolumn Reagent for Trace  
 2457 Bromate Analysis," June 2002, EPA 815/R-03/007, Doc. No.  
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 2459 also USEPA, NSCEP and USEPA, OGWDW.  
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 2464 PB2000-106981, referenced in Section 611.381. (For methods  
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 2468 Organic Compounds in Drinking Water," December 1988 (revised  
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 2470 in Sections 611.645 and 611.648 (Methods 508A (rev. 1.0) and  
 2471 515.1 (rev. 4.0) only); "Methods for the Determination of Organic  
 2472 Compounds in Drinking Water – Supplement I," July 1990, EPA  
 2473 600/4-90/020, Doc. No. PB91-146027, referenced in Section  
 2474 611.645 (Methods 547, 550, and 550.1 only); "Methods for the  
 2475 Determination of Organic Compounds in Drinking Water –  
 2476 Supplement II," August 1992, EPA 600/R-92/129, Doc. No. PB92-  
 2477 207703, referenced in Sections 611.381 and 611.645. (Methods  
 2478 548.1 (rev. 1.0), 552.1 (rev. 1.0), and 555 (rev. 1.0) only); and  
 2479 "Methods for the Determination of Organic Compounds in Drinking  
 2480 Water – Supplement III," August 1995, EPA 600/R-95/131, Doc.  
 2481 No. PB95-261616, referenced in Sections 611.381, 611.645, and  
 2482 611.648 (Methods 502.2 (rev. 2.1), 504.1 (rev. 1.1), 505 (rev. 2.1),  
 2483 506 (rev. 1.1), 507 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 515.2

2484 (rev. 1.1), 524.2 (rev. 4.1), 525.2 (rev. 2.0), 531.1 (rev. 3.1), 551.1  
2485 (rev. 1.0), and 552.2 (rev. 1.0) only.) See also USEPA, EMSL and  
2486 USEPA, NSCEP.

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2489 Measurement of Radioactivity in Drinking Water," EPA 600/4-  
2490 80/032, August 1980, Doc. No. PB80-224744, referenced in  
2491 Section 611.720 (Methods 900.0, 901.0, 901.1, 902.0, 903.0,  
2492 903.1, 904.0, 905.0, 906.0, 908.0, 908.1). See also USEPA,  
2493 NSCEP.

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2496 Procedures for Analysis of Environmental Samples," March 1979,  
2497 Doc. No. EMSL LV 053917, referenced in Section 611.720.  
2498 (Pages 1-5, 19-32, 33-48, 65-73, 87-91, and 92-95 only.)

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2500 USEPA Radiochemistry Procedures, "Radiochemistry Procedures  
2501 Manual," EPA 520/5-84-006, August 1984, Doc. No. PB84-  
2502 215581 (referred to as ""), referenced in Section 611.720.  
2503 (Methods 00-01, 00-02, 00-07, H-02, Ra-03, Ra-04, Ra-05, Sr-04  
2504 only.)

2505  
2506 USEPA Technical Notes, "Technical Notes on Drinking Water  
2507 Methods," EPA 600/R-94/173, October 1994, Doc. No. PB95-  
2508 104766, referenced in Sections 611.531, 611.611, and 611.645.  
2509 See also USEPA, NSCEP.

2510  
2511 BOARD NOTE: USEPA made the following assertion with  
2512 regard to this reference at 40 CFR 141.23(k)(1) and 141.24(e) and  
2513 (n)(11) (20102009): "This document contains other analytical test  
2514 procedures and approved analytical methods that remain available  
2515 for compliance monitoring until July 1, 1996." Also available  
2516 online at <http://nepis.epa.gov/EPA/html/Pubs/pubtitleORD.htm>  
2517 under the document designation "600R94173."

2518  
2519 New Jersey Department of Environment, Division of Environmental  
2520 Quality, Bureau of Radiation and Inorganic Analytical Services, 9 Ewing  
2521 Street, Trenton, NJ 08625.

2522  
2523 "Determination of Radium 228 in Drinking Water," August 1990  
2524 (referred to as "New Jersey Radium Method"), referenced in  
2525 Section 611.720.

2526

2527 New York Department of Health, Radiological Sciences Institute, Center  
2528 for Laboratories and Research, Empire State Plaza, Albany, NY 12201.

2529  
2530 "Determination of Ra-226 and Ra-228 (Ra-02)," January 1980,  
2531 Revised June 1982 (referred to as "New York Radium Method"),  
2532 referenced in Section 611.720.

2533  
2534 Palintest, Ltd., 21 Kenton Lands Road, P.O. Box 18395, Erlanger, KY  
2535 (800-835-9629).

2536  
2537 Palintest Method 1001, "Lead in Drinking Water by Differential  
2538 Pulse Anodic Stripping Voltammetry," Method 1001, August  
2539 1999, referenced in Section 611.611.

2540  
2541 Palintest ChloroSense, "Measurement of Free and Total Chlorine  
2542 in Drinking Water by Palintest ChloroSense," September 2009,  
2543 referenced in Sections 611.381 and 611.531. See also NEMI.

2544  
2545 Standard Methods Online, available online from the Standard Methods  
2546 Organization at [www.standardmethods.org](http://www.standardmethods.org).

2547  
2548 Method 3113 B-04, Metals by Electrothermal Atomic Absorption  
2549 Spectrometry, Electrothermal Atomic Absorption Spectrometric  
2550 Method, referenced in Sections 611.611 and 611.612.

2551  
2552 Method 3114 B-04, Metals by Hydride Generation/Atomic  
2553 Absorption Spectrometry, Manual Hydride Generation/Atomic  
2554 Absorption Spectrometric Method, referenced in Section 611.611.

2555  
2556 Method 6610 B-04, Carbamate Pesticides, High-Performance  
2557 Liquid Chromatographic Method, referenced in Section 611.645.

2558  
2559 Method 9230 B-04, Fecal Streptococcus and Enterococcus Groups,  
2560 Multiple Tube Techniques, referenced in Section 611.802.

2561  
2562 BOARD NOTE: Where, in appendix A to subpart C of 40 CFR  
2563 141 (2011), USEPA has authorized use of an approved alternative  
2564 method from Standard Methods Online, and that version of the  
2565 method appears also in Standard Methods, 21<sup>st</sup> ed., the Board cites  
2566 only to Standard Methods, 21<sup>st</sup> ed. for that method. The methods  
2567 that USEPA listed as available from Standard Methods Online, and  
2568 which are listed above as in Standard Methods, 21<sup>st</sup> edition, are the  
2569 following: 4500-P E-99 and; 4500-P F-99; (for orthophosphate);



2570 4500-SO<sub>4</sub><sup>-2</sup> C-97, 4500-SO<sub>4</sub><sup>-2</sup> D-97, 4500-SO<sub>4</sub><sup>-2</sup> E-97, and 4500-  
2571 SO<sub>4</sub><sup>-2</sup> F-97 (for sulfate); 6640 B-01 (for 2,4-D, 2,4,5-TP (silvex)  
2572 (dalapon, dinoseb, pentachlorophenol, and picloram); 5561 B-00  
2573 (for glyphosate); and 9223 B-97 (for E. coli). Since each method  
2574 is the same version from both sources, the Board views a copy  
2575 from Standard Methods Online as equivalent to a copy from  
2576 Standard Methods Online, even though the Board does not also  
2577 cite to Standard Methods Online. The Board intends that use of  
2578 the version of the method that is incorporated by reference is  
2579 acceptable from either source is acceptable.

2580  
2581 SWAN Analytische Instrumente AG, Studbachstrasse 13, CH-8340,  
2582 Hinwil, Switzerland.

2583  
2584 AMI Turbiwell Method, "Continuous Measurement of Turbidity  
2585 Using a SWAN AMI Turbiwell Turbidimeter," August 2009,  
2586 referenced in Section 611.531. See also NEMI.

2587  
2588 Syngenta Crop Protection, Inc., 410 Swing Road, Post Office Box 18300,  
2589 Greensboro, NC 27419 (336-632-6000).

2590  
2591 "Atrazine in Drinking Water by Immunoassay," February 2001  
2592 (referred to as "Syngenta AG-625"), referenced in Section  
2593 611.645.

2594  
2595 Systea Scientific LLC, 900 Jorie Blvd., Suite 35, Oak Brook, IL 60523.

2596  
2597 Systea Easy (1-Reagent), "Systea Easy (1-Reagent) Nitrate  
2598 Method," February 2009, referenced in Section 611.611. See also  
2599 NEMI.

2600  
2601 Thermo Scientific, 166 Cummings Center, Beverly, MA 01915-  
2602 (www.thermo.com).

2603  
2604 Orion Method AQ4500, "Determination of Turbidity by LED  
2605 Nephelometry," May 2009, referenced in Section 611.531. See  
2606 also NEMI.

2607  
2608 USDOE, EML. United States Department of Energy, Environmental  
2609 Measurements Laboratory, U.S. Department of Energy, 376 Hudson  
2610 Street, New York, NY 10014-3621.

2611  
2612 "EML Procedures Manual," HASL 300, 27<sup>th</sup> Edition, Volume 1,

2613 1990 (referred to as "EML Procedures Manual (27<sup>th</sup> ed.)"),  
2614 referenced in Section 611.720.

2615  
2616 "EML Procedures Manual," HASL 300, 28<sup>th</sup> ed., 1997 (referred to  
2617 as "EML Procedures Manual (28<sup>th</sup> ed.)"), referenced in Section  
2618 611.720.

2619  
2620 USEPA, EMSL. United States Environmental Protection Agency,  
2621 Environmental Monitoring and Support Laboratory, Cincinnati, OH 45268  
2622 (513-569-7586).

2623  
2624 USEPA Interim Radiochemical Methods, "Interim Radiochemical  
2625 Methodology for Drinking Water," EPA 600/4-75/008 (revised),  
2626 March 1976, referenced in Section 611.720. See also NTIS.

2627  
2628 USEPA Organic Methods, "Methods for the Determination of  
2629 Organic Compounds in Drinking Water," December 1988 (revised  
2630 July 1991), EPA 600/4-88/039, referenced in Sections 611.645 and  
2631 611.648 (Methods 508A (rev. 1.0) and 515.1 (rev. 4.0) only);  
2632 "Methods for the Determination of Organic Compounds in  
2633 Drinking Water – Supplement I," July 1990, EPA 600/4-90/020,  
2634 referenced in Sections 611.645 and 611.648 (Methods 547, 550,  
2635 and 550.1 only); "Methods for the Determination of Organic  
2636 Compounds in Drinking Water – Supplement II," August 1992,  
2637 EPA 600/R-92/129, referenced in Sections 611.381 and 611.645  
2638 (Methods 548.1 (rev. 1.0), 552.1 (rev. 1.0), and 555 (rev. 1.0)  
2639 only); "Methods for the Determination of Organic Compounds in  
2640 Drinking Water – Supplement III," August 1995, EPA 600/R-  
2641 95/131, referenced in Sections 611.381, 611.645, and 611.648  
2642 (Methods 502.2 (rev. 2.1), 504.1 (rev. 1.1), 505 (rev. 2.1), 506 (rev.  
2643 1.1), 507 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 515.2 (rev.  
2644 4.1), 524.2 (rev. 4.1), 525.2 (rev. 2.0), 551.1 (rev. 1.0), and 552.2  
2645 (rev. 1.0) only). See also NTIS and USEPA, NSCEP.

2646  
2647 "Procedures for Radiochemical Analysis of Nuclear Reactor  
2648 Aqueous Solutions," referenced in Section 611.720. See also  
2649 NTIS.

2650  
2651 USEPA, NSCEP. United States Environmental Protection Agency,  
2652 National Service Center for Environmental Publications, P.O. Box 42419,  
2653 Cincinnati, OH 45242-0419 (accessible on-line and available by download  
2654 from <http://www.epa.gov/nscep/>).

2655

2656 Dioxin and Furan Method 1613, Revision B, "Tetra- through Octa-  
 2657 Chlorinated Dioxins and Furans by Isotope Dilution  
 2658 HRGC/HRMS," October 1994, EPA 821/B-94/005, referenced in  
 2659 Section 611.645. See also NTIS.  
 2660  
 2661 Guidance Manual for Filtration and Disinfection, "Guidance  
 2662 Manual for Compliance with the Filtration and Disinfection  
 2663 Requirements for Public Water Systems Using Surface Water  
 2664 Sources," March 1991, EPA 570/3-91-001, referenced in Section  
 2665 611.111.  
 2666  
 2667 USEPA Asbestos Method 100.1, "Analytical Method for  
 2668 Determination of Asbestos Fibers in Water," September 1983, EPA  
 2669 600/4-83-043, referenced in Section 611.611. See also NTIS.  
 2670  
 2671 USEPA Asbestos Method 100.2, "Determination of Asbestos  
 2672 Structures over 10-mm in Length in Drinking Water," June 1994,  
 2673 EPA 600/R-94-134, referenced in Section 611.611. See also  
 2674 NTIS.  
 2675  
 2676 USEPA Environmental Inorganic Methods, "Methods for the  
 2677 Determination of Inorganic Substances in Environmental  
 2678 Samples," August 1993, EPA 600/R-93-100, referenced in Sections  
 2679 611.381, 611.531, and 611.611. (Methods 180.1 (rev. 2.0), 300.0  
 2680 (rev. 2.1), 335.4 (rev. 1.0), 353.2 (rev. 2.0), and 365.1 (rev. 2.0)  
 2681 only.) See also NTIS.  
 2682  
 2683 USEPA Environmental Metals Methods, "Methods for the  
 2684 Determination of Metals in Environmental Samples – Supplement  
 2685 I," May 1994, EPA 600/R-94-111, referenced in Sections 611.611,  
 2686 611.612, and 611.720. (Methods 200.7 (rev. 4.4), 200.8 (rev. 5.3),  
 2687 200.9 (rev. 2.2), and 245.1 (rev. 3.0) only.) See also NTIS.  
 2688  
 2689 USEPA Inorganic Methods, "Methods for Chemical Analysis of  
 2690 Water and Wastes," March 1983, EPA 600/4-79-020, referenced in  
 2691 Section 611.611. (Methods 150.1, 150.2, and 245.2 only.) See  
 2692 also NTIS.  
 2693  
 2694 USEPA OGWDW Methods, Method 302.0, "Determination of  
 2695 Bromate in Drinking Water Using Two-Dimensional Ion  
 2696 Chromatography with Suppressed Conductivity Detection,"  
 2697 September 2009, EPA 815/B-09/014, referenced in Sections  
 2698 611.381 and 611.382. See also USEPA, OGWDW.

2699  
 2700 USEPA OGWDW Methods, Method 317.0, rev. 2.0,  
 2701 "Determination of Inorganic Oxyhalide Disinfection By-Products  
 2702 in Drinking Water Using Ion Chromatography with the Addition of  
 2703 a Postcolumn Reagent for Trace Bromate Analysis," July 2001,  
 2704 EPA 815/B-01/001, referenced in Sections 611.381 and 611.382.  
 2705 See also USEPA, OGWDW.  
 2706  
 2707 USEPA OGWDW Methods, Method 326.0, rev. 1.0,  
 2708 "Determination of Inorganic Oxyhalide Disinfection By-Products  
 2709 in Drinking Water Using Ion Chromatography Incorporating the  
 2710 Addition of a Suppressor Acidified Postcolumn Reagent for Trace  
 2711 Bromate Analysis," June 2002, EPA 815/R-03/007, referenced in  
 2712 Sections 611.381 and 611.382. See also NTIS and USEPA,  
 2713 OGWDW.  
 2714  
 2715 USEPA OGWDW Methods, Method 327.0, rev. 1.1,  
 2716 "Determination of Chlorine Dioxide and Chlorite Ion in Drinking  
 2717 Water Using Lissamine Green B and Horseradish Peroxidase with  
 2718 Detection by Visible Spectrophotometry," May 2005, EPA 815/R-  
 2719 05/008, referenced in Sections 611.381 and 611.531. See also  
 2720 USEPA, OGWDW.  
 2721  
 2722 USEPA OGWDW Methods, Method 334.0, "Determination of  
 2723 Residual in Drinking Water Using an On-line Chlorine Analyzer,"  
 2724 August 2009, EPA 815/B-09/013, referenced in Section 611.531.  
 2725 See also USEPA, OGWDW.  
 2726  
 2727 USEPA OGWDW Methods, Method 531.2, rev. 1.0,  
 2728 "Measurement of N-methylcarbamoyloximes and N-  
 2729 methylcarbamates in Water by Direct Aqueous Injection HPLC  
 2730 with Postcolumn Derivatization," September 2001, EPA 815/B-  
 2731 01/002 (document file name "met531\_2.pdf"), referenced in  
 2732 Section 611.645. See also USEPA, OGWDW.  
 2733  
 2734 USEPA OGWDW Methods, Method 552.3, rev. 1.0,  
 2735 "Determination of Haloacetic Acids and Dalapon in Drinking  
 2736 Water by Liquid-Liquid Microextraction, Derivatization, and Gas  
 2737 Chromatography with Electron Capture Detection," July 2003,  
 2738 EPA 815/B-03/002, referenced in Sections 611.381 and 611.645.  
 2739  
 2740 USEPA OGWDW Methods, Method 557, "Determination of  
 2741 Haloacetic Acids, Bromate, and Dalapon in Drinking Water by Ion

2742 Chromatography Electrospray Ionization Tandem Mass  
 2743 Spectrometry," July 2003, EPA 815/B-03/002, referenced in  
 2744 Sections 611.381, 611.382, and 611.645. See also USEPA,  
 2745 OGWDW.  
 2746  
 2747 USEPA OGWDW Methods, Method 1622 (01), "Cryptosporidium  
 2748 in Water by Filtration/IMS/FA," April 2001, EPA 821/R-01/026,  
 2749 referenced in Section 611.1007. See also USEPA, OGWDW.  
 2750  
 2751 USEPA Organic and Inorganic Methods, "Methods for the  
 2752 Determination of Organic and Inorganic Compounds in Drinking  
 2753 Water, Volume 1," August 2000, EPA 815/R-00/014, referenced in  
 2754 Section 611.381. (Methods 300.1 (rev. 1.0) and 321.8 (rev. 1.0)  
 2755 only.) See also NTIS.  
 2756  
 2757 USEPA Organic Methods, "Methods for the Determination of  
 2758 Organic Compounds in Drinking Water," December 1988, revised  
 2759 July 1991, EPA 600/4-88/039, referenced in Sections 611.645 and  
 2760 611.648 (Methods 508A (rev. 1.0) and 515.1 (rev. 4.0) only);  
 2761 "Methods for the Determination of Organic Compounds in  
 2762 Drinking Water – Supplement I," July 1990, EPA 600/4-90/020,  
 2763 referenced in Section 611.645 and 611.648 (Methods 547, 550, and  
 2764 550.1 only); "Methods for the Determination of Organic  
 2765 Compounds in Drinking Water – Supplement II," August 1992,  
 2766 EPA 600/R-92/129, referenced in Sections 611.381 and 611.645  
 2767 (Methods 548.1 (rev. 1.0), 552.1 (rev. 1.0), and 555 (rev. 1.0)  
 2768 only); "Methods for the Determination of Organic Compounds in  
 2769 Drinking Water – Supplement III," August 1995, EPA 600/R-  
 2770 95/131, referenced in Sections 611.381, 611.645, and 611.648  
 2771 (Methods 502.2 (rev. 2.1), 504.1 (rev. 1.1), 505 (rev. 2.1), 506 (rev.  
 2772 1.1), 507 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 515.2 (rev.  
 2773 4.1), 524.2 (rev. 4.1), 525.2 (rev. 2.0), 531.1 (rev. 3.1), 551.1 (rev.  
 2774 1.0), and 552.2 (rev. 1.0) only). See also NTIS and USEPA,  
 2775 EMSL.  
 2776  
 2777 USEPA Radioactivity Methods, "Prescribed Procedures for  
 2778 Measurement of Radioactivity in Drinking Water," August 1980,  
 2779 EPA 600/4-80/032, referenced in Section 611.720. (For methods  
 2780 900.0, 901, 901.1, 902, 903, 903.1, 904, 905, 906, 908, 908.1  
 2781 only.) See also NTIS.  
 2782

2783 USEPA Technical Notes, "Technical Notes on Drinking Water  
2784 Methods," October 1994, EPA 600/R-94/173, referenced in  
2785 Sections 611.531, 611.611, and 611.645. See also NTIS.  
2786

2787 BOARD NOTE: USEPA made the following assertion with  
2788 regard to this reference at 40 CFR 141.23(k)(1) and 141.24(e) and  
2789 (n)(11) (~~20112007~~): "This document contains other analytical test  
2790 procedures and approved analytical methods that remain available  
2791 for compliance monitoring until July 1, 1996." Also available  
2792 online at <http://nepis.epa.gov/EPA/html/Pubs/pubtitleORD.htm>  
2793 under the document designation "600R94173."  
2794

2795 USEPA, OGWDW. United States Environmental Protection Agency,  
2796 USEPA Office of Ground Water and Drinking Water (accessible on-line  
2797 and available by download from <http://www.epa.gov/safewater/methods/>).  
2798

2799 USEPA OGWDW Methods, Method 302.0, "Determination of  
2800 Bromate in Drinking Water Using Two-Dimensional Ion  
2801 Chromatography with Suppressed Conductivity Detection,"  
2802 September 2009, EPA 815/B-09/014, referenced in Section  
2803 611.381. See also USEPA, NSCEP.  
2804

2805 USEPA OGWDW Methods, Method 317.0, rev. 2.0,  
2806 "Determination of Inorganic Oxyhalide Disinfection By-Products  
2807 in Drinking Water Using Ion Chromatography with the Addition of  
2808 a Postcolumn Reagent for Trace Bromate Analysis," USEPA, July  
2809 2001, EPA 815/B-01/001, referenced in Section 611.381. See also  
2810 USEPA, NSCEP.  
2811

2812 USEPA OGWDW Methods, Method 326.0, rev. 1.0,  
2813 "Determination of Inorganic Oxyhalide Disinfection By-Products  
2814 in Drinking Water Using Ion Chromatography Incorporating the  
2815 Addition of a Suppressor Acidified Postcolumn Reagent for Trace  
2816 Bromate Analysis," USEPA, June 2002, EPA 815/R-03/007,  
2817 referenced in Section 611.381. See also NTIS and USEPA,  
2818 NSCEP.  
2819

2820 USEPA OGWDW Methods, Method 327.0, rev. 1.1,  
2821 "Determination of Chlorine Dioxide and Chlorite Ion in Drinking  
2822 Water Using Lissamine Green B and Horseradish Peroxidase with  
2823 Detection by Visible Spectrophotometry," USEPA, May 2005,  
2824 EPA 815/R-05/008, referenced in Sections 611.381 and 611.531.  
2825 See also USEPA, NSCEP.

2826  
 2827 USEPA OGWDW Methods, Method 334.0, "Determination of  
 2828 Residual in Drinking Water Using an On-line Chlorine Analyzer,"  
 2829 USEPA, August 2009, EPA 815/B-09/013, referenced in Section  
 2830 611.531. See also USEPA, NSCEP.  
 2831  
 2832 USEPA OGWDW Methods, Method 515.4, rev. 1.0,  
 2833 "Determination of Chlorinated Acids in Drinking Water by Liquid-  
 2834 Liquid Microextraction, Derivatization and Fast Gas  
 2835 Chromatography with Electron Capture Detection," April 2000,  
 2836 EPA 815/B-00/001 (document file name "met515\_4.pdf"),  
 2837 referenced in Section 611.645.  
 2838  
 2839 USEPA OGWDW Methods, Method 524.3, rev. 1.0,  
 2840 "Measurement of Purgeable Organic Compounds in Water by  
 2841 Capillary Column Gas Chromatography/Mass Spectrometry," June  
 2842 2009, EPA 815/B-09/009 (referred to as "Method 524.3 (rev.  
 2843 1.0)"), referenced in Sections 611.381 and 611.645.  
 2844  
 2845 USEPA OGWDW Methods, Method 531.2, rev. 1.0,  
 2846 "Measurement of N-methylcarbamoyloximes and N-  
 2847 methylcarbamates in Water by Direct Aqueous Injection HPLC  
 2848 with Postcolumn Derivatization," September 2001, EPA 815/B-  
 2849 01/002 (document file name "met531\_2.pdf"), referenced in  
 2850 Section 611.645. See also USEPA, NSCEP.  
 2851  
 2852 USEPA OGWDW Methods, Method 552.3, rev. 1.0,  
 2853 "Determination of Haloacetic Acids and Dalapon in Drinking  
 2854 Water by Liquid-liquid Microextraction, Derivatization, and Gas  
 2855 Chromatography with Electron Capture Detection," USEPA, July  
 2856 2003, EPA 815/B-03/002, referenced in Sections 611.381 and  
 2857 611.645.  
 2858  
 2859 USEPA OGWDW Methods, Method 557, "Determination of  
 2860 Haloacetic Acids, Bromate, and Dalapon in Drinking Water by Ion  
 2861 Chromatography Electrospray Ionization Tandem Mass  
 2862 Spectrometry," July 2003, EPA 815/B-03/002, referenced in  
 2863 Sections 611.381 and 611.645. See also USEPA, NSCEP.  
 2864  
 2865 USEPA OGWDW Methods, Method 1622 (05), "Method 1622:  
 2866 Cryptosporidium in Water by Filtration/IMS/FA," December 2005,  
 2867 EPA 815/R-05/001, referenced in Sections 611.1004 and  
 2868 611.1007.

2869  
2870 USEPA OGWDW Methods, Method 1622 (01), "Method 1622:  
2871 Cryptosporidium in Water by Filtration/IMS/FA," April 2001,  
2872 EPA 821/R-01/026, referenced in Section 611.1007. See also  
2873 USEPA, NSCEP.  
2874  
2875 USEPA OGWDW Methods, Method 1622 (99), "Method 1622:  
2876 Cryptosporidium in Water by Filtration/IMS/FA," April 1999,  
2877 EPA 821/R-99/001, referenced in Section 611.1007.  
2878  
2879 USEPA OGWDW Methods, Method 1623 (05), "Method 1623:  
2880 Cryptosporidium and Giardia in Water by Filtration/IMS/FA,"  
2881 December 2005, EPA 815/R-05/002, referenced in Sections  
2882 611.1004 and 611.1007.  
2883  
2884 USEPA OGWDW Methods, Method 1623 (01), "Method 1623:  
2885 Cryptosporidium and Giardia in Water by Filtration/IMS/FA,"  
2886 April 2001, EPA 821/R-01/025, referenced in Section 611.1007.  
2887  
2888 USEPA OGWDW Methods, Method 1623 (99), "Method 1623:  
2889 Cryptosporidium and Giardia in Water by Filtration/IMS/FA,"  
2890 January 1999, EPA 821/R-99/006, referenced in Sections  
2891 611.1007.  
2892  
2893 BOARD NOTE: Many of the above-listed documents available  
2894 from the USEPA, Office of Ground Water and Drinking Water are  
2895 also listed as available from NTIS.  
2896  
2897 USEPA, ORD. USEPA, Office of Research and Development, National  
2898 Exposure Research Laboratory, Microbiological & Chemical Exposure  
2899 Assessment Research Division (accessible on-line and available by  
2900 download from <http://www.epa.gov/nerlcwww/ordmeth.htm>).  
2901  
2902 USEPA NERL Method 200.5, rev. 4.2, "Determination of Trace  
2903 Elements in Drinking Water by Axially Viewed Inductively  
2904 Coupled Plasma – Atomic Emission Spectrometry," October 2003,  
2905 EPA 600/R-06/115, referenced in Sections 611.611 and 611.612.  
2906  
2907 USEPA NERL Method 415.3, rev. 1.1, "Determination of Total  
2908 Organic Carbon and Specific UV Absorbance at 254 nm in Source  
2909 Water and Drinking Water," February 2005, EPA 600/R-05/055,  
2910 referenced in Section 611.381.  
2911



2912 USEPA NERL Method 415.3, rev. 1.2, "Determination of Total  
2913 Organic Carbon and Specific UV Absorbance at 254 nm in Source  
2914 Water and Drinking Water," February 2005, EPA 600/R-09/122,  
2915 referenced in Section 611.381.  
2916

2917 USEPA NERL Method 549.2, rev. 1.0, "Determination of Diquat  
2918 and Paraquat in Drinking Water by Liquid-Solid Extraction and  
2919 High Performance Liquid Chromatography with Ultraviolet  
2920 Detection," June 1997.  
2921

2922 USEPA Water Resource Center (RC-4100T), 1200 Pennsylvania Avenue,  
2923 NW, Washington, DC 20460:  
2924

2925 E\*Colite Test, "Charm E\*Colite Presence/Absence Test for  
2926 Detection and Identification of Coliform Bacteria and Escherichia  
2927 coli in Drinking Water," January 9, 1998, referenced in Section  
2928 611.802. See also Charm Sciences, Inc.  
2929

2930 m-ColiBlue24 Test, "Total Coliforms and E. coli Membrane  
2931 Filtration Method with m-ColiBlue24® Broth," Method No.  
2932 10029, rev. 2, August 17, 1999, referenced in Section 611.802.  
2933 See also The Hach Company.  
2934

2935 USEPA Method 1600, "EPA Method 1600: Enterococci in Water  
2936 by Membrane Filtration Using Membrane-Enterococcus Indoxyl-  
2937 b-D-Glucoside Agar (mEI)," September 2002, EPA 821/R-02/022  
2938 is an approved variation of Standard Methods, Method 9230 C,  
2939 "Fecal Streptococcus and Enterococcus Groups, Membrane Filter  
2940 Techniques" (which has not itself been approved for use by  
2941 USEPA) (accessible on-line and available by download from  
2942 <http://www.epa.gov/nerlcwww/1600sp02.pdf>), referenced in  
2943 Section 611.802.  
2944

2945 USEPA Method 1601, "Method 1601: Male-specific (F<sup>+</sup>) and  
2946 Somatic Coliphage in Water by Two-step Enrichment Procedure,"  
2947 April 2001, EPA 821/R-01/030 (accessible on-line and available  
2948 by download from <http://www.epa.gov/nerlcwww/1601ap01.pdf>),  
2949 referenced in Section 611.802.  
2950

2951 USEPA Method 1602, "Method 1602: Male-specific (F<sup>+</sup>) and  
2952 Somatic Coliphage in Water by Single Agar Layer (SAL)  
2953 Procedure," April 2001, EPA 821/R-01/029 (accessible on-line  
2954 and available by download from

2955 <http://www.epa.gov/nerlcwww/1602ap01.pdf>), referenced in  
2956 Section 611.802.

2957  
2958 USEPA Method 1604, "Method 1604: Total Coliforms and  
2959 Escherichia coli in Water by Membrane Filtration Using a  
2960 Simultaneous Detection Technique (MI Medium)," September  
2961 2002, EPA 821/R-02/024 (accessible on-line and available by  
2962 download from <http://www.epa.gov/nerlcwww/1604sp02.pdf>),  
2963 referenced in Section 611.802.

2964  
2965 USGS. Books and Open-File Reports Section, United States Geological  
2966 Survey, Federal Center, Box 25286, Denver, CO 80225-0425.

2967  
2968 Methods available upon request by method number from "Methods  
2969 for Analysis by the U.S. Geological Survey National Water  
2970 Quality Laboratory – Determination of Inorganic and Organic  
2971 Constituents in Water and Fluvial Sediments," Open File Report  
2972 93-125, 1993, or Book 5, Chapter A-1, "Methods for  
2973 Determination of Inorganic Substances in Water and Fluvial  
2974 Sediments," 3rd ed., Open-File Report 85-495, 1989, as  
2975 appropriate (referred to as "USGS Methods").

2976  
2977 I-1030-85, referenced in Section 611.611.

2978  
2979 I-1601-85, referenced in Section 611.611.

2980  
2981 I-1700-85, referenced in Section 611.611.

2982  
2983 I-2598-85, referenced in Section 611.611.

2984  
2985 I-2601-90, referenced in Section 611.611.

2986  
2987 I-2700-85, referenced in Section 611.611.

2988  
2989 I-3300-85, referenced in Section 611.611.

2990  
2991 Methods available upon request by method number from "Methods  
2992 for Determination of Radioactive Substances in Water and Fluvial  
2993 Sediments," Chapter A5 in Book 5 of "Techniques of Water-  
2994 Resources Investigations of the United States Geological Survey,"  
2995 1997.

2996  
2997 R-1110-76, referenced in Section 611.720.

2998  
2999 R-1111-76, referenced in Section 611.720.  
3000  
3001 R-1120-76, referenced in Section 611.720.  
3002  
3003 R-1140-76, referenced in Section 611.720.  
3004  
3005 R-1141-76, referenced in Section 611.720.  
3006  
3007 R-1142-76, referenced in Section 611.720.  
3008  
3009 R-1160-76, referenced in Section 611.720.  
3010  
3011 R-1171-76, referenced in Section 611.720.  
3012  
3013 R-1180-76, referenced in Section 611.720.  
3014  
3015 R-1181-76, referenced in Section 611.720.  
3016  
3017 R-1182-76, referenced in Section 611.720.  
3018

3019 Waters Corporation, Technical Services Division, 34 Maple St., Milford,  
3020 MA 01757 (800-252-4752 or 508-482-2131, fax: 508-482-3625).  
3021

3022 "Waters Test Method for Determination of Nitrite/Nitrate in Water  
3023 Using Single Column Ion Chromatography," Method B-1011,  
3024 August 1987 (referred to as "Waters Method B-1011"), referenced  
3025 in Section 611.611.  
3026

3027 c) The Board incorporates the following federal regulations by reference:  
3028

3029 40 CFR 3.2 (~~20112010~~) (How Does This Part Provide for Electronic  
3030 Reporting?), referenced in Section 611.105.  
3031

3032 40 CFR 3.3 (~~20112010~~) (What Definitions Are Applicable to This Part?),  
3033 referenced in Section 611.105.  
3034

3035 40 CFR 3.10 (~~20112010~~) (What Are the Requirements for Electronic  
3036 Reporting to EPA?), referenced in Section 611.105.  
3037

3038 40 CFR 3.2000 (~~20112010~~) (What Are the Requirements Authorized  
3039 State, Tribe, and Local Programs' Reporting Systems Must Meet?),  
3040 referenced in Section 611.105.

3041  
3042 40 CFR 136.3(a) (~~20112010~~), referenced in Section 611.1004.

3043  
3044 Appendix B to 40 CFR 136 (~~20112010~~), referenced in Sections 611.359,  
3045 611.609, and 611.646.

3046  
3047 40 CFR 142.20(b)(1) (~~20112010~~), referenced in Section 611.112.

3048  
3049 d) This Part incorporates no later amendments or editions.

3050  
3051 (Source: Amended at 36 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

3052  
3053 **Section 611.130 Special Requirements for Certain Variances and Adjusted Standards**

3054  
3055 a) Relief from the fluoride MCL.

3056  
3057 1) In granting any variance or adjusted standard to a supplier that is a CWS  
3058 from the maximum contaminant level for fluoride listed in Section  
3059 611.301(b), the Board will require application of the best available  
3060 technology (BAT) identified at subsection (a)(4) of this Section for that  
3061 constituent as a condition to the relief, unless the supplier has  
3062 demonstrated through comprehensive engineering assessments that  
3063 application of BAT is not technically appropriate and technically feasible  
3064 for that supplier.

3065  
3066 2) The Board will require the following as a condition for relief from the  
3067 fluoride MCL where it does not require the application of BAT:

3068  
3069 A) That the supplier continue to investigate the following methods as  
3070 an alternative means of significantly reducing the level of fluoride,  
3071 according to a definite schedule:

3072  
3073 i) A modification of lime softening;

3074  
3075 ii) Alum coagulation;

3076  
3077 iii) Electrodialysis;

3078  
3079 iv) Anion exchange resins;

3080  
3081 v) Well field management;

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3083 vi) The use of alternative sources of raw water; and

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vii) Regionalization; and

B) That the supplier report results of that investigation to the Agency.

3) The Agency must petition the Board to reconsider or modify a variance or adjusted standard, pursuant to Subpart I of 35 Ill. Adm. Code 101, if it determines that an alternative method identified by the supplier pursuant to subsection (a)(2) of this Section is technically feasible and would result in a significant reduction in fluoride.

4) Best available technology for fluoride reduction is as follows:

A) Activated alumina absorption centrally applied; and

B) Reverse osmosis centrally applied.

BOARD NOTE: Subsection (a) derived from 40 CFR 142.61 (~~20112003~~).

b) Relief from an IOC, VOC, or SOC MCL.

1) In granting to a supplier that is a CWS or NTNCWS any variance or adjusted standard from the maximum contaminant levels for any VOC or SOC, listed in Section 611.311(a) or (c), or for any IOC, listed in Section 611.301, the supplier must have first applied the best available technology (BAT) identified at Section 611.311(b) (VOCs and SOCs) or Section 611.301(c) (IOCs) for that constituent, unless the supplier has demonstrated through comprehensive engineering assessments that application of BAT would achieve only a minimal and insignificant reduction in the level of contaminant.

BOARD NOTE: USEPA lists BAT for each SOC and VOC at 40 CFR 142.62(a), for the purposes of variances and exemptions (adjusted standards). That list is identical to the list at 40 CFR 141.61(b).

2) The Board may require any of the following as a condition for relief from an MCL listed in Section 611.301 or 611.311:

A) That the supplier continue to investigate alternative means of compliance according to a definite schedule; and

B) That the supplier report results of that investigation to the Agency.

- 3127 3) The Agency must petition the Board to reconsider or modify a variance or  
3128 adjusted standard, pursuant to Subpart I of 35 Ill. Adm. Code 101, if it  
3129 determines that an alternative method identified by the supplier pursuant  
3130 to subsection (b)(2) of this Section is technically feasible.

3131  
3132 BOARD NOTE: Subsection (b) derived from 40 CFR 142.62(a) through  
3133 (e)(~~20112003~~).

- 3134  
3135 c) Conditions requiring use of bottled water, a point-of-use treatment device, or a  
3136 point-of-entry treatment device. In granting any variance or adjusted standard  
3137 from the maximum contaminant levels for organic and inorganic chemicals or an  
3138 adjusted standard from the treatment technique for lead and copper, the Board  
3139 may impose certain conditions requiring the use of bottled water, a point-of-entry  
3140 treatment device, or a point-of-use treatment device to avoid an unreasonable risk  
3141 to health, limited as provided in subsections (d) and (e) of this Section.

- 3142  
3143 1) Relief from an MCL. The Board may, when granting any variance or  
3144 adjusted standard from the MCL requirements of Sections 611.301 and  
3145 611.311, impose a condition that requires a supplier to use bottled water, a  
3146 point-of-entry treatment device, a point-of-use treatment device, or other  
3147 means to avoid an unreasonable risk to health.

- 3148  
3149 2) Relief from corrosion control treatment. The Board may, when granting  
3150 an adjusted standard from the corrosion control treatment requirements for  
3151 lead and copper of Sections 611.351 and 611.352, impose a condition that  
3152 requires a supplier to use bottled water, a point-of-use treatment device, or  
3153 other means, but not a point-of-entry treatment device, to avoid an  
3154 unreasonable risk to health.

- 3155  
3156 3) Relief from source water treatment or service line replacement. The  
3157 Board may, when granting an exemption from the source water treatment  
3158 and lead service line replacement requirements for lead and copper under  
3159 Sections 611.353 or 611.354, impose a condition that requires a supplier to  
3160 use a point-of-entry treatment device to avoid an unreasonable risk to  
3161 health.

3162  
3163 BOARD NOTE: Subsection (c) derived from 40 CFR 142.62(f) (~~20112003~~).

- 3164  
3165 d) Use of bottled water. Suppliers that propose to use or use bottled water as a  
3166 condition for receiving a variance or an adjusted standard from the requirements  
3167 of Section 611.301 or Section 611.311 or an adjusted standard from the  
3168 requirements of Sections 611.351 through 611.354 must meet the requirements of  
3169 either subsections (d)(1), (d)(2), (d)(3), and (d)(6) or (d)(4), (d)(5), and (d)(6) of

3170 this Section.

- 3171
- 3172 1) The supplier must develop a monitoring program for Board approval that
- 3173 provides reasonable assurances that the bottled water meets all MCLs of
- 3174 Sections 611.301 and 611.311 and submit a description of this program as
- 3175 part of its petition. The proposed program must describe how the supplier
- 3176 will comply with each requirement of this subsection (d).
- 3177
- 3178 2) The supplier must monitor representative samples of the bottled water for
- 3179 all contaminants regulated under Sections 611.301 and 611.311 during the
- 3180 first three-month period that it supplies the bottled water to the public, and
- 3181 annually thereafter.
- 3182
- 3183 3) The supplier must annually provide the results of the monitoring program
- 3184 to the Agency.
- 3185
- 3186 4) The supplier must receive a certification from the bottled water company
- 3187 as to each of the following:
- 3188
- 3189 A) that the bottled water supplied has been taken from an approved
- 3190 source of bottled water, as such is defined in Section 611.101;
- 3191
- 3192 B) that the approved source of bottled water has conducted
- 3193 monitoring in accordance with 21 CFR 129.80(g)(1) through
- 3194 (g)(3);
- 3195
- 3196 C) and that the bottled water does not exceed any MCLs or quality
- 3197 limits as set out in 21 CFR ~~165.110, 103.35~~, 110, and 129.
- 3198
- 3199 5) The supplier must provide the certification required by subsection (d)(4)
- 3200 of this Section to the Agency during the first quarter after it begins
- 3201 supplying bottled water and annually thereafter.
- 3202
- 3203 6) The supplier must assure the provision of sufficient quantities of bottled
- 3204 water to every affected person supplied by the supplier via door-to-door
- 3205 bottled water delivery.
- 3206

3207 BOARD NOTE: Subsection (d) derived from 40 CFR 142.62(g) (20112003).

3208

- 3209 e) Use of a point-of-entry treatment device. Before the Board grants any PWS a
- 3210 variance or adjusted standard from any NPDWR that includes a condition
- 3211 requiring the use of a point-of-entry treatment device, the supplier must
- 3212 demonstrate to the Board each of the following:

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- 1) That the supplier will operate and maintain the device;
  - 2) That the device provides health protection equivalent to that provided by central treatment;
  - 3) That the supplier will maintain the microbiological safety of the water at all times;
  - 4) That the supplier has established standards for performance, conducted a rigorous engineering design review, and field tested the device;
  - 5) That the operation and maintenance of the device will account for any potential for increased concentrations of heterotrophic bacteria resulting through the use of activated carbon, by backwashing, post-contactor disinfection, and heterotrophic plate count monitoring;
  - 6) That buildings connected to the supplier's distribution system have sufficient devices properly installed, maintained, and monitored to assure that all consumers are protected; and
  - 7) That the use of the device will not cause increased corrosion of lead and copper bearing materials located between the device and the tap that could increase contaminant levels at the tap.

3238 BOARD NOTE: Subsection (e) derived from 40 CFR 142.62(h) (20112003).  
3239

- 3240 f) Relief from the maximum contaminant levels for radionuclides (~~effective~~  
3241 ~~December 8, 2003~~).  
3242  
3243 1) Relief from the maximum contaminant levels for combined radium-226  
3244 and radium-228, uranium, gross alpha particle activity (excluding radon  
3245 and uranium), and beta particle and photon radioactivity.  
3246  
3247 A) Section 611.330(g) sets forth what USEPA has identified as the  
3248 best available technology (BAT), treatment techniques, or other  
3249 means available for achieving compliance with the maximum  
3250 contaminant levels for the radionuclides listed in Section  
3251 611.330(b), (c), (d), and (e), for the purposes of issuing relief  
3252 equivalent to a federal section 1415 variance or a section 1416  
3253 exemption.  
3254  
3255 B) In addition to the technologies listed in Section 611.330(g),



3256 Section 611.330(h) sets forth what USEPA has identified as the  
3257 BAT, treatment techniques, or other means available for achieving  
3258 compliance with the maximum contaminant levels for the  
3259 radionuclides listed in Section 611.330(b), (c), (d), and (e), for the  
3260 purposes of issuing relief equivalent to a federal section 1415  
3261 variance or a section 1416 exemption to small drinking water  
3262 systems, defined here as those serving 10,000 persons or fewer, as  
3263 shown in the second table set forth at Section 611.330(h).  
3264

3265 2) The Board will require a CWS supplier to install and use any treatment  
3266 technology identified in Section 611.330(g), or in the case of small water  
3267 systems (those serving 10,000 persons or fewer), listed in Section  
3268 611.330(h), as a condition for granting relief equivalent to a federal  
3269 section 1415 variance or a section 1416 exemption, except as provided in  
3270 subsection (f) (3) of this Section. If, after the system's installation of the  
3271 treatment technology, the system cannot meet the MCL, that system will  
3272 be eligible for relief.  
3273

3274 3) If a CWS supplier can demonstrate through comprehensive engineering  
3275 assessments, which may include pilot plant studies, that the treatment  
3276 technologies identified in this Section would only achieve a de minimus  
3277 reduction in the contaminant level, the Board may issue a schedule of  
3278 compliance that requires the system being granted relief equivalent to a  
3279 federal section 1415 variance or a section 1416 exemption to examine  
3280 other treatment technologies as a condition of obtaining the relief.  
3281

3282 4) If the Agency determines that a treatment technology identified under  
3283 subsection (f)(3) of this Section is technically feasible, it may request that  
3284 the Board require the supplier to install and use that treatment technology  
3285 in connection with a compliance schedule issued pursuant to Section 36 of  
3286 the Act [415 ILCS 5/36]. The Agency's determination must be based upon  
3287 studies by the system and other relevant information.  
3288

3289 5) The Board may require a CWS to use bottled water, point-of-use devices,  
3290 point-of-entry devices, or other means as a condition of granting relief  
3291 equivalent to a federal section 1415 variance or a section 1416 exemption  
3292 from the requirements of Section 611.330, to avoid an unreasonable risk to  
3293 health.  
3294

3295 6) A CWS supplier that uses bottled water as a condition for receiving relief  
3296 equivalent to a federal section 1415 variance or a section 1416 exemption  
3297 from the requirements of Section 611.330 must meet the requirements  
3298 specified in either subsections (d)(1) through (d)(3) or (d)(4) through

3299 (d)(6) of this Section.

3300  
3301 7) A CWS supplier that uses point-of-use or point-of-entry devices as a  
3302 condition for obtaining relief equivalent to a federal section 1415 variance  
3303 or a section 1416 exemption from the radionuclides NPDWRs must meet  
3304 the conditions in subsections (e)(1) through (e)(6) of this Section.  
3305

3306 BOARD NOTE: Subsection (f) derived from 40 CFR 142.65 (20112003).

3307 (Source: Amended at 36 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)  
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3309  
3310 SUBPART N: INORGANIC MONITORING AND ANALYTICAL REQUIREMENTS  
3311

3312 **Section 611.611 Inorganic Analysis**  
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3314 Analytical methods are from documents incorporated by reference in Section 611.102. These are  
3315 mostly referenced by a short name defined by Section 611.102(a). Other abbreviations are  
3316 defined in Section 611.101.  
3317

3318 a) Analysis for the following contaminants must be conducted using the following  
3319 methods or an alternative method approved pursuant to Section 611.480. Criteria  
3320 for analyzing arsenic, chromium, copper, lead, nickel, selenium, sodium, and  
3321 thallium with digestion or directly without digestion, and other analytical  
3322 procedures, are contained in USEPA Technical Notes, incorporated by reference  
3323 in Section 611.102.  
3324

3325 BOARD NOTE: Because MDLs reported in USEPA Environmental Metals  
3326 Methods 200.7 and 200.9 were determined using a 2× preconcentration step  
3327 during sample digestion, MDLs determined when samples are analyzed by direct  
3328 analysis (i.e., no sample digestion) will be higher. For direct analysis of cadmium  
3329 by USEPA Environmental Metals Method 200.7, sample preconcentration using  
3330 pneumatic nebulization may be required to achieve lower detection limits.  
3331 Preconcentration may also be required for direct analysis of antimony, lead, and  
3332 thallium by USEPA Environmental Metals Method 200.9; antimony and lead by  
3333 Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed., Method 3113 B; and lead by ASTM  
3334 Method D3559-96 D or D3559-03 D unless multiple in-furnace depositions are  
3335 made.  
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3337 1) Alkalinity.

3338 A) Titrimetric.  
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- 3341 i) ~~ASTM Method D1067-92 B<sub>2</sub> or D1067-02 B<sub>2</sub> or D1067-06~~  
3342 ~~B<sub>2</sub> or~~  
3343  
3344 ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 2320  
3345 ~~B<sub>2</sub> or~~  
3346  
3347 iii) Standard Methods Online, Method 3113 B-04.  
3348  
3349 B) Electrometric titration: USGS Methods: Method I-1030-85.  
3350

3351 BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Method 2320  
3352 B as an approved alternative method for alkalinity in appendix A to  
3353 subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).  
3354 USEPA added ASTM Method D1067-06 B and Standard Methods Online,  
3355 Method 3113 B-04 as approved alternative methods for alkalinity in  
3356 appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg.  
3357 37014).  
3358

3359 2) Antimony.  
3360

- 3361 A) Inductively coupled plasma-mass spectrometry: USEPA  
3362 Environmental Metals Methods, Method 200.8 (rev. 5.3).  
3363  
3364 B) Atomic absorption, hydride technique: ASTM Method D3697-92,  
3365 D3697-02, or D3697-07.  
3366  
3367 C) Atomic absorption, platform furnace technique: USEPA  
3368 Environmental Metals Methods, Method 200.9 (rev.2.2).  
3369  
3370 D) Atomic absorption, furnace technique: ~~Standard Methods, 18<sup>th</sup>,~~  
3371 ~~19<sup>th</sup>, or 21<sup>st</sup> ed., Method 3113 B.~~  
3372  
3373 i) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed., Method 3113 B; or  
3374  
3375 ii) Standard Methods Online, Method 3113 B-04.  
3376  
3377 E) Axially viewed inductively coupled plasma-atomic emission  
3378 spectrometry (AVICP-AES): USEPA NERL Method 200.5.  
3379

3380 BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Method  
3381 3113B and USEPA NERL Method 200.5 as approved alternative methods  
3382 for antimony in appendix A to subpart C of 40 CFR 141 on June 3, 2008  
3383 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D3697-07 as an  
3384 approved alternative method for antimony in appendix A to subpart C of

3385 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908. USEPA  
3386 added Standard Methods Online, Method 3113 B-04 as an approved  
3387 alternative method for antimony in appendix A to subpart C of 40 CFR  
3388 141 on June 24, 2011 (at 76 Fed. Reg. 37014).  
3389

3390 3) Arsenic.

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3392 BOARD NOTE: If ultrasonic nebulization is used in the determination of  
3393 arsenic by Method 200.8, the arsenic must be in the pentavalent state to  
3394 provide uniform signal response. For direct analysis of arsenic with  
3395 Method 200.8 using ultrasonic nebulization, samples and standards must  
3396 contain one mg/l of sodium hypochlorite.  
3397

- 3398 A) Inductively coupled plasma-mass spectrometry: USEPA  
3399 Environmental Metals Methods, Method 200.8 (rev. 5.3).  
3400  
3401 B) Atomic absorption, platform furnace technique: USEPA  
3402 Environmental Metals Methods, Method 200.9 (rev. 2.2).  
3403  
3404 C) Atomic absorption, furnace technique.  
3405  
3406 i) ASTM Method D2972-97 C, D2972-03 C, or D2972-08 C;  
3407 ~~or~~  
3408  
3409 ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed., Method 3113 B;  
3410 ~~or~~  
3411  
3412 iii) Standard Methods Online, Method 3113 B-04.  
3413  
3414 D) Atomic absorption, hydride technique.  
3415  
3416 i) ASTM Method D2972-97 B, D2972-03 C, or D2972-08 B;  
3417 ~~or~~  
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3419 ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed., Method 3114 B;  
3420 ~~or~~  
3421  
3422 iii) Standard Methods Online, Method 3114 B-04.  
3423  
3424 E) Axially viewed inductively coupled plasma-atomic emission  
3425 spectrometry (AVICP-AES): USEPA NERL Method 200.5.  
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3427 BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Method 3113  
 3428 B and USEPA NERL Method 200.5 as approved alternative methods for  
 3429 arsenic in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73  
 3430 Fed. Reg. 31616). USEPA added ASTM Methods D2972-08 B and C as  
 3431 approved alternative methods for arsenic in appendix A to subpart C of 40  
 3432 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added  
 3433 Standard Methods Online, Method 3113 B-04 and Method 3114 B-04 as  
 3434 approved alternative methods for arsenic in appendix A to subpart C of 40  
 3435 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).  
 3436

3437 4) Asbestos: Transmission electron microscopy: USEPA Asbestos Method-  
 3438 100.1 or USEPA Asbestos Method-100.2.

3440 5) Barium.

3442 A) Inductively coupled plasma.

3444 i) USEPA Environmental Metals Methods, Method 200.7  
 3445 (rev. 4.4); or

3447 ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 3120  
 3448 B.

3450 B) Inductively coupled plasma-mass spectrometry: USEPA  
 3451 Environmental Metals Methods, Method 200.8 (rev. 5.3).

3453 C) Atomic absorption, direct aspiration technique: Standard Methods,  
 3454 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed., Method 3111 D.

3456 D) Atomic absorption, furnace technique: ~~Standard Methods, 18<sup>th</sup>,~~  
 3457 ~~19<sup>th</sup>, or 21<sup>st</sup> ed., Method 3113 B.~~

3459 i) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed., Method 3113 B; or

3461 ii) Standard Methods Online, Method 3113 B-04.

3463 E) Axially viewed inductively coupled plasma-atomic emission  
 3464 spectrometry (AVICP-AES): USEPA NERL Method 200.5.

3466 BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Methods  
 3467 3111 D, 3113 B, and 3120 B and USEPA NERL Method 200.5 as  
 3468 approved alternative methods for barium in appendix A to subpart C of 40  
 3469 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added

3470 Standard Methods Online, Method 3113 B-04 as an approved alternative  
3471 method for barium in appendix A to subpart C of 40 CFR 141 on June 24,  
3472 2011 (at 76 Fed. Reg. 37014).

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3474 6) Beryllium.

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3476 A) Inductively coupled plasma.

3477  
3478 i) USEPA Environmental Metals Methods, Method 200.7  
3479 (rev. 4.4); or

3480  
3481 ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 3120  
3482 B.

3483  
3484 B) Inductively coupled plasma-mass spectrometry: USEPA  
3485 Environmental Metals Methods, Method 200.8 (rev. 5.3).

3486  
3487 C) Atomic absorption, platform furnace technique: USEPA  
3488 Environmental Metals Methods, Method 200.9 (rev. 2.2).

3489  
3490 D) Atomic absorption, furnace technique.

3491  
3492 i) ASTM Method D3645-97 B or D3645-03 B;~~or~~

3493  
3494 ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed., Method 3113 B;  
3495 or

3496  
3497 iii) Standard Methods Online, Method 3113 B-04.

3498  
3499 E) Axially viewed inductively coupled plasma-atomic emission  
3500 spectrometry (AVICP-AES): USEPA NERL Method 200.5.

3501  
3502 BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Methods  
3503 3113 B and 3120 B and USEPA NERL Method 200.5 as approved  
3504 alternative methods for beryllium in appendix A to subpart C of 40 CFR  
3505 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM  
3506 Method D3645-08 B as an approved alternative method for beryllium in  
3507 appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74  
3508 Fed. Reg. 57908). USEPA added Standard Methods Online, Method 3113  
3509 B-04 as an approved alternative method for beryllium in appendix A to  
3510 subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

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3512 7) Cadmium.

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- A) Inductively coupled plasma arc furnace: USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4).
  - B) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).
  - C) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).
  - D) Atomic absorption, furnace technique: ~~Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed., Method 3113 B.~~
    - i) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed., Method 3113 B; or
    - ii) Standard Methods Online, Method 3113 B-04.
  - E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.
- BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Method 3113 B and USEPA NERL Method 200.5 as approved alternative methods for cadmium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for cadmium in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).
- 8) Calcium.
    - A) EDTA titrimetric.
      - i) ASTM Method D511-93 A, D511-03 A, or D511-09 A; or
      - ii) Standard Methods, 18<sup>th</sup> or 19<sup>th</sup> ed., Method 3500-Ca D or Standard Methods, 20<sup>th</sup> or 21<sup>st</sup> ed., Method 3500-Ca B.
    - B) Atomic absorption, direct aspiration.
      - i) ASTM Method D511-93 B, D511-03 B, or D511-09 B; or
      - ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed., Method 3111 B.
    - C) Inductively coupled plasma.

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- i) USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4); or
  - ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 3120 B.
- D) Ion chromatography: ASTM Method D6919-03 or D6919-09.
  - E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Methods 3111 B, 3120 B, and 3500-Ca B and USEPA NERL Method 200.5 as approved alternative methods for calcium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods D511-09 A and B as approved alternative methods for calcium in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added ASTM Method D6919-09 as an approved alternative method for calcium in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

9) Chromium.

- A) Inductively coupled plasma.
  - i) USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4); or
  - ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 3120 B.
- B) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).
- C) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).
- D) Atomic absorption, furnace technique: ~~Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed., Method 3113 B.~~
  - i) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed., Method 3113 B; or



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ii) Standard Methods Online, Method 3113 B-04.

E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Methods 3113 B and 3120 B and USEPA NERL Method 200.5 as an approved alternative ~~method~~ method for chromium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for chromium in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

10) Copper.

A) Atomic absorption, furnace technique.

i) ASTM Method D1688-95 C, D1688-02 C, or D1688-07 C;  
~~or~~

ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed., Method 3113 B;  
~~or-~~

iii) Standard Methods Online, Method 3113 B-04.

B) Atomic absorption, direct aspiration.

i) ASTM Method D1688-95 A, D1688-02 A, or D1688-07 A; or

ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed., Method 3111 B.

C) Inductively coupled plasma.

i) USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4); or

ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 3120 B.

D) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).

- 3642 E) Atomic absorption, platform furnace technique: USEPA
- 3643 Environmental Metals Methods, Method 200.9 (rev. 2.2).
- 3644
- 3645 F) Axially viewed inductively coupled plasma-atomic emission
- 3646 spectrometry (AVICP-AES), USEPA NERL Method 200.5.
- 3647

3648 BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Methods

3649 3111 B, 3113 B, and 3120 B and USEPA NERL Method 200.5 as an

3650 approved alternative method for copper in appendix A to subpart C of 40

3651 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM

3652 Methods D1688-07 A and C as approved alternative methods for copper in

3653 appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74

3654 Fed. Reg. 57908). USEPA added Standard Methods Online, Method 3113

3655 B-04 as an approved alternative method for copper in appendix A to

3656 subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

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3658 11) Conductivity; Conductance.

3659

- 3660 A) ASTM Method D1125-95(1999) A; or
- 3661
- 3662 B) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 2510 B.
- 3663

3664 BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Method 2510

3665 B as an approved alternative method for conductivity in appendix A to

3666 subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).

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3668 12) Cyanide.

3669

- 3670 A) Manual distillation (ASTM Method D2036-98 A or Standard
- 3671 Methods, 18<sup>th</sup>, 19<sup>th</sup>, or 20<sup>th</sup> ed., Method 4500-CN<sup>-</sup> C), followed by
- 3672 spectrophotometric, amenable.
- 3673
- 3674 i) ASTM Method D2036-98 B or 2036-06 B; or
- 3675
- 3676 ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method
- 3677 4500-CN<sup>-</sup> G.
- 3678
- 3679 B) Manual distillation (ASTM Method D2036-98 A or Standard
- 3680 Methods, 18<sup>th</sup>, 19<sup>th</sup>, or 20<sup>th</sup> ed., Method 4500-CN<sup>-</sup> C), followed
- 3681 by spectrophotometric, manual.
- 3682
- 3683 i) ASTM Method D2036-98 A or D2036-06 A;
- 3684

- 3685 ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method
- 3686 4500-CN E; or
- 3687
- 3688 iii) USGS Methods, Method I-3300-85.
- 3689
- 3690 C) Spectrophotometric, semiautomated: USEPA Environmental
- 3691 Inorganic Methods, Method 335.4 (rev. 1.0).
- 3692
- 3693 D) Selective electrode: Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed.,
- 3694 Method 4500-CN F.
- 3695
- 3696 E) UV/Distillation/Spectrophotometric: Kelada 01.
- 3697
- 3698 F) Microdistillation/Flow Injection/Spectrophotometric:
- 3699 QuickChem 10-204-00-1-X.
- 3700
- 3701 G) Ligand exchange and amperometry.
- 3702
- 3703 i) ASTM Method D6888-03.
- 3704
- 3705 ii) OI Analytical Method OIA-1677 DW.
- 3706
- 3707 H) Gas chromatography-mass spectrometry headspace: Method
- 3708 ME355.01.
- 3709

3710 BOARD NOTE: USEPA added ASTM Method D2036-06 A and

3711 Standard Methods, 21<sup>st</sup> ed., Methods 4500-CN E, F, and G as approved

3712 alternative methods for cyanide in appendix A to subpart C of 40 CFR 141

3713 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Method

3714 ME355.01 as an approved alternative method for cyanide in appendix A to

3715 subpart C of 40 CFR 141 on August 3, 2009 (at 74 Fed. Reg. 38348).

3716

3717 13) Fluoride.

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- 3719 A) Ion Chromatography.
- 3720
- 3721 i) USEPA Environmental Inorganic Methods, Method 300.0
- 3722 (rev. 2.1) or USEPA Organic and Inorganic Methods,
- 3723 Method 300.1 (rev. 1.0);
- 3724
- 3725 ii) ASTM Method D4327-97 or D4327-03; ~~or~~
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- iii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 4110 B; or-
  - iv) Hach SPADNS 2 Method 10225.
  - B) Manual distillation, colorimetric SPADNS: Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 4500-F<sup>-</sup> B and D.
  - C) Manual electrode.
    - i) ASTM Method D1179-93 B, D1179-99 B, or D1179-04 B; or
    - ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 4500-F<sup>-</sup> C.
  - D) Automated electrode: Technicon Methods, Method 380-75WE.
  - E) Automated alizarin.
    - i) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 4500-F<sup>-</sup> E; or
    - ii) Technicon Methods, Method 129-71W.
  - F) Capillary ion electrophoresis: ASTM Method D6508-00(2005).

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BOARD NOTE: On March 12, 2007 (at 72 Fed. Reg. 11200), USEPA amended the entry for fluoride to add capillary ion electrophoresis in the table at corresponding 40 CFR 141.23(k)(1) to allow the use of "Waters Method D6508, Rev. 2." The Board attempt to locate a copy of the method disclosed that it is an ASTM method originally approved in 2000 and reapproved in 2005. The Board has cited to the ASTM Method D6508-00 (2005).

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BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Methods 4110 B and 4500<sup>-</sup> B, C, D, and E and ASTM Method D1179-04 B as approved alternative methods for fluoride in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Hach SPADNS 2 Method 10225 as an approved alternative method for fluoride in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

- 3770 14) Lead.  
 3771  
 3772 A) Atomic absorption, furnace technique.  
 3773  
 3774 i) ASTM Method D3559-96 D, D3559-03 D, or D3559-08; ~~or~~  
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 3776 ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed., Method 3113 B;  
 3777 or;  
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 3779 iii) Standard Methods Online, Method 3113 B-04.  
 3780  
 3781 B) Inductively coupled plasma-mass spectrometry: USEPA  
 3782 Environmental Metals Methods, Method 200.8 (rev. 5.3).  
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 3784 C) Atomic absorption, platform furnace technique: USEPA  
 3785 Environmental Metals Methods, Method 200.9 (rev. 2.2).  
 3786  
 3787 D) Differential Pulse Anodic Stripping Voltammetry: Palintest  
 3788 Method 1001.  
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 3790 E) Axially viewed inductively coupled plasma-atomic emission  
 3791 spectrometry (AVICP-AES): USEPA NERL Method 200.5.  
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3793 BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Method 3113  
 3794 B and USEPA NERL Method 200.5 as approved alternative methods for  
 3795 lead in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73  
 3796 Fed. Reg. 31616). USEPA added ASTM Method D3559-08 D as an  
 3797 approved alternative method for lead in appendix A to subpart C of 40  
 3798 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added  
 3799 Standard Methods Online, Method 3113 B-04 as an approved alternative  
 3800 method for lead in appendix A to subpart C of 40 CFR 141 on June 24,  
 3801 2011 (at 76 Fed. Reg. 37014).  
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- 3803 15) Magnesium.  
 3804  
 3805 A) Atomic absorption.  
 3806  
 3807 i) ASTM Method D511-93 B, D511-03 B, or D511-09 B; or  
 3808  
 3809 ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed., Method 3111 B.  
 3810  
 3811 B) Inductively coupled plasma.  
 3812

- 3813 i) USEPA Environmental Metals Methods, Method 200.7
- 3814 (rev. 4.4); or
- 3815
- 3816 ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 3120
- 3817 B.
- 3818
- 3819 C) Complexation titrimetric.
- 3820
- 3821 i) ASTM Method D511-93 A, D511-03 A, or D511-09 A; or
- 3822
- 3823 ii) Standard Methods, 18<sup>th</sup> or 19<sup>th</sup> ed., Method 3500-Mg E or
- 3824 Standard Methods, 20<sup>th</sup> or 21<sup>st</sup> ed., Method 3500-Mg B.
- 3825
- 3826 D) Ion chromatography: ASTM Method D6919-03 or D6919-09.
- 3827
- 3828 E) Axially viewed inductively coupled plasma-atomic emission
- 3829 spectrometry (AVICP-AES): USEPA NERL Method 200.5.
- 3830

3831 BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Methods  
3832 3111 B, 3120 B, and 3500-Mg B and USEPA NERL Method 200.5 as  
3833 approved alternative methods for magnesium in appendix A to subpart C  
3834 of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added  
3835 ASTM Methods D511-09 A and B as approved alternative methods for  
3836 magnesium in appendix A to subpart C of 40 CFR 141 on November 10,  
3837 2009 (at 74 Fed. Reg. 57908). USEPA added ASTM Method D6919-09  
3838 as an approved alternative method for magnesium in appendix A to  
3839 subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).  
3840

3841 16) Mercury.

- 3842
- 3843 A) Manual cold vapor technique.
- 3844
- 3845 i) USEPA Environmental Metals Methods, Method 245.1
- 3846 (rev. 3.0);
- 3847
- 3848 ii) ASTM Method D3223-97 or D3223-02; or
- 3849
- 3850 iii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed., Method 3112 B.
- 3851
- 3852 B) Automated cold vapor technique: USEPA Inorganic Methods,
- 3853 Method 245.2.
- 3854

3855 C) Inductively coupled plasma-mass spectrometry: USEPA  
3856 Environmental Metals Methods, Method 200.8 (rev. 5.3).

3857  
3858 BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Method 3112  
3859 B as an approved alternative method for mercury in appendix A to subpart  
3860 C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).

3861  
3862 17) Nickel.

3863  
3864 A) Inductively coupled plasma.

3865  
3866 i) USEPA Environmental Metals Methods, Method 200.7  
3867 (rev. 4.4); or

3868  
3869 ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 3120  
3870 B.

3871  
3872 B) Inductively coupled plasma-mass spectrometry: USEPA  
3873 Environmental Metals Methods, Method 200.8 (rev. 5.3).

3874  
3875 C) Atomic absorption, platform furnace technique: USEPA  
3876 Environmental Metals Methods, Method 200.9 (rev. 2.2).

3877  
3878 D) Atomic absorption, direct aspiration technique: Standard Methods,  
3879 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed., Method 3111 B.

3880  
3881 E) Atomic absorption, furnace technique: ~~Standard Methods, 18<sup>th</sup>,~~  
3882 ~~19<sup>th</sup>, or 21<sup>st</sup> ed., Method 3113 B.~~

3883  
3884 i) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed., Method 3113 B; or

3885  
3886 ii) Standard Methods Online, Method 3113 B-04.

3887  
3888 F) Axially viewed inductively coupled plasma-atomic emission  
3889 spectrometry (AVICP-AES): USEPA NERL Method 200.5.

3890  
3891 BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Methods  
3892 3111 B, 3113 B, and 3120 B and USEPA NERL Method 200.5 as  
3893 approved alternative methods for nickel in appendix A to subpart C of 40  
3894 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added  
3895 Standard Methods Online, Method 3113 B-04 as an approved alternative  
3896 method for nickel in appendix A to subpart C of 40 CFR 141 on June 24,  
3897 2011 (at 76 Fed. Reg. 37014).

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- 18) Nitrate.
- A) Ion chromatography.
- i) USEPA Environmental Inorganic Methods, Method 300.0 (rev. 2.1) or USEPA Organic and Inorganic Methods, Method 300.1 (rev. 1.0);
- ii) ASTM Method D4327-97 or D4327-03;
- iii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 4110 B; or
- iv) Waters Test Method B-1011, available from Millipore Corporation.
- B) Automated cadmium reduction.
- i) USEPA Environmental Inorganic Methods, Method 353.2 (rev. 2.0);
- ii) ASTM Method D3867-90 A; or
- iii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 4500-NO<sub>3</sub><sup>-</sup> F.
- C) Ion selective electrode.
- i) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 4500-NO<sub>3</sub><sup>-</sup> D; or
- ii) Technical Bulletin 601.
- D) Manual cadmium reduction.
- i) ASTM Method D3867-90 B; or
- ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 4500-NO<sub>3</sub><sup>-</sup> E.
- E) Capillary ion electrophoresis: ASTM Method D6508-00(2005).



3941 BOARD NOTE: On March 12, 2007 (at 72 Fed. Reg. 11200),  
3942 USEPA amended the entry for nitrate to add capillary ion  
3943 electrophoresis in the table at corresponding 40 CFR 141.23(k)(1)  
3944 to allow the use of "Waters Method D6508, Rev. 2." The Board  
3945 attempt to locate a copy of the method disclosed that it is an  
3946 ASTM method originally approved in 2000 and reapproved in  
3947 2005. The Board has cited to the ASTM Method D6508-00(2005).  
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3949 F) Reduction-colorimetric: Syssta Easy (1-Reagent).  
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3951 G) Direct colorimetric: Hach TNTplus 835/836 Method 10206.  
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3953 BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Methods  
3954 4110 B and 4500-NO<sub>3</sub><sup>-</sup> D, E, and F as approved alternative methods for  
3955 nitrate in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73  
3956 Fed. Reg. 31616). USEPA added Syssta Easy (1-Reagent) as an approved  
3957 alternative method for nitrate in appendix A to subpart C of 40 CFR 141  
3958 on August 3, 2009 (at 73 Fed. Reg. 38348). USEPA added Hach TNTplus  
3959 835/836 Method 10206 as an approved alternative method for nitrate in  
3960 appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg.  
3961 37014).  
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3963 19) Nitrite.  
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3965 A) Ion chromatography.  
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3967 i) USEPA Environmental Inorganic Methods, Method 300.0  
3968 (rev. 2.1) or USEPA Organic and Inorganic Methods,  
3969 Method 300.1 (rev. 1.0);  
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3971 ii) ASTM Method D4327-97 or D4327-03;  
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3973 iii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 4110  
3974 B; or  
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3976 iv) Waters Test Method B-1011, available from Millipore  
3977 Corporation.  
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3979 B) Automated cadmium reduction.  
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3981 i) USEPA Environmental Inorganic Methods, Method 353.2  
3982 (rev. 2.0);  
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- ii) ASTM Method D3867-90 A; or
  - iii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 4500-NO<sub>3</sub><sup>-</sup> F.
- C) Manual cadmium reduction.
- i) ASTM Method D3867-90 B; or
  - ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 4500-NO<sub>3</sub><sup>-</sup> E.
- D) Spectrophotometric: Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 4500-NO<sub>2</sub><sup>-</sup> B.
- E) Capillary ion electrophoresis: ASTM Method D6508-00(2005).
- BOARD NOTE: On March 12, 2007 (at 72 Fed. Reg. 11200), USEPA amended the entry for nitrite to add capillary ion electrophoresis in the table at corresponding 40 CFR 141.23(k)(1) to allow the use of "Waters Method D6508, Rev. 2." The Board attempt to locate a copy of the method disclosed that it is an ASTM method originally approved in 2000 and reapproved in 2005. The Board has cited to the ASTM Method D6508-00(2005).
- F) Reduction-colorimetric: Systeas Easy (1-Reagent).
- BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Methods 4110 B, 4500-NO<sub>3</sub><sup>-</sup> E and F; and 4500-NO<sub>2</sub><sup>-</sup> B as approved alternative methods for nitrite in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Systeas Easy (1-Reagent) as an approved alternative method for nitrite in appendix A to subpart C of 40 CFR 141 on August 3, 2009 (at 73 Fed. Reg. 38348).
- 20) Orthophosphate (unfiltered, without digestion or hydrolysis).
- A) Automated colorimetric, ascorbic acid.
    - i) USEPA Environmental Inorganic Methods, Method 365.1 (rev. 2.0); or
    - ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 4500-P F.

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- B) Single reagent colorimetric, ascorbic acid.
    - i) ASTM Method D515-88 A; or
    - ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 4500-P E.
  - C) Colorimetric, phosphomolybdate: USGS Methods, Method I-1601-85.
  - D) Colorimetric, phosphomolybdate, automated-segmented flow: USGS Methods, Method I-2601-90.
  - E) Colorimetric, phosphomolybdate, automated discrete: USGS Methods, Method I-2598-85.
  - F) Ion Chromatography.
    - i) USEPA Environmental Inorganic Methods: Method 300.0 (rev. 2.1) or USEPA Organic and Inorganic Methods, Method 300.1 (rev. 1.0);
    - ii) ASTM Method D4327-97 or D4327-03; or
    - iii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 4110 B.
  - G) Capillary ion electrophoresis: ASTM Method D6508-00(2005).

BOARD NOTE: On March 12, 2007 (at 72 Fed. Reg. 11200), USEPA amended the entry for orthophosphate to add capillary ion electrophoresis in the table at corresponding 40 CFR 141.23(k)(1) to allow the use of "Waters Method D6508, Rev. 2." The Board attempt to locate a copy of the method disclosed that it is an ASTM method originally approved in 2000 and reapproved in 2005. The Board has cited to the ASTM Method D6508-00(2005).

BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Methods 4110 B, 4500-P E and F as approved alternative methods for orthophosphate in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).

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- 21) pH: electrometric.
- A) USEPA Inorganic Methods, Method 150.1 or Method 150.2;
  - B) ASTM Method D1293-95 or D1293-99; or
  - C) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 4500-H<sup>+</sup> B.
- BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Method 4500-H<sup>+</sup> B as an approved alternative method for pH in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).
- 22) Selenium.
- A) Atomic absorption, hydride.
    - i) ASTM Method D3859-98 A, D3859-03 A, or D3859-08 A;  
~~or~~
    - ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed., Method 3114 B;  
~~or~~
    - iii) Standard Methods Online, Method 3114 B-09.
  - B) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).
  - C) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).
  - D) Atomic absorption, furnace technique.
    - i) ASTM Method D3859-98 B, D3859-03 B, or D3859-08 B;  
~~or~~
    - ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed., Method 3113 B;  
~~or~~
    - iii) Standard Methods Online, Method 3113 B-04.
  - E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

- 4113 BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Methods  
 4114 3113 B and 3114 B and USEPA NERL Method 200.5 as approved  
 4115 alternative methods for selenium in appendix A to subpart C of 40 CFR  
 4116 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM  
 4117 Methods D3859-08 A and B as approved alternative methods for selenium  
 4118 in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74  
 4119 Fed. Reg. 57908). USEPA added Standard Methods Online, Method 3113  
 4120 B-04 and Method 3114 B-09 as approved alternative methods for selenium  
 4121 in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed.  
 4122 Reg. 37014).  
 4123  
 4124 23) Silica.  
 4125  
 4126 A) Colorimetric, molybdate blue: USGS Methods, Method I-1700-  
 4127 85.  
 4128  
 4129 B) Colorimetric, molybdate blue, automated-segmented flow: USGS  
 4130 Methods, Method I-2700-85.  
 4131  
 4132 C) Colorimetric: ASTM Method D859-94, D859-00, or D859-05.  
 4133  
 4134 D) Molybdosilicate: Standard Methods, 18<sup>th</sup> or 19<sup>th</sup> ed., Method  
 4135 4500-Si D or Standard Methods, 20<sup>th</sup> or 21<sup>st</sup> ed., Method 4500-  
 4136 SiO<sub>2</sub> C.  
 4137  
 4138 E) Heteropoly blue: Standard Methods, 18<sup>th</sup> or 19<sup>th</sup> ed., Method  
 4139 4500-Si E or Standard Methods, 20<sup>th</sup> or 21<sup>st</sup> ed., Method 4500-SiO<sub>2</sub>  
 4140 D.  
 4141  
 4142 F) Automated method for molybdate-reactive silica: Standard  
 4143 Methods, 18<sup>th</sup> or 19<sup>th</sup> ed., Method 4500-Si F or Standard Methods,  
 4144 20<sup>th</sup> or 21<sup>st</sup> ed., Method 4500-SiO<sub>2</sub> E.  
 4145  
 4146 G) Inductively coupled plasma.  
 4147  
 4148 i) USEPA Environmental Metals Methods, Method 200.7  
 4149 (rev. 4.4); or  
 4150  
 4151 ii) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 3120  
 4152 B.  
 4153  
 4154 H) Axially viewed inductively coupled plasma-atomic emission  
 4155 spectrometry (AVICP-AES): USEPA NERL Method 200.5.

4156  
 4157 BOARD NOTE: USEPA added ASTM Method D859-05, Standard  
 4158 Methods, 21<sup>st</sup> ed.; Methods 3120 B and 4500-SiO<sub>2</sub> C, D, and E; and  
 4159 USEPA NERL Method 200.5 as approved alternative methods for silica in  
 4160 appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg.  
 4161 31616).  
 4162

24) Sodium.

- 4165 A) Inductively coupled plasma: USEPA Environmental Metals  
 4166 Methods, Method 200.7 (rev. 4.4).
- 4167
- 4168 B) Atomic absorption, direct aspiration: Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>,  
 4169 or 21<sup>st</sup> ed., Method 3111 B.
- 4170
- 4171 C) Ion chromatography: ASTM Method D6919-03 or D6919-09.
- 4172
- 4173 D) Axially viewed inductively coupled plasma-atomic emission  
 4174 spectrometry (AVICP-AES): USEPA NERL Method 200.5.  
 4175

4176 BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Method 3113  
 4177 B and USEPAUSPEA NERL Method 200.5 as approved alternative  
 4178 methods for sodium in appendix A to subpart C of 40 CFR 141 on June 3,  
 4179 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D6919-09  
 4180 as an approved alternative method for sodium in appendix A to subpart C  
 4181 of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).  
 4182

25) Temperature; thermometric: Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed.,  
 4184 Method 2550.

4185  
 4186 BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Method 2550  
 4187 as an approved alternative method for temperature in appendix A to  
 4188 subpart C on June 3, 2008 (at 73 Fed. Reg. 31616).  
 4189

26) Thallium.

- 4192 A) Inductively coupled plasma-mass spectrometry: USEPA  
 4193 Environmental Metals Methods, Method 200.8 (rev. 5.3).  
 4194
- 4195 B) Atomic absorption, platform furnace technique: USEPA  
 4196 Environmental Metals Methods, Method 200.9 (rev. 2.2).  
 4197

4198 b) Sample collection for antimony, arsenic (effective January 22, 2004), asbestos,  
 4199 barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel,  
 4200 nitrate, nitrite, selenium, and thallium pursuant to Sections 611.600 through  
 4201 611.604 must be conducted using the following sample preservation, container,  
 4202 and maximum holding time procedures:  
 4203

4204 BOARD NOTE: For cyanide determinations samples must be adjusted with  
 4205 sodium hydroxide to pH 12 at the time of collection. When chilling is indicated  
 4206 the sample must be shipped and stored at 4° C or less. Acidification of nitrate or  
 4207 metals samples may be with a concentrated acid or a dilute (50% by volume)  
 4208 solution of the applicable concentrated acid. Acidification of samples for metals  
 4209 analysis is encouraged and allowed at the laboratory rather than at the time of  
 4210 sampling provided the shipping time and other instructions in Section 8.3 of  
 4211 USEPA Environmental Metals Method 200.7, 200.8, or 200.9 are followed.  
 4212

- 4213 1) Antimony.
- 4214 A) Preservative: Concentrated nitric acid to pH less than 2.
- 4215 B) Plastic or glass (hard or soft).
- 4216 C) Holding time: Samples must be analyzed as soon after collection
- 4217 as possible, but in any event within six months.
- 4218
- 4219 2) Arsenic.
- 4220 A) Preservative: Concentrated nitric acid to pH less than 2.
- 4221 B) Plastic or glass (hard or soft).
- 4222 C) Holding time: Samples must be analyzed as soon after collection
- 4223 as possible, but in any event within six months.
- 4224
- 4225 3) Asbestos.
- 4226 A) Preservative: Cool to 4° C.
- 4227 B) Plastic or glass (hard or soft).
- 4228 C) Holding time: Samples must be analyzed as soon after collection
- 4229 as possible, but in any event within 48 hours.
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- 4231 4) Barium.
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- A) Preservative: Concentrated nitric acid to pH less than 2.
  - B) Plastic or glass (hard or soft).
  - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within six months.
- 5) Beryllium.
- A) Preservative: Concentrated nitric acid to pH less than 2.
  - B) Plastic or glass (hard or soft).
  - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within six months.
- 6) Cadmium.
- A) Preservative: Concentrated nitric acid to pH less than 2.
  - B) Plastic or glass (hard or soft).
  - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within six months.
- 7) Chromium.
- A) Preservative: Concentrated nitric acid to pH less than 2.
  - B) Plastic or glass (hard or soft).
  - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within six months.
- 8) Cyanide.
- A) Preservative: Cool to 4° C. Add sodium hydroxide to pH greater than 12. See the analytical methods for information on sample preservation.
  - B) Plastic or glass (hard or soft).



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- C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 14 days.
  - 9) Fluoride.
    - A) Preservative: None.
    - B) Plastic or glass (hard or soft).
    - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within one month.
  - 10) Mercury.
    - A) Preservative: Concentrated nitric acid to pH less than 2.
    - B) Plastic or glass (hard or soft).
    - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 28 days.
  - 11) Nickel.
    - A) Preservative: Concentrated nitric acid to pH less than 2.
    - B) Plastic or glass (hard or soft).
    - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within six months.
  - 12) Nitrate, chlorinated.
    - A) Preservative: Cool to 4° C.
    - B) Plastic or glass (hard or soft).
    - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 14 days.
  - 13) Nitrate, non-chlorinated.
    - A) Preservative: Concentrated sulfuric acid to pH less than 2.

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- B) Plastic or glass (hard or soft).
  - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 14 days.
- 14) Nitrite.
- A) Preservative: Cool to 4° C.
  - B) Plastic or glass (hard or soft).
  - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 48 hours.
- 15) Selenium.
- A) Preservative: Concentrated nitric acid to pH less than 2.
  - B) Plastic or glass (hard or soft).
  - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within six months.
- 16) Thallium.
- A) Preservative: Concentrated nitric acid to pH less than 2.
  - B) Plastic or glass (hard or soft).
  - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within six months.
- c) Analyses under this Subpart N must be conducted by laboratories that received approval from USEPA or the Agency. The Agency must certify laboratories to conduct analyses for antimony, arsenic (effective January 23, 2006), asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, nitrate, nitrite, selenium, and thallium if the laboratory does as follows:
- 1) It analyzes performance evaluation (PE) samples, provided by the Agency pursuant to 35 Ill. Adm. Code 186, that include those substances at levels not in excess of levels expected in drinking water; and

- 4369 2) It achieves quantitative results on the analyses within the following
- 4370 acceptance limits:
- 4371
- 4372 A) Antimony:  $\pm 30\%$  at greater than or equal to 0.006 mg/l.
- 4373
- 4374 B) Arsenic:  $\pm 30\%$  at greater than or equal to 0.003 mg/l.
- 4375
- 4376 C) Asbestos: 2 standard deviations based on study statistics.
- 4377
- 4378 D) Barium:  $\pm 15\%$  at greater than or equal to 0.15 mg/l.
- 4379
- 4380 E) Beryllium:  $\pm 15\%$  at greater than or equal to 0.001 mg/l.
- 4381
- 4382 F) Cadmium:  $\pm 20\%$  at greater than or equal to 0.002 mg/l.
- 4383
- 4384 G) Chromium:  $\pm 15\%$  at greater than or equal to 0.01 mg/l.
- 4385
- 4386 H) Cyanide:  $\pm 25\%$  at greater than or equal to 0.1 mg/l.
- 4387
- 4388 I) Fluoride:  $\pm 10\%$  at 1 to 10 mg/l.
- 4389
- 4390 J) Mercury:  $\pm 30\%$  at greater than or equal to 0.0005 mg/l.
- 4391
- 4392 K) Nickel:  $\pm 15\%$  at greater than or equal to 0.01 mg/l.
- 4393
- 4394 L) Nitrate:  $\pm 10\%$  at greater than or equal to 0.4 mg/l.
- 4395
- 4396 M) Nitrite:  $\pm 15\%$  at greater than or equal to 0.4 mg/l.
- 4397
- 4398 N) Selenium:  $\pm 20\%$  at greater than or equal to 0.01 mg/l.
- 4399
- 4400 O) Thallium:  $\pm 30\%$  at greater than or equal to 0.002 mg/l.
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4402 BOARD NOTE: Derived from 40 CFR 141.23(k) and appendix A to 40 CFR 141 (20112010).

4403 (Source: Amended at 36 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

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4406 **Section 611.612 Monitoring Requirements for Old Inorganic MCLs**

- 4407
- 4408 a) Analyses for the purpose of determining compliance with the old inorganic MCLs
- 4409 of Section 611.300 are required as follows:
- 4410
- 4411 1) Analyses for all CWSs utilizing surface water sources must be repeated at

- 4412 yearly intervals.  
 4413  
 4414 2) Analyses for all CWSs utilizing only groundwater sources must be  
 4415 repeated at three-year intervals.  
 4416  
 4417 3) This subsection (a)(3) corresponds with 40 CFR 141.23(1)(3), which  
 4418 requires monitoring for the repealed old MCL for nitrate at a frequency  
 4419 specified by the state. The Board has followed the USEPA lead and  
 4420 repealed that old MCL. This statement maintains structural consistency  
 4421 with USEPA rules.  
 4422  
 4423 4) This subsection (a)(4) corresponds with 40 CFR 141.23(1)(4), which  
 4424 authorizes the state to determine compliance and initiate enforcement  
 4425 action. This statement maintains structural consistency with USEPA  
 4426 rules.  
 4427  
 4428 b) If the result of an analysis made under subsection (a) of this Section indicates that  
 4429 the level of any contaminant listed in Section 611.300 exceeds the old MCL, the  
 4430 supplier must report to the Agency within seven days and initiate three additional  
 4431 analyses at the same sampling point within one month.  
 4432  
 4433 c) When the average of four analyses made pursuant to subsection (b) of this  
 4434 Section, rounded to the same number of significant figures as the old MCL for the  
 4435 substance in question, exceeds the old MCL, the supplier must notify the Agency  
 4436 and give notice to the public pursuant to Subpart V of this Part. Monitoring after  
 4437 public notification must be at a frequency designated by the Agency by a SEP  
 4438 granted pursuant to Section 611.110 and must continue until the old MCL has not  
 4439 been exceeded in two successive samples or until a different monitoring schedule  
 4440 becomes effective as a condition to a variance, an adjusted standard, a site  
 4441 specific rule, an enforcement action, or another SEP granted pursuant to Section  
 4442 611.110.  
 4443  
 4444 d) This subsection (d) corresponds with 40 CFR 141.23(o), which pertains to  
 4445 monitoring for the repealed old MCL for nitrate. This statement maintains  
 4446 structural consistency with USEPA rules.  
 4447  
 4448 e) This subsection (e) corresponds with 40 CFR 141.23(p), which pertains to the use  
 4449 of existing data up until a date long since expired. This statement maintains  
 4450 structural consistency with USEPA rules.  
 4451  
 4452 f) Except for arsenic, for which analyses must be made in accordance with Section  
 4453 611.611, analyses conducted to determine compliance with the old MCLs of  
 4454 Section 611.300 must be made in accordance with the following methods,

incorporated by reference in Section 611.102, or alternative methods approved by the Agency pursuant to Section 611.480.

1) Fluoride: The methods specified in Section 611.611(c) must apply for the purposes of this Section.

2) Iron.

A) Standard Methods.

i) Method 3111 B, 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed.;

ii) Method 3113 B, 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed.;

iii) Method 3120 B, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed.

B) Standard Methods Online, Method 3113 B-04.

CB) USEPA Environmental Metals Methods.

i) Method 200.7 (rev. 4.4); or

ii) Method 200.9 (rev. 2.2).

DE) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added this method as an approved alternative method in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for iron in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed.; Methods 3111 B, 3113 B, and 3120 B and USEPA NERL Method 200.5 as approved alternative methods for iron in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).

3) Manganese.

A) Standard Methods.

i) Method 3111 B, 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed.;

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- ii) Method 3113 B, 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed.; or
- iii) Method 3120 B, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed.

B) Standard Methods Online, Method 3113 B-04.

CB) USEPA Environmental Metals Methods.

- i) Method 200.7 (rev. 4.4);
- ii) Method 200.8 (rev. 5.3); or
- iii) Method 200.9 (rev. 2.2).

DE) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed.; Methods 3111 B, 3113 B, and 3120 B and USEPA NERL Method 200.5 as approved alternative methods for manganese in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for manganese in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

4) Zinc.

A) Standard Methods.

- i) Method 3111 B, 18<sup>th</sup>, 19<sup>th</sup>, or 21<sup>st</sup> ed.; or
- ii) Method 3120 B, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed.

B) USEPA Environmental Metals Methods.

- i) Method 200.7 (rev. 4.4); or
- ii) Method 200.8 (rev. 5.3).

C) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

4541 BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed.; Methods  
4542 3111 B and 3120 B and USEPA NERL Method 200.5 as approved  
4543 alternative methods for zinc in appendix A to subpart C of 40 CFR 141 on  
4544 June 3, 2008 (at 73 Fed. Reg. 31616).  
4545

4546 BOARD NOTE: The provisions of subsections (a) through (e) of this Section derive  
4547 from 40 CFR 141.23(l) through (p) (~~20112010~~). Subsections (f)(2) through (f)(4) of this  
4548 Section relate exclusively to additional State requirements. The Board retained  
4549 subsection (f) of this Section to set forth methods for the inorganic contaminants for  
4550 which there is a State-only MCL. The methods specified are those set forth in 40 CFR  
4551 143.4(b) and appendix A to subpart C of 40 CFR 141 (~~20112010~~), for secondary MCLs.  
4552

4553 (Source: Amended at 36 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)  
4554

4555 SUBPART O: ORGANIC MONITORING AND ANALYTICAL REQUIREMENTS  
4556

4557 **Section 611.645 Analytical Methods for Organic Chemical Contaminants**  
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4559 Analysis for the Section 611.311(a) VOCs under Section 611.646; the Section 611.311(c) SOCs  
4560 under Section 611.648; the Section 611.310 old MCLs under Section 611.641; and for THMs,  
4561 TTHMs, and TTHM potential must be conducted using the methods listed in this Section. ~~All~~  
4562 ~~methods are from USEPA Organic Methods, unless otherwise indicated.~~ All methods are  
4563 incorporated by reference in Section 611.102. Other required analytical test procedures germane  
4564 to the conduct of these analyses are contained in the USEPA document, "Technical Notes of  
4565 Drinking Water Methods," incorporated by reference in Section 611.102.  
4566

4567 a) Volatile Organic Chemical Contaminants (VOCs).  
4568

Contaminant	Analytical Methods
Benzene	<u>USEPA Organic Methods, Methods 502.2 (rev. 2.1) and; 524.2 (rev. 4.1);</u> USEPA OGWDW Methods, Method 524.3 (rev. 1.0)
Carbon tetrachloride	<u>USEPA Organic Methods, Methods 502.2 (rev. 2.1) and; 524.2 (rev. 4.1);</u> USEPA OGWDW Methods, Method 524.3 (rev. 1.0) <u>and; 551.1 (rev. 1.0)</u>
Chlorobenzene	<u>USEPA Organic Methods, Methods 502.2 (rev. 2.1), 524.2 (rev. 4.1);</u> USEPA OGWDW Methods, Method 524.3 (rev. 1.0)
1,2-Dichlorobenzene	<u>USEPA Organic Methods, Methods</u>

1,4-Dichlorobenzene	502.2 (rev. 2.1) <u>and</u> ; 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0) <u>USEPA Organic Methods, Methods 502.2 (rev. 2.1) and; 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0)</u>
1,2-Dichloroethane	<u>USEPA Organic Methods, Methods 502.2 (rev. 2.1) and; 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0)</u>
cis-Dichloroethylene	<u>USEPA Organic Methods, Methods 502.2 (rev. 2.1) and; 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0)</u>
trans-Dichloroethylene	<u>USEPA Organic Methods, Methods 502.2 (rev. 2.1) and; 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0)</u>
Dichloromethane	<u>USEPA Organic Methods, Methods 502.2 (rev. 2.1) and; 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0)</u>
1,2-Dichloropropane	<u>USEPA Organic Methods, Methods 502.2 (rev. 2.1) and; 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0)</u>
Ethylbenzene	<u>USEPA Organic Methods, Methods 502.2 (rev. 2.1) and; 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0)</u>
Styrene	<u>USEPA Organic Methods, Methods 502.2 (rev. 2.1) and; 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0)</u>
Tetrachloroethylene	<u>USEPA Organic Methods, Methods 502.2 (rev. 2.1) and; 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0)and; 551.1 (rev. 1.0)</u>
1,1,1-Trichloroethane	<u>USEPA Organic Methods, Methods 502.2 (rev. 2.1) and; 524.2 (rev. 4.1); USEPA OGWDW Methods,</u>



Trichloroethylene	Method 524.3 (rev. 1.0) <u>and</u> ; 551.1 (rev. 1.0) <u>USEPA Organic Methods, Methods 502.2 (rev. 2.1) and; 524.2 (rev. 4.1);</u> USEPA OGWDW Methods, Method 524.3 (rev. 1.0) <u>and</u> ; 551.1 (rev. 1.0)
Toluene	<u>USEPA Organic Methods, Methods 502.2 (rev. 2.1) and; 524.2 (rev. 4.1);</u> USEPA OGWDW Methods, Method 524.3 (rev. 1.0)
1,2,4-Trichlorobenzene	<u>USEPA Organic Methods, Methods 502.2 (rev. 2.1) and; 524.2 (rev. 4.1);</u> USEPA OGWDW Methods, Method 524.3 (rev. 1.0)
1,1-Dichloroethylene	<u>USEPA Organic Methods, Methods 502.2 (rev. 2.1) and; 524.2 (rev. 4.1);</u> USEPA OGWDW Methods, Method 524.3 (rev. 1.0)
1,1,2-Trichloroethane	<u>USEPA Organic Methods, Methods 502.2 (rev. 2.1) and; 524.2 (rev. 4.1);</u> USEPA OGWDW Methods, Method 524.3 (rev. 1.0)
Vinyl chloride	<u>USEPA Organic Methods, Methods 502.2 (rev. 2.1) and; 524.2 (rev. 4.1);</u> USEPA OGWDW Methods, Method 524.3 (rev. 1.0)
Xylenes (total)	<u>USEPA Organic Methods, Methods 502.2 (rev. 2.1) and; 524.2 (rev. 4.1);</u> USEPA OGWDW Methods, Method 524.3 (rev. 1.0)

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BOARD NOTE: USEPA added USEPA OGWDW Method 524.3 (rev. 1.0) as an alternative method for all of the VOCs in appendix A to subpart C of 40 CFR 141 on August 3, 2009 (at 74 Fed. Reg. 38348).

b) Synthetic Organic Chemical Contaminants (SOCs).

Contaminant	Analytical Methods
2,3,7,8-Tetrachlorodibenzodioxin (2,3,7,8-TCDD or dioxin)	Dioxin and Furan Method 1613 (rev. B)

2,4-D	<p><u>USEPA Organic Methods, Methods 515.2 (rev. 1.1), 555 (rev. 1.0), and 515.1 (rev. 4.0);</u> <u>USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0);</u> <u>USEPA OGWDW Methods, Method 515.4 (rev. 1.0);</u> <u>ASTM Method D5317-93 or D5317-98; Standard Methods, 21<sup>st</sup> ed., Method 6640 B</u></p>
2,4,5-TP (Silvex)	<p><u>USEPA Organic Methods, Methods 515.2 (rev. 1.1), 555 (rev. 1.0), and 515.1 (rev. 4.0);</u> <u>USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0);</u> <u>USEPA OGWDW Methods, Method 515.4 (rev. 1.0);</u> <u>ASTM Method D5317-93 or D5317-98; Standard Methods, 21<sup>st</sup> ed., Method 6640 B</u></p>
Alachlor	<p><u>USEPA Organic Methods, Methods 505 (rev. 2.1)<sup>1</sup>, 507 (rev. 2.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0)</u></p>
Atrazine	<p><u>USEPA Organic Methods, Methods 505 (rev. 2.1)<sup>1</sup>, 507 (rev. 2.1), 508.1 (rev. 2.1), 525.2 (rev. 2.0), and 551.1 (rev. 1.0);</u> <u>Syngenta AG-625<sup>2</sup></u></p>
Benzo(a)pyrene	<p><u>USEPA Organic Methods, Methods 525.2 (rev. 2.0), 550, and 550.1</u></p>
Carbofuran	<p><u>USEPA Organic Methods, Methods 531.1 (rev. 3.1);</u> <u>USEPA OGWDW Methods, Method 531.2 (rev. 1.0);</u> <u>Standard Methods, 18<sup>th</sup> ed. Supplement, 19<sup>th</sup> ed., or 20<sup>th</sup> ed., Method 6610;</u> <del>Standard Methods, 21<sup>st</sup> ed., Method 6610 B;</del> <del>Standard Methods Online, Method 6610 B-04</del></p>
Chlordane	<p><u>USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.1), and 525.2 (rev. 2.0)</u></p>

Dalapon	<u>USEPA Organic Methods, Methods 515.1 (rev. 4.0), 552.1 (rev. 1.0), and 552.2 (rev. 1.0);</u> <u>USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0);</u> <u>USEPA OGWDW Methods, Methods 515.4 (rev. 1.0), 552.3 (rev. 1.0), and 557;</u> <del>and</del> <u>Standard Methods, 21<sup>st</sup> ed., Method 6640 B</u>
Di(2-ethylhexyl)adipate	<u>USEPA Organic Methods, Methods 506 (rev. 1.1) and; 525.2 (rev. 2.0)</u>
Di(2-ethylhexyl)phthalate	<u>USEPA Organic Methods, Method 506 (rev. 1.1) and; 525.2 (rev. 2.0)</u>
Dibromochloropropane (DBCP)	<u>USEPA Organic Methods, Methods 504.1 (rev. 1.1), USEPA OGWDW Methods, Method 524.3 (rev. 1.0) and; 551.1 (rev. 1.0)</u>
Dinoseb	<u>USEPA Organic Methods, Methods 515.1 (rev. 4.0) and; 515.2 (rev. 1.1);</u> <u>USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0);</u> <u>USEPA OGWDW Methods, MethodsMethod 515.4 (rev. 1.0) and; 555 (rev. 1.0);</u> <u>Standard Methods, 21<sup>st</sup> ed., Method 6640 B</u>
Diquat	<u>USEPA NERL Method 549.2 (rev. 1.0)</u>
Endothall	<u>USEPA Organic Methods, Method 548.1 (rev. 2.0)</u>
Endrin	<u>USEPA Organic Methods, Method 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0)</u>
Ethylene dibromide (EDB)	<u>USEPA Organic Methods, Methods 504.1 (rev. 1.1);</u> <u>USEPA OGWDW Methods, MethodsMethod 524.3 (rev. 1.0) and; 551.1 (rev.1.0)</u>
Glyphosate	<u>USEPA Organic Methods, Method 547;</u> <u>Standard Methods, 18<sup>th</sup> ed., 19<sup>th</sup> ed., <del>or</del> 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 6651 B</u>

Heptachlor	<u>USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0)</u>
Heptachlor Epoxide	<u>USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev.1.0)</u>
Hexachlorobenzene	<u>USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0)</u>
Hexachlorocyclopentadiene	<u>USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0)</u>
Lindane	<u>USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0)</u>
Methoxychlor	<u>USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0)</u>
Oxamyl	<u>USEPA Organic Methods, Method 531.1 (rev. 3.1); USEPA OGWDW Methods, Method 531.2 (rev. 1.0); Standard Methods, 18<sup>th</sup> ed. Supplement, 19<sup>th</sup> ed., or 20<sup>th</sup> ed. Method 6610; Standard Methods, 21<sup>st</sup> ed., Method 6610 B; <del>or</del> Standard Methods Online, Method 6610 B-04</u>
PCBs (measured for compliance purposes as decachlorobiphenyl)	<u>USEPA Organic Methods, Method 508A (rev. 1.0)</u>
PCBs (qualitatively identified as Aroclors)	<u>USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), and 525.2 (rev. 2.0)</u>

Pentachlorophenol	<u>USEPA Organic Methods, Methods 515.1 (rev. 4.0), 515.2 (rev. 1.1), 525.2 (rev. 2.0), and 555 (rev. 1.0);</u> USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0); USEPA OGWDW Methods, Method 515.4 (rev. 1.0); ASTM Method D5317-93 or D5317-98 (2003); <u>Standard Methods, 21<sup>st</sup> ed., Method 6640 B</u>
Picloram	<u>USEPA Organic Methods, Methods 515.1 (rev. 4.0), 515.2, (rev. 1.1) and 555 (rev. 1.0);</u> USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0); USEPA OGWDW Methods, Method 515.4 (rev. 1.0); ASTM Method D5317-93 or D5317-98 (2003); <u>Standard Methods, 21<sup>st</sup> ed., Method 6640 B</u>
Simazine	<u>USEPA Organic Methods, Methods 505 (rev. 2.1)<sup>1</sup>, 507 (rev. 2.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0)</u>
Toxaphene	<u>USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 2.1), 508.1 (rev. 2.0), and 525.2 (rev. 2.0)</u>

4576  
4577 BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Method 6610 B and  
4578 Standard Methods Online, Method 6610 B-04 as approved alternative methods for  
4579 carbofuran and oxamyl on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added USEPA  
4580 OGWDW Method 524.3 (rev. 1.0) as an alternative method for dibromochloropropane  
4581 and ethylene dibromide in appendix A to subpart C of 40 CFR 141 on August 3, 2009 (at  
4582 74 Fed. Reg. 38348). USEPA approved Standard Methods, 21<sup>st</sup> ed., Method 6640 B and  
4583 Standard Methods Online, Method 6640 B-01 and USEPA OGWDW Methods, Method  
4584 557 as approved alternative methods for dalapon in appendix A to subpart C of 40 CFR  
4585 141 on June 8, 2010 (at 75 Fed. Reg. 32295). USEPA added Standard Methods, 21<sup>st</sup> ed.,  
4586 Method 6640 B as an approved alternative method for 2,4-D, 2,4,5-TP (Silvex), dinoseb,  
4587 pentachlorophenol, and picloram in appendix A to subpart C of 40 CFR 141 on June 24,  
4588 2011 (at 76 Fed. Reg. 37014). USEPA added Standard Methods Online, Method 6640 B-  
4589 01 as an approved alternative method for 2,4-D, 2,4,5-TP (Silvex), dalapon, dinoseb,  
4590 pentachlorophenol, and picloram and in appendix A to subpart C of 40 CFR 141 on June  
4591 24, 2011 (at 76 Fed. Reg. 37014). Since the version of Method 6640-B that appears in  
4592 Standard Methods Online is the same as that which appears in Standard Methods, 21<sup>st</sup>

4593 ed., the Board has cited only to Standard Methods, 21<sup>st</sup> ed. USEPA added Standard  
 4594 Methods, 21<sup>st</sup> ed., Method 6651 B as an approved alternative method for glyphosate in  
 4595 appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).  
 4596 USEPA added Standard Methods Online, Method 6651 B-00 as an approved alternative  
 4597 method for glyphosate in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76  
 4598 Fed. Reg. 37014). Since the version of Method 6651 B that appears in Standard Methods  
 4599 Online is the same as that which appears in Standard Methods, 21<sup>st</sup> ed., the Board has  
 4600 cited only to Standard Methods, 21<sup>st</sup> ed.

4601 c) Total Trihalomethanes (TTHMs).

Contaminant	Analytical Methods
Total Trihalomethanes (TTHMs), Trihalomethanes (THMs), and Maximum Total Trihalomethane Potential	<u>USEPA Organic Methods, Methods 502.2 (rev. 2.1) and, 524.2 (rev. 4.1);</u> USEPA OGWDW Methods, <del>Methods</del> Method 524.3 (rev. 1.0) <u>and, 551.1 (rev. 1.0)</u>

4604 BOARD NOTE: USEPA added USEPA OGWDW Method 524.3 (rev. 1.0) as an  
 4605 alternative method for total trihalomethane in appendix A to subpart C of 40 CFR  
 4606 141 on August 3, 2009 (at 74 Fed. Reg. 38348).

4607 d) State-Only MCLs (for which a method is not listed in subsections (a) through  
 4608 (c)above).

Contaminant	Analytical Methods
Aldrin	<u>USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), and 525.2 (rev. 2.0)</u>
DDT	<u>USEPA Organic Methods, Methods 505 (rev. 2.1) and, 508 (rev. 3.1)</u>
Dieldrin	<u>USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), and 525.2 (rev. 2.0)</u>

4612 e) The following footnotes are appended to method entries in subsections (a) and (b)  
 4613 of this Section:

4614 <sup>1</sup> denotes that, for the particular contaminant, a nitrogen-phosphorus detector should be  
 4615 substituted for the electron capture detector in method 505 (or another approved  
 4616  
 4617

4618 method should be used) to determine alachlor, atrazine, and simazine if lower detection  
4619 limits are required.

4620  
4621 <sup>2</sup> denotes that Syngenta Method AG-625 may not be used for the analysis of atrazine in  
4622 any system where chlorine dioxide is used for drinking water treatment. In samples  
4623 from all other systems, any result for atrazine generated by Syngenta Method AG-625  
4624 that is greater than one-half the maximum contaminant level (MCL) (in other words,  
4625 greater than 0.0015mg/l or 1.5 µg/l) must be confirmed using another approved  
4626 method for this contaminant and should use additional volume of the original sample  
4627 collected for compliance monitoring. In instances where a result from Syngenta  
4628 Method AG-625 triggers such confirmatory testing, the confirmatory result is to be  
4629 used to determine compliance.

4630  
4631 BOARD NOTE: Derived from 40 CFR 141.24(e) and appendix A to subpart C of 40  
4632 CFR 141-(2011)(2010), as amended at 74 Fed. Reg. 38348 (August 3, 2009) and 75 Fed.  
4633 Reg. 32295 (June 8, 2010).

4634 (Source: Amended at 36 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

4635  
4636 SUBPART P: THM MONITORING AND ANALYTICAL REQUIREMENTS

4637  
4638 **Section 611.680 Sampling, Analytical, and other Requirements (Repealed)**

- 4639  
4640 a) Required monitoring.
- 4641  
4642 1) ~~A CWS supplier that serves a population of 10,000 or more individuals~~  
4643 ~~and which adds a disinfectant (oxidant) to the water in any part of the~~  
4644 ~~drinking water treatment process must analyze for TTHMs in accordance~~  
4645 ~~with this Subpart P.~~
  - 4646  
4647 2) ~~For the purpose of this Subpart P, the minimum number of samples~~  
4648 ~~required to be taken by the supplier must be based on the number of~~  
4649 ~~treatment plants used by the supplier. However, the Agency shall, by a~~  
4650 ~~SEP issued pursuant to Section 611.110, provide that multiple wells~~  
4651 ~~drawing raw water from a single aquifer be considered one treatment plant~~  
4652 ~~for determining the minimum number of samples.~~
  - 4653  
4654 3) ~~All samples taken within an established frequency must be collected~~  
4655 ~~within a 24-hour period.~~
- 4656  
4657 b) ~~A CWS supplier that serves 10,000 or more individuals.~~
- 4658  
4659 1) ~~For a CWS supplier utilizing surface a water source in whole or in part,~~
- 4660

and for a CWS supplier utilizing only a groundwater source, except as provided in Section 611.683, analyses for TTHMs must be performed at quarterly intervals on at least four water samples for each treatment plant used by the system. At least 25 percent of the samples must be taken at locations within the distribution system reflecting the maximum residence time (MRT) of the water in the system. The remaining 75 percent must be taken at representative locations in the distribution system, taking into account the number of persons served, different sources of water and different treatment methods employed. The results of all analyses per quarter must be arithmetically averaged and reported to the Agency within 30 days after the supplier's receipt of such results. All samples collected must be used in the computation of the average, unless the analytical results are invalidated for technical reasons. Sampling and analyses must be conducted in accordance with the methods listed in Section 611.685.

2) Upon application by a CWS supplier, the Agency must, by a SEP issued pursuant to Section 611.110, reduce the monitoring frequency required by subsection (b)(1) to a minimum of one sample analyzed for TTHMs per quarter taken at a point in the distribution system reflecting the MRT of the water in the system, if the Agency determines that the data from at least one year of monitoring in accordance with subsection (b)(1) and local conditions demonstrate that TTHM concentrations will be consistently below the MCL.

3) If at any time during which the reduced monitoring frequency prescribed under this subsection (b) applies, the results from any analysis exceed 0.10 mg/l TTHMs and such results are confirmed by at least one check sample taken promptly after such results are received, or if the CWS supplier makes any significant change to its source of water or treatment program, the supplier must immediately begin monitoring in accordance with the requirements of subsection (b)(1), which monitoring must continue for at least one year before the frequency may be reduced again. The Agency must, by a SEP issued pursuant to Section 611.110, require monitoring in excess of the minimum frequency where it is necessary to detect variations of TTHM levels within the distribution system.

BOARD NOTE: Subsections (a) and (b) of this Section are derived from 40 CFR 141.30(a) and (b) (2010), modified to remove the limitation regarding addition of disinfectant.

e) Surface water sources for a CWS supplier that serves fewer than 10,000 individuals. Suppliers must have submitted at least one initial sample per treatment plant for analysis or analytical results from a certified laboratory for



4704 ~~MRT concentration taken between May 1, 1990, and October 31, 1990. After~~  
4705 ~~written request by the supplier and the determination by the Agency that the~~  
4706 ~~results of the sample indicate that the CWS supplier is not likely to exceed the~~  
4707 ~~MCL, the CWS must continue to submit one annual sample per treatment plant~~  
4708 ~~for analysis or analytical results from a certified laboratory to the Agency taken~~  
4709 ~~between May 1 and October 31 of succeeding years. If the sample exceeds the~~  
4710 ~~MCL, the CWS must submit to the Agency samples in accordance with the~~  
4711 ~~sampling frequency specified in subsection (b) of this Section.~~

4712  
4713 ~~BOARD NOTE: This is an additional State requirement.~~

- 4714  
4715 d) ~~Groundwater sources for a CWS supplier that serves fewer than 10,000~~  
4716 ~~individuals. Suppliers are not required to submit samples for THM analysis under~~  
4717 ~~this Subpart P.~~

4718  
4719 ~~BOARD NOTE: This is an additional State requirement.~~

4720  
4721 (Source: Repealed at 36 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

4722  
4723 **SUBPART Q: RADIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS**

4724  
4725 **Section 611.720 Analytical Methods**

- 4726  
4727 a) The methods specified below, or alternative methods approved by the Agency  
4728 pursuant to Section 611.480, incorporated by reference in Section 611.102, are to  
4729 be used to determine compliance with Section 611.330, except in cases where  
4730 alternative methods have been approved in accordance with Section 611.480.

- 4731  
4732 1) Gross Alpha and Beta.

- 4733  
4734 A) Standard Methods.

- 4735  
4736 i) Method 302, 13<sup>th</sup> ed.; or

- 4737  
4738 ii) Method 7110 B, 17<sup>th</sup>, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed.;

- 4739  
4740 B) USEPA Interim Radiochemical Methods: pages 1-3;

- 4741  
4742 C) USEPA Radioactivity Methods, Method 900.0;

- 4743  
4744 D) USEPA Radiochemical Analyses: pages 1-5;

- 4745  
4746 E) USEPA Radiochemistry Procedures, Method 00-01; or

- 4747  
4748 F) USGS Methods, Method R-1120-76.  
4749  
4750 BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Method 7110  
4751 B as an approved alternative method for gross alpha and beta in appendix  
4752 A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).  
4753  
4754 2) Gross Alpha.  
4755  
4756 A) Standard Methods, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 7110 C; or  
4757  
4758 B) USEPA Radiochemistry Procedures, Method 00-02.  
4759  
4760 BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Method 7110  
4761 C as an approved alternative method for gross alpha in appendix A to  
4762 subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).  
4763  
4764 3) Radium-226.  
4765  
4766 A) ASTM Methods.  
4767  
4768 i) Method D2460-97 or D2460-07; or  
4769  
4770 ii) Method D3454-97 or D3454-05;  
4771  
4772 B) New York Radium Method;  
4773  
4774 C) Standard Methods.  
4775  
4776 i) Method 304, 13<sup>th</sup> ed.;  
4777  
4778 ii) Method 305, 13<sup>th</sup> ed.;  
4779  
4780 iii) Method 7500-Ra B, 17<sup>th</sup>, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed.; or  
4781  
4782 iv) Method 7500-Ra C, 17<sup>th</sup>, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed.;  
4783  
4784 D) EML Procedures Manual (27<sup>th</sup> or 28<sup>th</sup> ed.), Method Ra-04;  
4785  
4786 E) USEPA Interim Radiochemical Methods: pages 13-15 or 16-23;  
4787  
4788 F) USEPA Radioactivity Methods, Methods 903.0, 903.1;  
4789

- 4790 G) USEPA Radiochemical Analyses, pages 19-32;
- 4791
- 4792 H) USEPA Radiochemistry Procedures, Method Ra-03 or Ra-04; or
- 4793
- 4794 I) USGS Methods.
- 4795
- 4796 i) Method R-1140-76; or
- 4797
- 4798 ii) Method R-1141-76.
- 4799
- 4800 J) Georgia Radium Method.
- 4801

4802 BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Methods  
4803 7500-Ra B and C as approved alternative methods for radium-226 in  
4804 appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg.  
4805 31616). USEPA added ASTM Methods D2460-07 and D3454-05 as  
4806 approved alternative methods for radium-226 in appendix A to subpart C  
4807 of 40 CFR 141 on June 8, 2010 (at 75 Fed. Reg. 32295).

- 4808
- 4809 4) Radium-228.
- 4810
- 4811 A) Standard Methods, 17<sup>th</sup>, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 7500-
- 4812 Ra D;
- 4813
- 4814 B) New York Radium Method;
- 4815
- 4816 C) USEPA Interim Radiochemical Methods, pages 24-28;
- 4817
- 4818 D) USEPA Radioactivity Methods, Method 904.0;
- 4819
- 4820 E) USEPA Radiochemical Analyses, pages 19-32;
- 4821
- 4822 F) USEPA Radiochemistry Procedures, Method Ra-05;
- 4823
- 4824 G) USGS Methods, Method R-1142-76;
- 4825
- 4826 H) New Jersey Radium Method; or
- 4827
- 4828 I) Georgia Radium Method.
- 4829

4830 BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Method  
4831 7500-Ra D as an approved alternative method for radium-228 in appendix  
4832 A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).

- 4833  
 4834 5) Uranium.  
 4835  
 4836 A) Standard Methods, 17<sup>th</sup>, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed., Method 7500-U  
 4837 C;  
 4838  
 4839 B) Standard Methods, 20<sup>th</sup> ed., Method 3125;  
 4840  
 4841 C) ASTM Methods.  
 4842  
 4843 i) Method D2907-97;  
 4844  
 4845 ii) Method D3972-97 or D3972-02;  
 4846  
 4847 iii) Method D5174-97, D5174-02, ~~or~~ D5174-07, or D3972-09;  
 4848 or  
 4849  
 4850 iv) Method D5673-03 or Method 5673-05;  
 4851  
 4852 D) USEPA Radioactivity Methods, Methods 908.0, 908.1;  
 4853  
 4854 E) USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3);  
 4855  
 4856 F) USEPA Radiochemical Analyses, pages 33-48;  
 4857  
 4858 G) USEPA Radiochemistry Procedures, Method 00-07;  
 4859  
 4860 H) EML Procedures Manual (27<sup>th</sup> or 28<sup>th</sup> ed.), Method U-02 or U-04;  
 4861 or  
 4862  
 4863 I) USGS Methods.  
 4864  
 4865 i) Method R-1180-76;  
 4866  
 4867 ii) Method R-1181-76; or  
 4868  
 4869 iii) Method R-1182-76.  
 4870

4871 BOARD NOTE: If uranium (U) is determined by mass, a conversion  
 4872 factor of 0.67 pCi/μg of uranium must be used. This conversion factor is  
 4873 based on the 1:1 activity ratio of <sup>234</sup>U and <sup>238</sup>U that is characteristic of  
 4874 naturally occurring uranium.  
 4875

4876 BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Method  
4877 7500-U C and ASTM D5673-05 as approved alternative methods for  
4878 uranium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73  
4879 Fed. Reg. 31616). USEPA added ASTM Method D5174-07 as an  
4880 approved alternative method for uranium in appendix A to subpart C of 40  
4881 CFR 141 on June 8, 2010 (at 75 Fed. Reg. 32295). USEPA added ASTM  
4882 Method D3972-09 as an approved alternative method for uranium in  
4883 appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg.  
4884 37014).

- 4885
- 4886 6) Radioactive Cesium.
- 4887
- 4888 A) ASTM Methods.
- 4889
- 4890 i) Method D2459-72; or
- 4891
- 4892 ii) Method D3649-91, D3649-98a, or D3649-06;
- 4893
- 4894 B) Standard Methods.
- 4895
- 4896 i) Method 7120, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed.; or
- 4897
- 4898 ii) Method 7500-Cs B, 17<sup>th</sup>, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed.;
- 4899
- 4900 C) EML Procedures Manual (27<sup>th</sup> or 28<sup>th</sup> ed.), Method 4.5.2.3;
- 4901
- 4902 D) USEPA Interim Radiochemical Methods, pages 4-5;
- 4903
- 4904 E) USEPA Radioactivity Methods, Methods 901.0, 901.1;
- 4905
- 4906 F) USEPA Radiochemical Analyses, pages 92-95; or
- 4907
- 4908 G) USGS Methods.
- 4909
- 4910 i) Method R-1110-76; or
- 4911
- 4912 ii) Method R-1111-76.

4913

4914 BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Methods  
4915 7120 and 7500-Cs B as approved alternative methods for radioactive  
4916 cesium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73  
4917 Fed. Reg. 31616). USEPA added ASTM Method D3649-06 as an  
4918 approved alternative method for radioactive cesium in appendix A to  
4919 subpart C of 40 CFR 141 on June 8, 2010 (at 75 Fed. Reg. 32295).

- 4920  
 4921 7) Radioactive Iodine.  
 4922  
 4923 A) ASTM Methods.  
 4924  
 4925 i) D3649-91, D3649-98a, or D3649-06; or  
 4926  
 4927 ii) D4785-93, D4785-98, or D4785-08;  
 4928  
 4929 B) Standard Methods.  
 4930  
 4931 i) Method 7120, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed.;  
 4932  
 4933 ii) Method 7500-I B, 17<sup>th</sup>, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed.;  
 4934  
 4935 iii) Method 7500-I C, 17<sup>th</sup>, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed.; or  
 4936  
 4937 iv) Method 7500-I D, 17<sup>th</sup>, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed.;  
 4938  
 4939 C) EML Procedures Manual (27<sup>th</sup> or 28<sup>th</sup> ed.), Method 4.5.2.3;  
 4940  
 4941 D) USEPA Interim Radiochemical Methods, pages 6-8 or 9-12;  
 4942  
 4943 E) USEPA Radiochemical Analyses, pages 92-95; or  
 4944  
 4945 F) USEPA Radioactivity Methods, Methods 901.1 or 902.0.  
 4946

4947 BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Methods  
 4948 7120 and 7500-I B, C, and D as approved alternative methods for  
 4949 radioactive iodine in appendix A to subpart C of 40 CFR 141 on June 3,  
 4950 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods D3649-06  
 4951 and D4785-08 as approved alternative methods for radioactive iodine in  
 4952 appendix A to subpart C of 40 CFR 141 on June 8, 2010 (at 75 Fed. Reg.  
 4953 32295).  
 4954

- 4955 8) Radioactive Strontium-89 & 90.  
 4956  
 4957 A) Standard Methods.  
 4958  
 4959 i) Method 303, 13<sup>th</sup> ed.; or  
 4960  
 4961 ii) Method 7500-Sr B, 17<sup>th</sup>, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed.;  
 4962

- 4963 B) EML Procedures Manual (27<sup>th</sup> or 28<sup>th</sup> ed.), Method Sr-01 or Sr-02.
- 4964
- 4965 C) USEPA Interim Radiochemical Methods, pages 29-33;
- 4966
- 4967 D) USEPA Radioactivity Methods, Method 905.0;
- 4968
- 4969 E) USEPA Radiochemical Analyses, pages 65-73;
- 4970
- 4971 F) USEPA Radiochemistry Procedures, Method Sr-04; or
- 4972
- 4973 G) USGS Methods, Method R-1160-76.
- 4974

BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Method 7500-Sr B as an approved alternative method for radioactive strontium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).

9) Tritium.

- 4981 A) ASTM Methods: Method D4107-91, D4107-98, or D4107-08;
- 4982
- 4983 B) Standard Methods.
- 4984
  - 4985 i) Method 306, 13<sup>th</sup> ed.; or
  - 4986
  - 4987 ii) Method 7500-<sup>3</sup>H B, 17<sup>th</sup>, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed.;
  - 4988
- 4989 C) USEPA Interim Radiochemical Methods, pages 34-37;
- 4990
- 4991 D) USEPA Radioactivity Methods, Method 906.0;
- 4992
- 4993 E) USEPA Radiochemical Analyses, pages 87-91;
- 4994
- 4995 F) USEPA Radiochemistry Procedures, Method H-02; or
- 4996
- 4997 G) USGS Methods, Method R-1171-76.
- 4998

BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Method 7500-<sup>3</sup>H B as an approved alternative method for tritium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D4107-08 as an approved alternative method for tritium in appendix A to subpart C of 40 CFR 141 on June 8, 2010 (at 75 Fed. Reg. 32295).

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- 10) Gamma Emitters.
  - A) ASTM Methods.
    - i) Method D3649-91, D3649-98a, or D3649-06; or
    - ii) Method D4785-93, D4785-00a, or D4785-08;
  - B) Standard Methods.
    - i) Method 7120, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed.;
    - ii) Method 7500-Cs B, 17<sup>th</sup>, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed.; or
    - iii) Method 7500-I B, 17<sup>th</sup>, 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup>, or 21<sup>st</sup> ed.;
  - C) EML Procedures Manual (27<sup>th</sup> or 28<sup>th</sup> ed.), Method Ga-01-R;
  - D) USEPA Radioactivity Methods, Methods 901.0, 901.1, or 902.0;
  - E) USEPA Radiochemical Analyses, pages 92-95; or
  - F) USGS Methods, Method R-1110-76.

BOARD NOTE: USEPA added Standard Methods, 21<sup>st</sup> ed., Methods 7120, 7500-Cs B, and 7500-I B as approved alternative methods for gamma emitters in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods D3649-08 and D4785-08 as approved alternative methods for tritium in appendix A to subpart C of 40 CFR 141 on June 8, 2010 (at 75 Fed. Reg. 32295).

- b) When the identification and measurement of radionuclides other than those listed in subsection (a) of this Section are required, the following methods, incorporated by reference in Section 611.102, are to be used, except in cases where alternative methods have been approved in accordance with Section 611.480:
  - 1) "Procedures for Radiochemical Analysis of Nuclear Reactor Aqueous Solutions," available from NTIS.
  - 2) EML Procedures Manual (27<sup>th</sup> or 28<sup>th</sup> ed.), available from USDOE, EML.



5048 c) For the purpose of monitoring radioactivity concentrations in drinking water, the  
 5049 required sensitivity of the radioanalysis is defined in terms of a detection limit.  
 5050 The detection limit must be that concentration which can be counted with a  
 5051 precision of plus or minus 100 percent at the 95 percent confidence level ( $1.96\sigma$ ,  
 5052 where  $\sigma$  is the standard deviation of the net counting rate of the sample).  
 5053

5054 1) To determine compliance with Section 611.330(b), (c), and (e), the  
 5055 detection limit must not exceed the concentrations set forth in the  
 5056 following table:  
 5057

Contaminant	Detection Limit
Gross alpha particle activity	3 pCi/ℓ
Radium-226	1 pCi/ℓ
Radium-228	1 pCi/ℓ
Uranium	1 µg/ℓ

5058 BOARD NOTE: Derived from 40 CFR 141.25(c) Table B (20112009).  
 5059  
 5060

5061 2) To determine compliance with Section 611.330(d), the detection limits  
 5062 must not exceed the concentrations listed in the following table:  
 5063

Radionuclide	Detection Limit
Tritium	1,000 pCi/ℓ
Strontium-89	10 pCi/ℓ
Strontium-90	2 pCi/ℓ
Iodine-131	1 pCi/ℓ
Cesium-134	10 pCi/ℓ
Gross beta	4 pCi/ℓ
Other radionuclides	1/10 of applicable limit

5064 BOARD NOTE: Derived from 40 CFR 141.25(c) Table C (20112009).  
 5065  
 5066

5067 d) To judge compliance with the MCLs listed in Section 611.330, averages of data  
 5068 must be used and must be rounded to the same number of significant figures as  
 5069 the MCL for the substance in question.  
 5070

5071 BOARD NOTE: Derived from 40 CFR 141.25 and appendix A to subpart C of 40 CFR  
 5072 141 (20112010).  
 5073

5074 (Source: Amended at 36 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

5075 **Section 611.APPENDIX F Mandatory Lead Public Education Information for Non-**  
 5076 **Transient Non-Community Water Systems**

5077  
 5078 1) INTRODUCTION

5079  
 5080 The United States Environmental Protection Agency (USEPA) and (insert name of water  
 5081 supplier) are concerned about lead in your drinking water. Some drinking water samples taken  
 5082 from this facility have lead levels above the USEPA action level of 15 parts per billion (ppb), or  
 5083 0.015 milligrams of lead per liter of water (mg/l). Under Federal law we are required to have a  
 5084 program in place to minimize lead in your drinking water by (insert date when corrosion control  
 5085 will be completed for your system). This program includes corrosion control treatment, source  
 5086 water treatment, and public education. We are also required to replace the portion of each lead  
 5087 service line that we own if the line contributes lead concentrations of more than 15 ppb after we  
 5088 have completed the comprehensive treatment program. If you have any questions about how we  
 5089 are carrying out the requirements of the lead regulation please give us a call at (insert water  
 5090 system's phone number). This brochure explains the simple steps you can take to protect you  
 5091 and your family by reducing your exposure to lead in drinking water.

5092  
 5093 2) HEALTH EFFECTS OF LEAD

5094  
 5095 Lead is found throughout the environment in lead-based paint; air; soil; household dust; food;  
 5096 certain types of pottery, porcelain, and pewter; and water. Lead can pose a significant risk to  
 5097 your health if too much of it enters your body. Lead builds up in the body over many years and  
 5098 can cause damage to the brain, red blood cells, and kidneys. The greatest risk is to young  
 5099 children and pregnant women. Amounts of lead that won't hurt adults can slow down normal  
 5100 mental and physical development of growing bodies. In addition, a child at play often comes  
 5101 into contact with sources of lead contamination – like dirt and dust – that rarely affect an adult.  
 5102 It is important to wash children's hands and toys often, and to try to make sure they only put food  
 5103 in their mouths.

5104  
 5105 3) LEAD IN DRINKING WATER

5106  
 5107 A) Lead in drinking water, although rarely the sole cause of lead poisoning, can  
 5108 significantly increase a person's total lead exposure, particularly the exposure of  
 5109 infants who drink baby formulas and concentrated juices that are mixed with  
 5110 water. The EPA estimates that drinking water can make up 20 percent or more of  
 5111 a person's total exposure to lead.

5112  
 5113 B) Lead is unusual among drinking water contaminants in that it seldom occurs  
 5114 naturally in water supplies like rivers and lakes. Lead enters drinking water  
 5115 primarily as a result of the corrosion, or wearing away, of materials containing  
 5116 lead in the water distribution system and household plumbing. These materials  
 5117 include lead-based solder used to join copper pipe, brass, and chrome plated brass

5118 faucets, and in some cases, pipes made of lead that connect houses and buildings  
5119 to the water main (service lines). In 1986, Congress banned the use of lead solder  
5120 containing greater than 0.2% lead, and restricted the lead content of faucets, pipes,  
5121 and other plumbing materials to 8.0%.

5122 C) When water stands in lead pipes or plumbing systems containing lead for several  
5123 hours or more, the lead may dissolve into your drinking water. This means the  
5124 first water drawn from the tap in the morning, or later in the afternoon after  
5125 returning from work or school, can contain fairly high levels of lead.  
5126

5127 4) STEPS YOU CAN TAKE TO REDUCE EXPOSURE TO LEAD IN DRINKING  
5128 WATER  
5129

5130 A) Let the water run from the tap before using it for drinking or cooking any time the  
5131 water in a faucet has gone unused for more than six hours. The longer water  
5132 resides in plumbing the more lead it may contain. Flushing the tap means running  
5133 the cold water faucet until the water gets noticeably colder, usually about 15-30  
5134 seconds. Although toilet flushing or showering flushes water through a portion of  
5135 the plumbing system, you still need to flush the water in each faucet before using  
5136 it for drinking or cooking. Flushing tap water is a simple and inexpensive  
5137 measure you can take to protect your family's health. It usually uses less than one  
5138 gallon.  
5139

5140 B) Do not cook with or drink water from the hot water tap. Hot water can dissolve  
5141 more lead more quickly than cold water. If you need hot water, draw water from  
5142 the cold tap and heat it.  
5143

5144 C) The steps described above will reduce the lead concentrations in your drinking  
5145 water. However, if you are still concerned, you may wish to use bottled water for  
5146 drinking and cooking.  
5147

5148 D) You can consult a variety of sources for additional information. Your family  
5149 doctor or pediatrician can perform a blood test for lead and provide you with  
5150 information about the health effects of lead. State and local government agencies  
5151 that can be contacted include the following:  
5152

5153 i) (Insert the name or title of facility official if appropriate) at (insert phone  
5154 number) can provide you with information about your facility's water  
5155 supply; and  
5156

5157 ii) The Illinois Department of Public Health at 217-782-4977 or 312-814-  
5158 2608 or the (insert the name of the city or county health department) at  
5159 (insert phone number) can provide you with information about the health  
5160 effects of lead.

5161  
5162 BOARD NOTE: Derived from 40 CFR 141.85(a)(2) (~~20112002~~). The Department of Public  
5163 Health (Department) regulates non-community water supplies, including non-transient, non-  
5164 community water supplies. The Department has incorporated this Part into its regulations at 77  
5165 Ill. Adm. Code 900.15(a)(2)(A) and 900.20(k)(2). Thus, the Board has included the notice  
5166 language of 40 CFR 141.85(a)(2) ~~in~~ this Section for the purposes of facilitating federal review  
5167 and authorization of the Illinois drinking water regulations.

5168  
5169 (Source: Amended at 36 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

TITLE 35: ENVIRONMENTAL PROTECTION  
SUBTITLE F: PUBLIC WATER SUPPLIES  
CHAPTER I: POLLUTION CONTROL BOARD

PART 611  
PRIMARY DRINKING WATER STANDARDS

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611.100	Purpose, Scope, and Applicability
611.101	Definitions
611.102	Incorporations by Reference
611.103	Severability
611.105	Electronic Reporting
611.107	Agency Inspection of PWS Facilities
611.108	Delegation to Local Government
611.109	Enforcement
611.110	Special Exception Permits
611.111	Relief Equivalent to SDWA Section 1415(a) Variances
611.112	Relief Equivalent to SDWA Section 1416 Exemptions
611.113	Alternative Treatment Techniques
611.114	Siting Requirements
611.115	Source Water Quantity
611.120	Effective Dates
611.121	Maximum Contaminant Levels and Finished Water Quality
611.125	Fluoridation Requirement
611.126	Prohibition on Use of Lead
611.130	Special Requirements for Certain Variances and Adjusted Standards
611.131	Relief Equivalent to SDWA Section 1415(e) Small System Variance
611.160	Composite Correction Program
611.161	Case-by-Case Reduced Subpart Y Monitoring for Wholesale and Consecutive Systems

SUBPART B: FILTRATION AND DISINFECTION

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611.201	Requiring a Demonstration
611.202	Procedures for Agency Determinations
611.211	Filtration Required
611.212	Groundwater under Direct Influence of Surface Water
611.213	No Method of HPC Analysis
611.220	General Requirements
611.230	Filtration Effective Dates
611.231	Source Water Quality Conditions
611.232	Site-Specific Conditions
611.233	Treatment Technique Violations
611.240	Disinfection
611.241	Unfiltered PWSs
611.242	Filtered PWSs
611.250	Filtration
611.261	Unfiltered PWSs: Reporting and Recordkeeping
611.262	Filtered PWSs: Reporting and Recordkeeping
611.271	Protection during Repair Work
611.272	Disinfection Following Repair
611.276	Recycle Provisions

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SUBPART C: USE OF NON-CENTRALIZED TREATMENT DEVICES

Section

- 611.280 Point-of-Entry Devices
- 611.290 Use of Point-of-Use Devices or Bottled Water

SUBPART D: TREATMENT TECHNIQUES

Section

- 611.295 General Requirements
- 611.296 Acrylamide and Epichlorohydrin
- 611.297 Corrosion Control

SUBPART F: MAXIMUM CONTAMINANT LEVELS (MCLs) AND  
MAXIMUM RESIDUAL DISINFECTANT LEVELS (MRDLs)

Section

- 611.300 Old MCLs for Inorganic Chemical Contaminants
- 611.301 Revised MCLs for Inorganic Chemical Contaminants
- 611.310 State-Only Maximum Contaminant Levels (MCLs) for Organic Chemical Contaminants
- 611.311 Revised MCLs for Organic Chemical Contaminants
- 611.312 Maximum Contaminant Levels (MCLs) for Disinfection Byproducts (DBPs)
- 611.313 Maximum Residual Disinfectant Levels (MRDLs)
- 611.320 Turbidity (Repealed)
- 611.325 Microbiological Contaminants
- 611.330 Maximum Contaminant Levels for Radionuclides
- 611.331 Beta Particle and Photon Radioactivity (Repealed)

SUBPART G: LEAD AND COPPER

Section

- 611.350 General Requirements
- 611.351 Applicability of Corrosion Control
- 611.352 Corrosion Control Treatment
- 611.353 Source Water Treatment
- 611.354 Lead Service Line Replacement
- 611.355 Public Education and Supplemental Monitoring
- 611.356 Tap Water Monitoring for Lead and Copper
- 611.357 Monitoring for Water Quality Parameters
- 611.358 Monitoring for Lead and Copper in Source Water
- 611.359 Analytical Methods
- 611.360 Reporting
- 611.361 Recordkeeping

SUBPART I: DISINFECTANT RESIDUALS, DISINFECTION BYPRODUCTS,  
AND DISINFECTION BYPRODUCT PRECURSORS

Section

- 611.380 General Requirements
- 611.381 Analytical Requirements
- 611.382 Monitoring Requirements
- 611.383 Compliance Requirements
- 611.384 Reporting and Recordkeeping Requirements
- 611.385 Treatment Technique for Control of Disinfection Byproduct (DBP) Precursors

SUBPART K: GENERAL MONITORING AND ANALYTICAL REQUIREMENTS

Section

611.480 Alternative Analytical Techniques  
611.490 Certified Laboratories  
611.491 Laboratory Testing Equipment  
611.500 Consecutive PWSs  
611.510 Special Monitoring for Unregulated Contaminants (Repealed)

SUBPART L: MICROBIOLOGICAL MONITORING  
AND ANALYTICAL REQUIREMENTS

Section

611.521 Routine Coliform Monitoring  
611.522 Repeat Coliform Monitoring  
611.523 Invalidation of Total Coliform Samples  
611.524 Sanitary Surveys  
611.525 Fecal Coliform and E. Coli Testing  
611.526 Analytical Methodology  
611.527 Response to Violation  
611.531 Analytical Requirements  
611.532 Unfiltered PWSs  
611.533 Filtered PWSs

SUBPART M: TURBIDITY MONITORING AND ANALYTICAL REQUIREMENTS

Section

611.560 Turbidity

SUBPART N: INORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

Section

611.591 Violation of a State MCL  
611.592 Frequency of State Monitoring  
611.600 Applicability  
611.601 Monitoring Frequency  
611.602 Asbestos Monitoring Frequency  
611.603 Inorganic Monitoring Frequency  
611.604 Nitrate Monitoring  
611.605 Nitrite Monitoring  
611.606 Confirmation Samples  
611.607 More Frequent Monitoring and Confirmation Sampling  
611.608 Additional Optional Monitoring  
611.609 Determining Compliance  
611.610 Inorganic Monitoring Times  
611.611 Inorganic Analysis  
611.612 Monitoring Requirements for Old Inorganic MCLs  
611.630 Special Monitoring for Sodium  
611.631 Special Monitoring for Inorganic Chemicals (Repealed)

SUBPART O: ORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

Section

611.640 Definitions  
611.641 Old MCLs  
611.645 Analytical Methods for Organic Chemical Contaminants  
611.646 Phase I, Phase II, and Phase V Volatile Organic Contaminants

611.647 Sampling for Phase I Volatile Organic Contaminants (Repealed)  
611.648 Phase II, Phase IIB, and Phase V Synthetic Organic Contaminants  
611.650 Monitoring for 36 Contaminants (Repealed)  
611.657 Analytical Methods for 36 Contaminants (Repealed)  
611.658 Special Monitoring for Organic Chemicals (Repealed)

SUBPART P: THM MONITORING AND ANALYTICAL REQUIREMENTS

Section

611.680 Sampling, Analytical, and other Requirements (Repealed)  
611.683 Reduced Monitoring Frequency (Repealed)  
611.684 Averaging (Repealed)  
611.685 Analytical Methods  
611.686 Modification to System (Repealed)  
611.687 Sampling for THM Potential (Repealed)  
611.688 Applicability Dates (Repealed)

SUBPART Q: RADIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

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611.720 Analytical Methods  
611.731 Gross Alpha  
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611.733 General Monitoring and Compliance Requirements

SUBPART R: ENHANCED FILTRATION AND DISINFECTION:  
SYSTEMS THAT SERVE 10,000 OR MORE PEOPLE

Section

611.740 General Requirements  
611.741 Standards for Avoiding Filtration  
611.742 Disinfection Profiling and Benchmarking  
611.743 Filtration  
611.744 Filtration Sampling Requirements  
611.745 Reporting and Recordkeeping Requirements

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611.800 General Requirements and Applicability  
611.801 Sanitary Surveys for GWS Suppliers  
611.802 Groundwater Source Microbial Monitoring and Analytical Methods  
611.803 Treatment Technique Requirements for GWS Suppliers  
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SUBPART T: REPORTING AND RECORDKEEPING

Section

611.830 Applicability  
611.831 Monthly Operating Report  
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611.833 Cross Connection Reporting  
611.840 Reporting  
611.851 Reporting MCL, MRDL, and other Violations (Repealed)  
611.852 Reporting other Violations (Repealed)  
611.853 Notice to New Billing Units (Repealed)  
611.854 General Content of Public Notice (Repealed)



611.855 Mandatory Health Effects Language (Repealed)  
611.856 Fluoride Notice (Repealed)  
611.858 Fluoride Secondary Standard (Repealed)  
611.860 Record Maintenance  
611.870 List of 36 Contaminants (Repealed)

SUBPART U: CONSUMER CONFIDENCE REPORTS

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611.883 Content of the Reports  
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SUBPART V: PUBLIC NOTIFICATION OF DRINKING WATER VIOLATIONS

Section

611.901 General Public Notification Requirements  
611.902 Tier 1 Public Notice: Form, Manner, and Frequency of Notice  
611.903 Tier 2 Public Notice: Form, Manner, and Frequency of Notice  
611.904 Tier 3 Public Notice: Form, Manner, and Frequency of Notice  
611.905 Content of the Public Notice  
611.906 Notice to New Billing Units or New Customers  
611.907 Special Notice of the Availability of Unregulated Contaminant  
Monitoring Results  
611.908 Special Notice for Exceedence of the Fluoride Secondary Standard  
611.909 Special Notice for Nitrate Exceedences above the MCL by a Non-  
Community Water System  
611.910 Notice by the Agency on Behalf of a PWS  
611.911 Special Notice for Cryptosporidium

SUBPART W: INITIAL DISTRIBUTION SYSTEM EVALUATIONS

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611.920 General Requirements  
611.921 Standard Monitoring  
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611.924 Very Small System Waivers  
611.925 Subpart Y Compliance Monitoring Location Recommendations

SUBPART X: ENHANCED FILTRATION AND DISINFECTION -  
SYSTEMS SERVING FEWER THAN 10,000 PEOPLE

Section

611.950 General Requirements  
611.951 Finished Water Reservoirs  
611.952 Additional Watershed Control Requirements for Unfiltered Systems  
611.953 Disinfection Profile  
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611.955 Combined Filter Effluent Turbidity Limits  
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SUBPART Y: STAGE 2 DISINFECTION BYPRODUCTS REQUIREMENTS

Section

- 611.970 General Requirements
- 611.971 Routine Monitoring
- 611.972 Subpart Y Monitoring Plan
- 611.973 Reduced Monitoring
- 611.974 Additional Requirements for Consecutive Systems
- 611.975 Conditions Requiring Increased Monitoring
- 611.976 Operational Evaluation Levels
- 611.977 Requirements for Remaining on Reduced TTHM and HAA5 Monitoring Based on Subpart I Results
- 611.978 Requirements for Remaining on Increased TTHM and HAA5 Monitoring Based on Subpart I Results
- 611.979 Reporting and Recordkeeping Requirements

SUBPART Z: ENHANCED TREATMENT FOR CRYPTOSPORIDIUM

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AUTHORITY: Implementing Sections 7.2, 17, and 17.5 and authorized by Section 27 of the Environmental Protection Act [415 ILCS 5/7.2, 17, 17.5, and 27].

SOURCE: Adopted in R88-26 at 14 Ill. Reg. 16517, effective September 20, 1990; amended in R90-21 at 14 Ill. Reg. 20448, effective December 11, 1990; amended in R90-13 at 15 Ill. Reg. 1562, effective January 22, 1991; amended in R91-3 at 16 Ill. Reg. 19010, effective December 1, 1992; amended in R92-3 at 17 Ill. Reg. 7796, effective May 18, 1993; amended in R93-1 at 17 Ill. Reg. 12650, effective July 23, 1993; amended in R94-4 at 18 Ill. Reg. 12291, effective July 28, 1994; amended in R94-23 at 19 Ill. Reg. 8613, effective June 20, 1995; amended in R95-17 at 20 Ill. Reg. 14493, effective October 22, 1996; amended in R98-2 at 22 Ill. Reg. 5020, effective March 5, 1998; amended in R99-6 at 23 Ill. Reg. 2756, effective February 17, 1999; amended in R99-12 at 23 Ill. Reg. 10348, effective August 11, 1999; amended in R00-8 at 23 Ill. Reg. 14715, effective December 8, 1999; amended in R00-10 at 24 Ill. Reg. 14226, effective September 11, 2000; amended in R01-7 at 25 Ill. Reg. 1329, effective January 11, 2001; amended in R01-20 at 25 Ill. Reg. 13611, effective October 9, 2001; amended in R02-5 at 26 Ill. Reg. 3522, effective February 22, 2002; amended in R03-4 at 27 Ill. Reg. 1183, effective January 10, 2003; amended in R03-15 at 27 Ill. Reg. 16447, effective October 10, 2003; amended in R04-3 at 28 Ill. Reg. 5269, effective March 10, 2004; amended in R04-13 at 28 Ill. Reg. 12666, effective August 26, 2004; amended in R05-6 at 29 Ill. Reg. 2287, effective January 28, 2005; amended in R06-15 at 30 Ill. Reg. 17004, effective October 13, 2006; amended in R07-2/R07-11 at 31 Ill. Reg. 11757, effective July 27, 2007; amended in R08-7/R08-13 at 33 Ill. Reg. 633, effective ~~December 30, 2008~~ January 2, 2009; amended in R10-1/R10-17/R11-6 at 34 Ill. Reg. 19848, effective December 7, 2010; amended in R12-4 at 36 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_.

SUBPART A: GENERAL

Section 611.102 Incorporations by Reference

a) Abbreviations and short-name listing of references. The following names and abbreviated names, presented in alphabetical order, are used in this Part to refer to materials incorporated by reference:

"AMI Turbiwell Method" means "Continuous Measurement of Turbidity Using a SWAN AMI Turbiwell Turbidimeter," available from NEMI or from SWAN Analytische Instrumente AG.

"ASTM Method" means a method published by and available from the American Society for Testing and Materials (ASTM).

"Colisure Test" means "Colisure Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia Coli in Drinking Water," available from Millipore Corporation, Technical Services Department.

"Colitagâ Test" means "Colitagâ Product as a Test for Detection and Identification of Coliforms and E. coli Bacteria in Drinking Water and Source Water as Required in National Primary Drinking Water Regulations," available from CPI International.

"Chromocult(r) Method" means "Chromocult(r) Coliform Agar Presence/Absence Membrane Filter Test Method for Detection and Identification of Coliform Bacteria and Escherichia coli in Finished Waters," available from EMD Chemicals Inc.

"Determination of Inorganic Oxyhalide" means "Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography with the Addition of a Postcolumn Reagent for Trace Bromate Analysis," available from NTIS.

"Dioxin and Furan Method 1613" means "Tetra- through Octa- Chlorinated Dioxins and Furans by Isotope-Dilution HRGC/HRMS," available from NTIS.

"E\*Colite Test" means "Charm E\*Colite Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia coli in Drinking Water," available from Charm Sciences, Inc. and USEPA, Water Resource Center.

"EC-MUG" means "Method 9221 F: Multiple-Tube Fermentation Technique for Members of the Coliform Group, Escherichia coli Procedure (Proposed)," available from American Public Health Association and American Waterworks Association.

"EML Procedures Manual" means "EML Procedures Manual, HASL 300," available from USDOE, EML.

"Enterolert" means "Evaluation of Enterolert for Enumeration of Enterococci in Recreational Waters," available from American Society for Microbiology.

"Georgia Radium Method" means "The Determination of Radium-226 and Radium-228 in Drinking Water by Gamma-ray Spectrometry Using HPGE or Ge(Li) Detectors," Revision 1.2, December 2004, available from the Georgia Tech Research Institute.

"GLI Method 2" means GLI Method 2, "Turbidity," Nov. 2, 1992, available from Great Lakes Instruments, Inc.

"Guidance Manual for Filtration and Disinfection" means "Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems using Surface Water Sources," March 1991, available from USEPA, NSCEP.

"Hach FilterTrak Method 10133" means "Determination of Turbidity by Laser Nephelometry," available from Hach Co.

"Hach SPDANS 2 Method 10225" means "Hach Company SPADNS 2 (Arsenic-free) Fluoride Method 10225 - Spectrophotometric Measurement of Fluoride in Water and Wastewater," available from [the](#) Hach Co.

"Hach TNTplus 835/836 Method ~~10206~~, 10206" means "Hach Company TNTplus 835/836 Nitrate Method 10206-~~Spectrophotometric~~ - Spectrophotometric Measurement of Nitrate in Water and Wastewater," available from the Hach Co.

"ITS Method D99-003" means Method D99-003, Revision 3.0, "Free Chlorine Species (HOCl- and OCl-) by Test Strip," available from Industrial Test Systems, Inc.

"Kelada 01" means "Kelada Automated Test Methods for Total Cyanide, Acid Dissociable Cyanide, And Thiocyanate," Revision 1.2, available from NTIS.

"m-ColiBlue24 Test" means "Total Coliforms and E. coli Membrane Filtration Method with m-ColiBlue24(r) Broth," available from USEPA, Water Resource Center and Hach Company.

"Method ME355.01" means "Determination of Cyanide in Drinking Water by GC/MS Headspace Analysis," available from NEMI or from H&E Testing Laboratory.

"Mitchell Method M5271" means "Determination of Turbidity by Laser Nephelometry," available from NEMI and Leck Mitchell, PhD.

"Mitchell Method M5331" means "Determination of Turbidity by LED Nephelometry," available from NEMI and Leck Mitchell, PhD.

"Modified Colitag(tm) Method" means "Modified Colitag(tm) Test Method for Simultaneous Detection of E. coli and other Total Coliforms in Water," available from NEMI and CPI International.

"NA-MUG" means "Method 9222 G: Membrane Filter Technique for Members of the Coliform Group, MF Partition Procedures," available from American Public Health Association and American Waterworks Association.

"NCRP Report Number 22" means "Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and in Water for Occupational Exposure," available from NCRP.

"New Jersey Radium Method" means "Determination of Radium 228 in Drinking Water," available from the New Jersey Department of Environmental Protection.

"New York Radium Method" means "Determination of Ra-226 and Ra-228 (Ra-02)," available from the New York Department of Public Health.

"OI Analytical Method OIA-1677" means "Method OIA-1677, DW Available Cyanide by Flow Injection, Ligand Exchange, and Amperometry," available from ALPKEM, Division of OI Analytical.

"ONPG-MUG Test" (meaning "minimal medium ortho-nitrophenyl-beta-d-galactopyranoside-4-methyl-umbelliferyl -beta-d-glucuronide test"), also called the "Autoanalysis Colilert System," is Method 9223, available in "Standard Methods for the Examination of Water and Wastewater," 18th, 19th, 20th, or 21st ed., from American Public Health Association and the American Water Works Association.

"Orion Method AQ4500" means "Determination of Turbidity by LED Nephelometry," available from Thermo Scientific.

"Palintest ChloroSense" means "Measurement of Free and Total Chlorine in Drinking Water by Palintest ChloroSense," available from NEMI or Palintest Ltd.

"Palintest Method 1001" means "Method Number 1001," available from Palintest, Ltd. or the Hach Company.

"QuikChem Method 10-204-00-1-X" means "Digestion and distillation of total cyanide in drinking and wastewaters using MICRO DIST and determination of cyanide by flow injection analysis," available from Lachat Instruments.

"Readycult(r) 2000" means "Readycult Coliforms 100 Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia coli in Finished Waters," v. 1.0, available from EMD Chemicals Inc.

"Readycult(r) 2007" means "Readycult(r) Coliforms 100 Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia coli in Finished Waters," v. 1.1, available from EMD Chemicals Inc.

"SimPlate Method" means "IDEXX SimPlate TM HPC Test Method for Heterotrophs in Water," available from IDEXX Laboratories, Inc.

~~"Systema Easy (1-Reagent)" means "Systema Easy (1-Reagent) Nitrate Method," available from NEMI or Systema Scientific LLC.~~

"Standard Methods" means "Standard Methods for the Examination of Water and Wastewater," available from the American Public Health Association or the American Waterworks Association.

"Standard Methods Online" means the website maintained by the Standard Methods Organization (at [www.standardmethods.org](http://www.standardmethods.org)) for purchase of the latest versions of methods in an electronic format.

"Syngenta AG-625" means "Atrazine in Drinking Water by Immunoassay," February 2001 is available from Syngenta Crop Protection, Inc.

"Systema Easy (1-Reagent)" means "Systema Easy (1-Reagent) Nitrate Method," available from NEMI or Systema Scientific LLC.

"Technical Bulletin 601" means "Technical Bulletin 601, Standard Method of Testing for Nitrate in Drinking Water," July 1994, available from Analytical Technology, Inc.

"Technicon Methods" means "Fluoride in Water and Wastewater," available from Bran & Luebbe.

"USEPA Asbestos Method 100.1" means Method 100.1, "Analytical Method for Determination of Asbestos Fibers in Water," September 1983, available from NTIS.

"USEPA Asbestos Method 100.2" means Method 100.2, "Determination of Asbestos Structures over 10-mm in Length in Drinking Water," June 1994, available from NTIS.

"USEPA Environmental Inorganic Methods" means "Methods for the Determination of Inorganic Substances in Environmental Samples," August 1993, available from NTIS.

"USEPA Environmental Metals Methods" means "Methods for the Determination of Metals in Environmental Samples," available from NTIS.

"USEPA Inorganic Methods" means "Methods for Chemical Analysis of Water and Wastes," March 1983, available from NTIS.

"USEPA Interim Radiochemical Methods" means "Interim Radiochemical Methodology for Drinking Water," EPA 600/4-75/008 (revised), March 1976. Available from NTIS.

"USEPA Method 1600" means "Method 1600: Enterococci in Water by Membrane Filtration Using Membrane-Enterococcus Indoxyl-b-D-Glucoside Agar (mEI)," available from USEPA, Water Resource Center.

"USEPA Method 1601" means "Method 1601: Male-specific (F+) and Somatic Coliphage in Water by Two-step Enrichment Procedure," available from USEPA, Water Resource Center.

"USEPA Method 1602" means "Method 1602: Male-specific (F+) and Somatic Coliphage in Water by Single Agar Layer (SAL) Procedure," available from USEPA, Water Resource Center.

"USEPA Method 1604" means "Method 1604: Total Coliforms and Escherichia coli in Water by Membrane Filtration Using a Simultaneous Detection Technique (MI Medium)," available from USEPA, Water Resource Center.

"USEPA NERL Method 200.5 (rev. 4.2)" means Method 200.5, Revision 4.2, "Determination of Trace Elements in Drinking Water by Axially Viewed Inductively Coupled Plasma - Atomic Emission Spectrometry," October 2003, EPA 600/R-06/115. Available from USEPA, Office of Research and Development.

"USEPA NERL Method 415.3 (rev. 1.1)" means Method 415.3, Revision 1.1, "Determination of Total Organic Carbon and Specific UV Absorbance at 254 nm in Source Water and Drinking Water," USEPA, February 2005, EPA 600/R-05/055. Available from USEPA, Office of Research and Development.

"USEPA NERL Method 415.3 (rev. 1.2)" means Method 415.3, Revision 1.2, "Determination of Total Organic Carbon and Specific UV Absorbance at 254 nm in Source Water and Drinking Water," USEPA, August 2009, EPA 600/R-09/122. Available from USEPA, Office of Research and Development.

"USEPA NERL Method 549.2" means Method 549.2, Revision 1.0, "Determination of Diquat and Paraquat in Drinking Water by Liquid-Solid Extraction and High Performance Liquid Chromatography with Ultraviolet Detection," June 1997. Available from USEPA, Office of Research and Development.

"USEPA OGWDW Methods" means the methods listed as available from the USEPA, Office of Ground Water and Drinking Water (Methods 302.0, 317.0 (rev. 2.0),



326.0 (rev. 1.0), 327.0 (rev. 1.1), 334.0, 515.4 (rev. 1.0), 524.3 (rev. 1.0), 531.2 (rev. 1.0), 552.3 (rev. 1.0), 557, 1622 (99), 1622 (01), 1622 (05), 1623 (99), 1623 (01), and 1623 (05)). Available from NTIS; USEPA, NSCEP; or USEPA, OGWDW.

"USEPA Organic Methods" means "Methods for the Determination of Organic Compounds in Drinking Water," December 1988 (revised July 1991) (Methods 508A (rev. 1.0) and 515.1 (rev. 4.0)); "Methods for the Determination of Organic Compounds in Drinking Water - Supplement I," July 1990 (Methods 547, 550, and 550.1); "Methods for the Determination of Organic Compounds in Drinking Water - Supplement II," August 1992 (Methods 548.1 (rev. 1.0), 552.1 (rev. 1.0), and 555 (rev. 1.0)); and "Methods for the Determination of Organic Compounds in Drinking Water - Supplement III," August 1995 (Methods 502.2 (rev. 2.1), 504.1 (rev. 1.1), 505 (rev. 2.1), 506 (rev. 1.1), 507 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 515.2 (rev. 1.1), 524.2 (rev. 4.1), 525.2 (rev. 2.0), 531.1 (rev. 3.1), 551.1 (rev. 1.0), and 552.2 (rev. 1.0)). Available from NTIS; USEPA, NSCEP; or USEPA, EMSL.

"USEPA Organic and Inorganic Methods" means "Methods for the Determination of Organic and Inorganic Compounds in Drinking Water, Volume 1," EPA 815/R-00/014, PB2000-106981, August 2000. Available from NTIS.

"USEPA Radioactivity Methods" means "Prescribed Procedures for Measurement of Radioactivity in Drinking Water," EPA 600/4-80/032, August 1980. Available from NTIS.

"USEPA Radiochemical Analyses" means "Radiochemical Analytical Procedures for Analysis of Environmental Samples," March 1979. Available from NTIS.

"USEPA Radiochemistry Procedures" means "Radiochemistry Procedures Manual," EPA 520/5-84/006, December 1987. Available from NTIS.

"USEPA Technical Notes" means "Technical Notes on Drinking Water Methods," available from NTIS and USEPA, NSCEP.

"USGS Methods" means "Methods of Analysis by the U.S. Geological Survey National Water Quality Laboratory - Determination of Inorganic and Organic Constituents in Water and Fluvial Sediments," available from NTIS and USGS.

"Waters Method B-1011" means "Waters Test Method for the Determination of Nitrite/Nitrate in Water Using Single Column Ion Chromatography," available from Waters Corporation, Technical Services Division.

b) The Board incorporates the following publications by reference:

ALPKEM, Division of OI Analytical, P.O. Box 9010, College Station, TX 77842-9010, telephone: 979-690-1711, Internet: [www.oico.com](http://www.oico.com).

"Method OIA-1677 DW, Available Cyanide by Flow Injection, Ligand Exchange, and Amperometry," EPA 821/R-04/001, January 2004 (referred to as "OI Analytical Method OIA-1677"), referenced in Section 611.611.

BOARD NOTE: Also available online for download from [www.epa.gov/waterscience/methods/method/cyanide/1677-2004.pdf](http://www.epa.gov/waterscience/methods/method/cyanide/1677-2004.pdf).

APHA. American Public Health Association, 1015 Fifteenth Street NW, Washington, DC 20005 202-777-2742.



"Standard Methods for the Examination of Water and Wastewater," 17th Edition, 1989 (referred to as "Standard Methods, 17th ed."). See the methods listed separately for the same references under American Waterworks Association.

"Standard Methods for the Examination of Water and Wastewater," 18th Edition, 1992, including "Supplement to the 18th Edition of Standard Methods for the Examination of Water and Wastewater," 1994 (collectively referred to as "Standard Methods, 18th ed."). See the methods listed separately for the same references under American Waterworks Association.

"Standard Methods for the Examination of Water and Wastewater," 19th Edition, 1995 (referred to as "Standard Methods, 19th ed."). See the methods listed separately for the same references under American Waterworks Association.

"Standard Methods for the Examination of Water and Wastewater," 20th Edition, 1998 (referred to as "Standard Methods, 20th ed."). See the methods listed separately for the same references under American Waterworks Association.

"Standard Methods for the Examination of Water and Wastewater," 21st Edition, 2005 (referred to as "Standard Methods, 21st ed."). See the methods listed separately for the same references under American Waterworks Association.

American Society for Microbiology, 1752 N Street N.W., Washington, DC 20036, 202-737-3600:

"Evaluation of Enterolert for Enumeration of Enterococci in Recreational Waters," Applied and Environmental Microbiology, Oct. 1996, vol. 62, no. 10, p. 3881 (referred to as "Enterolert"), referenced in Section 611.802.

BOARD NOTE: At the table to 40 CFR 141.402(c)(2), USEPA approved the method as described in the above literature review. The method itself is embodied in the printed instructions to the proprietary kit available from IDEXX Laboratories, Inc. (accessible on-line and available by download from [www.asm.org](http://www.asm.org), as "Enterolert(tm) Procedure"). ASTM approved the method as "Standard Test Method for Enterococci in Water Using Enterolert(tm)," which is available in two versions from ASTM: ~~ASTM Method~~ [ASTM Method](#) D6503-99 (superceded) and ~~ASTM Method~~ [ASTM Method](#) D6503-99. While it is more conventional to incorporate the method as presented in the kit instructions or as approved by ASTM by reference, the Board is constrained to incorporate the version that appears in the technical literature by reference, which is the version that USEPA has explicitly approved.

AWWA. American Water Works Association et al., 6666 West Quincy Ave., Denver, CO 80235 (303-794-7711).

"National Field Evaluation of a Defined Substrate Method for the Simultaneous Enumeration of Total Coliforms and Escherichia coli for Drinking Water: Comparison with the Standard Multiple Tube Fermentation Method," S.C. Edberg, M.J. Allen & D.B. Smith, Applied Environmental Microbiology, vol. 54, iss. 6, pp 1595-1601 (1988), referenced in Appendix D to this Part.

"Standard Methods for the Examination of Water and Wastewater," 13th Edition, 1971 (referred to as "Standard Methods, 13th ed.").

Method 302, Gross Alpha and Gross Beta Radioactivity in Water (Total, Suspended, and Dissolved), referenced in Section 611.720.

Method 303, Total Radioactive Strontium and Strontium 90 in Water, referenced in Section 611.720.

Method 304, Radium in Water by Precipitation, referenced in Section 611.720.

Method 305, Radium 226 by Radon in Water (Soluble, Suspended, and Total), referenced in Section 611.720.

Method 306, Tritium in Water, referenced in Section 611.720.

"Standard Methods for the Examination of Water and Wastewater," 17th Edition, 1989 (referred to as "Standard Methods, 17th ed.").

Method 7110 B, Gross Alpha and Gross Beta Radioactivity in Water (Total, Suspended, and Dissolved), referenced in Section 611.720.

Method 7500-Cs B, Radioactive Cesium, Precipitation Method, referenced in Section 611.720.

Method 7500-3H B, Tritium in Water, referenced in Section 611.720.

Method 7500-I B, Radioactive Iodine, Precipitation Method, referenced in Section 611.720.

Method 7500-I C, Radioactive Iodine, Ion-Exchange Method, referenced in Section 611.720.

Method 7500-I D, Radioactive Iodine, Distillation Method, referenced in Section 611.720.

Method 7500-Ra B, Radium in Water by Precipitation, referenced in Section 611.720.

Method 7500-Ra C, Radium 226 by Radon in Water (Soluble, Suspended, and Total), referenced in Section 611.720.

Method 7500-Ra D, Radium, Sequential Precipitation Method (Proposed), referenced in Section 611.720.

Method 7500-Sr B, Total Radioactive Strontium and Strontium 90 in Water, referenced in Section 611.720.

Method 7500-U B, Uranium, Radiochemical Method (Proposed), referenced in Section 611.720.

Method 7500-U C, Uranium, Isotopic Method (Proposed), referenced in Section 611.720.

"Standard Methods for the Examination of Water and Wastewater," 18th Edition, 1992 (referred to as "Standard Methods, 18 th ed.").

Method 2130 B, Turbidity, Nephelometric Method, referenced in Section 611.531.

Method 2320 B, Alkalinity, Titration Method, referenced in Section 611.611.

Method 2510 B, Conductivity, Laboratory Method, referenced in Section 611.611.

Method 2550, Temperature, Laboratory and Field Methods, referenced in Section 611.611.

Method 3111 B, Metals by Flame Atomic Absorption Spectrometry, Direct Air-Acetylene Flame Method, referenced in Sections 611.611 and 611.612.

Method 3111 D, Metals by Flame Atomic Absorption Spectrometry, Direct Nitrous Oxide-Acetylene Flame Method, referenced in Section 611.611.

Method 3112 B, Metals by Cold-Vapor Atomic Absorption Spectrometry, Cold-Vapor Atomic Absorption Spectrometric Method, referenced in Section 611.611.

Method 3113 B, Metals by Electrothermal Atomic Absorption Spectrometry, Electrothermal Atomic Absorption Spectrometric Method, referenced in Sections 611.611 and 611.612.

Method 3114 B, Metals by Hydride Generation/Atomic Absorption Spectrometry, Manual Hydride Generation/Atomic Absorption Spectrometric Method, referenced in Section 611.611.

Method 3120 B, Metals by Plasma Emission Spectroscopy, Inductively Coupled Plasma (ICP) Method, referenced in Sections 611.611 and 611.612.

Method 3500-Ca D, Calcium, EDTA Titrimetric Method, referenced in Section 611.611.

Method 3500-Mg E, Magnesium, Calculation Method, referenced in Section 611.611.

Method 4110 B, Determination of Anions by Ion Chromatography, Ion Chromatography with Chemical Suppression of Eluent Conductivity, referenced in Section 611.611.

Method 4500-CN- C, Cyanide, Total Cyanide after Distillation, referenced in Section 611.611.

Method 4500-CN- E, Cyanide, Colorimetric Method, referenced in Section 611.611.

Method 4500-CN- F, Cyanide, Cyanide-Selective Electrode Method, referenced in Section 611.611.

Method 4500-CN- G, Cyanide, Cyanides Amenable to Chlorination after Distillation, referenced in Section 611.611.

Method 4500-Cl D, Chlorine, Amperometric Titration Method, referenced in Section 611.531.

Method 4500-Cl E, Chlorine, Low-Level Amperometric Titration Method, referenced in Section 611.531.

Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric Method, referenced in Section 611.531.

Method 4500-Cl G, Chlorine, DPD Colorimetric Method, referenced in Section 611.531.

Method 4500-Cl H, Chlorine, Syringaldazine (FACTS) Method, referenced in Section 611.531.

Method 4500-Cl I, Chlorine, Iodometric Electrode Method, referenced in Section 611.531.

Method 4500-ClO<sub>2</sub> C, Chlorine Dioxide, Amperometric Method I, referenced in Section 611.531.

Method 4500-ClO<sub>2</sub> D, Chlorine Dioxide, DPD Method, referenced in Section 611.531.

Method 4500-ClO<sub>2</sub> E, Chlorine Dioxide, Amperometric Method II (Proposed), referenced in Section 611.531.

Method 4500-F- B, Fluoride, Preliminary Distillation Step, referenced in Section 611.611.

Method 4500-F- C, Fluoride, Ion-Selective Electrode Method, referenced in Section 611.611.

Method 4500-F- D, Fluoride, SPADNS Method, referenced in Section 611.611.

Method 4500-F- E, Fluoride, Complexone Method, referenced in Section 611.611.

Method 4500-H<sup>+</sup> B, pH Value, Electrometric Method, referenced in Section 611.611.

Method 4500-NO<sub>2</sub><sup>-</sup> B, Nitrogen (Nitrite), Colorimetric Method, referenced in Section 611.611.

Method 4500-NO<sub>3</sub><sup>-</sup> D, Nitrogen (Nitrate), Nitrate Electrode Method, referenced in Section 611.611.

Method 4500-NO<sub>3</sub><sup>-</sup> E, Nitrogen (Nitrate), Cadmium Reduction Method, referenced in Section 611.611.

Method 4500-NO<sub>3</sub><sup>-</sup> F, Nitrogen (Nitrate), Automated Cadmium Reduction Method, referenced in Section 611.611.

Method 4500-O<sub>3</sub> B, Ozone (Residual) (Proposed), Indigo Colorimetric Method, referenced in Section 611.531.

Method 4500-P E, Phosphorus, Ascorbic Acid Method, referenced in Section 611.611.

Method 4500-P F, Phosphorus, Automated Ascorbic Acid Reduction Method, referenced in Section 611.611.

Method 4500-Si D, Silica, Molybdosilicate Method, referenced in Section 611.611.

Method 4500-Si E, Silica, Heteropoly Blue Method, referenced in Section 611.611.

Method 4500-Si F, Silica, Automated Method for Molybdate-Reactive Silica, referenced in Section 611.611.

Method 6651, Glyphosate Herbicide (Proposed), referenced in Section 611.645.

Method 7110 B, Gross Alpha and Beta Radioactivity (Total, Suspended, and Dissolved), Evaporation Method for Gross Alpha-Beta, referenced in Section 611.720.

Method 7110 C, Gross Alpha and Beta Radioactivity (Total, Suspended, and Dissolved), Coprecipitation Method for Gross Alpha Radioactivity in Drinking Water (Proposed), referenced in Section 611.720.

Method 7500-Cs B, Radioactive Cesium, Precipitation Method, referenced in Section 611.720.

Method 7500-3H B, Tritium, Liquid Scintillation Spectrometric Method, referenced in Section 611.720.

Method 7500-I B, Radioactive Iodine, Precipitation Method, referenced in Section 611.720.

Method 7500-I C, Radioactive Iodine, Ion-Exchange Method, referenced in Section 611.720.

Method 7500-I D, Radioactive Iodine, Distillation Method, referenced in Section 611.720.

Method 7500-Ra B, Radium, Precipitation Method, referenced in Section 611.720.

Method 7500-Ra C, Radium, Emanation Method, referenced in Section 611.720.

Method 7500-Ra D, Radium, Sequential Precipitation Method (Proposed), referenced in Section 611.720.

Method 7500-Sr B, Total Radioactive Strontium and Strontium 90, Precipitation Method, referenced in Section 611.720.

Method 7500-U B, Uranium, Radiochemical Method (Proposed), referenced in Section 611.720.

Method 7500-U C, Uranium, Isotopic Method (Proposed), referenced in Section 611.720.

Method 9215 B, Heterotrophic Plate Count, Pour Plate Method, referenced in Section 611.531.

Method 9221 A, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Introduction, referenced in Sections 611.526 and 611.531.

Method 9221 B, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Standard Total Coliform Fermentation Technique, referenced in Sections 611.526 and 611.531.

Method 9221 C, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Estimation of Bacterial Density, referenced in Sections 611.526 and 611.531.

Method 9221 D, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Presence-Absence (P-A) Coliform Test, referenced in Section 611.526.

Method 9221 E, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Fecal Coliform Procedure, referenced in Sections 611.526 and 611.531.

Method 9222 A, Membrane Filter Technique for Members of the Coliform Group, Introduction, referenced in Sections 611.526 and 611.531.

Method 9222 B, Membrane Filter Technique for Members of the Coliform Group, Standard Total Coliform Membrane Filter Procedure, referenced in Sections 611.526 and 611.531.

Method 9222 C, Membrane Filter Technique for Members of the Coliform Group, Delayed-Incubation Total Coliform Procedure, referenced in Sections 611.526 and 611.531.

Method 9222 D, Membrane Filter Technique for Members of the Coliform Group, Fecal Coliform Membrane Filter Procedure, referenced in Section 611.531.

Method 9223, Chromogenic Substrate Coliform Test (Proposed) (also referred to as the variations "Autoanalysis Colilert System" and "Colisure Test"), referenced in Sections ~~611.526~~, 611.526 and 611.531.

Method 9223 B, Chromogenic Substrate Coliform Test (Proposed), referenced in Section 611.1004.

"Supplement to the 18th Edition of Standard Methods for the Examination of Water and Wastewater," American Public Health Association, 1994.

Method 6610, Carbamate Pesticide Method, referenced in Section 611.645.

"Standard Methods for the Examination of Water and Wastewater," 19th Edition, 1995 (referred to as "Standard Methods, 19th ed.").

Method 2130 B, Turbidity, Nephelometric Method, referenced in Section 611.531.

Method 2320 B, Alkalinity, Titration Method, referenced in Section 611.611.

Method 2510 B, Conductivity, Laboratory Method, referenced in Section 611.611.

Method 2550, Temperature, Laboratory, and Field Methods, referenced in Section 611.611.

Method 3111 B, Metals by Flame Atomic Absorption Spectrometry, Direct Air-Acetylene Flame Method, referenced in Sections 611.611 and 611.612.

Method 3111 D, Metals by Flame Atomic Absorption Spectrometry, Direct Nitrous Oxide-Acetylene Flame Method, referenced in Section 611.611.

Method 3112 B, Metals by Cold-Vapor Atomic Absorption Spectrometry, Cold-Vapor Atomic Absorption Spectrometric Method, referenced in Section 611.611.

Method 3113 B, Metals by Electrothermal Atomic Absorption Spectrometry, Electrothermal Atomic Absorption Spectrometric Method, referenced in Sections 611.611 and 611.612.

Method 3114 B, Metals by Hydride Generation/Atomic Absorption Spectrometry, Manual Hydride Generation/Atomic Absorption Spectrometric Method, referenced in Section 611.611.

Method 3120 B, Metals by Plasma Emission Spectroscopy, Inductively Coupled Plasma (ICP) Method, referenced in Sections 611.611 and 611.612.

Method 3500-Ca D, Calcium, EDTA Titrimetric Method, referenced in Section 611.611.

Method 3500-Mg E, Magnesium, Calculation Method, referenced in Section 611.611.

Method 4110 B, Determination of Anions by Ion Chromatography, Ion Chromatography with Chemical Suppression of Eluent Conductivity, referenced in Section 611.611.

Method 4500-Cl D, Chlorine, Amperometric Titration Method, referenced in Sections 611.381 and 611.531.

Method 4500-Cl E, Chlorine, Low-Level Amperometric Titration Method, referenced in Sections 611.381 and 611.531.

Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric Method, referenced in Sections 611.381 and 611.531.

Method 4500-Cl G, Chlorine, DPD Colorimetric Method, referenced in Sections 611.381 and 611.531.

Method 4500-Cl H, Chlorine, Syringaldazine (FACTS) Method, referenced in Sections 611.381 and 611.531.

Method 4500-Cl I, Chlorine, Iodometric Electrode Method, referenced in Sections 611.381 and 611.531.

Method 4500-ClO<sub>2</sub> C, Chlorine Dioxide, Amperometric Method I, referenced in Section 611.531.

Method 4500-ClO<sub>2</sub> D, Chlorine Dioxide, DPD Method, referenced in Sections 611.381 and 611.531.

Method 4500-ClO<sub>2</sub> E, Chlorine Dioxide, Amperometric Method II, referenced in Sections 611.381 and 611.531.

Method 4500-CN- C, Cyanide, Total Cyanide after Distillation, referenced in Section 611.611.

Method 4500-CN- E, Cyanide, Colorimetric Method, referenced in Section 611.611.

Method 4500-CN- F, Cyanide, Cyanide-Selective Electrode Method, referenced in Section 611.611.

Method 4500-CN- G, Cyanide, Cyanides Amenable to Chlorination after Distillation, referenced in Section 611.611.

Method 4500-F- B, Fluoride, Preliminary Distillation Step, referenced in Section 611.611.

Method 4500-F- C, Fluoride, Ion-Selective Electrode Method, referenced in Section 611.611.

Method 4500-F- D, Fluoride, SPADNS Method, referenced in Section 611.611.

Method 4500-F- E, Fluoride, Complexone Method, referenced in Section 611.611.

Method 4500-H+ B, pH Value, Electrometric Method, referenced in Section 611.611.

Method 4500-NO2- B, Nitrogen (Nitrite), Colorimetric Method, referenced in Section 611.611.

Method 4500-NO3- D, Nitrogen (Nitrate), Nitrate Electrode Method, referenced in Section 611.611.

Method 4500-NO3- E, Nitrogen (Nitrate), Cadmium Reduction Method, referenced in Section 611.611.

Method 4500-NO3- F, Nitrogen (Nitrate), Automated Cadmium Reduction Method, referenced in Section 611.611.

Method 4500-O3 B, Ozone (Residual) (Proposed), Indigo Colorimetric Method, referenced in Section 611.531.

Method 4500-P E, Phosphorus, Ascorbic Acid Method, referenced in Section 611.611.

Method 4500-P F, Phosphorus, Automated Ascorbic Acid Reduction Method, referenced in Section 611.611.

Method 4500-Si D, Silica, Molybdosilicate Method, referenced in Section 611.611.

Method 4500-Si E, Silica, Heteropoly Blue Method, referenced in Section 611.611.

Method 4500-Si F, Silica, Automated Method for Molybdate-Reactive Silica, referenced in Section 611.611.

Method 5310 B, TOC, Combustion-Infrared Method, referenced in Section 611.381.



Method 5310 C, TOC, Persulfate-Ultraviolet Oxidation Method, referenced in Section 611.381.

Method 5310 D, TOC, Wet-Oxidation Method, referenced in Section 611.381.

Method 5910 B, UV Absorbing Organic Constituents, Ultraviolet Absorption Method, referenced in Section 611.381.

Method 6251 B, Disinfection Byproducts: Haloacetic Acids and Trichlorophenol, Micro Liquid-Liquid Extraction Gas Chromatographic Method, referenced in Section 611.381.

Method 6610, Carbamate Pesticide Method, referenced in Section 611.645.

Method 6651, Glyphosate Herbicide (Proposed), referenced in Section 611.645.

Method 7110 B, Gross Alpha and Gross Beta Radioactivity, Evaporation Method for Gross Alpha-Beta, referenced in Section 611.720.

Method 7110 C, Gross Alpha and Beta Radioactivity (Total, Suspended, and Dissolved), Coprecipitation Method for Gross Alpha Radioactivity in Drinking Water (Proposed), referenced in Section 611.720.

Method 7120 B, Gamma-Emitting Radionuclides, Gamma Spectrometric Method, referenced in Section 611.720.

Method 7500-Cs B, Radioactive Cesium, Precipitation Method, referenced in Section 611.720.

Method 7500-3H B, Tritium, Liquid Scintillation Spectrometric Method, referenced in Section 611.720.

Method 7500-I B, Radioactive Iodine, Precipitation Method, referenced in Section 611.720.

Method 7500-I C, Radioactive Iodine, Ion-Exchange Method, referenced in Section 611.720.

Method 7500-I D, Radioactive Iodine, Distillation Method, referenced in Section 611.720.

Method 7500-Ra B, Radium, Precipitation Method, referenced in Section 611.720.

Method 7500-Ra C, Radium, Emanation Method, referenced in Section 611.720.

Method 7500-Ra D, Radium, Sequential Precipitation Method, referenced in Section 611.720.

Method 7500-Sr B, Total Radiactive Strontium and Strontium 90, Precipitation Method, referenced in Section 611.720.

Method 7500-U B, Uranium, Radiochemical Method, referenced in Section 611.720.

Method 7500-U C, Uranium, Isotopic Method, referenced in Section 611.720.

Method 9215 B, Heterotrophic Plate Count, Pour Plate Method, referenced in Section 611.531.

Method 9221 A, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Introduction, referenced in Sections 611.526 and 611.531.

Method 9221 B, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Standard Total Coliform Fermentation Technique, referenced in Sections 611.526 and 611.531.

Method 9221 C, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Estimation of Bacterial Density, referenced in Sections 611.526 and 611.531.

Method 9221 D, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Presence-Absence (P-A) Coliform Test, referenced in Section 611.526.

Method 9221 E, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Fecal Coliform Procedure, referenced in Sections 611.526 and 611.531.

Method 9222 A, Membrane Filter Technique for Members of the Coliform Group, Introduction, referenced in Sections 611.526 and 611.531.

Method 9222 B, Membrane Filter Technique for Members of the Coliform Group, Standard Total Coliform Membrane Filter Procedure, referenced in Sections 611.526 and 611.531.

Method 9222 C, Membrane Filter Technique for Members of the Coliform Group, Delayed-Incubation Total Coliform Procedure, referenced in Sections 611.526 and 611.531.

Method 9222 D, Membrane Filter Technique for Members of the Coliform Group, Fecal Coliform Membrane Filter Procedure, referenced in Section 611.531.

Method 9222 G, Membrane Filter Technique for Members of the Coliform Group, MF Partition Procedures, referenced in Section 611.526.

Method 9223, Chromogenic Substrate Coliform Test (also referred to as the variations "Autoanalysis Colilert System" and "Colisure Test"), referenced in Sections 611.526 and 611.531.

Method 9223 B, Chromogenic Substrate Coliform Test (Proposed), referenced in Section 611.1004.

"Supplement to the 19th Edition of Standard Methods for the Examination of Water and Wastewater," American Public Health Association, 1996.

Method 5310 B, TOC, Combustion-Infrared Method, referenced in Section 611.381.

Method 5310 C, TOC, Persulfate-Ultraviolet Oxidation Method, referenced in Section 611.381.

Method 5310 D, TOC, Wet-Oxidation Method, referenced in Section 611.381.

"Standard Methods for the Examination of Water and Wastewater," 20th Edition, 1998 (referred to as "Standard Methods, 20th ed.").

Method 2130 B, Turbidity, Nephelometric Method, referenced in Section 611.531.

Method 2320 B, Alkalinity, Titration Method, referenced in Section 611.611.

Method 2510 B, Conductivity, Laboratory Method, referenced in Section 611.611.

Method 2550, Temperature, Laboratory, and Field Methods, referenced in Section 611.611.

Method 3120 B, Metals by Plasma Emission Spectroscopy, Inductively Coupled Plasma (ICP) Method, referenced in Sections 611.611 and 611.612.

Method 3500-Ca B, Calcium, EDTA Titrimetric Method, referenced in Section 611.611.

Method 3500-Mg B, Magnesium, EDTA Titrimetric Method, referenced in Section 611.611.

Method 4110 B, Determination of Anions by Ion Chromatography, Ion Chromatography with Chemical Suppression of Eluent Conductivity, referenced in Section 611.611.

Method 4500-CN- C, Cyanide, Total Cyanide after Distillation, referenced in Section 611.611.

Method 4500-CN- E, Cyanide, Colorimetric Method, referenced in Section 611.611.

Method 4500-CN- F, Cyanide, Cyanide-Selective Electrode Method, referenced in Section 611.611.

Method 4500-CN- G, Cyanide, Cyanides Amenable to Chlorination after Distillation, referenced in Section 611.611.

Method 4500-Cl D, Chlorine, Amperometric Titration Method, referenced in Section 611.531.

Method 4500-Cl E, Chlorine, Low-Level Amperometric Titration Method, referenced in Section 611.531.

Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric Method, referenced in Section 611.531.

Method 4500-Cl G, Chlorine, DPD Colorimetric Method, referenced in Section 611.531.

Method 4500-Cl H, Chlorine, Syringaldazine (FACTS) Method, referenced in Section 611.531.

Method 4500-Cl I, Chlorine, Iodometric Electrode Method, referenced in Section 611.531.

Method 4500-ClO<sub>2</sub> C, Chlorine Dioxide, Amperometric Method I, referenced in Section 611.531.

Method 4500-ClO<sub>2</sub> D, Chlorine Dioxide, DPD Method, referenced in Section 611.531.

Method 4500-ClO<sub>2</sub> E, Chlorine Dioxide, Amperometric Method II (Proposed), referenced in Section 611.531.

Method 4500-F- B, Fluoride, Preliminary Distillation Step, referenced in Section 611.611.

Method 4500-F- C, Fluoride, Ion-Selective Electrode Method, referenced in Section 611.611.

Method 4500-F- D, Fluoride, SPADNS Method, referenced in Section 611.611.

Method 4500-F- E, Fluoride, Complexone Method, referenced in Section 611.611.

Method 4500-H<sup>+</sup> B, pH Value, Electrometric Method, referenced in Section 611.611.

Method 4500-NO<sub>2</sub>- B, Nitrogen (Nitrite), Colorimetric Method, referenced in Section 611.611.

Method 4500-NO<sub>3</sub>- D, Nitrogen (Nitrate), Nitrate Electrode Method, referenced in Section 611.611.

Method 4500-NO<sub>3</sub>- E, Nitrogen (Nitrate), Cadmium Reduction Method, referenced in Section 611.611.

Method 4500-NO<sub>3</sub>- F, Nitrogen (Nitrate), Automated Cadmium Reduction Method, referenced in Section 611.611.

Method 4500-O<sub>3</sub> B, Ozone (Residual) (Proposed), Indigo Colorimetric Method, referenced in Section 611.531.

Method 4500-P E, Phosphorus, Ascorbic Acid Method, referenced in Section 611.611.

Method 4500-P F, Phosphorus, Automated Ascorbic Acid Reduction Method, referenced in Section 611.611.

Method 4500-Si C, Silica, Molybdosilicate Method, referenced in Section 611.611.

Method 4500-Si D, Silica, Heteropoly Blue Method, referenced in Section 611.611.

Method 4500-Si E, Silica, Automated Method for Molybdate-Reactive Silica, referenced in Section 611.611.

Method 5310 B, TOC, Combustion-Infrared Method, referenced in Section 611.381.

Method 5310 C, TOC, Persulfate-Ultraviolet Oxidation Method, referenced in Section 611.381.

Method 5310 D, TOC, Wet-Oxidation Method, referenced in Section 611.381.

Method 5910 B, UV-Absorbing Organic Constituents, Ultraviolet Absorption Method, referenced in Sections 611.381 and 611.382.

Method 6251, Disinfection By-Products: Haloacetic Acids and Trichlorophenol, referenced in Section 611.381.

Method 6610, Carbamate Pesticide Method, referenced in Section 611.645.

Method 6651, Glyphosate Herbicide (Proposed), referenced in Section 611.645.

Method 7110 B, Gross Alpha and Gross Beta Radioactivity, Evaporation Method for Gross Alpha-Beta, referenced in Section 611.720.

Method 7110 C, Gross Alpha and Beta Radioactivity (Total, Suspended, and Dissolved), Coprecipitation Method for Gross Alpha Radioactivity in Drinking Water (Proposed), referenced in Section 611.720.

Method 7120, Gamma-Emitting Radionuclides, referenced in Section 611.720.

Method 7500-Cs B, Radioactive Cesium, Precipitation Method, referenced in Section 611.720.

Method 7500-3H B, Tritium, Liquid Scintillation Spectrometric Method, referenced in Section 611.720.

Method 7500-I B, Radioactive Iodine, Precipitation Method, referenced in Section 611.720.

Method 7500-I C, Radioactive Iodine, Ion-Exchange Method, referenced in Section 611.720.

Method 7500-I D, Radioactive Iodine, Distillation Method, referenced in Section 611.720.

Method 7500-Ra B, Radium, Precipitation Method, referenced in Section 611.720.

Method 7500-Ra C, Radium, Emanation Method, referenced in Section 611.720.

Method 7500-Ra D, Radium, Sequential Precipitation Method, referenced in Section 611.720.

Method 7500-Sr B, Total Radioactive Strontium and Strontium 90, Precipitation Method, referenced in Section 611.720.

Method 7500-U B, Uranium, Radiochemical Method, referenced in Section 611.720.

Method 7500-U C, Uranium, Isotopic Method, referenced in Section 611.720.

Method 9215 B, Heterotrophic Plate Count, Pour Plate Method, referenced in Section 611.531.

Method 9221 A, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Introduction, referenced in Sections 611.526 and 611.531.

Method 9221 B, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Standard Total Coliform Fermentation Technique, referenced in Sections 611.526 and 611.531.

Method 9221 C, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Estimation of Bacterial Density, referenced in Sections 611.526 and 611.531.

Method 9221 D, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Presence-Absence (P-A) Coliform Test, referenced in Sections 611.526.

Method 9221 E, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Fecal Coliform Procedure, referenced in Sections 611.526 and 611.531.

Method 9221 F, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Escherichia Coli Procedure (Proposed), referenced in Section 611.802.

Method 9222 A, Membrane Filter Technique for Members of the Coliform Group, Introduction, referenced in Sections 611.526 and 611.531.

Method 9222 B, Membrane Filter Technique for Members of the Coliform Group, Standard Total Coliform Membrane Filter Procedure, referenced in Sections 611.526 and 611.531.

Method 9222 C, Membrane Filter Technique for Members of the Coliform Group, Delayed-Incubation Total Coliform Procedure, referenced in Sections 611.526 and 611.531.

Method 9222 D, Membrane Filter Technique for Members of the Coliform Group, Fecal Coliform Membrane Filter Procedure, referenced in Section 611.531.

Method 9222 G, Membrane Filter Technique for Members of the Coliform Group, MF Partition Procedures, referenced in Section 611.526.

Method 9223, Chromogenic Substrate Coliform Test (also referred to as the variations "Autoanalysis Colilert System" and "Colisure Test"), referenced in Sections 611.526 and 611.531.

Method 9223 B, Chromogenic Substrate Coliform Test (also referred to as the variations "Autoanalysis Colilert System" and "Colisure Test"), referenced in Sections 611.526, 611.802, and 611.1004.

Method 9230 B, Fecal Streptococcus and Enterococcus Groups, Multiple Tube Techniques, referenced in Section 611.802.

Method 9230 C, Fecal Streptococcus and Enterococcus Groups, Membrane Filter Techniques, referenced in Section 611.802.

"Standard Methods for the Examination of Water and Wastewater," 21st Edition, 2005 (referred to as "Standard Methods, 21st ed.").

Method 2130 B, Turbidity, Nephelometric Method, referenced in Section 611.531.

Method 2320 B, Alkalinity, Titration Method, referenced in Section 611.611.

Method 2510 B, Conductivity, Laboratory Method, referenced in Section 611.611.

Method 2550, Temperature, Laboratory, and Field Methods, referenced in Section 611.611.

Method 3111 B, Metals by Flame Atomic Absorption Spectrometry, Direct Air-Acetylene Flame Method, referenced in Sections 611.611 and 611.612.

Method 3111 D, Metals by Flame Atomic Absorption Spectrometry, Direct Nitrous Oxide-Acetylene Flame Method, referenced in Section 611.611.

Method 3112 B, Metals by Cold-Vapor Atomic Absorption Spectrometry, Cold-Vapor Atomic Absorption Spectrometric Method, referenced in Section 611.611.

Method 3113 B, Metals by Electrothermal Atomic Absorption Spectrometry, Electrothermal Atomic Absorption Spectrometric Method, referenced in Sections 611.611 and 611.612.

Method 3114 B, Metals by Hydride Generation/Atomic Absorption Spectrometry, Manual Hydride Generation/Atomic Absorption Spectrometric Method, referenced in Section 611.611.

Method 3120 B, Metals by Plasma Emission Spectroscopy, Inductively Coupled Plasma (ICP) Method, referenced in Sections 611.611 and 611.612.

Method 3500-Ca B, Calcium, EDTA Titrimetric Method, referenced in Section 611.611.

Method 3500-Ca D, Calcium, EDTA Titrimetric Method, referenced in Section 611.611.

Method 3500-Mg B, Magnesium, Calculation Method, referenced in Section 611.611.

Method 4110 B, Determination of Anions by Ion Chromatography, Ion Chromatography with Chemical Suppression of Eluent Conductivity, referenced in Section 611.611.

Method 4500-Cl D, Chlorine, Amperometric Titration Method, referenced in Section 611.381.

Method 4500-Cl E, Chlorine, Low-Level Amperometric Titration Method, referenced in Section 611.381.

Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric Method, referenced in Section 611.381.

Method 4500-Cl G, Chlorine, DPD Colorimetric Method, referenced in Section 611.381.

Method 4500-Cl H, Chlorine, Syringaldazine (FACTS) Method, referenced in Section 611.381.

Method 4500-Cl I, Chlorine, Iodometric Electrode Method, referenced in Section 611.381.

Method 4500-ClO<sub>2</sub> C, Chlorine Dioxide, Amperometric Method I, referenced in Section 611.531.

Method 4500-ClO<sub>2</sub> E, Chlorine Dioxide, Amperometric Method II (Proposed), referenced in Section 611.381.

Method 4500-CN- E, Cyanide, Colorimetric Method, referenced in Section 611.611.

Method 4500-CN- F, Cyanide, Cyanide-Selective Electrode Method, referenced in Section 611.611.

Method 4500-CN- G, Cyanide, Cyanides Amenable to Chlorination after Distillation, referenced in Section 611.611.

Method 4500-F- B, Fluoride, Preliminary Distillation Step, referenced in Section 611.611.

Method 4500-F- C, Fluoride, Ion-Selective Electrode Method, referenced in Section 611.611.

Method 4500-F- D, Fluoride, SPADNS Method, referenced in Section 611.611.

Method 4500-F- E, Fluoride, Complexone Method, referenced in Section 611.611.

Method 4500-H+ B, pH Value, Electrometric Method, referenced in Section 611.611.

Method 4500-NO<sub>2</sub>- B, Nitrogen (Nitrite), Colorimetric Method, referenced in Section 611.611.

Method 4500-NO<sub>3</sub>- D, Nitrogen (Nitrate), Nitrate Electrode Method, referenced in Section 611.611.

Method 4500-NO<sub>3</sub>- E, Nitrogen (Nitrate), Cadmium Reduction Method, referenced in Section 611.611.

Method 4500-NO<sub>3</sub>- F, Nitrogen (Nitrate), Automated Cadmium Reduction Method, referenced in Section 611.611.

Method 4500-O<sub>3</sub> B, Ozone (Residual) (Proposed), Indigo Colorimetric Method, referenced in Section 611.531.

Method 4500-P E, Phosphorus, Ascorbic Acid Method, referenced in Section 611.611.

Method 4500-P F, Phosphorus, Automated Ascorbic Acid Reduction Method, referenced in Section 611.611.

Method 4500-SiO<sub>2</sub> C, Silica, Molybdosilicate Method, referenced in Section 611.611.

Method 4500-SiO<sub>2</sub> D, Silica, Heteropoly Blue Method, referenced in Section 611.611.

Method 4500-SiO<sub>2</sub> E, Silica, Automated Method for Molybdate-Reactive Silica, referenced in Section 611.611.

Method 5310 B, TOC, Combustion-Infrared Method, referenced in Section 611.381.

Method 5310 C, TOC, Persulfate-Ultraviolet Oxidation Method, referenced in Section 611.381.

Method 5310 D, TOC, Wet-Oxidation Method, referenced in Section 611.381.

Method 5910 B, UV-Absorbing Organic Constituents, Ultraviolet Absorption Method, referenced in Sections 611.381 and 611.382.



Method 6251, Disinfection By-Products: Haloacetic Acids and Trichlorophenol, referenced in Section 611.381.

Method 6610, Method 6610 B, Carbamate Pesticide Method, referenced in Section 611.645.

Method 6640 B, Acidic Herbicide Compounds, Micro Liquid-Liquid Extraction Gas Chromatographic Method, referenced in Section 611.645.

Method 7110 B, Gross Alpha and Gross Beta Radioactivity, Evaporation Method for Gross Alpha-Beta, referenced in Section 611.720.

Method 7110 C, Gross Alpha and Beta Radioactivity (Total, Suspended, and Dissolved), Coprecipitation Method for Gross Alpha Radioactivity in Drinking Water (Proposed), referenced in Section 611.720.

Method 7120, Gamma-Emitting Radionuclides, referenced in Section 611.720.

Method 7500-Cs B, Radioactive Cesium, Precipitation Method, referenced in Section 611.720.

Method 7500-3H B, Tritium, Liquid Scintillation Spectrometric Method, referenced in Section 611.720.

Method 7500-I B, Radioactive Iodine, Precipitation Method, referenced in Section 611.720.

Method 7500-I C, Radioactive Iodine, Ion-Exchange Method, referenced in Section 611.720.

Method 7500-I D, Radioactive Iodine, Distillation Method, referenced in Section 611.720.

Method 7500-Ra B, Radium, Precipitation Method, referenced in Section 611.720.

Method 7500-Ra C, Radium, Emanation Method, referenced in Section 611.720.

Method 7500-Ra D, Radium, Sequential Precipitation Method, referenced in Section 611.720.

Method 7500-Sr B, Total Radioactive Strontium and Strontium 90, Precipitation Method, referenced in Section 611.720.

Method 7500-U B, Uranium, Radiochemical Method, referenced in Section 611.720.

Method 7500-U C, Uranium, Isotopic Method, referenced in Section 611.720.

Method 9221 A, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Introduction, referenced in Sections 611.526 and 611.531.

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Method 9221 C, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Estimation of Bacterial Density, referenced in Sections 611.526 and 611.531.

Method 9221 D, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Presence-Absence (P-A) Coliform Test, referenced in Section 611.526.

Method 9221 E, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Fecal Coliform Procedure, referenced in Sections 611.526 and 611.531.

Method 9221 F, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Escherichia Coli Procedure (Proposed), referenced in Section 611.802.

Method 9222 A, Membrane Filter Technique for Members of the Coliform Group, Introduction, referenced in Sections 611.526 and 611.531.

Method 9222 B, Membrane Filter Technique for Members of the Coliform Group, Standard Total Coliform Membrane Filter Procedure, referenced in Sections 611.526 and 611.531.

Method 9222 C, Membrane Filter Technique for Members of the Coliform Group, Delayed-Incubation Total Coliform Procedure, referenced in Sections 611.526 and 611.531.

Method 9222 D, Membrane Filter Technique for Members of the Coliform Group, Fecal Coliform Membrane Filter Procedure, referenced in Section 611.531.

Method 9222 G, Membrane Filter Technique for Members of the Coliform Group, MF Partition Procedures, referenced in Section 611.526.

Method 9223, Chromogenic Substrate Coliform Test (also referred to as the variations "Autoanalysis Colilert System" and "Colisure Test"), referenced in Sections 611.526 and 611.531.

Method 9223 B, Chromogenic Substrate Coliform Test (also referred to as the variations "Autoanalysis Colilert System" and "Colisure Test"), referenced in Sections 611.526, 611.802, and 611.1004.

BOARD NOTE: See the Board note appended to Standard Methods Online in this Section about methods that appear in Standard Methods, 21st ed. which USEPA has cited as available from Standard Methods Online.

BOARD NOTE: Individual Methods from Standard Methods are available online from Standard Methods Online.

Analytical Technology, Inc. ATI Orion, 529 Main Street, Boston, MA 02129.

Technical Bulletin 601, "Standard Method of Testing for Nitrate in Drinking Water," July, 1994, PN 221890-001 (referred to as "Technical Bulletin 601"), referenced in Section 611.611.

ASTM. American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 (610-832-9585).

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- Atomic Absorption Spectrophotometric," approved 1993, referenced in Section 611.611.

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NSF. National Sanitation Foundation International, 3475 Plymouth Road, PO Box 130140, Ann Arbor, Michigan 48113-0140 (734-769-8010).

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BOARD NOTE: USEPA made the following assertion with regard to this reference at 40 CFR 141.23(k)(1) and 141.24(e) and (n)(11) (2010) ~~(2011)~~: "This document contains other analytical test procedures and approved analytical methods that remain available for compliance monitoring until July 1, 1996." Also available online at <http://nepis.epa.gov/?EPA/html/?Pubs/?pubtitleORD.htm> under the document designation "600R94173."

New Jersey Department of Environment, Division of Environmental Quality, Bureau of Radiation and Inorganic Analytical Services, 9 Ewing Street, Trenton, NJ 08625.

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New York Department of Health, Radiological Sciences Institute, Center for Laboratories and Research, Empire State Plaza, Albany, NY 12201.

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Palintest, Ltd., 21 Kenton Lands Road, P.O. Box 18395, Erlanger, KY (800-835-9629).

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Method 6610 B-04, Carbamate Pesticides, High-Performance Liquid Chromatographic Method, referenced in Section 611.645.

Method 9230 B-04, Fecal Streptococcus and Enterococcus Groups, Multiple Tube Techniques, referenced in Section 611.802.

BOARD NOTE: Where, in appendix A to subpart C of 40 CFR 141 (2011), USEPA has authorized use of an approved alternative method from Standard Methods Online, and that version of the method appears also in Standard Methods, 21st ed., the Board cites only to Standard Methods, 21st ed. for that method. The methods that USEPA listed as available from Standard Methods Online, and which are listed above as in Standard Methods, 21st edition, are the following: 4500-P E-~~99,99~~ and 4500-P F-~~99,99~~; (for orthophosphate); 4500-SO4-2 C-97, 4500-SO4-2 D-97, 4500-SO4-2 E-97, and 4500-SO4-2 F-97 (for sulfate); 6640 B-~~01,01~~ (for 2,4-D, 2,4,5-TP (silvex), (dalapon, dinoseb, pentachlorophenol, and picloram); 5561 B-00 (for glyphosate); and 9223 B-97 (for E. coli). Since each method is the same version from both sources, the Board views a copy from Standard Methods Online as equivalent to a copy from Standard Methods Online, even though the Board does not also cite to Standard Methods Online. The Board intends that use of the version of the method that is incorporated by reference is acceptable from either source ~~is acceptable~~.

SWAN Analytische Instrumente AG, Studbachstrasse 13, CH-8340, Hinwil, Switzerland.

AMI Turbiwell Method, "Continuous Measurement of Turbidity Using a SWAN AMI Turbiwell Turbidimeter," August 2009, referenced in Section 611.531. See also NEMI.

Syngenta Crop Protection, Inc., 410 Swing Road, Post Office Box 18300, Greensboro, NC 27419 (336-632-6000).

"Atrazine in Drinking Water by Immunoassay," February 2001 (referred to as "Syngenta AG-625"), referenced in Section 611.645.

Systema Scientific LLC, 900 Jorie Blvd., Suite 35, Oak Brook, IL 60523.

Systema Easy (1-Reagent), "Systema Easy (1-Reagent) Nitrate Method," February 2009, referenced in Section 611.611. See also NEMI.

Thermo Scientific, 166 Cummings Center, Beverly, MA ~~01915~~ 01915 ([www.thermo.com](http://www.thermo.com)).

Orion Method AQ4500, "Determination of Turbidity by LED Nephelometry," May 2009, referenced in Section 611.531. See also NEMI.

USDOE, EML. United States Department of Energy, Environmental Measurements Laboratory, U.S. Department of Energy, 376 Hudson Street, New York, NY 10014-3621.

"EML Procedures Manual," HASL 300, 27th Edition, Volume 1, 1990 (referred to as "EML Procedures Manual (27th ed.)"), referenced in Section 611.720.

"EML Procedures Manual," HASL 300, 28th ed., 1997 (referred to as "EML Procedures Manual (28th ed.)"), referenced in Section 611.720.

USEPA, EMSL. United States Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Cincinnati, OH 45268 (513-569-7586).

USEPA Interim Radiochemical Methods, "Interim Radiochemical Methodology for Drinking Water," EPA 600/4-75/008 (revised), March 1976, referenced in Section 611.720. See also NTIS.

USEPA Organic Methods, "Methods for the Determination of Organic Compounds in Drinking Water," December 1988 (revised July 1991), EPA 600/4-88/039, referenced in Sections 611.645 and 611.648 (Methods 508A (rev. 1.0) and 515.1 (rev. 4.0) only); "Methods for the Determination of Organic Compounds in Drinking Water - Supplement I," July 1990, EPA 600/4-90/020, referenced in Sections 611.645 and 611.648 (Methods 547, 550, and 550.1 only); "Methods for the Determination of Organic Compounds in Drinking Water - Supplement II," August 1992, EPA 600/R-92/129, referenced in Sections 611.381 and 611.645 (Methods 548.1 (rev. 1.0), 552.1 (rev. 1.0), and 555 (rev. 1.0) only); "Methods for the Determination of Organic Compounds in Drinking Water - Supplement III," August 1995, EPA 600/R-95/131, referenced in Sections 611.381, 611.645, and 611.648 (Methods 502.2 (rev. 2.1), 504.1 (rev. 1.1), 505 (rev. 2.1), 506 (rev. 1.1), 507 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 515.2 (rev. 4.1), 524.2 (rev. 4.1), 525.2 (rev. 2.0), 551.1 (rev. 1.0), and 552.2 (rev. 1.0) only). See also NTIS and USEPA, NSCEP.

"Procedures for Radiochemical Analysis of Nuclear Reactor Aqueous Solutions," referenced in Section 611.720. See also NTIS.

USEPA, NSCEP. United States Environmental Protection Agency, National Service Center for Environmental Publications, P.O. Box 42419, Cincinnati, OH 45242-0419 (accessible on-line and available by download from <http://www.epa.gov/nscep/>).

Dioxin and Furan Method 1613, Revision B, "Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution HRGC/HRMS," October 1994, EPA 821/B-94/005, referenced in Section 611.645. See also NTIS.

Guidance Manual for Filtration and Disinfection, "Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems Using Surface Water Sources," March 1991, EPA 570/3-91-001, referenced in Section 611.111.

USEPA Asbestos Method 100.1, "Analytical Method for Determination of Asbestos Fibers in Water," September 1983, EPA 600/4-83-043, referenced in Section 611.611. See also NTIS.

USEPA Asbestos Method 100.2, "Determination of Asbestos Structures over 10-mm in Length in Drinking Water," June 1994, EPA 600/R-94-134, referenced in Section 611.611. See also NTIS.

USEPA Environmental Inorganic Methods, "Methods for the Determination of Inorganic Substances in Environmental Samples," August 1993, EPA 600/R-93-100, referenced in Sections 611.381, 611.531, and 611.611. (Methods 180.1 (rev. 2.0), 300.0 (rev. 2.1), 335.4 (rev. 1.0), 353.2 (rev. 2.0), and 365.1 (rev. 2.0) only.) See also NTIS.

USEPA Environmental Metals Methods, "Methods for the Determination of Metals in Environmental Samples - Supplement I," May 1994, EPA 600/R-94-111, referenced in Sections 611.611, 611.612, and 611.720. (Methods 200.7 (rev. 4.4), 200.8 (rev. 5.3), 200.9 (rev. 2.2), and 245.1 (rev. 3.0) only.) See also NTIS.

USEPA Inorganic Methods, "Methods for Chemical Analysis of Water and Wastes," March 1983, EPA 600/4-79-020, referenced in Section 611.611. (Methods 150.1, 150.2, and 245.2 only.) See also NTIS.

USEPA OGWDW Methods, 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, referenced in Sections 611.381 and 611.382. See also USEPA, OGWDW.

USEPA OGWDW Methods, Method 317.0, rev. 2.0, "Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography with the Addition of a Postcolumn Reagent for Trace Bromate Analysis," July 2001, EPA 815/B-01/001, referenced in Sections 611.381 and 611.382. See also USEPA, OGWDW.

USEPA OGWDW Methods, Method 326.0, rev. 1.0, "Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography Incorporating the Addition of a Suppressor Acidified Postcolumn Reagent for Trace Bromate Analysis," June 2002, EPA 815/R-03/007, referenced in Sections 611.381 and 611.382. See also NTIS and USEPA, OGWDW.

USEPA OGWDW Methods, Method 327.0, rev. 1.1, "Determination of Chlorine Dioxide and Chlorite Ion in Drinking Water Using Lissamine Green B and Horseradish Peroxidase with Detection by Visible Spectrophotometry," May 2005, EPA 815/R-05/008, referenced in Sections 611.381 and 611.531. See also USEPA, OGWDW.

USEPA OGWDW Methods, Method 334.0, "Determination of Residual in Drinking Water Using an On-line Chlorine Analyzer," August 2009, EPA 815/B-09/013, referenced in Section 611.531. See also USEPA, OGWDW.

USEPA OGWDW Methods, Method 531.2, rev. 1.0, "Measurement of N-methylcarbamoyloximes and N-methylcarbamates in Water by Direct Aqueous Injection HPLC with Postcolumn Derivatization," September 2001, EPA 815/B-01/002 (document file name "met531\_2.pdf"), referenced in Section 611.645. See also USEPA, OGWDW.

USEPA OGWDW Methods, Method 552.3, rev. 1.0, "Determination of Haloacetic Acids and Dalapon in Drinking Water by Liquid-Liquid Microextraction, Derivatization, and Gas Chromatography with Electron Capture Detection," July 2003, EPA 815/B-03/002, referenced in Sections 611.381 and 611.645.

USEPA OGWDW Methods, Method 557, "Determination of Haloacetic Acids, Bromate, and Dalapon in Drinking Water by Ion Chromatography Electrospray Ionization Tandem Mass Spectrometry," July 2003, EPA 815/B-03/002, referenced in Sections 611.381, 611.382, and 611.645. See also USEPA, OGWDW.



USEPA OGWDW Methods, Method 1622 (01), "Cryptosporidium in Water by Filtration/IMS/FA," April 2001, EPA 821/R-01/026, referenced in Section 611.1007. See also USEPA, OGWDW.

USEPA Organic and Inorganic Methods, "Methods for the Determination of Organic and Inorganic Compounds in Drinking Water, Volume 1," August 2000, EPA 815/R-00/014, referenced in Section 611.381. (Methods 300.1 (rev. 1.0) and 321.8 (rev. 1.0) only.) See also NTIS.

USEPA Organic Methods, "Methods for the Determination of Organic Compounds in Drinking Water," December 1988, revised July 1991, EPA 600/4-88/039, referenced in Sections 611.645 and 611.648 (Methods 508A (rev. 1.0) and 515.1 (rev. 4.0) only); "Methods for the Determination of Organic Compounds in Drinking Water - Supplement I," July 1990, EPA 600/4-90/020, referenced in Section 611.645 and 611.648 (Methods 547, 550, and 550.1 only); "Methods for the Determination of Organic Compounds in Drinking Water - Supplement II," August 1992, EPA 600/R-92/129, referenced in Sections 611.381 and 611.645 (Methods 548.1 (rev. 1.0), 552.1 (rev. 1.0), and 555 (rev. 1.0) only); "Methods for the Determination of Organic Compounds in Drinking Water - Supplement III," August 1995, EPA 600/R-95/131, referenced in Sections 611.381, 611.645, and 611.648 (Methods 502.2 (rev. 2.1), 504.1 (rev. 1.1), 505 (rev. 2.1), 506 (rev. 1.1), 507 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 515.2 (rev. 4.1), 524.2 (rev. 4.1), 525.2 (rev. 2.0), 531.1 (rev. 3.1), 551.1 (rev. 1.0), and 552.2 (rev. 1.0) only). See also NTIS and USEPA, EMSL.

USEPA Radioactivity Methods, "Prescribed Procedures for Measurement of Radioactivity in Drinking Water," August 1980, EPA 600/4-80/032, referenced in Section 611.720. (For methods 900.0, 901, 901.1, 902, 903, 903.1, 904, 905, 906, 908, 908.1 only.) See also NTIS.

USEPA Technical Notes, "Technical Notes on Drinking Water Methods," October 1994, EPA 600/R-94/173, referenced in Sections 611.531, 611.611, and 611.645. See also NTIS.

BOARD NOTE: USEPA made the following assertion with regard to this reference at 40 CFR 141.23(k)(1) and 141.24(e) and (n)(11) (~~2007~~-(2011): "This document contains other analytical test procedures and approved analytical methods that remain available for compliance monitoring until July 1, 1996." Also available online at <http://nepis.epa.gov/EPA/html/?Pubs/?pubtitleORD.htm> under the document designation "600R94173."

USEPA, OGWDW. United States Environmental Protection Agency, USEPA, Office of Ground Water and Drinking Water (accessible on-line and available by download from <http://www.epa.gov/safewater/methods/>).

USEPA OGWDW Methods, 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, referenced in Section 611.381. See also USEPA, NSCEP.

USEPA OGWDW Methods, Method 317.0, rev. 2.0, "Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography with the Addition of a Postcolumn Reagent for Trace Bromate Analysis," USEPA, July 2001, EPA 815/B-01/001, referenced in Section 611.381. See also USEPA, NSCEP.



USEPA OGWDW Methods, Method 326.0, rev. 1.0, "Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography Incorporating the Addition of a Suppressor Acidified Postcolumn Reagent for Trace Bromate Analysis," USEPA, June 2002, EPA 815/R-03/007, referenced in Section 611.381. See also NTIS and USEPA, NSCEP.

USEPA OGWDW Methods, Method 327.0, rev. 1.1, "Determination of Chlorine Dioxide and Chlorite Ion in Drinking Water Using Lissamine Green B and Horseradish Peroxidase with Detection by Visible Spectrophotometry," USEPA, May 2005, EPA 815/R-05/008, referenced in Sections 611.381 and 611.531. See also USEPA, NSCEP.

USEPA OGWDW Methods, Method 334.0, "Determination of Residual in Drinking Water Using an On-line Chlorine Analyzer," USEPA, August 2009, EPA 815/B-09/013, referenced in Section 611.531. See also USEPA, NSCEP.

USEPA OGWDW Methods, Method 515.4, rev. 1.0, "Determination of Chlorinated Acids in Drinking Water by Liquid-Liquid Microextraction, Derivatization and Fast Gas Chromatography with Electron Capture Detection," April 2000, EPA 815/B-00/001 (document file name "met515\_4.pdf"), referenced in Section 611.645.

USEPA OGWDW Methods, Method 524.3, rev. 1.0, "Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/~~?~~Mass Spectrometry," June 2009, EPA 815/B-09/009 (referred to as "Method 524.3 (rev. 1.0)"), referenced in Sections 611.381 and 611.645.

USEPA OGWDW Methods, Method 531.2, rev. 1.0, "Measurement of N-methylcarbamoyloximes and N-methylcarbamates in Water by Direct Aqueous Injection HPLC with Postcolumn Derivatization," September 2001, EPA 815/B-01/002 (document file name "met531\_2.pdf"), referenced in Section 611.645. See also USEPA, NSCEP.

USEPA OGWDW Methods, Method 552.3, rev. 1.0, "Determination of Haloacetic Acids and Dalapon in Drinking Water by Liquid-liquid Microextraction, Derivatization, and Gas Chromatography with Electron Capture Detection," USEPA, July 2003, EPA 815/B-03/002, referenced in Sections 611.381 and 611.645.

USEPA OGWDW Methods, Method 557, "Determination of Haloacetic Acids, Bromate, and Dalapon in Drinking Water by Ion Chromatography Electrospray Ionization Tandem Mass Spectrometry," July 2003, EPA 815/B-03/002, referenced in Sections 611.381 and 611.645. See also USEPA, NSCEP.

USEPA OGWDW Methods, Method 1622 (05), "Method 1622: Cryptosporidium in Water by Filtration/IMS/FA," December 2005, EPA 815/R-05/001, referenced in Sections 611.1004 and 611.1007.

USEPA OGWDW Methods, Method 1622 (01), "Method 1622: Cryptosporidium in Water by Filtration/IMS/FA," April 2001, EPA 821/R-01/026, referenced in Section 611.1007. See also USEPA, NSCEP.

USEPA OGWDW Methods, Method 1622 (99), "Method 1622: Cryptosporidium in Water by Filtration/IMS/FA," April 1999, EPA 821/R-99/001, referenced in Section 611.1007.

USEPA OGWDW Methods, Method 1623 (05), "Method 1623: Cryptosporidium and Giardia in Water by Filtration/IMS/FA," December 2005, EPA 815/R-05/002, referenced in Sections 611.1004 and 611.1007.

USEPA OGWDW Methods, Method 1623 (01), "Method 1623: Cryptosporidium and Giardia in Water by Filtration/IMS/FA," April 2001, EPA 821/R-01/025, referenced in Section 611.1007.

USEPA OGWDW Methods, Method 1623 (99), "Method 1623: Cryptosporidium and Giardia in Water by Filtration/IMS/FA," January 1999, EPA 821/R-99/006, referenced in Sections 611.1007.

BOARD NOTE: Many of the above-listed documents available from the USEPA, Office of Ground Water and Drinking Water are also listed as available from NTIS.

USEPA, ORD. USEPA, Office of Research and Development, National Exposure Research Laboratory, Microbiological & Chemical Exposure Assessment Research Division (accessible on-line and available by download from <http://www.epa.gov/nerlcwww/ordmeth.htm>).

USEPA NERL Method 200.5, rev. 4.2, "Determination of Trace Elements in Drinking Water by Axially Viewed Inductively Coupled Plasma - Atomic Emission Spectrometry," October 2003, EPA 600/R-06/115, referenced in Sections 611.611 and 611.612.

USEPA NERL Method 415.3, rev. 1.1, "Determination of Total Organic Carbon and Specific UV Absorbance at 254 nm in Source Water and Drinking Water," February 2005, EPA 600/R-05/055, referenced in Section 611.381.

USEPA NERL Method 415.3, rev. 1.2, "Determination of Total Organic Carbon and Specific UV Absorbance at 254 nm in Source Water and Drinking Water," February 2005, EPA 600/R-09/122, referenced in Section 611.381.

USEPA NERL Method 549.2, rev. 1.0, "Determination of Diquat and Paraquat in Drinking Water by Liquid-Solid Extraction and High Performance Liquid Chromatography with Ultraviolet Detection," June 1997.

USEPA Water Resource Center (RC-4100T), 1200 Pennsylvania Avenue, NW, Washington, DC 20460:

E\*Colite Test, "Charm E\*Colite Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia coli in Drinking Water," January 9, 1998, referenced in Section 611.802. See also Charm Sciences, Inc.

m-ColiBlue24 Test, "Total Coliforms and E. coli Membrane Filtration Method with m-ColiBlue24(r) Broth," Method No. 10029, rev. 2, August 17, 1999, referenced in Section 611.802. See also The Hach Company.

USEPA Method 1600, "EPA Method 1600: Enterococci in Water by Membrane Filtration Using Membrane-Enterococcus Indoxyl-b-D-Glucoside Agar (mEI)," September 2002, EPA 821/R-02/022 is an approved variation of Standard Methods, Method 9230 C, "Fecal Streptococcus and Enterococcus Groups, Membrane Filter Techniques" (which has not itself been approved for use by USEPA) (accessible on-line and available by download from <http://www.epa.gov/nerlcwww/1600sp02.pdf>), referenced in Section 611.802.

USEPA Method 1601, "Method 1601: Male-specific (F+) and Somatic Coliphage in Water by Two-step Enrichment Procedure," April 2001, EPA 821/R-01/030 (accessible on-line and available by download from <http://www.epa.gov/nerlcwww/1601ap01.pdf>), referenced in Section 611.802.

USEPA Method 1602, "Method 1602: Male-specific (F+) and Somatic Coliphage in Water by Single Agar Layer (SAL) Procedure," April 2001, EPA 821/R-01/029 (accessible on-line and available by download from <http://www.epa.gov/nerlcwww/1602ap01.pdf>), referenced in Section 611.802.

USEPA Method 1604, "Method 1604: Total Coliforms and Escherichia coli in Water by Membrane Filtration Using a Simultaneous Detection Technique (MI Medium)," September 2002, EPA 821/R-02/024 (accessible on-line and available by download from <http://www.epa.gov/nerlcwww/1604sp02.pdf>), referenced in Section 611.802.

USGS. Books and Open-File Reports Section, United States Geological Survey, Federal Center, Box 25286, Denver, CO 80225-0425.

Methods available upon request by method number from "Methods for Analysis by the U.S. Geological Survey National Water Quality Laboratory - Determination of Inorganic and Organic Constituents in Water and Fluvial Sediments," Open File Report 93-125, 1993, or Book 5, Chapter A-1, "Methods for Determination of Inorganic Substances in Water and Fluvial Sediments," 3rd ed., Open-File Report 85-495, 1989, as appropriate (referred to as "USGS Methods").

I-1030-85, referenced in Section 611.611.

I-1601-85, referenced in Section 611.611.

I-1700-85, referenced in Section 611.611.

I-2598-85, referenced in Section 611.611.

I-2601-90, referenced in Section 611.611.

I-2700-85, referenced in Section 611.611.

I-3300-85, referenced in Section 611.611.

Methods available upon request by method number from "Methods for Determination of Radioactive Substances in Water and Fluvial Sediments," Chapter A5 in Book 5 of "Techniques of Water-Resources Investigations of the United States Geological Survey," 1997.

611.720. R-1110-76, referenced in Section

611.720. R-1111-76, referenced in Section

611.720. R-1120-76, referenced in Section

611.720. R-1140-76, referenced in Section

611.720. R-1141-76, referenced in Section

611.720. R-1142-76, referenced in Section

611.720. R-1160-76, referenced in Section

611.720. R-1171-76, referenced in Section

611.720. R-1180-76, referenced in Section

611.720. R-1181-76, referenced in Section

611.720. R-1182-76, referenced in Section

Waters Corporation, Technical Services Division, 34 Maple St., Milford, MA 01757 (800-252-4752 or 508-482-2131, fax: 508-482-3625).

"Waters Test Method for Determination of Nitrite/Nitrate in Water Using Single Column Ion Chromatography," Method B-1011, August 1987 (referred to as "Waters Method B-1011"), referenced in Section 611.611.

c) The Board incorporates the following federal regulations by reference:

40 CFR 3.2 (~~2010~~)(2011) (How Does This Part Provide for Electronic Reporting?), referenced in Section 611.105.

40 CFR 3.3 (~~2010~~)(2011) (What Definitions Are Applicable to This Part?), referenced in Section 611.105.

40 CFR 3.10 (~~2010~~)(2011) (What Are the Requirements for Electronic Reporting to EPA?), referenced in Section 611.105.

40 CFR 3.2000 (~~2010~~)(2011) (What Are the Requirements Authorized State, Tribe, and Local Programs' Reporting Systems Must Meet?), referenced in Section 611.105.

40 CFR 136.3(a) (~~2010~~)(2011), referenced in Section 611.1004.

Appendix B to 40 CFR 136 (~~2010~~)(2011), referenced in Sections 611.359, 611.609, and 611.646.

40 CFR 142.20(b) (1) (~~2010~~) (2011), referenced in Section 611.112.

d) This Part incorporates no later amendments or editions.

(Source: Amended at 36 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

Section 611.130 Special Requirements for Certain Variances and Adjusted Standards

a) Relief from the fluoride MCL.

1) In granting any variance or adjusted standard to a supplier that is a CWS from the maximum contaminant level for fluoride listed in Section 611.301(b), the Board will require application of the best available technology (BAT)

identified at subsection (a)(4) of this Section for that constituent as a condition to the relief, unless the supplier has demonstrated through comprehensive engineering assessments that application of BAT is not technically appropriate and technically feasible for that supplier.

2) The Board will require the following as a condition for relief from the fluoride MCL where it does not require the application of BAT:

A) That the supplier continue to investigate the following methods as an alternative means of significantly reducing the level of fluoride, according to a definite schedule:

- i) A modification of lime softening;
- ii) Alum coagulation;
- iii) Electrodialysis;
- iv) Anion exchange resins;
- v) Well field management;
- vi) The use of alternative sources of raw water; and
- vii) Regionalization; and

B) That the supplier report results of that investigation to the Agency.

3) The Agency must petition the Board to reconsider or modify a variance or adjusted standard, pursuant to Subpart I of 35 Ill. Adm. Code 101, if it determines that an alternative method identified by the supplier pursuant to subsection (a)(2) of this Section is technically feasible and would result in a significant reduction in fluoride.

4) Best available technology for fluoride reduction is as follows:

- A) Activated alumina absorption centrally applied; and
- B) Reverse osmosis centrally applied.

BOARD NOTE: Subsection (a) derived from 40 CFR 142.61 ~~(2003)~~-(2011).

b) Relief from an IOC, VOC, or SOC MCL.

1) In granting to a supplier that is a CWS or NTNCWS any variance or adjusted standard from the maximum contaminant levels for any VOC or SOC, listed in Section 611.311(a) or (c), or for any IOC, listed in Section 611.301, the supplier must have first applied the best available technology (BAT) identified at Section 611.311(b) (VOCs and SOCs) or Section 611.301(c) (IOCs) for that constituent, unless the supplier has demonstrated through comprehensive engineering assessments that application of BAT would achieve only a minimal and insignificant reduction in the level of contaminant.

BOARD NOTE: USEPA lists BAT for each SOC and VOC at 40 CFR 142.62(a), for the purposes of variances and exemptions (adjusted standards). That list is identical to the list at 40 CFR 141.61(b).

2) The Board may require any of the following as a condition for relief from an MCL listed in Section 611.301 or 611.311:

A) That the supplier continue to investigate alternative means of compliance according to a definite schedule; and

B) That the supplier report results of that investigation to the Agency.

3) The Agency must petition the Board to reconsider or modify a variance or adjusted standard, pursuant to Subpart I of 35 Ill. Adm. Code 101, if it determines that an alternative method identified by the supplier pursuant to subsection (b)(2) of this Section is technically feasible.

BOARD NOTE: Subsection (b) derived from 40 CFR 142.62(a) through (e)-~~(2003)~~-(2011).

c) Conditions requiring use of bottled water, a point-of-use treatment device, or a point-of-entry treatment device. In granting any variance or adjusted standard from the maximum contaminant levels for organic and inorganic chemicals or an adjusted standard from the treatment technique for lead and copper, the Board may impose certain conditions requiring the use of bottled water, a point-of-entry treatment device, or a point-of-use treatment device to avoid an unreasonable risk to health, limited as provided in subsections (d) and (e) of this Section.

1) Relief from an MCL. The Board may, when granting any variance or adjusted standard from the MCL requirements of Sections 611.301 and 611.311, impose a condition that requires a supplier to use bottled water, a point-of-entry treatment device, a point-of-use treatment device, or other means to avoid an unreasonable risk to health.

2) Relief from corrosion control treatment. The Board may, when granting an adjusted standard from the corrosion control treatment requirements for lead and copper of Sections 611.351 and 611.352, impose a condition that requires a supplier to use bottled water, a point-of-use treatment device, or other means, but not a point-of-entry treatment device, to avoid an unreasonable risk to health.

3) Relief from source water treatment or service line replacement. The Board may, when granting an exemption from the source water treatment and lead service line replacement requirements for lead and copper under Sections 611.353 or 611.354, impose a condition that requires a supplier to use a point-of-entry treatment device to avoid an unreasonable risk to health.

BOARD NOTE: Subsection (c) derived from 40 CFR 142.62(f) ~~(2003)~~-(2011).

d) Use of bottled water. Suppliers that propose to use or use bottled water as a condition for receiving a variance or an adjusted standard from the requirements of Section 611.301 or Section 611.311 or an adjusted standard from the requirements of Sections 611.351 through 611.354 must meet the requirements of either subsections (d)(1), (d)(2), (d)(3), and (d)(6) or (d)(4), (d)(5), and (d)(6) of this Section.

1) The supplier must develop a monitoring program for Board approval that provides reasonable assurances that the bottled water meets all MCLs of Sections 611.301 and 611.311 and submit a description of this program as part of its

petition. The proposed program must describe how the supplier will comply with each requirement of this subsection (d).

2) The supplier must monitor representative samples of the bottled water for all contaminants regulated under Sections 611.301 and 611.311 during the first three-month period that it supplies the bottled water to the public, and annually thereafter.

3) The supplier must annually provide the results of the monitoring program to the Agency.

4) The supplier must receive a certification from the bottled water company as to each of the following:

A) that the bottled water supplied has been taken from an approved source of bottled water, as such is defined in Section 611.101;

B) that the approved source of bottled water has conducted monitoring in accordance with 21 CFR 129.80(g)(1) through (g)(3);

C) and that the bottled water does not exceed any MCLs or quality limits as set out in 21 CFR ~~103.35,~~ 165.110, 110, and 129.

5) The supplier must provide the certification required by subsection (d)(4) of this Section to the Agency during the first quarter after it begins supplying bottled water and annually thereafter.

6) The supplier must assure the provision of sufficient quantities of bottled water to every affected person supplied by the supplier via door-to-door bottled water delivery.

BOARD NOTE: Subsection (d) derived from 40 CFR 142.62(g) (~~2003~~-(2011)).

e) Use of a point-of-entry treatment device. Before the Board grants any PWS a variance or adjusted standard from any NPDWR that includes a condition requiring the use of a point-of-entry treatment device, the supplier must demonstrate to the Board each of the following:

1) That the supplier will operate and maintain the device;

2) That the device provides health protection equivalent to that provided by central treatment;

3) That the supplier will maintain the microbiological safety of the water at all times;

4) That the supplier has established standards for performance, conducted a rigorous engineering design review, and field tested the device;

5) That the operation and maintenance of the device will account for any potential for increased concentrations of heterotrophic bacteria resulting through the use of activated carbon, by backwashing, post-contactor disinfection, and heterotrophic plate count monitoring;

6) That buildings connected to the supplier's distribution system have sufficient devices properly installed, maintained, and monitored to assure that all consumers are protected; and



7) That the use of the device will not cause increased corrosion of lead and copper bearing materials located between the device and the tap that could increase contaminant levels at the tap.

BOARD NOTE: Subsection (e) derived from 40 CFR 142.62(h) ~~(2003)~~-(2011).

f) Relief from the maximum contaminant levels for radionuclides ~~(effective December 8, 2003)~~.

1) Relief from the maximum contaminant levels for combined radium-226 and radium-228, uranium, gross alpha particle activity (excluding radon and uranium), and beta particle and photon radioactivity.

A) Section 611.330(g) sets forth what USEPA has identified as the best available technology (BAT), treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for the radionuclides listed in Section 611.330(b), (c), (d), and (e), for the purposes of issuing relief equivalent to a federal section 1415 variance or a section 1416 exemption.

B) In addition to the technologies listed in Section 611.330(g), Section 611.330(h) sets forth what USEPA has identified as the BAT, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for the radionuclides listed in Section 611.330(b), (c), (d), and (e), for the purposes of issuing relief equivalent to a federal section 1415 variance or a section 1416 exemption to small drinking water systems, defined here as those serving 10,000 persons or fewer, as shown in the second table set forth at Section 611.330(h).

2) The Board will require a CWS supplier to install and use any treatment technology identified in Section 611.330(g), or in the case of small water systems (those serving 10,000 persons or fewer), listed in Section 611.330(h), as a condition for granting relief equivalent to a federal section 1415 variance or a section 1416 exemption, except as provided in subsection (f) (3) of this Section. If, after the system's installation of the treatment technology, the system cannot meet the MCL, that system will be eligible for relief.

3) If a CWS supplier can demonstrate through comprehensive engineering assessments, which may include pilot plant studies, that the treatment technologies identified in this Section would only achieve a de minimus reduction in the contaminant level, the Board may issue a schedule of compliance that requires the system being granted relief equivalent to a federal section 1415 variance or a section 1416 exemption to examine other treatment technologies as a condition of obtaining the relief.

4) If the Agency determines that a treatment technology identified under subsection (f) (3) of this Section is technically feasible, it may request that the Board require the supplier to install and use that treatment technology in connection with a compliance schedule issued pursuant to Section 36 of the Act [415 ILCS 5/36]. The Agency's determination must be based upon studies by the system and other relevant information.

5) The Board may require a CWS to use bottled water, point-of-use devices, point-of-entry devices, or other means as a condition of granting relief equivalent to a federal section 1415 variance or a section 1416 exemption from the requirements of Section 611.330, to avoid an unreasonable risk to health.



6) A CWS supplier that uses bottled water as a condition for receiving relief equivalent to a federal section 1415 variance or a section 1416 exemption from the requirements of Section 611.330 must meet the requirements specified in either subsections (d)(1) through (d)(3) or (d)(4) through (d)(6) of this Section.

7) A CWS supplier that uses point-of-use or point-of-entry devices as a condition for obtaining relief equivalent to a federal section 1415 variance or a section 1416 exemption from the radionuclides NPDWRs must meet the conditions in subsections (e)(1) through (e)(6) of this Section.

BOARD NOTE: Subsection (f) derived from 40 CFR 142.65 (~~2003~~-(2011)).

(Source: Amended at 36 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

SUBPART N: INORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.611 Inorganic Analysis

Analytical methods are from documents incorporated by reference in Section 611.102. These are mostly referenced by a short name defined by Section 611.102(a). Other abbreviations are defined in Section 611.101.

a) Analysis for the following contaminants must be conducted using the following methods or an alternative method approved pursuant to Section 611.480. Criteria for analyzing arsenic, chromium, copper, lead, nickel, selenium, sodium, and thallium with digestion or directly without digestion, and other analytical procedures, are contained in USEPA Technical Notes, incorporated by reference in Section 611.102.

BOARD NOTE: Because MDLs reported in USEPA Environmental Metals Methods 200.7 and 200.9 were determined using a 2? preconcentration step during sample digestion, MDLs determined when samples are analyzed by direct analysis (i.e., no sample digestion) will be higher. For direct analysis of cadmium by USEPA Environmental Metals Method 200.7, sample preconcentration using pneumatic nebulization may be required to achieve lower detection limits. Preconcentration may also be required for direct analysis of antimony, lead, and thallium by USEPA Environmental Metals Method 200.9; antimony and lead by Standard Methods, 18th, 19th, or 21st ed., Method 3113 B; and lead by ASTM Method D3559-96 D or D3559-03 D unless multiple in-furnace depositions are made.

1) Alkalinity.

A) Titrimetric.

i) ASTM Method D1067-92 B, ~~or~~ D1067-02 B, or D1067-06 B; ~~or~~

ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 2320 B-; or

iii) Standard Methods Online, Method 3113 B-04.

B) Electrometric titration: USGS Methods, ~~7-;~~ Method I-1030-85.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 2320 B as an approved alternative method for alkalinity in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D1067-06 B

and Standard Methods Online, Method 3113 B-04 as approved alternative methods for alkalinity in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

2) Antimony.

A) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).

B) Atomic absorption, hydride technique: ASTM Method D3697-92, D3697-02, or D3697-07.

C) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).

D) Atomic absorption, furnace technique: ~~Standard Methods, 18th, 19th, or 21st ed., Method 3113 B.~~

i) Standard Methods, 18th, 19th, or 21st ed., Method 3113 B; or

ii) Standard Methods Online, Method 3113 B-04.

E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 3113B and USEPA NERL Method 200.5 as approved alternative methods for antimony in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D3697-07 as an approved alternative method for antimony in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for antimony in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

3) Arsenic.

BOARD NOTE: If ultrasonic nebulization is used in the determination of arsenic by Method 200.8, the arsenic must be in the pentavalent state to provide uniform signal response. For direct analysis of arsenic with Method 200.8 using ultrasonic nebulization, samples and standards must contain one mg/l of sodium hypochlorite.

A) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).

B) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).

C) Atomic absorption, furnace technique.

i) ASTM Method D2972-97 C, D2972-03 C, or D2972-08 C; ~~or~~

ii) Standard Methods, 18th, 19th, or 21st ed., Method 3113 B; or

iii) Standard Methods Online, Method 3113 B-04.

D) Atomic absorption, hydride technique.

- i) ASTM Method D2972-97 B, D2972-03 C, or D2972-08 B; ~~or~~
  - ii) Standard Methods, 18th, 19th, or 21st ed., Method 3114 B-; or
  - iii) Standard Methods Online, Method 3114 B-04.
- E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., ~~Methods~~Method 3113-B and ~~3114~~ B and USEPA NERL Method 200.5 as approved alternative methods for arsenic in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods D2972-08 B and C as approved alternative methods for arsenic in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. ~~57908~~-57908). USEPA added Standard Methods Online, Method 3113 B-04 and Method 3114 B-04 as approved alternative methods for arsenic in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

4) Asbestos: Transmission electron microscopy: USEPA Asbestos Method 100.1 or USEPA Asbestos Method 100.2.

5) Barium.

A) Inductively coupled plasma.

i) USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4); or

ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 3120 B.

B) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).

C) Atomic absorption, direct aspiration technique: Standard Methods, 18th, 19th, or 21st ed., Method 3111 D.

D) Atomic absorption, furnace technique: ~~Standard Methods, 18th, 19th, or 21st ed., Method 3113 B.~~

i) Standard Methods, 18th, 19th, or 21st ed., Method 3113 B; or

ii) Standard Methods Online, Method 3113 B-04.

E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 3111 D, 3113 B, and 3120 B and USEPA NERL Method 200.5 as approved alternative methods for barium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for barium in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

6) Beryllium.

A) Inductively coupled plasma.

i) USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4); or

ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 3120 B.

B) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).

C) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).

D) Atomic absorption, furnace technique.

i) ASTM Method D3645-97 B, or D3645-03 B, ~~or D3645-08 B, or~~

ii) Standard Methods, 18th, 19th, or 21st ed., Method 3113 B-; or

iii) Standard Methods Online, Method 3113 B-04.

E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 3113 B and 3120 B and USEPA NERL Method 200.5 as approved alternative methods for beryllium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D3645-08 B as an approved alternative method for beryllium in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for beryllium in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

7) Cadmium.

A) Inductively coupled plasma arc furnace: USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4).

B) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).

C) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).

D) Atomic absorption, furnace technique: ~~Standard Methods, 18th, 19th, or 21st ed., Method 3113 B Standard Methods, 18th, 19th, or 21st ed., Method 3113 B-~~

i) Standard Methods, 18th, 19th, or 21st ed., Method 3113 B; or

ii) Standard Methods Online, Method 3113 B-04.

E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 3113 B and USEPA NERL Method 200.5 as approved alternative methods for cadmium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for cadmium in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

- 8) Calcium.
- A) EDTA titrimetric.
- i) ASTM Method D511-93 A, D511-03 A, or D511-09 A; or
- ii) Standard Methods, 18th or 19th ed., Method 3500-Ca D or Standard Methods, 20th or 21st ed., Method 3500-Ca B.
- B) Atomic absorption, direct aspiration.
- i) ASTM Method D511-93 B, D511-03 B, or D511-09 B; or
- ii) Standard Methods, 18th, 19th, or 21st ed., Method 3111 B.
- C) Inductively coupled plasma.
- i) USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4); or
- ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 3120 B.
- D) Ion chromatography: ASTM Method D6919-03 or D6919-09.
- E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 3111 B, 3120 B, and 3500-Ca B and USEPA NERL Method 200.5 as approved alternative methods for calcium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods D511-09 A and B as approved alternative methods for calcium in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added ASTM Method D6919-09 as an approved alternative method for calcium in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

- 9) Chromium.
- A) Inductively coupled plasma.
- i) USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4); or
- ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 3120 B.
- B) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).
- C) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).
- D) Atomic absorption, furnace technique: ~~Standard Methods, 18th, 19th, or 21st ed., Method 3113 B Standard Methods, 18th, 19th, or 21st ed., Method 3113 B.~~
- i) Standard Methods, 18th, 19th, or 21st ed., Method 3113 B; or
- ii) Standard Methods Online, Method 3113 B-04.

E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 3113 B and 3120 B and USEPA NERL Method 200.5 as an approved alternative ~~method~~ methods for chromium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for chromium in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

10) Copper.

A) Atomic absorption, furnace technique.

i) ASTM Method D1688-95 C, D1688-02 C, or D1688-07 C; ~~or~~

ii) Standard Methods, 18th, 19th, or 21st ed., Method 3113 B-; or

iii) Standard Methods Online, Method 3113 B-04.

B) Atomic absorption, direct aspiration.

i) ASTM Method D1688-95 A, D1688-02 A, or D1688-07 A; or

ii) Standard Methods, 18th, 19th, or 21st ed., Method 3111 B.

C) Inductively coupled plasma.

i) USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4); or

ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 3120 B.

D) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).

E) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).

F) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES) ~~+~~ USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 3111 B, 3113 B, and 3120 B and USEPA NERL Method 200.5 as an approved alternative method for copper in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods D1688-07 A and C as approved alternative methods for copper in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for copper in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

11) Conductivity; Conductance.

A) ASTM Method D1125-95(1999) A; or

B) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 2510 B.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 2510 B as an approved alternative method for conductivity in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).

12) Cyanide.

A) Manual distillation (ASTM Method D2036-98 A or Standard Methods, 18th, 19th, or 20th ed., Method 4500-CN- C), followed by spectrophotometric, amenable.

i) ASTM Method D2036-98 B or 2036-06 B; or

ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 4500-CN- G.

B) Manual distillation (ASTM Method D2036-98 A or Standard Methods, 18th, 19th, or 20th ed., Method 4500-CN- C), followed by spectrophotometric, manual.

i) ASTM Method D2036-98 A or D2036-06 A;

ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 4500-CN- E; or

iii) USGS Methods, Method I-3300-85.

C) Spectrophotometric, semiautomated: USEPA Environmental Inorganic Methods, Method 335.4 (rev. 1.0).

D) Selective electrode: Standard Methods, 18th, 19th, 20th, or 21st ed., Method 4500-CN- F.

E) UV/Distillation/Spectrophotometric: Kelada 01.

F) Microdistillation/Flow Injection/Spectrophotometric:  
QuickChem 10-204-00-1-X.

G) Ligand exchange and amperometry.

i) ASTM Method D6888-03.

ii) OI Analytical Method OIA-1677 DW.

H) Gas chromatography-mass spectrometry headspace: Method ME355.01.

BOARD NOTE: USEPA added ASTM Method D2036-06 A and Standard Methods, 21st ed., Methods 4500-CN- E, F, and G as approved alternative methods for cyanide in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Method ME355.01 as an approved alternative method for cyanide in appendix A to subpart C of 40 CFR 141 on August 3, 2009 (at 74 Fed. Reg. 38348).

13) Fluoride.

A) Ion Chromatography.

i) USEPA Environmental Inorganic Methods, Method 300.0 (rev. 2.1) or USEPA Organic and Inorganic Methods, Method 300.1 (rev. 1.0);

ii) ASTM Method D4327-97 or D4327-03; ~~or~~



iii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 4110 B-; or

iv) Hach SPADNS 2 Method 10225.

B) Manual distillation, colorimetric SPADNS: Standard Methods, 18th, 19th, 20th, or 21st ed., Method 4500-F- B and D.

C) Manual electrode.

i) ASTM Method D1179-93 B, D1179-99 B, or D1179-04 B; or

ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 4500-F- C.

D) Automated electrode: Technicon Methods, Method 380-75WE.

E) Automated alizarin.

i) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 4500-F- E; or

ii) Technicon Methods, Method 129-71W.

F) Capillary ion electrophoresis: ASTM Method D6508-00(2005).

BOARD NOTE: On March 12, 2007 (at 72 Fed. Reg. 11200), USEPA amended the entry for fluoride to add capillary ion electrophoresis in the table at corresponding 40 CFR 141.23(k)(1) to allow the use of "Waters Method D6508, Rev. 2." The Board attempt to locate a copy of the method disclosed that it is an ASTM method originally approved in 2000 and reapproved in 2005. The Board has cited to the ASTM Method D6508-00 (2005).

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 4110 B and 4500-~~B~~, B, C, D, and E and ASTM Method D1179-04 B as approved alternative methods for fluoride in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Hach SPADNS 2 Method 10225 as an approved alternative method for fluoride in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

14) Lead.

A) Atomic absorption, furnace technique.

i) ASTM Method D3559-96 D, D3559-03 D, or D3559-08-~~D~~, ~~or~~.

ii) Standard Methods, 18th, 19th, or 21st ed., Method 3113 B-; or

iii) Standard Methods Online, Method 3113 B-04.

B) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).

C) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).

D) Differential Pulse Anodic Stripping Voltammetry: Palintest Method 1001.

E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.



BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 3113 B and USEPA NERL Method 200.5 as approved alternative methods for lead in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D3559-08 D as an approved alternative method for lead in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for lead in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

15) Magnesium.

A) Atomic absorption.

i) ASTM Method D511-93 B, D511-03 B, or D511-09 B; or

ii) Standard Methods, 18th, 19th, or 21st ed., Method 3111 B.

B) Inductively coupled plasma.

i) USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4); or

ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 3120 B.

C) Complexation titrimetric.

i) ASTM Method D511-93 A, D511-03 A, or D511-09 A; or

ii) Standard Methods, 18th or 19th ed., Method 3500-Mg E or Standard Methods, 20th or 21st ed., Method 3500-Mg B.

D) Ion chromatography: ASTM Method D6919-03 or D6919-09.

E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 3111 B, 3120 B, and 3500-Mg B and USEPA NERL Method 200.5 as approved alternative methods for magnesium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods D511-09 A and B as approved alternative methods for magnesium in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added ASTM Method D6919-09 as an approved alternative method for magnesium in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

16) Mercury.

A) Manual cold vapor technique.

i) USEPA Environmental Metals Methods, Method 245.1 (rev. 3.0);

ii) ASTM Method D3223-97 or D3223-02; or

iii) Standard Methods, 18th, 19th, or 21st ed., Method 3112 B.

B) Automated cold vapor technique: USEPA Inorganic Methods, Method 245.2.

C) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 3112 B as an approved alternative method for mercury in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).

17) Nickel.

A) Inductively coupled plasma.

i) USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4); or

ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 3120 B.

B) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).

C) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).

D) Atomic absorption, direct aspiration technique: Standard Methods, 18th, 19th, or 21st ed., Method 3111 B.

E) Atomic absorption, furnace technique: ~~Standard Methods, 18th, 19th, or 21st ed., Method 3113 B.~~

i) Standard Methods, 18th, 19th, or 21st ed., Method 3113 B; or

ii) Standard Methods Online, Method 3113 B-04.

F) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 3111 B, 3113 B, and 3120 B and USEPA NERL Method 200.5 as approved alternative methods for nickel in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for nickel in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

18) Nitrate.

A) Ion chromatography.

i) USEPA Environmental Inorganic Methods, Method 300.0 (rev. 2.1) or USEPA Organic and Inorganic Methods, Method 300.1 (rev. 1.0);

ii) ASTM Method D4327-97 or D4327-03;

iii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 4110 B; or

iv) Waters Test Method B-1011, available from Millipore Corporation.

B) Automated cadmium reduction.

i) USEPA Environmental Inorganic Methods, Method 353.2 (rev. 2.0);

- ii) ASTM Method D3867-90 A; or
- iii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 4500-NO3- F.
- C) Ion selective electrode.
  - i) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 4500-NO3- D; or
  - ii) Technical Bulletin 601.
- D) Manual cadmium reduction.
  - i) ASTM Method D3867-90 B; or
  - ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 4500-NO3- E.
- E) Capillary ion electrophoresis: ASTM Method D6508-00(2005).

BOARD NOTE: On March 12, 2007 (at 72 Fed. Reg. 11200), USEPA amended the entry for nitrate to add capillary ion electrophoresis in the table at corresponding 40 CFR 141.23(k)(1) to allow the use of "Waters Method D6508, Rev. 2." The Board attempt to locate a copy of the method disclosed that it is an ASTM method originally approved in 2000 and reapproved in 2005. The Board has cited to the ASTM Method D6508-00(2005).

F) Reduction-colorimetric: Systea Easy (1-Reagent).

G) Direct colorimetric: Hach TNTplus 835/836 Method 10206.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 4110 B and 4500-NO3-~~D~~, E, and F as approved alternative methods for nitrate in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Systea Easy (1-Reagent) as an approved alternative method for nitrate in appendix A to subpart C of 40 CFR 141 on August 3, 2009 (at 73 Fed. Reg. 38348). USEPA added Hach TNTplus 835/836 Method 10206 as an approved alternative method for nitrate in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

19) Nitrite.

A) Ion chromatography.

i) USEPA Environmental Inorganic Methods, Method 300.0 (rev. 2.1) or USEPA Organic and Inorganic Methods, Method 300.1 (rev. 1.0);

ii) ASTM Method D4327-97 or D4327-03;

iii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 4110 B; or

iv) Waters Test Method B-1011, available from Millipore Corporation.

B) Automated cadmium reduction.

i) USEPA Environmental Inorganic Methods, Method 353.2 (rev. 2.0);

ii) ASTM Method D3867-90 A; or

iii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 4500-NO3- F.

C) Manual cadmium reduction.

i) ASTM Method D3867-90 B; or

ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 4500-NO3- E.

D) Spectrophotometric: Standard Methods, 18th, 19th, 20th, or 21st ed., Method 4500-NO2- B.

E) Capillary ion electrophoresis: ASTM Method D6508-00(2005).

BOARD NOTE: On March 12, 2007 (at 72 Fed. Reg. 11200), USEPA amended the entry for nitrite to add capillary ion electrophoresis in the table at corresponding 40 CFR 141.23(k)(1) to allow the use of "Waters Method D6508, Rev. 2." The Board attempt to locate a copy of the method disclosed that it is an ASTM method originally approved in 2000 and reapproved in 2005. The Board has cited to the ASTM Method D6508-00(2005).

F) Reduction-colorimetric: Syssta Easy (1-Reagent).

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 4110 B, 4500-NO3-~~E~~ E and F; and 4500-NO2-~~B~~ B as approved alternative methods for nitrite in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Syssta Easy (1-Reagent) as an approved alternative method for nitrite in appendix A to subpart C of 40 CFR 141 on August 3, 2009 (at 73 Fed. Reg. 38348).

20) Orthophosphate (unfiltered, without digestion or hydrolysis).

A) Automated colorimetric, ascorbic acid.

i) USEPA Environmental Inorganic Methods, Method 365.1 (rev. 2.0); or

ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 4500-P F.

B) Single reagent colorimetric, ascorbic acid.

i) ASTM Method D515-88 A; or

ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 4500-P E.

C) Colorimetric, phosphomolybdate: USGS Methods, Method I-1601-85.

D) Colorimetric, phosphomolybdate, automated-segmented flow: USGS Methods, Method I-2601-90.

E) Colorimetric, phosphomolybdate, automated discrete: USGS Methods, Method I-2598-85.

F) Ion Chromatography.

i) USEPA Environmental Inorganic Methods, ~~Method 300.0~~ Method 300.0 (rev. 2.1) or USEPA Organic and Inorganic Methods, Method 300.1 (rev. 1.0);

- ii) ASTM Method D4327-97 or D4327-03; or
  - iii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 4110 B.
- G) Capillary ion electrophoresis: ASTM Method D6508-00(2005).

BOARD NOTE: On March 12, 2007 (at 72 Fed. Reg. 11200), USEPA amended the entry for orthophosphate to add capillary ion electrophoresis in the table at corresponding 40 CFR 141.23(k)(1) to allow the use of "Waters Method D6508, Rev. 2." The Board attempt to locate a copy of the method disclosed that it is an ASTM method originally approved in 2000 and reapproved in 2005. The Board has cited to the ASTM Method D6508-00(2005).

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 4110 B, 4500-P E and F as approved alternative methods for orthophosphate in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).

21) pH: electrometric.

- A) USEPA Inorganic Methods, Method 150.1 or Method 150.2;
- B) ASTM Method D1293-95 or D1293-99; or
- C) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 4500-H+ B.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 4500-H+ B as an approved alternative method for pH in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).

22) Selenium.

A) Atomic absorption, hydride.

- i) ASTM Method D3859-98 A, D3859-03 A, or D3859-08 A; ~~08 A~~
- ii) Standard Methods, 18th, 19th, or 21st ed., Method 3114 B-; or

iii) Standard Methods Online, Method 3114 B-09.

B) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).

C) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).

D) Atomic absorption, furnace technique.

- i) ASTM Method D3859-98 B, D3859-03 B, or D3859-08 B; ~~08 B~~
- ii) Standard Methods, 18th, 19th, or 21st ed., Method 3113 B-; or
- iii) Standard Methods Online, Method 3113 B-04.

E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 3113 B and 3114 B and USEPA NERL Method 200.5 as approved alternative methods for selenium in

appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods D3859-08 A and B as approved alternative methods for selenium in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods Online, Method 3113 B-04 and Method 3114 B-09 as approved alternative methods for selenium in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

23) Silica.

A) Colorimetric, molybdate blue: USGS Methods, Method I-1700-85.

B) Colorimetric, molybdate blue, automated-segmented flow: USGS Methods, Method I-2700-85.

C) Colorimetric: ASTM Method D859-94, D859-00, or D859-05.

D) Molybdosilicate: Standard Methods, 18th or 19th ed., Method 4500-Si D or Standard Methods, 20th or 21st ed., Method 4500-SiO<sub>2</sub> C.

E) Heteropoly blue: Standard Methods, 18th or 19th ed., Method 4500-Si E or Standard Methods, 20th or 21st ed., Method 4500-SiO<sub>2</sub> D.

F) Automated method for molybdate-reactive silica: Standard Methods, 18th or 19th ed., Method 4500-Si F or Standard Methods, 20th or 21st ed., Method 4500-SiO<sub>2</sub> E.

G) Inductively coupled plasma.

i) USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4); or

ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 3120 B.

H) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added ASTM Method D859-05, Standard Methods, 21st ed.; Methods 3120 B and 4500-SiO<sub>2</sub> C, D, and E; and USEPA NERL Method 200.5 as approved alternative methods for silica in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).

24) Sodium.

A) Inductively coupled plasma: USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4).

B) Atomic absorption, direct aspiration: Standard Methods, 18th, 19th, or 21st ed., Method 3111 B.

C) Ion chromatography: ASTM Method D6919-03 or D6919-09.

D) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 3113 B and ~~USPEA~~USEPA NERL Method 200.5 as approved alternative methods for sodium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).

USEPA added ASTM Method D6919-09 as an approved alternative method for sodium in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

25) Temperature; thermometric: Standard Methods, 18th, 19th, 20th, or 21st ed., Method 2550.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 2550 as an approved alternative method for temperature in appendix A to subpart C ~~of 40 CFR 141~~ on June 3, 2008 (at 73 Fed. Reg. 31616).

26) Thallium.

A) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).

B) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).

b) Sample collection for antimony, arsenic (effective January 22, 2004), asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, nitrate, nitrite, selenium, and thallium pursuant to Sections 611.600 through 611.604 must be conducted using the following sample preservation, container, and maximum holding time procedures:

BOARD NOTE: For cyanide determinations samples must be adjusted with sodium hydroxide to pH 12 at the time of collection. When chilling is indicated the sample must be shipped and stored at 4° C or less. Acidification of nitrate or metals samples may be with a concentrated acid or a dilute (50% by volume) solution of the applicable concentrated acid. Acidification of samples for metals analysis is encouraged and allowed at the laboratory rather than at the time of sampling provided the shipping time and other instructions in Section 8.3 of USEPA Environmental Metals Method 200.7, 200.8, or 200.9 are followed.

1) Antimony.

A) Preservative: Concentrated nitric acid to pH less than 2.

B) Plastic or glass (hard or soft).

C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within six months.

2) Arsenic.

A) Preservative: Concentrated nitric acid to pH less than 2.

B) Plastic or glass (hard or soft).

C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within six months.

3) Asbestos.

A) Preservative: Cool to 4° C.

B) Plastic or glass (hard or soft).

C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 48 hours.

4) Barium.

A) Preservative: Concentrated nitric acid to pH less than 2.

B) Plastic or glass (hard or soft).

C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within six months.

5) Beryllium.

A) Preservative: Concentrated nitric acid to pH less than 2.

B) Plastic or glass (hard or soft).

C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within six months.

6) Cadmium.

A) Preservative: Concentrated nitric acid to pH less than 2.

B) Plastic or glass (hard or soft).

C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within six months.

7) Chromium.

A) Preservative: Concentrated nitric acid to pH less than 2.

B) Plastic or glass (hard or soft).

C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within six months.

8) Cyanide.

A) Preservative: Cool to 4° C. Add sodium hydroxide to pH greater than 12. See the analytical methods for information on sample preservation.

B) Plastic or glass (hard or soft).

C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 14 days.

9) Fluoride.

A) Preservative: None.

B) Plastic or glass (hard or soft).

C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within one month.



- 10) Mercury.
  - A) Preservative: Concentrated nitric acid to pH less than 2.
  - B) Plastic or glass (hard or soft).
  - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 28 days.
- 11) Nickel.
  - A) Preservative: Concentrated nitric acid to pH less than 2.
  - B) Plastic or glass (hard or soft).
  - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within six months.
- 12) Nitrate, chlorinated.
  - A) Preservative: Cool to 4° C.
  - B) Plastic or glass (hard or soft).
  - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 14 days.
- 13) Nitrate, non-chlorinated.
  - A) Preservative: Concentrated sulfuric acid to pH less than 2.
  - B) Plastic or glass (hard or soft).
  - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 14 days.
- 14) Nitrite.
  - A) Preservative: Cool to 4° C.
  - B) Plastic or glass (hard or soft).
  - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 48 hours.
- 15) Selenium.
  - A) Preservative: Concentrated nitric acid to pH less than 2.
  - B) Plastic or glass (hard or soft).
  - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within six months.
- 16) Thallium.

A) Preservative: Concentrated nitric acid to pH less than 2.

B) Plastic or glass (hard or soft).

C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within six months.

c) Analyses under this Subpart N must be conducted by laboratories that received approval from USEPA or the Agency. The Agency must certify laboratories to conduct analyses for antimony, arsenic (effective January 23, 2006), asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, nitrate, nitrite, selenium, and thallium if the laboratory does as follows:

1) It analyzes performance evaluation (PE) samples, provided by the Agency pursuant to 35 Ill. Adm. Code 186, that include those substances at levels not in excess of levels expected in drinking water; and

2) It achieves quantitative results on the analyses within the following acceptance limits:

A) Antimony:  $\pm 30\%$  at greater than or equal to 0.006 mg/l.

B) Arsenic:  $\pm 30\%$  at greater than or equal to 0.003 mg/l.

C) Asbestos: 2 standard deviations based on study statistics.

D) Barium:  $\pm 15\%$  at greater than or equal to 0.15 mg/l.

E) Beryllium:  $\pm 15\%$  at greater than or equal to 0.001 mg/l.

F) Cadmium:  $\pm 20\%$  at greater than or equal to 0.002 mg/l.

G) Chromium:  $\pm 15\%$  at greater than or equal to 0.01 mg/l.

H) Cyanide:  $\pm 25\%$  at greater than or equal to 0.1 mg/l.

I) Fluoride:  $\pm 10\%$  at 1 to 10 mg/l.

J) Mercury:  $\pm 30\%$  at greater than or equal to 0.0005 mg/l.

K) Nickel:  $\pm 15\%$  at greater than or equal to 0.01 mg/l.

L) Nitrate:  $\pm 10\%$  at greater than or equal to 0.4 mg/l.

M) Nitrite:  $\pm 15\%$  at greater than or equal to 0.4 mg/l.

N) Selenium:  $\pm 20\%$  at greater than or equal to 0.01 mg/l.

O) Thallium:  $\pm 30\%$  at greater than or equal to 0.002 mg/l.

BOARD NOTE: Derived from 40 CFR 141.23(k) and appendix A to 40 CFR 141 (~~2010~~-  
~~2011~~).

(Source: Amended at 36 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

Section 611.612 Monitoring Requirements for Old Inorganic MCLs

a) Analyses for the purpose of determining compliance with the old inorganic MCLs of Section 611.300 are required as follows:

1) Analyses for all CWSs utilizing surface water sources must be repeated at yearly intervals.

2) Analyses for all CWSs utilizing only groundwater sources must be repeated at three-year intervals.

3) This subsection (a)(3) corresponds with 40 CFR 141.23(1)(3), which requires monitoring for the repealed old MCL for nitrate at a frequency specified by the state. The Board has followed the USEPA lead and repealed that old MCL. This statement maintains structural consistency with USEPA rules.

4) This subsection (a)(4) corresponds with 40 CFR 141.23(1)(4), which authorizes the state to determine compliance and initiate enforcement action. This statement maintains structural consistency with USEPA rules.

b) If the result of an analysis made under subsection (a) of this Section indicates that the level of any contaminant listed in Section 611.300 exceeds the old MCL, the supplier must report to the Agency within seven days and initiate three additional analyses at the same sampling point within one month.

c) When the average of four analyses made pursuant to subsection (b) of this Section, rounded to the same number of significant figures as the old MCL for the substance in question, exceeds the old MCL, the supplier must notify the Agency and give notice to the public pursuant to Subpart V of this Part. Monitoring after public notification must be at a frequency designated by the Agency by a SEP granted pursuant to Section 611.110 and must continue until the old MCL has not been exceeded in two successive samples or until a different monitoring schedule becomes effective as a condition to a variance, an adjusted standard, a site specific rule, an enforcement action, or another SEP granted pursuant to Section 611.110.

d) This subsection (d) corresponds with 40 CFR 141.23(o), which pertains to monitoring for the repealed old MCL for nitrate. This statement maintains structural consistency with USEPA rules.

e) This subsection (e) corresponds with 40 CFR 141.23(p), which pertains to the use of existing data up until a date long since expired. This statement maintains structural consistency with USEPA rules.

f) Except for arsenic, for which analyses must be made in accordance with Section 611.611, analyses conducted to determine compliance with the old MCLs of Section 611.300 must be made in accordance with the following methods, incorporated by reference in Section 611.102, or alternative methods approved by the Agency pursuant to Section 611.480.

1) Fluoride: The methods specified in Section 611.611(c) must apply for the purposes of this Section.

2) Iron.

A) Standard Methods.

i) Method 3111 B, 18th, 19th, or 21st ed.;

- ii) Method 3113 B, 18th, 19th, or 21st ed.; ~~or~~
- iii) Method 3120 B, 18th, 19th, 20th, or 21st ed.
- B) Standard Methods Online, Method 3113 B-04.

~~BCC~~) USEPA Environmental Metals Methods.

- i) Method 200.7 (rev. 4.4); or
- ii) Method 200.9 (rev. 2.2).

~~ADD~~) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added this method as an approved alternative method in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for iron in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

BOARD NOTE: USEPA added Standard Methods, 21st ed.; Methods 3111 B, 3113 B, and 3120 B and USEPA NERL Method 200.5 as approved alternative methods for iron in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).

3) Manganese.

A) Standard Methods.

- i) Method 3111 B, 18th, 19th, or 21st ed.;
- ii) Method 3113 B, 18th, 19th, or 21st ed.; or
- iii) Method 3120 B, 18th, 19th, 20th, or 21st ed.
- B) Standard Methods Online, Method 3113 B-04.

~~BCC~~) USEPA Environmental Metals Methods.

- i) Method 200.7 (rev. 4.4);
- ii) Method 200.8 (rev. 5.3); or
- iii) Method 200.9 (rev. 2.2).

~~ADD~~) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed.; Methods 3111 B, 3113 B, and 3120 B and USEPA NERL Method 200.5 as approved alternative methods for manganese in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for manganese in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

4) Zinc.

- A) Standard Methods.
  - i) Method 3111 B, 18th, 19th, or 21st ed.; or
  - ii) Method 3120 B, 18th, 19th, 20th, or 21st ed.
- B) USEPA Environmental Metals Methods.
  - i) Method 200.7 (rev. 4.4); or
  - ii) Method 200.8 (rev. 5.3).
- C) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed.; Methods 3111 B and 3120 B and USEPA NERL Method 200.5 as approved alternative methods for zinc in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).

BOARD NOTE: The provisions of subsections (a) through (e) of this Section derive from 40 CFR 141.23(l) through (p) (2010)-(2011). Subsections (f)(2) through (f)(4) of this Section relate exclusively to additional State requirements. The Board retained subsection (f) of this Section to set forth methods for the inorganic contaminants for which there is a State-only MCL. The methods specified are those set forth in 40 CFR 143.4(b) and appendix A to subpart C of 40 CFR 141 (2010)-(2011), for secondary MCLs.

(Source: Amended at 36 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

#### SUBPART O: ORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

##### Section 611.645 Analytical Methods for Organic Chemical Contaminants

Analysis for the Section 611.311(a) VOCs under Section 611.646; the Section 611.311(c) SOCs under Section 611.648; the Section 611.310 old MCLs under Section 611.641; and for THMs, TTHMs, and TTHM potential must be conducted using the methods listed in this Section. ~~All methods are from USEPA Organic Methods, unless otherwise indicated.~~ All methods are incorporated by reference in Section 611.102. Other required analytical test procedures germane to the conduct of these analyses are contained in the USEPA document, "Technical Notes of Drinking Water Methods," incorporated by reference in Section 611.102.

##### a) Volatile Organic Chemical Contaminants (VOCs).

Contaminant Analytical Methods Benzene USEPA Organic Methods, Methods 502.2 (rev. 2.1) ~~and~~ 524.2 (rev. 4.1) ~~and~~; USEPA OGWDW Methods, Method 524.3 (rev. 1.0) Carbon tetrachloride USEPA Organic Methods, Methods 502.2 (rev. 2.1) ~~and~~ 524.2 (rev. 4.1) ~~and~~; USEPA OGWDW Methods, Method 524.3 (rev. 1.0) ~~and~~ 551.1 (rev. 1.0) Chlorobenzene USEPA Organic Methods, Methods 502.2 (rev. 2.1), ~~and~~ 524.2 (rev. 4.1) ~~and~~; USEPA OGWDW Methods, Method 524.3 (rev. 1.0) 1,2-Dichlorobenzene USEPA Organic Methods, Methods 502.2 (rev. 2.1) ~~and~~ 524.2 (rev. 4.1) ~~and~~; USEPA OGWDW Methods, Method 524.3 (rev. 1.0) 1,4-Dichlorobenzene USEPA Organic Methods, Methods 502.2 (rev. 2.1) ~~and~~ 524.2 (rev. 4.1) ~~and~~; USEPA OGWDW Methods, Method 524.3 (rev. 1.0) 1,2-Dichloroethane USEPA Organic Methods, Methods 502.2 (rev. 2.1) ~~and~~ 524.2 (rev. 4.1) ~~and~~; USEPA OGWDW Methods, Method 524.3 (rev. 1.0) cis-Dichloroethylene USEPA Organic Methods, Methods 502.2 (rev. 2.1) ~~and~~

and 524.2 (rev. 4.1) ~~---~~; USEPA OGWDW Methods, Method 524.3 (rev. 1.0) trans-Dichloroethylene USEPA Organic Methods, Methods 502.2 (rev. 2.1) ~~---~~ and 524.2 (rev. 4.1) ~~---~~; USEPA OGWDW Methods, Method 524.3 (rev. 1.0) Dichloromethane USEPA Organic Methods, Methods 502.2 (rev. 2.1) ~~---~~ and 524.2 (rev. 4.1) ~~---~~; USEPA OGWDW Methods, Method 524.3 (rev. 1.0) 1,2-Dichloropropane USEPA Organic Methods, Methods 502.2 (rev. 2.1) ~~---~~ and 524.2 (rev. 4.1) ~~---~~; USEPA OGWDW Methods, Method 524.3 (rev. 1.0) Ethylbenzene USEPA Organic Methods, Methods 502.2 (rev. 2.1) ~~---~~ and 524.2 (rev. 4.1) ~~---~~; USEPA OGWDW Methods, Method 524.3 (rev. 1.0) Styrene USEPA Organic Methods, Methods 502.2 (rev. 2.1) ~~---~~ and 524.2 (rev. 4.1) ~~---~~; USEPA OGWDW Methods, Method 524.3 (rev. 1.0) Tetrachloroethylene USEPA Organic Methods, Methods 502.2 (rev. 2.1) ~~---~~ and 524.2 (rev. 4.1) ~~---~~; USEPA OGWDW Methods, Method 524.3 (rev. 1.0) ~~---~~ and 551.1 (rev. 1.0) 1,1,1-Trichloroethane USEPA Organic Methods, Methods 502.2 (rev. 2.1) ~~---~~ and 524.2 (rev. 4.1) ~~---~~; USEPA OGWDW Methods, Method 524.3 (rev. 1.0) ~~---~~ and 551.1 (rev. 1.0) Trichloroethylene USEPA Organic Methods, Methods 502.2 (rev. 2.1) ~~---~~ and 524.2 (rev. 4.1) ~~---~~; USEPA OGWDW Methods, Method 524.3 (rev. 1.0) ~~---~~ and 551.1 (rev. 1.0) Toluene USEPA Organic Methods, Methods 502.2 (rev. 2.1) ~~---~~ and 524.2 (rev. 4.1) ~~---~~; USEPA OGWDW Methods, Method 524.3 (rev. 1.0) 1,2,4-Trichlorobenzene USEPA Organic Methods, Methods 502.2 (rev. 2.1) ~~---~~ and 524.2 (rev. 4.1) ~~---~~; USEPA OGWDW Methods, Method 524.3 (rev. 1.0) 1,1-Dichloroethylene USEPA Organic Methods, Methods 502.2 (rev. 2.1) ~~---~~ and 524.2 (rev. 4.1) ~~---~~; USEPA OGWDW Methods, Method 524.3 (rev. 1.0) 1,1,2-Trichloroethane USEPA Organic Methods, Methods 502.2 (rev. 2.1) ~~---~~ and 524.2 (rev. 4.1) ~~---~~; USEPA OGWDW Methods, Method 524.3 (rev. 1.0) Vinyl chloride USEPA Organic Methods, Methods 502.2 (rev. 2.1) ~~---~~ and 524.2 (rev. 4.1) ~~---~~; USEPA OGWDW Methods, Method 524.3 (rev. 1.0) Xylenes (total) USEPA Organic Methods, Methods 502.2 (rev. 2.1) ~~---~~ and 524.2 (rev. 4.1) ~~---~~; USEPA OGWDW Methods, Method 524.3 (rev. 1.0)

BOARD NOTE: USEPA added USEPA OGWDW Method 524.3 (rev. 1.0) as an alternative method for all of the VOCs in appendix A to subpart C of 40 CFR 141 on August 3, 2009 (at 74 Fed. Reg. 38348).

b) Synthetic Organic Chemical Contaminants (SOCs).

Contaminant Analytical Methods 2,3,7,8-Tetrachlorodibenzodioxin (2,3,7,8-TCDD or dioxin) Dioxin and Furan Method 1613 (rev. B) 2,4-D USEPA Organic Methods, Methods 515.2 (rev. 1.1), 555 (rev. 1.0), and 515.1 (rev. 4.0) ~~---~~; USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0) ~~---~~; USEPA OGWDW Methods, Method 515.4 (rev. 1.0) ~~---~~; ASTM Method D5317-93 or D5317-98; Standard Methods, 21st ed., Method 6640 B 2,4,5-TP (Silvex) USEPA Organic Methods, Methods 515.2 (rev. 1.1), 555 (rev. 1.0), and 515.1 (rev. 4.0) ~~---~~; USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0) ~~---~~; USEPA OGWDW Methods, Method 515.4 (rev. 1.0) ~~---~~; ASTM Method D5317-93 or D5317-98; Standard Methods, 21st ed., Method 6640

BALachlor USEPA Organic Methods, Methods 505 (rev. 2.1) 1, 507 (rev. 2.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0) Atrazine USEPA Organic Methods, Methods 505 (rev. 2.1) 1, 507 (rev. 2.1), 508.1 (rev. 2.1), 525.2 (rev. 2.0), and 551.1 (rev. 1.0) ~~---~~; Syngenta AG-6252 Benzo(a)pyrene USEPA Organic Methods, Methods 525.2 (rev. 2.0), 550, and 550.1 Carbofuran USEPA Organic Methods, Methods 531.1 (rev. 3.1) ~~---~~; USEPA OGWDW Methods, Method 531.2 (rev. 1.0) ~~---~~; Standard Methods, 18th ed. Supplement, 19th ed., or 20th ed., Method 6610 ~~or~~; Standard Methods, 21st ed., Method 6610 B ~~or~~; Standard Methods Online, Method 6610 B-04 Chlordane USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.1), and 525.2 (rev. 2.0) Dalapon USEPA Organic Methods, Methods 515.1 (rev. 4.0), 552.1 (rev. 1.0), and 552.2 (rev. 1.0) ~~---~~; USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0) ~~---~~; USEPA OGWDW Methods, Methods 515.4 (rev. 1.0), 552.3 (rev. 1.0), and 557; ~~and~~ Standard Methods, 21st ed., Method 6640 B Di(2-ethylhexyl)adipate USEPA Organic Methods, Methods 506 (rev. 1.1) ~~---~~ and 525.2 (rev. 2.0) Di(2-ethylhexyl)phthalate USEPA Organic Methods, ~~Methods~~ Method 506 (rev. 1.1) ~~---~~ and 525.2 (rev.



2.0) Dibromochloropropane (DBCP) USEPA Organic Methods, Methods 504.1 (rev. 1.1), USEPA OGWDW Methods, Method 524.3 (rev. 1.0) ~~and~~ 551.1 (rev. 1.0) Dinoseb USEPA Organic Methods, Methods 515.1 (rev. 4.0) ~~and~~ 515.2 (rev. 1.1) ~~and~~; USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0) ~~and~~; USEPA OGWDW Methods, ~~Method~~ ~~Methods~~ 515.4 (rev. 1.0) ~~and~~ 555 (rev. 1.0); Standard Methods, 21st ed., Method 6640 B Diquat USEPA NERL Method 549.2 (rev. 1.0) Endothall USEPA Organic Methods, ~~Methods~~ ~~Method~~ 548.1 (rev. ~~1-02-0~~) Endrin USEPA Organic Methods, ~~Methods~~ ~~Method~~ 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0) Ethylene dibromide (EDB) USEPA Organic Methods, Methods 504.1 (rev. 1.1) ~~and~~; USEPA OGWDW Methods, ~~Method~~ ~~Methods~~ 524.3 (rev. 1.0) ~~and~~ 551.1 (rev. 1.0) Glyphosate USEPA Organic Methods, ~~Methods~~ ~~547~~, ~~Method~~ ~~547~~; Standard Methods, 18th ed., 19th ed., ~~or~~ 20th, or 21st ed., Method 6651 B Heptachlor USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0) Heptachlor Epoxide USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0) Hexachlorobenzene USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0) Hexachlorocyclopentadiene USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0) Lindane USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0) Methoxychlor USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0) Oxamyl USEPA Organic Methods, ~~Methods~~ ~~Method~~ 531.1 (rev. 3.1); USEPA OGWDW Methods, Method 531.2 (rev. 1.0); Standard Methods, 18th ed. Supplement, 19th ed. or 20th ed. ~~and~~ Method 6610; Standard Methods, 21st ed., Method 6610 B; ~~or~~ Standard Methods Online, Method 6610 B-04 PCBs (measured for compliance purposes as decachlorobiphenyl) USEPA Organic Methods, ~~Methods~~ ~~Method~~ 508A (rev. 1.0) PCBs (qualitatively identified as Aroclors) USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), and 525.2 (rev. 2.0) Pentachlorophenol USEPA Organic Methods, Methods 515.1 (rev. 4.0), 515.2 (rev. 1.1), 525.2 (rev. 2.0), and 555 (rev. 1.0) ~~and~~; USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0) ~~and~~; USEPA OGWDW Methods, Method 515.4 (rev. 1.0) ~~and~~; ASTM Method D5317-93 or D5317-98 (2003); Standard Methods, 21st ed., Method 6640 B Picloram USEPA Organic Methods, Methods 515.1 (rev. 4.0), ~~515-2~~ ~~515.2~~, (rev. 1.1) ~~and~~ 555 (rev. 1.0) ~~and~~; USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0) ~~and~~; USEPA OGWDW Methods, Method 515.4 (rev. 1.0) ~~and~~; ASTM Method D5317-93 or D5317-98 (2003); Standard Methods, 21st ed., Method 6640 B Simazine USEPA Organic Methods, Methods 505 (rev. 2.1) 1, 507 (rev. 2.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0) Toxaphene USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 2.1), 508.1 (rev. 2.0), and 525.2 (rev. 2.0)

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 6610 B and Standard Methods Online, Method 6610 B-04 as approved alternative methods for carbofuran and oxamyl on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added USEPA OGWDW Method 524.3 (rev. 1.0) as an alternative method for dibromochloropropane and ethylene dibromide in appendix A to subpart C of 40 CFR 141 on August 3, 2009 (at 74 Fed. Reg. 38348). USEPA approved Standard Methods, 21st ed., Method 6640 B and Standard Methods Online, Method 6640 B-01 and USEPA OGWDW Methods, Method 557 as approved alternative methods for dalapon in appendix A to subpart C of 40 CFR 141 on June 8, 2010 (at 75 Fed. Reg. 32295). USEPA added Standard Methods, 21st ed., Method 6640 B as an approved alternative method for 2,4-D, 2,4,5-TP (Silvex), dinoseb, pentachlorophenol, and picloram in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). USEPA added Standard Methods ~~Online~~, Method 6640 B-01 as an approved alternative method for 2,4-D, 2,4,5-TP (Silvex), dalapon, dinoseb, pentachlorophenol, and picloram and in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). Since the version of Method 6640 ~~B~~ that appears in Standard Methods Online is

the same as that which appears in Standard Methods, 21st ed., the Board has cited only to Standard Methods, 21st ed. USEPA added Standard Methods, 21st ed., Method 6651 B as an approved alternative method for glyphosate in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). USEPA added Standard Methods Online, Method 6651 B-00 as an approved alternative method for glyphosate in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). Since the version of Method 6651 B that appears in Standard Methods Online is the same as that which appears in Standard Methods, 21st ed., the Board has cited only to Standard Methods, 21st ed.

c) Total Trihalomethanes (TTHMs).

Contaminant Analytical Methods Total Trihalomethanes (TTHMs), Trihalomethanes (THMs), and Maximum Total Trihalomethane Potential USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, ~~Method~~ Methods 524.3 (rev. 1.0) and 551.1 (rev. 1.0)  
BOARD NOTE: USEPA added USEPA OGWDW Method 524.3 (rev. 1.0) as an alternative method for total trihalomethane in appendix A to subpart C of 40 CFR 141 on August 3, 2009 (at 74 Fed. Reg. 38348).

d) State-Only MCLs (for which a method is not listed ~~above~~ in subsections (a) through (c)).

Contaminant Analytical Methods Aldrin USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), and 525.2 (rev. 2.0) DDT USEPA Organic Methods, Methods 505 (rev. 2.1) and 508 (rev. 3.1) Dieldrin USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), and 525.2 (rev. 2.0)

e) The following footnotes are appended to method entries in subsections (a) and (b) of this Section:

1 denotes that, for the particular contaminant, a nitrogen-phosphorus detector should be substituted for the electron capture detector in method 505 (or another approved method should be used) to determine alachlor, atrazine, and simazine if lower detection limits are required.

2 denotes that Syngenta Method AG-625 may not be used for the analysis of atrazine in any system where chlorine dioxide is used for drinking water treatment. In samples from all other systems, any result for atrazine generated by Syngenta Method AG-625 that is greater than one-half the maximum contaminant level (MCL) (in other words, greater than 0.0015mg/l or 1.5 µg/l) must be confirmed using another approved method for this contaminant and should use additional volume of the original sample collected for compliance monitoring. In instances where a result from Syngenta Method AG-625 triggers such confirmatory testing, the confirmatory result is to be used to determine compliance.

BOARD NOTE: Derived from 40 CFR 141.24(e) and appendix A to subpart C of 40 CFR 141 ~~(2010), as amended at 74 Fed. Reg. 38348 (August 3, 2009) and 75 Fed. Reg. 32295 (June 8, 2010)~~ (2011).

(Source: Amended at 36 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

SUBPART P: THM MONITORING AND ANALYTICAL REQUIREMENTS ~~(REPEALED)~~

Section 611.680 Sampling, Analytical, and other Requirements (Repealed)



a) ~~Required monitoring.~~

1) ~~A CWS supplier that serves a population of 10,000 or more individuals and which adds a disinfectant (oxidant) to the water in any part of the drinking water treatment process must analyze for TTHMs in accordance with this Subpart P.~~

2) ~~For the purpose of this Subpart P, the minimum number of samples required to be taken by the supplier must be based on the number of treatment plants used by the supplier. However, the Agency shall, by a SEP issued pursuant to Section 611.110, provide that multiple wells drawing raw water from a single aquifer be considered one treatment plant for determining the minimum number of samples.~~

3) ~~All samples taken within an established frequency must be collected within a 24-hour period.~~

b) ~~A CWS supplier that serves 10,000 or more individuals.~~

1) ~~For a CWS supplier utilizing surface a water source in whole or in part, and for a CWS supplier utilizing only a groundwater source, except as provided in Section 611.683, analyses for TTHMs must be performed at quarterly intervals on at least four water samples for each treatment plant used by the system. At least 25 percent of the samples must be taken at locations within the distribution system reflecting the maximum residence time (MRT) of the water in the system. The remaining 75 percent must be taken at representative locations in the distribution system, taking into account the number of persons served, different sources of water and different treatment methods employed. The results of all analyses per quarter must be arithmetically averaged and reported to the Agency within 30 days after the supplier's receipt of such results. All samples collected must be used in the computation of the average, unless the analytical results are invalidated for technical reasons. Sampling and analyses must be conducted in accordance with the methods listed in Section 611.685.~~

2) ~~Upon application by a CWS supplier, the Agency must, by a SEP issued pursuant to Section 611.110, reduce the monitoring frequency required by subsection (b)(1) to a minimum of one sample analyzed for TTHMs per quarter taken at a point in the distribution system reflecting the MRT of the water in the system, if the Agency determines that the data from at least one year of monitoring in accordance with subsection (b)(1) and local conditions demonstrate that TTHM concentrations will be consistently below the MCL.~~

3) ~~If at any time during which the reduced monitoring frequency prescribed under this subsection (b) applies, the results from any analysis exceed 0.10 mg/l TTHMs and such results are confirmed by at least one check sample taken promptly after such results are received, or if the CWS supplier makes any significant change to its source of water or treatment program, the supplier must immediately begin monitoring in accordance with the requirements of subsection (b)(1), which monitoring must continue for at least one year before the frequency may be reduced again. The Agency must, by a SEP issued pursuant to Section 611.110, require monitoring in excess of the minimum frequency where it is necessary to detect variations of TTHM levels within the distribution system.~~

~~BOARD NOTE: Subsections (a) and (b) of this Section are derived from 40 CFR 141.30(a) and (b) (2010), modified to remove the limitation regarding addition of disinfectant.~~

~~e) Surface water sources for a CWS supplier that serves fewer than 10,000 individuals. Suppliers must have submitted at least one initial sample per treatment plant for analysis or analytical results from a certified laboratory for MRT concentration taken between May 1, 1990, and October 31, 1990. After written request by the supplier and the determination by the Agency that the results of the sample indicate that the CWS supplier is not likely to exceed the MCL, the CWS must continue to submit one annual sample per treatment plant for analysis or analytical results from a certified laboratory to the Agency taken between May 1 and October 31 of succeeding years. If the sample exceeds the MCL, the CWS must submit to the Agency samples in accordance with the sampling frequency specified in subsection (b) of this Section.~~

~~BOARD NOTE: This is an additional State requirement.~~

~~d) Groundwater sources for a CWS supplier that serves fewer than 10,000 individuals. Suppliers are not required to submit samples for THM analysis under this Subpart P.~~

~~BOARD NOTE: This is an additional State requirement.~~

(Source: Repealed at 36 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

#### SUBPART Q: RADIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

##### Section 611.720 Analytical Methods

a) The methods specified below, or alternative methods approved by the Agency pursuant to Section 611.480, incorporated by reference in Section 611.102, are to be used to determine compliance with Section 611.330, except in cases where alternative methods have been approved in accordance with Section 611.480.

- 1) Gross Alpha and Beta.
  - A) Standard Methods.
    - i) Method 302, 13th ed.; or
    - ii) Method 7110 B, 17th, 18th, 19th, 20th, or 21st ed.;
  - B) USEPA Interim Radiochemical Methods: pages 1-3;
  - C) USEPA Radioactivity Methods, Method 900.0;
  - D) USEPA Radiochemical Analyses: pages 1-5;
  - E) USEPA Radiochemistry Procedures, Method 00-01; or
  - F) USGS Methods, Method R-1120-76.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 7110 B as an approved alternative method for gross alpha and beta in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).

- 2) Gross Alpha.
  - A) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 7110 C; or

B) USEPA Radiochemistry Procedures, Method 00-02.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 7110 C as an approved alternative method for gross alpha in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).

3) Radium-226.

A) ASTM Methods.

i) Method D2460-97 or D2460-07; or

ii) Method D3454-97 or D3454-05;

B) New York Radium Method;

C) Standard Methods.

i) Method 304, 13th ed.;

ii) Method 305, 13th ed.;

iii) Method 7500-Ra B, 17th, 18th, 19th, 20th, or 21st ed.; or

iv) Method 7500-Ra C, 17th, 18th, 19th, 20th, or 21st ed.;

D) EML Procedures Manual (27th or 28th ed.), Method Ra-04;

E) USEPA Interim Radiochemical Methods: pages 13-15 or 16-23;

F) USEPA Radioactivity Methods, Methods 903.0, 903.1;

G) USEPA Radiochemical Analyses, pages 19-32;

H) USEPA Radiochemistry Procedures, Method Ra-03 or Ra-04; or

I) USGS Methods.

i) Method R-1140-76; or

ii) Method R-1141-76.

J) Georgia Radium Method.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 7500-Ra B and C as approved alternative methods for radium-226 in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods D2460-07 and D3454-05 as approved alternative methods for radium-226 in appendix A to subpart C of 40 CFR 141 on June 8, 2010 (at 75 Fed. Reg. 32295).

4) Radium-228.

A) Standard Methods, 17th, 18th, 19th, 20th, or 21st ed., Method 7500-Ra D;

B) New York Radium Method;

C) USEPA Interim Radiochemical Methods, pages 24-28;

- D) USEPA Radioactivity Methods, Method 904.0;
- E) USEPA Radiochemical Analyses, pages 19-32;
- F) USEPA Radiochemistry Procedures, Method Ra-05;
- G) USGS Methods, Method R-1142-76;
- H) New Jersey Radium Method; or
- I) Georgia Radium Method.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 7500-Ra D as an approved alternative method for radium-228 in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).

- 5) Uranium.
  - A) Standard Methods, 17th, 18th, 19th, 20th, or 21st ed., Method 7500-U C;
  - B) Standard Methods, 20th ed., Method 3125;
  - C) ASTM Methods.
    - i) Method D2907-97;
    - ii) Method D3972-97 or D3972-02;
    - iii) Method D5174-97, D5174-02, ~~or~~ D5174-07, or D3972-09; or
    - iv) Method D5673-03 or Method 5673-05;
  - D) USEPA Radioactivity Methods, Methods 908.0, 908.1;
  - E) USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3);
  - F) USEPA Radiochemical Analyses, pages 33-48;
  - G) USEPA Radiochemistry Procedures, Method 00-07;
  - H) EML Procedures Manual (27th or 28th ed.), Method U-02 or U-04; or
  - I) USGS Methods.
    - i) Method R-1180-76;
    - ii) Method R-1181-76; or
    - iii) Method R-1182-76.

BOARD NOTE: If uranium (U) is determined by mass, a conversion factor of 0.67 pCi/µg of uranium must be used. This conversion factor is based on the 1:1 activity ratio of <sup>234</sup>U and <sup>238</sup>U that is characteristic of naturally occurring uranium.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 7500-U C and ASTM D5673-05 as approved alternative methods for uranium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D5174-07 as an approved alternative method for uranium in appendix A to subpart C of 40 CFR 141 on June 8, 2010 (at 75 Fed. Reg. 32295). USEPA added ASTM Method D3972-09 as an approved alternative method for uranium in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

6) Radioactive Cesium.

A) ASTM Methods.

i) Method D2459-72; or

ii) Method D3649-91, D3649-98a, or D3649-06;

B) Standard Methods.

i) Method 7120, 19th, 20th, or 21st ed.; or

ii) Method 7500-Cs B, 17th, 18th, 19th, 20th, or 21st ed.;

C) EML Procedures Manual (27th or 28th ed.), Method 4.5.2.3;

D) USEPA Interim Radiochemical Methods, pages 4-5;

E) USEPA Radioactivity Methods, Methods 901.0, 901.1;

F) USEPA Radiochemical Analyses, pages 92-95; or

G) USGS Methods.

i) Method R-1110-76; or

ii) Method R-1111-76.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 7120 and 7500-Cs B as approved alternative methods for radioactive cesium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D3649-06 as an approved alternative method for radioactive cesium in appendix A to subpart C of 40 CFR 141 on June 8, 2010 (at 75 Fed. Reg. 32295).

7) Radioactive Iodine.

A) ASTM Methods.

i) D3649-91, D3649-98a, or D3649-06; or

ii) D4785-93, D4785-98, or D4785-08;

B) Standard Methods.

i) Method 7120, 19th, 20th, or 21st ed.;

ii) Method 7500-I B, 17th, 18th, 19th, 20th, or 21st ed.;

iii) Method 7500-I C, 17th, 18th, 19th, 20th, or 21st ed.; or

- iv) Method 7500-I D, 17th, 18th, 19th, 20th, or 21st ed.;
- C) EML Procedures Manual (27th or 28th ed.), Method 4.5.2.3;
- D) USEPA Interim Radiochemical Methods, pages 6-8 or 9-12;
- E) USEPA Radiochemical Analyses, pages 92-95; or
- F) USEPA Radioactivity Methods, Methods 901.1 or 902.0.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 7120 and 7500-I B, C, and D as approved alternative methods for radioactive iodine in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods D3649-06 and D4785-08 as approved alternative methods for radioactive iodine in appendix A to subpart C of 40 CFR 141 on June 8, 2010 (at 75 Fed. Reg. 32295).

- 8) Radioactive Strontium-89 & 90.
  - A) Standard Methods.
    - i) Method 303, 13th ed.; or
    - ii) Method 7500-Sr B, 17th, 18th, 19th, 20th, or 21st ed.;
  - B) EML Procedures Manual (27th or 28th ed.), Method Sr-01 or Sr-02.
  - C) USEPA Interim Radiochemical Methods, pages 29-33;
  - D) USEPA Radioactivity Methods, Method 905.0;
  - E) USEPA Radiochemical Analyses, pages 65-73;
  - F) USEPA Radiochemistry Procedures, Method Sr-04; or
  - G) USGS Methods, Method R-1160-76.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 7500-Sr B as an approved alternative method for radioactive strontium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).

- 9) Tritium.
  - A) ASTM Methods: Method D4107-91, D4107-98, or D4107-08;
  - B) Standard Methods.
    - i) Method 306, 13th ed.; or
    - ii) Method 7500-3H B, 17th, 18th, 19th, 20th, or 21st ed.;
  - C) USEPA Interim Radiochemical Methods, pages 34-37;
  - D) USEPA Radioactivity Methods, Method 906.0;
  - E) USEPA Radiochemical Analyses, pages 87-91;

- F) USEPA Radiochemistry Procedures, Method H-02; or
- G) USGS Methods, Method R-1171-76.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 7500-3H B as an approved alternative method for tritium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D4107-08 as an approved alternative method for tritium in appendix A to subpart C of 40 CFR 141 on June 8, 2010 (at 75 Fed. Reg. 32295).

10) Gamma Emitters.

A) ASTM Methods.

i) Method D3649-91, D3649-98a, or D3649-06; or

ii) Method D4785-93, D4785-00a, or D4785-08;

B) Standard Methods.

i) Method 7120, 19th, 20th, or 21st ed.;

ii) Method 7500-Cs B, 17th, 18th, 19th, 20th, or 21st ed.; or

iii) Method 7500-I B, 17th, 18th, 19th, 20th, or 21st ed.;

C) EML Procedures Manual (27th or 28th ed.), Method Ga-01-R;

D) USEPA Radioactivity Methods, Methods 901.0, 901.1, or 902.0;

E) USEPA Radiochemical Analyses, pages 92-95; or

F) USGS Methods, Method R-1110-76.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 7120, 7500-Cs B, and 7500-I B as approved alternative methods for gamma emitters in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods D3649-08 and D4785-08 as approved alternative methods for tritium in appendix A to subpart C of 40 CFR 141 on June 8, 2010 (at 75 Fed. Reg. 32295).

b) When the identification and measurement of radionuclides other than those listed in subsection (a) of this Section are required, the following methods, incorporated by reference in Section 611.102, are to be used, except in cases where alternative methods have been approved in accordance with Section 611.480:

1) "Procedures for Radiochemical Analysis of Nuclear Reactor Aqueous Solutions," available from NTIS.

2) EML Procedures Manual (27th or 28th ed.), available from USDOE, EML.

c) For the purpose of monitoring radioactivity concentrations in drinking water, the required sensitivity of the radioanalysis is defined in terms of a detection limit. The detection limit must be that concentration which can be counted with a precision of plus or minus 100 percent at the 95 percent



confidence level (1.96s, where s is the standard deviation of the net counting rate of the sample).

1) To determine compliance with Section 611.330(b), (c), and (e), the detection limit must not exceed the concentrations set forth in the following table:

Contaminant Detection Limit Gross alpha particle activity 3 pCi/l Radium-226  
1 pCi/l Radium-228 1 pCi/l Uranium 1 µg/l

BOARD NOTE: Derived from 40 CFR 141.25(c) Table B (~~2010~~)-(2011).

2) To determine compliance with Section 611.330(d), the detection limits must not exceed the concentrations listed in the following table:

Radionuclide Detection Limit Tritium 1,000 pCi/l Strontium-89 10 pCi/l Strontium-90 2 pCi/l Iodine-131 1 pCi/l Cesium-134 10 pCi/l Gross beta 4 pCi/l Other radionuclides 1/10 of applicable limit

BOARD NOTE: Derived from 40 CFR 141.25(c) Table C (2011).

d) To judge compliance with the MCLs listed in Section 611.330, averages of data must be used and must be rounded to the same number of significant figures as the MCL for the substance in question.

BOARD NOTE: Derived from 40 CFR 141.25 and appendix A to subpart C of 40 CFR 141-~~(2010)~~ (2011).

(Source: Amended at 36 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

Section 611. ~~Appendix~~ APPENDIX F Mandatory Lead Public Education Information for Non-Transient Non-Community Water Systems

## 1) INTRODUCTION

The United States Environmental Protection Agency (USEPA) and (insert name of water supplier) are concerned about lead in your drinking water. Some drinking water samples taken from this facility have lead levels above the USEPA action level of 15 parts per billion (ppb), or 0.015 milligrams of lead per liter of water (mg/l). Under Federal law we are required to have a program in place to minimize lead in your drinking water by (insert date when corrosion control will be completed for your system). This program includes corrosion control treatment, source water treatment, and public education. We are also required to replace the portion of each lead service line that we own if the line contributes lead concentrations of more than 15 ppb after we have completed the comprehensive treatment program. If you have any questions about how we are carrying out the requirements of the lead regulation please give us a call at (insert water system's phone number). This brochure explains the simple steps you can take to protect you and your family by reducing your exposure to lead in drinking water.

## 2) HEALTH EFFECTS OF LEAD

Lead is found throughout the environment in lead-based paint; air; soil; household dust; food; certain types of pottery, porcelain, and pewter; and water. Lead can pose a significant risk to your health if too much of it enters your body. Lead builds up in the body over many years and can cause damage to the brain, red blood cells, and kidneys. The greatest risk is to young children and pregnant women. Amounts of lead that won't hurt adults can slow down normal



mental and physical development of growing bodies. In addition, a child at play often comes into contact with sources of lead contamination -- like dirt and dust -- that rarely affect an adult. It is important to wash children's hands and toys often, and to try to make sure they only put food in their mouths.

### 3) LEAD IN DRINKING WATER

A) Lead in drinking water, although rarely the sole cause of lead poisoning, can significantly increase a person's total lead exposure, particularly the exposure of infants who drink baby formulas and concentrated juices that are mixed with water. The EPA estimates that drinking water can make up 20 percent or more of a person's total exposure to lead.

B) Lead is unusual among drinking water contaminants in that it seldom occurs naturally in water supplies like rivers and lakes. Lead enters drinking water primarily as a result of the corrosion, or wearing away, of materials containing lead in the water distribution system and household plumbing. These materials include lead-based solder used to join copper pipe, brass, and chrome plated brass faucets, and in some cases, pipes made of lead that connect houses and buildings to the water main (service lines). In 1986, Congress banned the use of lead solder containing greater than 0.2% lead, and restricted the lead content of faucets, pipes, and other plumbing materials to 8.0%.

C) When water stands in lead pipes or plumbing systems containing lead for several hours or more, the lead may dissolve into your drinking water. This means the first water drawn from the tap in the morning, or later in the afternoon after returning from work or school, can contain fairly high levels of lead.

### 4) STEPS YOU CAN TAKE TO REDUCE EXPOSURE TO LEAD IN DRINKING WATER

A) Let the water run from the tap before using it for drinking or cooking any time the water in a faucet has gone unused for more than six hours. The longer water resides in plumbing the more lead it may contain. Flushing the tap means running the cold water faucet until the water gets noticeably colder, usually about 15-30 seconds. Although toilet flushing or showering flushes water through a portion of the plumbing system, you still need to flush the water in each faucet before using it for drinking or cooking. Flushing tap water is a simple and inexpensive measure you can take to protect your family's health. It usually uses less than one gallon.

B) Do not cook with or drink water from the hot water tap. Hot water can dissolve more lead more quickly than cold water. If you need hot water, draw water from the cold tap and heat it.

C) The steps described above will reduce the lead concentrations in your drinking water. However, if you are still concerned, you may wish to use bottled water for drinking and cooking.

D) You can consult a variety of sources for additional information. Your family doctor or pediatrician can perform a blood test for lead and provide you with information about the health effects of lead. State and local government agencies that can be contacted include the following:

i) (Insert the name or title of facility official if appropriate) at (insert phone number) can provide you with information about your facility's water supply; and

ii) The Illinois Department of Public Health at 217-782-4977 or 312-814-2608 or the (insert the name of the city or county health department) at (insert phone number) can provide you with information about the health effects of lead.

BOARD NOTE: Derived from 40 CFR 141.85(a)(2) ~~(2002)~~ (2011). The Department of Public Health (Department) regulates non-community water supplies, including non-transient, non-community water supplies. The Department has incorporated this Part into its regulations at 77 Ill. Adm. Code 900.15(a)(2)(A) and 900.20(k)(2). Thus, the Board has included the notice language of 40 CFR 141.85(a)(2) ~~as~~ in this Section for the purposes of facilitating federal review and authorization of the Illinois drinking water regulations.

(Source: Amended at 36 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)  
~~ILLINOIS REGISTER~~

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~~NOTICE OF PROPOSED AMENDMENTS~~

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