

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) Section Numbers: Proposed Actions:

611.100	Amendment
611.101	Amendment
611.102	Amendment
611.105	Amendment
611.108	Amendment
611.109	Amendment
611.110	Amendment
611.111	Amendment
611.112	Amendment
611.125	Amendment
611.126	Amendment
611.130	Amendment
611.131	Amendment
611.160	Amendment
611.212	Amendment
611.213	Amendment
611.230	Amendment
611.240	Amendment
611.250	Amendment
611.261	Amendment
611.262	Amendment
611.276	Amendment
611.300	Amendment
611.301	Amendment
611.311	Amendment
611.312	Amendment
611.313	Amendment
611.325	Amendment
611.330	Amendment
611.350	Amendment
611.351	Amendment
611.352	Amendment
611.353	Amendment
611.354	Amendment
611.355	Amendment

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CLERK'S OFFICE
JUL 24 2017
STATE OF ILLINOIS
Pollution Control Board

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611.356	Amendment
611.357	Amendment
611.358	Amendment
611.359	Amendment
611.360	Amendment
611.380	Amendment
611.381	Amendment
611.382	Amendment
611.384	Amendment
611.385	Amendment
611.490	Amendment
611.521	Repealed
611.522	Repealed
611.523	Repealed
611.524	Repealed
611.525	Repealed
611.526	Repealed
611.527	Repealed
611.528	Repealed
611.531	Amendment
611.532	Amendment
611.533	Amendment
611.600	Amendment
611.601	Amendment
611.602	Amendment
611.603	Amendment
611.604	Amendment
611.605	Amendment
611.611	Amendment
611.612	Amendment
611.630	Amendment
611.640	Amendment
611.645	Amendment
611.646	Amendment
611.648	Amendment
611.720	Amendment
611.731	Amendment
611.732	Amendment
611.733	Amendment
611.740	Amendment

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611.741	Amendment
611.742	Amendment
611.743	Amendment
611.745	Amendment
611.800	Amendment
611.801	Amendment
611.802	Amendment
611.803	Amendment
611.804	Amendment
611.805	Amendment
611.860	Amendment
611.882	Amendment
611.883	Amendment
611.885	Amendment
611.901	Amendment
611.902	Amendment
611.903	Amendment
611.904	Amendment
611.905	Amendment
611.908	Amendment
611.920	Amendment
611.921	Amendment
611.922	Amendment
611.923	Amendment
611.925	Amendment
611.950	Amendment
611.952	Amendment
611.953	Amendment
611.954	Amendment
611.955	Amendment
611.956	Amendment
611.957	Amendment
611.970	Amendment
611.971	Amendment
611.973	Amendment
611.976	Amendment
611.977	Amendment
611.1001	Amendment
611.1002	Amendment
611.1003	Amendment

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611.1004	Amendment
611.1006	Amendment
611.1007	Amendment
611.1008	Amendment
611.1009	Amendment
611.1010	Amendment
611.1011	Amendment
611.1012	Amendment
611.1013	Amendment
611.1014	Amendment
611.1015	Amendment
611.1016	Amendment
611.1017	Amendment
611.1018	Amendment
611.1019	Amendment
611.1020	Amendment
611.1021	Amendment
611.1023	Amendment
611.1051	Amendment
611.1052	Amendment
611.1053	Amendment
611.1054	Amendment
611.1055	Amendment
611.1056	Amendment
611.1057	Amendment
611.1058	Amendment
611.1059	Amendment
611.1060	Amendment
611.Appendix A	Amendment
611.Appendix D	Repealed
611.Appendix G	Amendment
611.Appendix H	Amendment
611.Table E	Repealed
611.Table Z	Amendment

- 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 R17-12 rulemaking, which amends Part 611. A comprehensive description is contained in the Board's opinion and

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order of June 22, 2017, proposing amendments in docket R17-12, which opinion and order is available from the address below.

This Board reserved this docket to update 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 the update period July 1, 2016 through December 31, 2016. During this period, USEPA approved several new equivalent analytical methods on July 19, 2016. The Board reviewed the entire text of Part 611 for stylistic revisions of the type routinely requested by the Joint Committee on Administrative Rules (JCAR), past effective dates, obsolete text, and other corrections. The Board found that the corrections are needed, as is provided in section 7.2(b) of the Environmental Protection Act ([415 ILCS 5/7.2(b)] (2016)).

The corrections and clarifying amendments are not directly derived from the instant federal amendments. A comprehensive description of the subjects and issues involved in the docket R17-12 rulemaking is contained in the Board's opinion and order of June 22, 2017, proposing amendments in docket R17-12, which opinion and order is available from the address below.

The Board has assembled an identical-in-substance rulemaking addendum (proposed) IIS-RA(P) for this proceeding. Tables appear in the IIS-RA(P) in docket R17-12 that list the corrections and amendments. Table 1 lists the few USEPA amendments that are not needed in this proceeding. Table 2 lists the several deviations from the text of the USEPA amendments included in this proceeding. Table 3 lists the numerous corrections that the Board has proposed not deriving from current USEPA amendments. Table 4 lists numerous past effective dates and obsolete text that the Board has proposed to remove in this proceeding. Table 5 lists numerous past dates that the Board has chosen to remove. The Board has appended explanatory notes to various of the entries in the five tables. Interested persons can access the IIS-RA(P) for the June 22, 2017 opinion and order on the webpage for docket R17-12 in the Board's Clerk's Office On-Line (COOL) system at www.ipcb.state.il.us.

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 APA, 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

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- 7) Will this rulemaking replace any emergency rule currently in effect? No
- 8) Does this rulemaking contain an automatic repeal date? No
- 9) Does this rulemaking contain incorporations by reference? Yes
- 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) (2016)].
- 11) Are there any other rulemakings pending on this Part? No
- 12) Time, Place and Manner in which interested persons may comment on this 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 R17-12 and be addressed to:

Don A. Brown, 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 R17-12:

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

312/814-6924
e-mail: michael.mccambridge@illinois.gov

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:

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- 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. 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)] (2016)).
- 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. 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)] (2016)).
- 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. 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)] (2016)).
- 14) Regulatory Agenda on which this rulemaking was summarized: December 30, 2016, 40 Ill. Reg. 16857, 16870-73.

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

1 TITLE 35: ENVIRONMENTAL PROTECTION
2 SUBTITLE F: PUBLIC WATER SUPPLIES
3 CHAPTER I: POLLUTION CONTROL BOARD
4

5 PART 611
6 PRIMARY DRINKING WATER STANDARDS
7

8 SUBPART A: GENERAL
9

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 33 Systems

34
35 SUBPART B: FILTRATION AND DISINFECTION
36

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

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

SUBPART C: USE OF NON-CENTRALIZED TREATMENT DEVICES

58

59
60 Section

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

63

SUBPART D: TREATMENT TECHNIQUES

64

65
66 Section

67	611.295	General Requirements
68	611.296	Acrylamide and Epichlorohydrin
69	611.297	Corrosion Control

70

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

71

72
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 (Repealed)
128 611.522 Repeat Coliform Monitoring (Repealed)
129 611.523 Invalidation of Total Coliform Samples (Repealed)

- 130 611.524 Sanitary Surveys (Repealed)
- 131 611.525 Fecal Coliform and E. Coli Testing (Repealed)
- 132 611.526 Analytical Methodology (Repealed)
- 133 611.527 Response to Violation (Repealed)
- 134 611.528 Transition from Subpart L to Subpart AA Requirements (Repealed)
- 135 611.531 Analytical Requirements
- 136 611.532 Unfiltered PWSs
- 137 611.533 Filtered PWSs

138
139 SUBPART M: TURBIDITY MONITORING AND ANALYTICAL REQUIREMENTS

- 140
- 141 Section
- 142 611.560 Turbidity

143
144 SUBPART N: INORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

- 145
- 146 Section
- 147 611.591 Violation of a State MCL
- 148 611.592 Frequency of State Monitoring
- 149 611.600 Applicability
- 150 611.601 Monitoring Frequency
- 151 611.602 Asbestos Monitoring Frequency
- 152 611.603 Inorganic Monitoring Frequency
- 153 611.604 Nitrate Monitoring
- 154 611.605 Nitrite Monitoring
- 155 611.606 Confirmation Samples
- 156 611.607 More Frequent Monitoring and Confirmation Sampling
- 157 611.608 Additional Optional Monitoring
- 158 611.609 Determining Compliance
- 159 611.610 Inorganic Monitoring Times
- 160 611.611 Inorganic Analysis
- 161 611.612 Monitoring Requirements for Old Inorganic MCLs
- 162 611.630 Special Monitoring for Sodium
- 163 611.631 Special Monitoring for Inorganic Chemicals (Repealed)

164
165 SUBPART O: ORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

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

- 173 611.648 Phase II, Phase IIB, and Phase V Synthetic Organic Contaminants
- 174 611.650 Monitoring for 36 Contaminants (Repealed)
- 175 611.657 Analytical Methods for 36 Contaminants (Repealed)
- 176 611.658 Special Monitoring for Organic Chemicals (Repealed)

177

178 SUBPART P: THM MONITORING AND ANALYTICAL REQUIREMENTS

179

180 Section

- 181 611.680 Sampling, Analytical, and other Requirements (Repealed)
- 182 611.683 Reduced Monitoring Frequency (Repealed)
- 183 611.684 Averaging (Repealed)
- 184 611.685 Analytical Methods (Repealed)
- 185 611.686 Modification to System (Repealed)
- 186 611.687 Sampling for THM Potential (Repealed)
- 187 611.688 Applicability Dates (Repealed)

188

189 SUBPART Q: RADIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

190

191 Section

- 192 611.720 Analytical Methods
- 193 611.731 Gross Alpha
- 194 611.732 Beta Particle and Photon Radioactivity
- 195 611.733 General Monitoring and Compliance Requirements

196

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

199

200 Section

- 201 611.740 General Requirements
- 202 611.741 Standards for Avoiding Filtration
- 203 611.742 Disinfection Profiling and Benchmarking
- 204 611.743 Filtration
- 205 611.744 Filtration Sampling Requirements
- 206 611.745 Reporting and Recordkeeping Requirements

207

208 SUBPART S: GROUNDWATER RULE

209 Section

- 210 611.800 General Requirements and Applicability
- 211 611.801 Sanitary Surveys for GWS Suppliers
- 212 611.802 Groundwater Source Microbial Monitoring and Analytical Methods
- 213 611.803 Treatment Technique Requirements for GWS Suppliers
- 214 611.804 Treatment Technique Violations for GWS Suppliers
- 215 611.805 Reporting and Recordkeeping for GWS Suppliers

216		
217		SUBPART T: REPORTING AND RECORDKEEPING
218		
219	Section	
220	611.830	Applicability
221	611.831	Monthly Operating Report
222	611.832	Notice by Agency (Repealed)
223	611.833	Cross Connection Reporting
224	611.840	Reporting
225	611.851	Reporting MCL, MRDL, and other Violations (Repealed)
226	611.852	Reporting other Violations (Repealed)
227	611.853	Notice to New Billing Units (Repealed)
228	611.854	General Content of Public Notice (Repealed)
229	611.855	Mandatory Health Effects Language (Repealed)
230	611.856	Fluoride Notice (Repealed)
231	611.858	Fluoride Secondary Standard (Repealed)
232	611.860	Record Maintenance
233	611.870	List of 36 Contaminants (Repealed)
234		
235		SUBPART U: CONSUMER CONFIDENCE REPORTS
236		
237	Section	
238	611.881	Purpose and Applicability
239	611.882	Compliance Dates
240	611.883	Content of the Reports
241	611.884	Required Additional Health Information
242	611.885	Report Delivery and Recordkeeping
243		
244		SUBPART V: PUBLIC NOTIFICATION OF DRINKING WATER VIOLATIONS
245		
246	Section	
247	611.901	General Public Notification Requirements
248	611.902	Tier 1 Public Notice: Form, Manner, and Frequency of Notice
249	611.903	Tier 2 Public Notice: Form, Manner, and Frequency of Notice
250	611.904	Tier 3 Public Notice: Form, Manner, and Frequency of Notice
251	611.905	Content of the Public Notice
252	611.906	Notice to New Billing Units or New Customers
253	611.907	Special Notice of the Availability of Unregulated Contaminant Monitoring
254		Results
255	611.908	Special Notice for Exceedance of the Fluoride Secondary Standard
256	611.909	Special Notice for Nitrate Exceedances above the MCL by a Non-Community
257		Water System
258	611.910	Notice by the Agency on Behalf of a PWS

259	611.911	Special Notice for Cryptosporidium
260		
261		SUBPART W: INITIAL DISTRIBUTION SYSTEM EVALUATIONS
262		
263	Section	
264	611.920	General Requirements
265	611.921	Standard Monitoring
266	611.922	System-Specific Studies
267	611.923	40/30 Certification
268	611.924	Very Small System Waivers
269	611.925	Subpart Y Compliance Monitoring Location Recommendations
270		
271		SUBPART X: ENHANCED FILTRATION AND DISINFECTION –
272		SYSTEMS SERVING FEWER THAN 10,000 PEOPLE
273		
274	Section	
275	611.950	General Requirements
276	611.951	Finished Water Reservoirs
277	611.952	Additional Watershed Control Requirements for Unfiltered Systems
278	611.953	Disinfection Profile
279	611.954	Disinfection Benchmark
280	611.955	Combined Filter Effluent Turbidity Limits
281	611.956	Individual Filter Turbidity Requirements
282	611.957	Reporting and Recordkeeping Requirements
283		
284		SUBPART Y: STAGE 2 DISINFECTION BYPRODUCTS REQUIREMENTS
285		
286	Section	
287	611.970	General Requirements
288	611.971	Routine Monitoring
289	611.972	Subpart Y Monitoring Plan
290	611.973	Reduced Monitoring
291	611.974	Additional Requirements for Consecutive Systems
292	611.975	Conditions Requiring Increased Monitoring
293	611.976	Operational Evaluation Levels
294	611.977	Requirements for Remaining on Reduced TTHM and HAA5 Monitoring Based
295		on Subpart I Results
296	611.978	Requirements for Remaining on Increased TTHM and HAA5 Monitoring Based
297		on Subpart I Results
298	611.979	Reporting and Recordkeeping Requirements
299		
300		SUBPART Z: ENHANCED TREATMENT FOR CRYPTOSPORIDIUM
301	Section	

302	611.1000	General Requirements
303	611.1001	Source Water Monitoring Requirements: Source Water Monitoring
304	611.1002	Source Water Monitoring Requirements: Sampling Schedules
305	611.1003	Source Water Monitoring Requirements: Sampling Locations
306	611.1004	Source Water Monitoring Requirements: Analytical Methods
307	611.1005	Source Water Monitoring Requirements: Approved Laboratories
308	611.1006	Source Water Monitoring Requirements: Reporting Source Water Monitoring
309		Results
310	611.1007	Source Water Monitoring Requirements: Grandfathering Previously Collected
311		Data
312	611.1008	Disinfection Profiling and Benchmarking Requirements: Requirements When
313		Making a Significant Change in Disinfection Practice
314	611.1009	Disinfection Profiling and Benchmarking Requirements: Developing the
315		Disinfection Profile and Benchmark
316	611.1010	Treatment Technique Requirements: Bin Classification for Filtered Systems
317	611.1011	Treatment Technique Requirements: Filtered System Additional
318		Cryptosporidium Treatment Requirements
319	611.1012	Treatment Technique Requirements: Unfiltered System Cryptosporidium
320		Treatment Requirements
321	611.1013	Treatment Technique Requirements: Schedule for Compliance with
322		Cryptosporidium Treatment Requirements
323	611.1014	Treatment Technique Requirements: Requirements for Uncovered Finished
324		Water Storage Facilities
325	611.1015	Requirements for Microbial Toolbox Components: Microbial Toolbox Options
326		for Meeting Cryptosporidium Treatment Requirements
327	611.1016	Requirements for Microbial Toolbox Components: Source Toolbox Components
328	611.1017	Requirements for Microbial Toolbox Components: Pre-Filtration Treatment
329		Toolbox Components
330	611.1018	Requirements for Microbial Toolbox Components: Treatment Performance
331		Toolbox Components
332	611.1019	Requirements for Microbial Toolbox Components: Additional Filtration Toolbox
333		Components
334	611.1020	Requirements for Microbial Toolbox Components: Inactivation Toolbox
335		Components
336	611.1021	Reporting and Recordkeeping Requirements: Reporting Requirements
337	611.1022	Reporting and Recordkeeping Requirements: Recordkeeping Requirements
338	611.1023	Requirements to Respond to Significant Deficiencies Identified in Sanitary
339		Surveys Performed by USEPA or the Agency

SUBPART AA: REVISED TOTAL COLIFORM RULE

343	Section	
344	611.1051	General

345	611.1052	Analytical Methods and Laboratory Certification
346	611.1053	General Monitoring Requirements for all PWSs
347	611.1054	Routine Monitoring Requirements for Non-CWSs That Serve 1,000 or Fewer
348		People Using Only Groundwater
349	611.1055	Routine Monitoring Requirements for CWSs That Serve 1,000 or Fewer People
350		Using Only Groundwater
351	611.1056	Routine Monitoring Requirements for Subpart B Systems That Serve 1,000 or
352		Fewer People
353	611.1057	Routine Monitoring Requirements for PWSs That Serve More Than 1,000 People
354	611.1058	Repeat Monitoring and E. coli Requirements
355	611.1059	Coliform Treatment Technique Triggers and Assessment Requirements for
356		Protection Against Potential Fecal Contamination
357	611.1060	Violations
358	611.1061	Reporting and Recordkeeping
359		
360	611.APPENDIX A	Regulated Contaminants
361	611.APPENDIX B	Percent Inactivation of G. Lamblia Cysts
362	611.APPENDIX C	Common Names of Organic Chemicals
363	611.APPENDIX D	Defined Substrate Method for the Simultaneous Detection of Total
364		Coliforms and Escherichia Escherieia Coli from Drinking Water
365		(Repealed)
366	611.APPENDIX E	Mandatory Lead Public Education Information for Community Water
367		Systems
368	611.APPENDIX F	Mandatory Lead Public Education Information for Non-Transient Non-
369		Community Water Systems
370	611.APPENDIX G	NPDWR Violations and Situations Requiring Public Notice
371	611.APPENDIX H	Standard Health Effects Language for Public Notification
372	611.APPENDIX I	Acronyms Used in Public Notification Regulation
373	611.TABLE A	Total Coliform Monitoring Frequency
374	611.TABLE B	Fecal or Total Coliform Density Measurements
375	611.TABLE C	Frequency of RDC Measurement
376	611.TABLE D	Number of Lead and Copper Monitoring Sites
377	611.TABLE E	Lead and Copper Monitoring Start Dates (Repealed)
378	611.TABLE F	Number of Water Quality Parameter Sampling Sites
379	611.TABLE G	Summary of Section 611.357 Monitoring Requirements for Water Quality
380		Parameters
381	611.TABLE H	CT Values (mg·min/ℓ) for Cryptosporidium Inactivation by Chlorine
382		Dioxide
383	611.TABLE I	CT Values (mg·min/ℓ) for Cryptosporidium Inactivation by Ozone
384	611.TABLE J	UV Dose Table for Cryptosporidium, Giardia lamblia, and Virus
385		Inactivation Credit
386	611.TABLE Z	Federal Effective Dates
387		

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

390
391 SOURCE: Adopted in R88-26 at 14 Ill. Reg. 16517, effective September 20, 1990; amended in
392 R90-21 at 14 Ill. Reg. 20448, effective December 11, 1990; amended in R90-13 at 15 Ill. Reg.
393 1562, effective January 22, 1991; amended in R91-3 at 16 Ill. Reg. 19010, effective December 1,
394 1992; amended in R92-3 at 17 Ill. Reg. 7796, effective May 18, 1993; amended in R93-1 at 17
395 Ill. Reg. 12650, effective July 23, 1993; amended in R94-4 at 18 Ill. Reg. 12291, effective July
396 28, 1994; amended in R94-23 at 19 Ill. Reg. 8613, effective June 20, 1995; amended in R95-17
397 at 20 Ill. Reg. 14493, effective October 22, 1996; amended in R98-2 at 22 Ill. Reg. 5020,
398 effective March 5, 1998; amended in R99-6 at 23 Ill. Reg. 2756, effective February 17, 1999;
399 amended in R99-12 at 23 Ill. Reg. 10348, effective August 11, 1999; amended in R00-8 at 23 Ill.
400 Reg. 14715, effective December 8, 1999; amended in R00-10 at 24 Ill. Reg. 14226, effective
401 September 11, 2000; amended in R01-7 at 25 Ill. Reg. 1329, effective January 11, 2001;
402 amended in R01-20 at 25 Ill. Reg. 13611, effective October 9, 2001; amended in R02-5 at 26 Ill.
403 Reg. 3522, effective February 22, 2002; amended in R03-4 at 27 Ill. Reg. 1183, effective January
404 10, 2003; amended in R03-15 at 27 Ill. Reg. 16447, effective October 10, 2003; amended in
405 R04-3 at 28 Ill. Reg. 5269, effective March 10, 2004; amended in R04-13 at 28 Ill. Reg. 12666,
406 effective August 26, 2004; amended in R05-6 at 29 Ill. Reg. 2287, effective January 28, 2005;
407 amended in R06-15 at 30 Ill. Reg. 17004, effective October 13, 2006; amended in R07-2/R07-11
408 at 31 Ill. Reg. 11757, effective July 27, 2007; amended in R08-7/R08-13 at 33 Ill. Reg. 633,
409 effective December 30, 2008; amended in R10-1/R10-17/R11-6 at 34 Ill. Reg. 19848, effective
410 December 7, 2010; amended in R12-4 at 36 Ill. Reg. 7110, effective April 25, 2012; amended in
411 R13-2 at 37 Ill. Reg. 1978, effective February 4, 2013; amended in R14-8 at 38 Ill. Reg. 3608,
412 effective January 27, 2014; amended in R14-9 at 38 Ill. Reg. 9792, effective April 21, 2014;
413 amended in R15-6 at 39 Ill. Reg. 3713, effective February 24, 2015; amended in R15-23 at 39 Ill.
414 Reg. 15144, effective November 9, 2015; amended in R16-4 at 39 Ill. Reg. 15352, effective
415 November 13, 2015; amended in R17-12 at 41 Ill. Reg. _____, effective _____.

416
417 SUBPART A: GENERAL

418
419 **Section 611.100 Purpose, Scope, and Applicability**

- 420
421 a) This Part satisfies the requirement of Section 17.5 of the Environmental
422 Protection Act (Act)[415 ILCS 5/17.5] that the Board adopt regulations that are
423 identical in substance with federal regulations promulgated by the United States
424 Environmental Protection Agency (USEPA) pursuant to Sections 1412(b),
425 1414(c), 1417(a), and 1445(a) of the Safe Drinking Water Act (SDWA) (42 USC
426 300g-1(b), 300g-3(c), 300g-6(a), and 300j-4(a)).
427
428 b) This Part establishes primary drinking water regulations (NPDWRs) pursuant to
429 the SDWA, and also includes additional, related State requirements that are
430 consistent with and more stringent than the USEPA regulations (Section 7.2(a)(6))

431 of the Act [~~415 ILCS 5/7.2(a)(6)~~]. The latter provisions are specifically marked
432 as "additional State requirements:". They apply only to community water systems
433 (CWSs).
434

- 435 c) This Part applies to "suppliers", owners and operators of "public water systems"
436 ("PWSs"). PWSs include CWSs, "non-community water systems ("non-CWSs"),
437 and "non-transient non-community water systems ("NTNCWSs"), as these terms
438 are defined in Section 611.101.
439
- 440 1) CWS suppliers are required to obtain permits from the Illinois
441 Environmental Protection Agency (Agency) pursuant to 35 Ill. Adm. Code
442 602.
443
 - 444 2) Non-CWS suppliers are subject to additional regulations promulgated by
445 the Illinois Department of Public Health (Public Health or DPH) pursuant
446 to Section 9 of the Illinois Groundwater Protection Act [415 ILCS 55/9],
447 including 77 Ill. Adm. Code 900.
448
 - 449 3) Non-CWS suppliers are not required to obtain permits or other approvals
450 from the Agency, or to file reports or other documents with the Agency.
451 Any provision in this Part so providing is to be understood as requiring the
452 non-CWS supplier to obtain the comparable form of approval from, or to
453 file the comparable report or other document with Public Health.
454

455 BOARD NOTE: Derived from 40 CFR 141.1 ~~(2003)~~(2016).
456

- 457 d) This Part applies to each PWS, unless the PWS meets all of the following
458 conditions:
459
- 460 1) The PWS consists only of distribution and storage facilities (and does not
461 have any collection and treatment facilities);
462
 - 463 2) The PWS obtains all of its water from, but is not owned or operated by, a
464 supplier to which such regulations apply;
465
 - 466 3) The PWS does not sell water to any person; and
467
 - 468 4) The PWS is not a carrier that conveys passengers in interstate commerce.
469

470 BOARD NOTE: Derived from 40 CFR 141.3 ~~(2003)~~(2016). The text of 40 CFR
471 141.3 is nearly identical to Section 1411 of the federal SDWA (42 USC 300g).
472 On December 23, 2003 (at 68 Fed. Reg. 74233), USEPA announced a change in
473 its policy relating to Section 1411. USEPA determined that a property owner that

474 is not otherwise subject to the SDWA national primary drinking water standards
 475 "submeters" water, and does not "sell" water within the meaning of Section
 476 1411(3) if the property owner meters water to tenants on its property and bills the
 477 tenants for the water. USEPA charged the State with determining whether water is
 478 "submetered" or "sold" in a particular situation. USEPA stated that eligibility for
 479 exclusion requires that the owner obtain water from a regulated water system.
 480 USEPA set forth factors for consideration to aid the State in making such a
 481 determination: the property has a limited distribution system with no known
 482 backflow or cross-connection issues; the majority of the plumbing is within a
 483 structure, rather than in the ground; and property ownership is single or within an
 484 association of owners. USEPA cited apartment buildings, co-ops, and
 485 condominiums as examples of eligible properties. USEPA further stated that it
 486 does not intend the policy to apply to a large distribution system, to one that
 487 serves a large population, or one that serves a mixed commercial and residential
 488 population. USEPA cited "many military installations/facilities" and large mobile
 489 home parks as examples of systems to which the policy would not apply.

- 491 e) ~~Some subsection labels have been omitted in order to maintain local consistency~~
- 492 ~~between USEPA subsection labels and the subsection labels in this Part.~~

493
 494 (Source: Amended at 41 Ill. Reg. _____, effective _____)

495
 496 **Section 611.101 Definitions**

497
 498 As used in this Part, the following terms have the given meanings:

499
 500 "Act" means the Environmental Protection Act [415 ILCS 5].

501
 502 "Agency" means the Illinois Environmental Protection Agency.
 503 BOARD NOTE: The Department of Public Health (Public Health or DPH)
 504 regulates non-community water supplies ("non-CWSs," including non-transient,
 505 non-community water supplies ("NTNCWSs") and transient non-community
 506 water supplies ("transient non-CWSs")). "Agency" will mean Public Health
 507 where implementation by Public Health occurs with regard to non-CWS suppliers.

508
 509 "Approved source of bottled water," for the purposes of Section 611.130(d)(4),
 510 means a source of water and the water therefrom, whether it be from a spring,
 511 artesian well, drilled well, municipal water supply, or any other source, that has
 512 been inspected and the water sampled, analyzed, and found to be a safe and
 513 sanitary quality according to applicable laws and regulations of State and local
 514 government agencies having jurisdiction, as evidenced by the presence in the
 515 plant of current certificates or notations of approval from each government
 516 agency or agencies having jurisdiction over the source, the water it bottles, and

517 the distribution of the water in commerce.
518 BOARD NOTE: Derived from 40 CFR 142.62(g)(2) and 21 CFR 129.3(a)
519 (2016)(2013). The Board cannot compile an exhaustive listing of all federal,
520 State, and local laws to which bottled water and bottling water may be subjected.
521 However, the statutes and regulations of which the Board is aware are the
522 following: the Illinois Food, Drug and Cosmetic Act [410 ILCS 620], the Bottled
523 Water Act [815 ILCS 310], the DPH Water Well Construction Code (77 Ill. Adm.
524 Code 920), the DPH Water Well Pump Installation Code (77 Ill. Adm. Code 925),
525 the federal bottled water quality standards (21 CFR 103.35), the federal drinking
526 water processing and bottling standards (21 CFR 129), the federal Current Good
527 Manufacturing Practice in Manufacturing, Packing, or Holding Human Food (21
528 CFR 110), the federal Fair Packaging and Labeling Act (15 USC 1451 et seq.),
529 and the federal Fair Packaging and Labeling regulations (21 CFR 201).

530
531 "Bag filters" means pressure-driven separation devices that remove particulate
532 matter larger than one micrometer using an engineered porous filtration media.
533 They are typically constructed of a non-rigid, fabric filtration media housed in a
534 pressure vessel in which the direction of flow is from the inside of the bag to
535 outside.

536
537 "Bank filtration" means a water treatment process that uses a well to recover
538 surface water that has naturally infiltrated into groundwater through a river bed or
539 banks. Infiltration is typically enhanced by the hydraulic gradient imposed by a
540 nearby pumping water supply or other wells.

541
542 "Best available technology" or "BAT" means the best technology, treatment
543 techniques, or other means that USEPA has found are available for the
544 contaminant in question. BAT is specified in Subpart F of this Part.

545
546 "Bin classification" or "bin" means, for the purposes of Subpart Z of this Part, the
547 appropriate of the four treatment categories (Bin 1, Bin 2, Bin 3, or Bin 4) that is
548 assigned to a filtered system supplier pursuant to Section 611.1010 based on the
549 results of the source water Cryptosporidium monitoring described in the previous
550 section. This bin classification determines the degree of additional
551 Cryptosporidium treatment, if any, the filtered PWS must provide.
552 BOARD NOTE: Derived from 40 CFR 141.710 (2016)(2013) and the preamble
553 discussion at 71 Fed. Reg. 654, 657 (Jan. 5, 2006).

554
555 "Board" means the Illinois Pollution Control Board.

556
557 "Cartridge filters" means pressure-driven separation devices that remove
558 particulate matter larger than 1 micrometer using an engineered porous filtration
559 media. They are typically constructed as rigid or semi-rigid, self-supporting filter

560 elements housed in pressure vessels in which flow is from the outside of the
561 cartridge to the inside.

562

563 "CAS No." means "Chemical Abstracts Services Number-";

564

565 "Clean compliance history" means, for the purposes of Subpart AA, a record of
566 no MCL violations under Section 611.325; no monitoring violations under
567 Subpart L or Subpart AA of this Part; and no coliform treatment technique trigger
568 exceedances or treatment technique violations under Subpart AA of this Part.

569

570 "~~CT" or "CT_{calc}" is the product of "residual disinfectant concentration" (RDC or~~
571 ~~C) in mg/l determined before or at the first customer, and the corresponding~~
572 ~~"disinfectant contact time" (T) in minutes. If a supplier applies disinfectants at~~
573 ~~more than one point prior to the first customer, it must determine the CT of each~~
574 ~~disinfectant sequence before or at the first customer to determine the total percent~~
575 ~~inactivation or "total inactivation ratio." In determining the total inactivation~~
576 ~~ratio, the supplier must determine the RDC of each disinfection sequence and~~
577 ~~corresponding contact time before any subsequent disinfection application points.~~
578 ~~(See "CT_{99.9}."~~)

579

580 "~~CT_{99.9}" is the CT value required for 99.9 percent (3-log) inactivation of Giardia~~
581 ~~lamblia cysts. CT_{99.9} for a variety of disinfectants and conditions appear in Tables~~
582 ~~1.1-1.6, 2.1 and 3.1 of Appendix B of this Part. (See "Inactivation Ratio.")~~
583 ~~BOARD NOTE: Derived from the definition of "CT" in 40 CFR 141.2 (2013).~~

584

585 "Coagulation" means a process using coagulant chemicals and mixing by which
586 colloidal and suspended materials are destabilized and agglomerated into flocs.

587

588 "Combined distribution system" means the interconnected distribution system
589 consisting of the distribution systems of wholesale systems and of the consecutive
590 systems that receive finished water.

591

592 "Community water system" or "CWS" means a public water system (PWS) that
593 serves at least 15 service connections used by year-round residents or regularly
594 serves at least 25 year-round residents.

595 BOARD NOTE: This definition differs slightly from that of Section ~~3.1453-05~~ of
596 the Act.

597

598 "Compliance cycle" means the nine-year calendar year cycle during which public
599 water systems (PWSs) must monitor. Each compliance cycle consists of three
600 three-year compliance periods. The first calendar cycle began January 1, 1993,
601 and ended December 31, 2001; the second began January 1, 2002, and ends
602 December 31, 2010; the third ~~began~~ begins January 1, 2011, and ends December

603 31, 2019.

604
 605 "Compliance period" means a three-year calendar year period within a
 606 compliance cycle. Each compliance cycle has three three-year compliance
 607 periods. Within the first compliance cycle, the first compliance period ran from
 608 January 1, 1993 to December 31, 1995; the second ran from January 1, 1996 to
 609 December 31, 1998; and the third ran from January 1, 1999 to December 31,
 610 2001.

611
 612 "Comprehensive performance evaluation" or "CPE" is a thorough review and
 613 analysis of a treatment plant's performance-based capabilities and associated
 614 administrative, operation, and maintenance practices. It is conducted to identify
 615 factors that may be adversely impacting a plant's capability to achieve compliance
 616 and emphasizes approaches that can be implemented without significant capital
 617 improvements.

618 BOARD NOTE: The final sentence of the definition of "comprehensive
 619 performance evaluation" in 40 CFR 141.2 is codified as Section 611.160(a)(2),
 620 since it contains substantive elements that are more appropriately codified in a
 621 substantive provision.

622
 623 "Confluent growth" means a continuous bacterial growth covering the entire
 624 filtration area of a membrane filter or a portion thereof, in which bacterial
 625 colonies are not discrete.

626
 627 "Consecutive system" means a public water system that receives some or all of its
 628 finished water from one or more wholesale systems. Delivery may be through a
 629 direct connection or through the distribution system of one or more consecutive
 630 systems.

631
 632 "Contaminant" means any physical, chemical, biological, or radiological
 633 substance or matter in water.

634
 635 "Conventional filtration treatment" means a series of processes including
 636 coagulation, flocculation, sedimentation, and filtration resulting in substantial
 637 particulate removal.

638
 639 "CT" or "Ct_{calc}" is the product of "residual disinfectant concentration" (RDC or C)
 640 in mg/ℓ determined before or at the first customer, and the corresponding
 641 "disinfectant contact time" (T) in minutes. If a supplier applies disinfectants at
 642 more than one point prior to the first customer, it must determine the CT of each
 643 disinfectant sequence before or at the first customer to determine the total percent
 644 inactivation or "total inactivation ratio". In determining the total inactivation
 645 ratio, the supplier must determine the RDC of each disinfection sequence and

646 corresponding contact time before any subsequent disinfection application points.
647 (See the definition of "CT_{99.9}".)

648
649 "CT_{99.9}" is the CT value required for 99.9 percent (3-log) inactivation of Giardia
650 lamblia cysts. CT_{99.9} for a variety of disinfectants and conditions appear in Tables
651 1.1 through 1.6, 2.1 and 3.1 of Appendix B. (See the definition of "inactivation
652 ratio".)

653 BOARD NOTE: Derived from the definition of "CT" in 40 CFR 141.2 (2016).
654

655 "Diatomaceous earth filtration" means a process resulting in substantial
656 particulate removal in which the following occur:

657
658 A precoat cake of diatomaceous earth filter media is deposited on a
659 support membrane (septum); and

660
661 While the water is filtered by passing through the cake on the septum,
662 additional filter media known as body feed is continuously added to the
663 feed water to maintain the permeability of the filter cake.

664
665 "Direct filtration" means a series of processes including coagulation and filtration
666 but excluding sedimentation resulting in substantial particulate removal.

667
668 "Disinfectant" means any oxidant, including but not limited to chlorine, chlorine
669 dioxide, chloramines, and ozone added to water in any part of the treatment or
670 distribution process, that is intended to kill or inactivate pathogenic
671 microorganisms.

672
673 "Disinfectant contact time" or "T" means the time in minutes that it takes for
674 water to move from the point of disinfectant application or the previous point of
675 RDC measurement to a point before or at the point where RDC is measured.

676
677 Where only one RDC is measured, T is the time in minutes that it takes for
678 water to move from the point of disinfectant application to a point before
679 or at the point where RDC is measured.

680
681 Where more than one RDC is measured, T is as follows:

682
683 For the first measurement of RDC, the time in minutes that it takes
684 for water to move from the first or only point of disinfectant
685 application to a point before or at the point where the first RDC is
686 measured; and

687
688 For subsequent measurements of RDC, the time in minutes that it

689 takes for water to move from the previous RDC measurement
690 point to the RDC measurement point for which the particular T is
691 being calculated.

692
693 T in pipelines must be calculated based on "plug flow" by dividing the
694 internal volume of the pipe by the maximum hourly flow rate through that
695 pipe.

696
697 T within mixing basins and storage reservoirs must be determined by
698 tracer studies or an equivalent demonstration.

699
700 "Disinfection" means a process that inactivates pathogenic organisms in water by
701 chemical oxidants or equivalent agents.

702
703 "Disinfection byproduct" or "DBP" means a chemical byproduct that forms when
704 disinfectants used for microbial control react with naturally occurring compounds
705 already present in source water. DBPs include, but are not limited to,
706 bromodichloromethane, bromoform, chloroform, dichloroacetic acid, bromate,
707 chlorite, dibromochloromethane, and certain haloacetic acids.

708
709 "Disinfection profile" is a summary of daily *Giardia lamblia* inactivation through
710 the treatment plant. The procedure for developing a disinfection profile is
711 contained in Section 611.742.

712
713 "Distribution system" includes all points downstream of an "entry point" to the
714 point of consumer ownership.

715
716 "Domestic or other non-distribution system plumbing problem" means a coliform
717 contamination problem in a PWS with more than one service connection that is
718 limited to the specific service connection from which the coliform-positive
719 sample was taken.

720
721 "Dose equivalent" means the product of the absorbed dose from ionizing radiation
722 and such factors as account for differences in biological effectiveness due to the
723 type of radiation and its distribution in the body as specified by the International
724 Commission on Radiological Units and Measurements (ICRU).

725
726 "Dual sample set" means a set of two samples collected at the same time and
727 same location, with one sample analyzed for TTHM and the other sample
728 analyzed for HAA5. Dual sample sets are collected for the purposes of conducting
729 an IDSE under Subpart W of this Part and determining compliance with the
730 TTHM and HAA5 MCLs under Subpart Y of this Part.

731

732 "E. coli" means Escherichia coli, a species of bacteria used as a specific indicator
733 of fecal contamination and potential harmful pathogens.
734 BOARD NOTE: Derived from the discussion at 78 Fed. Reg. 10270, 10271 (Feb.
735 13, 2013).
736
737 "Enhanced coagulation" means the addition of sufficient coagulant for improved
738 removal of disinfection byproduct (DBP) precursors by conventional filtration
739 treatment.
740
741 "Enhanced softening" means the improved removal of disinfection byproduct
742 (DBP) precursors by precipitative softening.
743
744 "Entry point" means a point just downstream of the final treatment operation, but
745 upstream of the first user and upstream of any mixing with other water. If raw
746 water is used without treatment, the "entry point" is the raw water source. If a
747 PWS receives treated water from another PWS, the "entry point" is a point just
748 downstream of the other PWS, but upstream of the first user on the receiving
749 PWS, and upstream of any mixing with other water.
750
751 "Filter profile" is a graphical representation of individual filter performance,
752 based on continuous turbidity measurements or total particle counts versus time
753 for an entire filter run, from startup to backwash inclusively, that includes an
754 assessment of filter performance while another filter is being backwashed.
755
756 "Filtration" means a process for removing particulate matter from water by
757 passage through porous media.
758
759 "Finished water" means water that is introduced into the distribution system of a
760 public water system which is intended for distribution and consumption without
761 further treatment, except that treatment which is necessary to maintain water
762 quality in the distribution system (e.g., booster disinfection, addition of corrosion
763 control chemicals, etc.).
764
765 "Flocculation" means a process to enhance agglomeration or collection of smaller
766 floc particles into larger, more easily settleable particles through gentle stirring by
767 hydraulic or mechanical means.
768
769 "Flowing stream" means a course of running water flowing in a definite channel.
770
771 "40/30 certification" means the certification, submitted by the supplier to the
772 Agency pursuant to Section 611.923, that the supplier had no TTHM or HAA5
773 monitoring violations, and that no individual sample from its system exceeded

774 0.040 mg/ℓ TTHM or 0.030 mg/ℓ HAA5 during eight consecutive calendar
775 quarters.
776 BOARD NOTE: Derived from 40 CFR 141.603(a) ~~(2016)~~(2013).
777
778 "GAC10" means granular activated carbon (GAC) filter beds with an empty-bed
779 contact time of 10 minutes based on average daily flow and a carbon reactivation
780 frequency of every 180 days, except that the reactivation frequency for GAC10
781 that is used as a best available technology for compliance with the MCLs set forth
782 in Subpart Y of this Part pursuant to Section 611.312(b)(2) is 120 days.
783
784 "GAC20" means granular activated carbon filter beds with an empty-bed contact
785 time of 20 minutes based on average daily flow and a carbon reactivation
786 frequency of every 240 days.
787
788 "GC" means "gas chromatography" or "gas-liquid phase chromatography:".
789
790 "GC/MS" means gas chromatography (GC) followed by mass spectrometry (MS).
791
792 "Gross alpha particle activity" means the total radioactivity due to alpha particle
793 emission as inferred from measurements on a dry sample.
794
795 "Gross beta particle activity" means the total radioactivity due to beta particle
796 emission as inferred from measurements on a dry sample.
797
798 "Groundwater system" or "GWS" means a public water supply (PWS) that uses
799 only groundwater sources, including a consecutive system that receives finished
800 groundwater.
801 BOARD NOTE: Derived from 40 CFR 141.23(b)(2), ~~and~~ 141.24(f)(2) note, and
802 40 CFR 141.400(b) ~~(2016)~~(2013).
803
804 "Groundwater under the direct influence of surface water" means any water
805 beneath the surface of the ground with significant occurrence of insects or other
806 macroorganisms, algae, or large-diameter pathogens, such as Giardia lamblia or
807 Cryptosporidium, or significant and relatively rapid shifts in water characteristics,
808 such as turbidity, temperature, conductivity, or pH, that closely correlate to
809 climatological or surface water conditions. "Groundwater under the direct
810 influence of surface water" is as determined in Section 611.212.
811
812 "Haloacetic acids (five)" or "HAA5" means the sum of the concentrations in
813 milligrams per liter (mg/ℓ) of five haloacetic acid compounds (monochloroacetic
814 acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and
815 dibromoacetic acid), rounded to two significant figures after addition.
816

817 "Halogen" means one of the chemical elements chlorine, bromine, or iodine.

818
819 "HPC" means "heterotrophic plate count," measured as specified in Section
820 611.531(a)(2)(C).

821
822 "Hydrogeologic sensitivity assessment," for the purposes of Subpart S of this Part,
823 means a determination of whether a GWS supplier obtains water from a
824 hydrogeologically sensitive setting.
825 BOARD NOTE: Derived from 40 CFR 141.400(c)(5) (2016)(2013).

826
827 "Inactivation ratio" or "Ai" means as follows:

$$A_i = CT_{\text{calc}}/CT_{99.9}$$

828
829
830
831 The sum of the inactivation ratios or "total inactivation ratio" (B), is
832 calculated by adding together the inactivation ratio for each disinfection
833 sequence as follows:

$$B = \Sigma(A_i)$$

834
835
836
837 A total inactivation ratio equal to or greater than 1.0 is assumed to provide
838 a 3-log inactivation of Giardia lamblia cysts.

839
840 BOARD NOTE: Derived from the definition of "CT" in 40 CFR 141.2
841 (2016)(2013).

842
843 "Initial compliance period" means the three-year compliance period that
844 began begins January 1, 1993, except for the MCLs for dichloromethane, 1,2,4-
845 trichlorobenzene, 1,1,2-trichloroethane, benzo(a)pyrene, dalapon, di(2-
846 ethylhexyl)adipate, di(2-ethylhexyl)phthalate, dinoseb, diquat, endothall, endrin,
847 glyphosate, hexachlorobenzene, hexachlorocyclopentadiene, oxamyl, picloram,
848 simazine, 2,3,7,8-TCDD, antimony, beryllium, cyanide, nickel, and thallium, as
849 they apply to a supplier whose system has fewer than 150 service connections, for
850 which it means the three-year compliance period that began on January 1, 1996.

851
852 "Initial distribution system evaluation" or "IDSE" means the evaluation,
853 performed by the supplier pursuant to Section 611.921(c), to determine the
854 locations in a distribution system that are representative of high TTHM and
855 HAA5 concentrations throughout the distribution system. An IDSE is used in
856 conjunction with, but is distinct from, the compliance monitoring undertaken to
857 identify and select monitoring locations used to determine compliance with
858 Subpart I of this Part.

859 BOARD NOTE: Derived from 40 CFR 141.601(c) (2016)(2013).

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"Inorganic contaminants" or "IOCs" refers to that group of contaminants designated as such in United States Environmental Protection Agency (USEPA) regulatory discussions and guidance documents. IOCs include antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, mercury, nickel, nitrate, nitrite, selenium, and thallium.
BOARD NOTE: The IOCs are derived from 40 CFR 141.23(a)(4) (2016)~~(2013)~~.

"ℓ" means "liter."

"Lake or reservoir" means a natural or man made basin or hollow on the Earth's surface in which water collects or is stored that may or may not have a current or single direction of flow.

"Legionella" means a genus of bacteria, some species of which have caused a type of pneumonia called Legionnaires Disease.

"Level 1 assessment" means an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and (when possible) the likely reason that the system triggered the assessment. A Level 1 assessment is conducted by the system operator or owner. Minimum elements include review and identification of atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., whether a groundwater system is disinfected); existing water quality monitoring data; and inadequacies in sample sites, sampling protocol, and sample processing. The supplier must conduct the assessment consistent with any Agency-imposed permit conditions that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system.

"Level 2 assessment" means an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and (when possible) the likely reason that the system triggered the assessment. A Level 2 assessment provides a more detailed examination of the system (including the system's monitoring and operational practices) than does a Level 1 assessment through the use of more comprehensive investigation and review of available information, additional internal and external resources, and other relevant practices. A Level 2 assessment is conducted by a person approved by a SEP granted by the Agency pursuant to Section 611.130, and that person may include the system operator. Minimum elements include review and identification of

903 atypical events that could affect distributed water quality or indicate that
 904 distributed water quality was impaired; changes in distribution system
 905 maintenance and operation that could affect distributed water quality (including
 906 water storage); source and treatment considerations that bear on distributed water
 907 quality, where appropriate (e.g., whether a groundwater system is disinfected);
 908 existing water quality monitoring data; and inadequacies in sample sites, sampling
 909 protocol, and sample processing. The supplier must conduct the assessment
 910 consistent with any Agency-imposed permit conditions that tailor specific
 911 assessment elements with respect to the size and type of the system and the size,
 912 type, and characteristics of the distribution system. The supplier must comply
 913 with any expedited actions or additional actions required by a SEP granted by the
 914 Agency pursuant to Section 611.130 in the instance of an E. coli MCL violation.

915
 916 "Locational running annual average" or "LRAA" means the average of sample
 917 analytical results for samples taken at a particular monitoring location during the
 918 previous four calendar quarters.

919
 920 "Man-made beta particle and photon emitters" means all radionuclides emitting
 921 beta particles or photons listed in NBS Handbook 69 "~~Maximum Permissible~~
 922 ~~Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air~~
 923 ~~and in Water for Occupational Exposure~~," NCRP Report Number 22,
 924 incorporated by reference in Section 611.102, except the daughter products of
 925 thorium-232, uranium-235 and uranium-238.

926
 927 "Maximum contaminant level" or "MCL" means the maximum permissible level
 928 of a contaminant in water that is delivered to any user of a public water system.
 929 (See Section 611.121.)

930
 931 "Maximum contaminant level goal" or "MCLG" means the maximum level of a
 932 contaminant in drinking water at which no known or anticipated adverse effect on
 933 the health of persons would occur, and which allows an adequate margin of
 934 safety. MCLGs are nonenforceable health goals.

935 BOARD NOTE: The Board has not routinely adopted the regulations relating to
 936 the federal MCLGs because they are outside the scope of the Board's identical-in-
 937 substance mandate under Section 17.5 of the Act [~~415 ILCS 5/17.5~~].

938
 939 "Maximum residual disinfectant level" or "MRDL" means the maximum
 940 permissible level of a disinfectant added for water treatment that may not be
 941 exceeded at the consumer's tap without an unacceptable possibility of adverse
 942 health effects. MRDLs are enforceable in the same manner as are MCLs. (See
 943 Section 611.313 and Section 611.383.)

944
 945 "Maximum residual disinfectant level goal" or "MRDLG" means the maximum

946 level of a disinfectant added for water treatment at which no known or anticipated
947 adverse effect on the health of persons would occur, and which allows an
948 adequate margin of safety. MRDLGs are nonenforceable health goals and do not
949 reflect the benefit of the addition of the chemical for control of waterborne
950 microbial contaminants.

951
952 "Maximum total trihalomethane potential" or "MTP" means the maximum
953 concentration of total trihalomethanes (TTHMs) produced in a given water
954 containing a disinfectant residual after seven days at a temperature of 25° C or
955 above.

956
957 "Membrane filtration" means a pressure or vacuum driven separation process in
958 which particulate matter larger than one micrometer is rejected by an engineered
959 barrier, primarily through a size exclusion mechanism, and which has a
960 measurable removal efficiency of a target organism that can be verified through
961 the application of a direct integrity test. This definition includes the common
962 membrane technologies of microfiltration, ultrafiltration, nanofiltration, and
963 reverse osmosis.

964
965 "MFL" means millions of fibers per liter larger than 10 micrometers.
966 BOARD NOTE: Derived from 40 CFR 141.23(a)(4)(i) (2016)~~(2013)~~.

967
968 "mg" means milligrams (1/1000 of a gram).

969
970 "mg/ℓ " means milligrams per liter.

971
972 "Mixed system" means a PWS that uses both groundwater and surface water
973 sources.
974 BOARD NOTE: Derived from 40 CFR 141.23(b)(2) and 141.24(f)(2) note
975 (2016)~~(2013)~~.

976
977 "MUG" means 4-methyl-umbelliferyl-beta-d-glucuronide.

978
979 "Near the first service connection" means at one of the 20 percent of all service
980 connections in the entire system that are nearest the public water system (PWS)
981 treatment facility, as measured by water transport time within the distribution
982 system.

983
984 "nm" means nanometer (1/1,000,000,000 of a meter).

985
986 "Non-community water system" or "NCWS" or "non-CWS" means a public water
987 system (PWS) that is not a community water system (CWS). A non-community
988 water system is either a "transient non-community water system (TWS)" or a

989 "non-transient non-community water system (NTNCWS):".
990
991 "Non-transient, non-community water system" or "non-transient, non-CWS" or
992 "NTNCWS" means a public water system (PWS) that is not a community water
993 system (CWS) and that regularly serves at least 25 of the same persons over six
994 months per year.
995
996 "NPDWR" means "national primary drinking water regulation:".
997
998 "NTU" means "nephelometric turbidity units:".
999
1000 "Old MCL" means one of the inorganic maximum contaminant levels (MCLs),
1001 codified at Section 611.300, or organic MCLs, codified at Section 611.310,
1002 including any marked as "additional State requirements:".
1003 BOARD NOTE: Old MCLs are those derived prior to the implementation of the
1004 USEPA "Phase II" regulations. The Section 611.640 definition of this term,
1005 which applies only to Subpart O of this Part, differs from this definition in that the
1006 definition does not include the Section 611.300 inorganic MCLs.
1007
1008 "P-A Coliform Test" means "Presence-Absence Coliform Test:".
1009
1010 "Paired sample" means two samples of water for Total Organic Carbon (TOC).
1011 One sample is of raw water taken prior to any treatment. The other sample is
1012 taken after the point of combined filter effluent and is representative of the treated
1013 water. These samples are taken at the same time. (See Section 611.382.)
1014
1015 "Performance evaluation sample" or "PE sample" means a reference sample
1016 provided to a laboratory for the purpose of demonstrating that the laboratory can
1017 successfully analyze the sample within limits of performance specified by the
1018 Agency; or, for bacteriological laboratories, Public Health; or, for radiological
1019 laboratories, the Illinois Department of Nuclear Safety. The true value of the
1020 concentration of the reference material is unknown to the laboratory at the time of
1021 the analysis.
1022
1023 "Person" means an individual, corporation, company, association, partnership,
1024 state, unit of local government, or federal agency.
1025
1026 "Phase I" refers to that group of chemical contaminants and the accompanying
1027 regulations promulgated by USEPA on July 8, 1987, at 52 Fed. Reg. 25712.
1028
1029 "Phase II" refers to that group of chemical contaminants and the accompanying
1030 regulations promulgated by USEPA on January 30, 1991, at 56 Fed. Reg. 3578.
1031

1032 "Phase IIB" refers to that group of chemical contaminants and the accompanying
1033 regulations promulgated by USEPA on July 1, 1991, at 56 Fed. Reg. 30266.

1034
1035 "Phase V" refers to that group of chemical contaminants promulgated by USEPA
1036 on July 17, 1992, at 57 Fed. Reg. 31776.

1037
1038 "Picocurie" or "pCi" means the quantity of radioactive material producing 2.22
1039 nuclear transformations per minute.

1040
1041 "Plant intake" means the works or structures at the head of a conduit through
1042 which water is diverted from a source (e.g., a river or lake) into the treatment
1043 plant.

1044
1045 "Point of disinfectant application" is the point at which the disinfectant is applied
1046 and downstream of which water is not subject to recontamination by surface water
1047 runoff.

1048
1049 "Point-of-entry treatment device" or "POE" is a treatment device applied to the
1050 drinking water entering a house or building for the purpose of reducing
1051 contaminants in the drinking water distributed throughout the house or building.

1052
1053 "Point-of-use treatment device" or "POU" is a treatment device applied to a single
1054 tap used for the purpose of reducing contaminants in drinking water at that one
1055 tap.

1056
1057 "Presedimentation" means a preliminary treatment process used to remove gravel,
1058 sand, and other particulate material from the source water through settling before
1059 the water enters the primary clarification and filtration processes in a treatment
1060 plant.

1061
1062 "Public Health" or "DPH" means the Illinois Department of Public Health.
1063 BOARD NOTE: See the definition of "Agency" in this Section.

1064
1065 "Public water system" or "PWS" means a system for the provision to the public of
1066 water for human consumption through pipes or other constructed conveyances, if
1067 such system has at least 15 service connections or regularly serves an average of
1068 at least 25 individuals daily at least 60 days out of the year. A PWS is either a
1069 community water system (CWS) or a non-community water system (non-CWS).
1070 A PWS does not include any facility defined as "special irrigation district." Such
1071 term includes the following:

1072
1073 Any collection, treatment, storage, and distribution facilities under control
1074 of the operator of such system and used primarily in connection with such

1075 system; and

1076
1077 Any collection or pretreatment storage facilities not under such control
1078 that are used primarily in connection with such system.

1079 BOARD NOTE: Where used in Subpart F of this Part, "public water supply"
1080 means the same as "public water system:".

1081
1082 "Radioactive contaminants" refers to that group of contaminants designated
1083 "radioactive contaminants" in USEPA regulatory discussions and guidance
1084 documents. "Radioactive contaminants" include tritium, strontium-89, strontium-
1085 90, iodine-131, cesium-134, gross beta emitters, and other nuclides.

1086 BOARD NOTE: Derived from 40 CFR 141.25(c) Table B (2016)(2013). These
1087 radioactive contaminants must be reported in Consumer Confidence Reports
1088 under Subpart U of this Part when they are detected above the levels indicated in
1089 Section 611.720(c)(3).

1090
1091 "Reliably and consistently" below a specified level for a contaminant means an
1092 Agency determination based on analytical results following the initial detection of
1093 a contaminant to determine the qualitative condition of water from an individual
1094 sampling point or source. The Agency must base this determination on the
1095 consistency of analytical results, the degree below the MCL, the susceptibility of
1096 source water to variation, and other vulnerability factors pertinent to the
1097 contaminant detected that may influence the quality of water.

1098 BOARD NOTE: Derived from 40 CFR 141.23(b)(9), 141.24(f)(11)(ii), and
1099 141.24(f)(11)(iii) (2016)(2013).

1100
1101 "Rem" means the unit of dose equivalent from ionizing radiation to the total body
1102 or any internal organ or organ system. A "millirem (mrem)" is 1/1000 of a rem.

1103
1104 "Repeat compliance period" means a compliance period that begins after the
1105 initial compliance period.

1106
1107 "Representative" means that a sample must reflect the quality of water that is
1108 delivered to consumers under conditions when all sources required to supply
1109 water under normal conditions are in use and all treatment is properly operating.

1110
1111 "Residual disinfectant concentration" ("RDC" or "C" in CT calculations) means
1112 the concentration of disinfectant measured in mg/l in a representative sample of
1113 water. For purposes of the requirement of Section 611.241(d) of maintaining a
1114 detectable RDC in the distribution system, "RDC" means a residual of free or
1115 combined chlorine.

1116
1117 "Safe Drinking Water Act" or "SDWA" means the Public Health Service Act, as

1118 amended by the Safe Drinking Water Act, Pub. L. 93-523, 42 USC 300f et seq.

1119
1120 "Sanitary defect" means a defect that could provide a pathway of entry for
1121 microbial contamination into the distribution system or which is indicative of a
1122 failure or imminent failure in a barrier to microbial contamination that is already
1123 in place.

1124
1125 "Sanitary survey" means an onsite review of the delineated WHPAs (identifying
1126 sources of contamination within the WHPAs and evaluations or the hydrogeologic
1127 sensitivity of the delineated WHPAs conducted under source water assessments or
1128 utilizing other relevant information where available), facilities, equipment,
1129 operation, maintenance, and monitoring compliance of a public water system
1130 (PWS) to evaluate the adequacy of the system, its sources, and operations for the
1131 production and distribution of safe drinking water.

1132 BOARD NOTE: Derived from 40 CFR 141.2 and 40 CFR 142.16(o)(2)
1133 (2016)~~(2013)~~.

1134
1135 "Seasonal system" means a non-CWS that is not operated as a PWS on a year-
1136 round basis and which starts up and shuts down at the beginning and end of each
1137 operating season.

1138
1139 "Sedimentation" means a process for removal of solids before filtration by gravity
1140 or separation.

1141
1142 "SEP" means special exception permit (Section 611.110).

1143
1144 "Service connection," as used in the definition of public water system, does not
1145 include a connection to a system that delivers water by a constructed conveyance
1146 other than a pipe if any of the following is true:

1147
1148 The water is used exclusively for purposes other than residential use
1149 (consisting of drinking, bathing, and cooking, or other similar uses);

1150
1151 The Agency determines by issuing a SEP that alternative water for
1152 residential use or similar uses for drinking and cooking is provided to
1153 achieve the equivalent level of public health protection provided by the
1154 applicable national primary drinking water regulations; or

1155
1156 The Agency determines by issuing a SEP that the water provided for
1157 residential use or similar uses for drinking, cooking, and bathing is
1158 centrally treated or treated at the point of entry by the provider, a pass-
1159 through entity, or the user to achieve the equivalent level of protection
1160 provided by the applicable national primary drinking water regulations.

1161 BOARD NOTE: See sections 1401(4)(B)(i)(II) and (4)(B)(i)(III) of SDWA (42
1162 USC 300f(4)(B)(i)(II) and (4)(B)(i)(III) ~~(2015)~~(2011)).

1163
1164 "Significant deficiency" means a deficiency identified by the Agency in a
1165 groundwater system pursuant to Section 611.803. A significant deficiency might
1166 include, but is not limited to, a defect in system design, operation, or maintenance
1167 or a failure or malfunction of the sources, treatment, storage, or distribution
1168 system that the Agency determines to be causing or have potential for causing the
1169 introduction of contamination into the water delivered to consumers.

1170 BOARD NOTE: Derived from 40 CFR 142.16(o)(2)(iv) ~~(2016)~~(2013). The
1171 Agency must submit to USEPA a definition and description of at least one
1172 significant deficiency in each of the eight sanitary survey elements listed in
1173 Section 611.801(c) as part of the federal primacy requirements. The Board added
1174 the general description of what a significant deficiency might include in non-
1175 limiting terms, in order to provide this important definition within the body of the
1176 Illinois rules. No Agency submission to USEPA can provide definition within the
1177 context of Board regulations.

1178
1179 "Slow sand filtration" means a process involving passage of raw water through a
1180 bed of sand at low velocity (generally less than 0.4 meters per hour (m/h))
1181 resulting in substantial particulate removal by physical and biological
1182 mechanisms.

1183
1184 "SOC" or "Synthetic organic chemical contaminant" refers to that group of
1185 contaminants designated as "SOCs," or "synthetic organic chemicals" or
1186 "synthetic organic contaminants," in USEPA regulatory discussions and guidance
1187 documents. "SOCs" include alachlor, aldicarb, aldicarb sulfone, aldicarb
1188 sulfoxide, atrazine, benzo(a)pyrene, carbofuran, chlordane, dalapon,
1189 dibromoethylene (ethylene dibromide or EDB), dibromochloropropane (DBCP),
1190 di(2-ethylhexyl)adipate, di(2-ethylhexyl)phthalate, dinoseb, diquat, endothall,
1191 endrin, glyphosate, heptachlor, heptachlor epoxide, hexachlorobenzene,
1192 hexachlorocyclopentadiene, lindane, methoxychlor, oxamyl, pentachlorophenol,
1193 picloram, simazine, toxaphene, polychlorinated biphenyls (PCBs), 2,4-D, 2,3,7,8-
1194 TCDD, and 2,4,5-TP.

1195 BOARD NOTE: See the Board note appended to Section 611.311 for
1196 information relating to implementation of requirements relating to aldicarb,
1197 aldicarb sulfone, and aldicarb sulfoxide.

1198
1199 "Source" means a well, reservoir, or other source of raw water.

1200
1201 "Special irrigation district" means an irrigation district in existence prior to May
1202 18, 1994 that provides primarily agricultural service through a piped water system
1203 with only incidental residential use or similar use, where the system or the

1204 residential users or similar users of the system comply with either of the following
1205 exclusion conditions:

1206
1207 The Agency determines by issuing a SEP that alternative water is
1208 provided for residential use or similar uses for drinking or cooking to
1209 achieve the equivalent level of public health protection provided by the
1210 applicable national primary drinking water regulations; or

1211
1212 The Agency determines by issuing a SEP that the water provided for
1213 residential use or similar uses for drinking, cooking, and bathing is
1214 centrally treated or treated at the point of entry by the provider, a pass-
1215 through entity, or the user to achieve the equivalent level of protection
1216 provided by the applicable national primary drinking water regulations.

1217 BOARD NOTE: Derived from 40 CFR 141.2 ~~(2016)(2013)~~ and sections
1218 1401(4)(B)(i)(II) and (4)(B)(i)(III) of SDWA (42 USC 300f(4)(B)(i)(II) and
1219 (4)(B)(i)(III) ~~(2015)(2011)~~).

1220
1221 "Standard monitoring" means the monitoring, performed by the supplier pursuant
1222 to Section 611.921(a) and (b), at various specified locations in a distribution
1223 system including near entry points, at points that represent the average residence
1224 time in the distribution system, and at points in the distribution system that are
1225 representative of high TTHM and HAA5 concentrations throughout the
1226 distribution system.

1227 BOARD NOTE: Derived from 40 CFR 141.601(a) and (b) ~~(2016)(2013)~~.

1228
1229 "Standard sample" means the aliquot of finished drinking water that is examined
1230 for the presence of coliform bacteria.

1231
1232 "Subpart B system" means a public water system that uses surface water or
1233 groundwater under the direct influence of surface water as a source and which is
1234 subject to the requirements of Subpart B of this Part and the analytical and
1235 monitoring requirements of Sections 611.531, 611.532, 611.533, Appendix B of
1236 this Part, and Appendix C of this Part.

1237
1238 "Subpart I compliance monitoring" means monitoring required to demonstrate
1239 compliance with disinfectant residuals, disinfection byproducts, and disinfection
1240 byproduct precursors requirements of Subpart I of this Part.

1241
1242 "Subpart I system" means a public water system that uses surface water or
1243 groundwater as a source and which is subject to the disinfectant residuals,
1244 disinfection byproducts, and disinfection byproduct precursors requirements of
1245 Subpart I of this Part.
1246

1247 "Subpart Y compliance monitoring" means monitoring required to demonstrate
1248 compliance with Stage 2 disinfection byproducts requirements of Subpart Y of
1249 this Part.

1250
1251 "Supplier of water" or "supplier" means any person who owns or operates a public
1252 water system (PWS). This term includes the "official custodian-".

1253
1254 "Surface water" means all water that is open to the atmosphere and subject to
1255 surface runoff.

1256
1257 "SUVA" means specific ultraviolet absorption at 254 nanometers (nm), which is
1258 an indicator of the humic content of water. It is a calculated parameter obtained
1259 by dividing a sample's ultraviolet absorption at a wavelength of 254 nm (UV_{254})
1260 (in m^{-1}) by its concentration of dissolved organic carbon (in mg/ℓ).

1261
1262 "SWS" means "surface water system," a public water supply (PWS) that uses
1263 only surface water sources, including "groundwater under the direct influence of
1264 surface water-".

1265 BOARD NOTE: Derived from 40 CFR 141.23(b)(2) and 141.24(f)(2) note
1266 (2016)(2013).

1267
1268 "System-specific study plan" means the plan, submitted by the supplier to the
1269 Agency pursuant to Section 611.922, for studying the occurrence of TTHM and
1270 HAA5 in a supplier's distribution system based on either monitoring results or
1271 modelling of the system.

1272 BOARD NOTE: Derived from 40 CFR 141.602 (2016)(2013).

1273
1274 "System with a single service connection" means a system that supplies drinking
1275 water to consumers via a single service line.

1276
1277 "Too numerous to count" means that the total number of bacterial colonies
1278 exceeds 200 on a 47-mm diameter membrane filter used for coliform detection.

1279
1280 "Total organic carbon" or "TOC" means total organic carbon (in mg/ℓ) measured
1281 using heat, oxygen, ultraviolet irradiation, chemical oxidants, or combinations of
1282 these oxidants that convert organic carbon to carbon dioxide, rounded to two
1283 significant figures.

1284
1285 "Total trihalomethanes" or "TTHM" means the sum of the concentration of
1286 trihalomethanes (THMs), in milligrams per liter (mg/ℓ), rounded to two
1287 significant figures.

1288 BOARD NOTE: See the definition of "trihalomethanes" for a listing of the four
1289 compounds that USEPA considers TTHMs to comprise.

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"Transient, non-community water system" or "transient non-CWS" means a non-CWS that does not regularly serve at least 25 of the same persons over six months of the year.

BOARD NOTE: The federal regulations apply to all "public water systems," which are defined as all systems that have at least 15 service connections or which regularly serve water to at least 25 persons. (See 42 USC 300f(4).) The Act mandates that the Board and the Agency regulate "public water supplies," which it defines as having at least 15 service connections or regularly serving 25 persons daily at least 60 days per year. (See Section 3.3653-28 of the Act [415 ILCS 5/3-28].) The Department of Public Health regulates transient, non-community water systems.

"Treatment" means any process that changes the physical, chemical, microbiological, or radiological properties of water, is under the control of the supplier, and is not a point-of-use treatment device or a point-of-entry treatment device as defined in this Section. Treatment includes, but is not limited to, aeration, coagulation, sedimentation, filtration, activated carbon treatment, disinfection, and fluoridation.

"Trihalomethane" or "THM" means one of the family of organic compounds, named as derivatives of methane, in which three of the four hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure. The THMs are the following compounds:

- Trichloromethane (chloroform),
- Dibromochloromethane,
- Bromodichloromethane, and
- Tribromomethane (bromoform)

"Two-stage lime softening" means a process in which chemical addition and hardness precipitation occur in each of two distinct unit clarification processes in series prior to filtration.

"µg" means micrograms (1/1,000,000 of a gram).

"USEPA" means the U.S. Environmental Protection Agency.

"Uncovered finished water storage facility" is a tank, reservoir, or other facility that is used to store water which will undergo no further treatment to reduce microbial pathogens except residual disinfection and which is directly open to the atmosphere.

1333 "Very small system waiver" means the conditional waiver from the requirements
1334 of Subpart W of this Part applicable to a supplier that serves fewer than 500
1335 persons and which has taken TTHM and HAA5 samples pursuant to Subpart I of
1336 this Part.

1337 BOARD NOTE: Derived from 40 CFR 141.604 (2016)~~(2013)~~.

1338
1339 "Virus" means a virus of fecal origin that is infectious to humans by waterborne
1340 transmission.

1341
1342 "VOC" or "volatile organic chemical contaminant" refers to that group of
1343 contaminants designated as "VOCs;"² "volatile organic chemicals;"² or "volatile
1344 organic contaminants;"² in USEPA regulatory discussions and guidance
1345 documents. "VOCs" include benzene, dichloromethane, tetrachloromethane
1346 (carbon tetrachloride), trichloroethylene, vinyl chloride, 1,1,1-trichloroethane
1347 (methyl chloroform), 1,1-dichloroethylene, 1,2-dichloroethane, cis-1,2-
1348 dichloroethylene, ethylbenzene, monochlorobenzene, o-dichlorobenzene, styrene,
1349 1,2,4-trichlorobenzene, 1,1,2-trichloroethane, tetrachloroethylene, toluene, trans-
1350 1,2-dichloroethylene, xylene, and 1,2-dichloropropane.

1351
1352 "Waterborne disease outbreak" means the significant occurrence of acute
1353 infectious illness, epidemiologically associated with the ingestion of water from a
1354 public water system (PWS) that is deficient in treatment, as determined by the
1355 appropriate local or State agency.

1356
1357 "Wellhead protection area" or "WHPA" means the surface and subsurface
1358 recharge area surrounding a community water supply well or well field,
1359 delineated outside of any applicable setback zones (pursuant to Section
1360 17.1 of the Act ~~[415 ILCS 5/17.1]~~) pursuant to Illinois' Wellhead
1361 Protection Program, through which contaminants are reasonably likely to
1362 move toward such well or well field.

1363 BOARD NOTE: The Agency uses two guidance documents for
1364 identification of WHPAs:

1365
1366 "Guidance Document for Groundwater Protection Needs Assessments;"²
1367 Illinois Environmental Protection Agency, Illinois State Water Survey,
1368 and Illinois State Geologic Survey joint report, January 1995; and

1369
1370 "The Illinois Wellhead Protection Program Pursuant to Section 1428 of
1371 the Federal Safe Drinking Water Act;"² Illinois Environmental Protection
1372 Agency, No. 22480, October 1992.

1373
1374 "Wellhead protection program" means the wellhead protection program for the
1375 State of Illinois, approved by USEPA under Section 1428 of the SDWA, 42 USC

1376 300h-7.
1377 BOARD NOTE: Derived from 40 CFR 141.71(b) (2013). The wellhead
1378 protection program includes the "groundwater protection needs assessment" under
1379 Section 17.1 of the Act [~~415 ILCS 5/17.1~~] and 35 Ill. Adm. Code 615-617.

1380
1381 "Wholesale system" means a public water system that treats source water as
1382 necessary to produce finished water, which then delivers some or all of that
1383 finished water to another public water system. Delivery by a wholesale system
1384 may be through a direct connection or through the distribution system of one or
1385 more consecutive systems.

1386 BOARD NOTE: Derived from 40 CFR 141.2 ~~(2016)~~(2013).

1387
1388 (Source: Amended at 41 Ill. Reg. _____, effective _____)
1389

1390 **Section 611.102 Incorporations by Reference**

1391
1392 a) Abbreviations and short-name listing of references. The following names and
1393 abbreviated names, presented in alphabetical order, are used in this Part to refer to
1394 materials incorporated by reference:

1395
1396 "AMI Turbiwell Method" means "Continuous Measurement of Turbidity
1397 Using a SWAN AMI Turbiwell Turbidimeter;"; available from NEMI or
1398 from SWAN Analytische Instrumente AG.

1399
1400 "Aqueous Radiochemical Procedures" means "Procedures for
1401 "Radiochemical Analysis of Nuclear Reactor Aqueous Solutions", available
1402 from NTIS; USEPA, EMSL; and USEPA, NSCEP.

1403
1404 "ASTM Method" means a method published by and available from the
1405 American Society for Testing and Materials (ASTM).

1406
1407 "Charm Fast Phage" means "Fast Phage Test Procedure.
1408 "Presence/Absence for Coliphage in Ground Water with Same Day Positive
1409 "Prediction", version 009 (Nov. 2012), available from Charm Sciences Inc.

1410
1411
1412 "ChlordioX Plus Test" means "Chlorine Dioxide and Chlorite in Drinking
1413 Water by Amperometry using Disposable Sensors," available from
1414 Palintest Ltd.

1415
1416 "Charm Fast Phage" means "Fast Phage Test Procedure.
1417 "Presence/Absence for Coliphage in Ground Water with Same Day Positive
1418 "Prediction," version 009 (Nov. 2012), available from Charm Sciences Inc.

- 1419
1420 "Chromocult® Method" means "Chromocult® Coliform Agar
1421 Presence/Absence Membrane Filter Test Method for Detection and
1422 Identification of Coliform Bacteria and Escherichia coli in Finished
1423 Waters", available from EMD Millipore.
1424
1425 "Colilert® Test" means Standard Methods, 21st-ed., Method 9223 B,
1426 Chromogenic Substrate Coliform Test (using IDEXX Laboratories, Inc.
1427 Colilert® medium).
1428
1429 "Colilert-18® Test" means Standard Methods, 21st-ed., Method 9223 B,
1430 Chromogenic Substrate Coliform Test (using IDEXX Laboratories, Inc.
1431 Colilert-18® medium).
1432
1433 "Colisure™ Test" means "Colisure Presence/Absence Test for Detection
1434 and Identification of Coliform Bacteria and Escherichia Coli in Drinking
1435 Water," available from IDEXX Laboratories, Inc.
1436
1437 "Colitag® Test" means "Colitag® Product as a Test for Detection and
1438 Identification of Coliforms and E. coli Bacteria in Drinking Water and
1439 Source Water as Required in National Primary Drinking Water
1440 Regulations," available from CPI International.
1441
1442 "Chromocult® Method" means "Chromocult® Coliform Agar
1443 Presence/Absence Membrane Filter Test Method for Detection and
1444 Identification of Coliform Bacteria and Escherichia coli in Finished
1445 Waters," available from EMD Millipore.
1446
1447 "Determination of Inorganic Oxyhalide" means "Determination of
1448 Inorganic Oxyhalide Disinfection By Products in Drinking Water Using
1449 Ion Chromatography with the Addition of a Postcolumn Reagent for Trace
1450 Bromate Analysis," available from NTIS.
1451
1452 "Dioxin and Furan Method 1613" means "Tetra- through Octa-Chlorinated
1453 Dioxins and Furans by Isotope-Dilution HRGC/HRMS," available from
1454 NTIS.
1455
1456 "E*Colite Test" means "Charm E*Colite Presence/Absence Test for
1457 Detection and Identification of Coliform Bacteria and Escherichia coli in
1458 Drinking Water," available from Charm Sciences, Inc. and USEPA,
1459 Water Resource Center.
1460

1461 "EC-MUG" means "Method 9221 F: Multiple Tube Fermentation
1462 Technique for Members of the Coliform Group, Escherichia coli
1463 Procedure (Proposed)," available from American Public Health
1464 Association and American Waterworks Association.
1465
1466 "EML Procedures Manual" means "EML Procedures Manual, HASL
1467 300," available from USDOE, EML.
1468
1469 "Enterolert" means "Evaluation of Enterolert for Enumeration of
1470 Enterococci in Recreational Waters," available from American Society
1471 for Microbiology.
1472
1473 "Georgia Radium Method" means "The Determination of Radium-226 and
1474 Radium-228 in Drinking Water by Gamma-ray Spectrometry Using HPGE
1475 or Ge(Li) Detectors," Revision 1.2, December 2004, available from the
1476 Georgia Tech Research Institute.
1477
1478 "GLI Method 2" means GLI Method 2, "Turbidity," Nov. 2, 1992,
1479 available from Great Lakes Instruments, Inc.
1480
1481 "Guidance Manual for Filtration and Disinfection" means "Guidance
1482 Manual for Compliance with the Filtration and Disinfection Requirements
1483 for Public Water Systems using Surface Water Sources," March 1991,
1484 available from USEPA, NSCEP.
1485
1486 "Hach FilterTrak Method 10133" means "Determination of Turbidity by
1487 Laser Nephelometry," available from Hach Co.
1488
1489 "Hach Method 8026" means "Spectrophotometric Measurement of Copper
1490 in Finished Drinking Water", December 2015, Revision 1.2, available
1491 from the Hach Company.
1492
1493 "Hach Method 10241" means "Spectrophotometric Measurement of Free
1494 Chlorine (Cl₂) in Finished Drinking Water", November 2015, Revision
1495 1.2, available from the Hach Company.
1496
1497 "Hach Method 10258" means "Determination of Turbidity by 360°
1498 Nephelometry", January 2016, available from the Hach Company.
1499
1500 "Hach Method 10260" means "Hach Method 10260 – Determination of
1501 Chlorinated Oxidants (Free and Total) in Water Using Disposable Planar
1502 Reagent-filled Cuvettes and Mesofluic Channel Colorimetry," available
1503 from the Hach Company.

1504
1505 "Hach Method 10261" means "Total Organic Carbon in Finished Drinking
1506 Water by Catalyzed Ozone Hydroxyl Radical Oxidation Infrared
1507 Analysis", December 2015, Revision 1.2, available from the Hach
1508 Company.
1509
1510 "Hach Method 10267" means "Spectrophotometric Measurement of Total
1511 Organic Carbon (TOC) in Finished Drinking Water", December 2015,
1512 Revision 1.2, available from the Hach Company.
1513
1514 "Hach Method 10272" means "Spectrophotometric Measurement of
1515 Copper in Finished Drinking Water", December 2015, Revision 1.2,
1516 available from the Hach Company.
1517
1518 "Hach SPDANS 2 Method 10225" means "Hach Company SPADNS 2
1519 (Arsenic-free) Fluoride Method 10225 – Spectrophotometric
1520 Measurement of Fluoride in Water and Wastewater;"; available from the
1521 Hach Co.
1522
1523 "Hach TNTplus 835/836 Method 10206" means "Hach Company TNTplus
1524 835/836 Nitrate Method 10206 – Spectrophotometric Measurement of
1525 Nitrate in Water and Wastewater;"; available from the Hach Co.
1526
1527 "ITS Method D99-003" means Method D99-003, Revision 3.0, "Free
1528 Chlorine Species (HOCl⁻ and OCl⁻) by Test Strip;"; available from
1529 Industrial Test Systems, Inc.
1530
1531 "Kelada 01" means "Kelada Automated Test Methods for Total Cyanide,
1532 Acid Dissociable Cyanide, ~~and~~ Thiocyanate;"; Revision 1.2, available
1533 from NTIS.
1534
1535 "m-ColiBlue24 Test" means "Total Coliforms and E. coli Membrane
1536 Filtration Method with m-ColiBlue24[®] Broth;"; available from USEPA,
1537 Water Resource Center and Hach Company.
1538
1539 "Method ME355.01" means "Determination of Cyanide in Drinking Water
1540 by GC/MS Headspace Analysis;"; available from NEMI or from H&E
1541 Testing Laboratory.
1542
1543 "Mitchell Method M5271" means "Determination of Turbidity by Laser
1544 Nephelometry;"; available from NEMI and Leck Mitchell, PhD.
1545

1546 "Mitchell Method M5331, rev.1.1" means "Determination of Turbidity by
 1547 LED Nephelometry," available from NEMI and Leck Mitchell, PhD.
 1548
 1549 "Mitchell Method M5331, rev. 1.2" means "Determination of Turbidity by
 1550 LED or Laser Nephelometry", available from NEMI and Leck Mitchell,
 1551 PhD.
 1552
 1553 "Modified Colitag™ Test" means "Modified Colitag™ Test Method for
 1554 Simultaneous Detection of E. coli and other Total Coliforms in Water,"
 1555 available from NEMI and CPI International.
 1556
 1557 ~~"NA-MUG" means "Method 9222-G: Membrane Filter Technique for~~
 1558 ~~Members of the Coliform Group, MF Partition Procedures," available~~
 1559 ~~from American Public Health Association and American Waterworks~~
 1560 ~~Association.~~
 1561
 1562 "NBS Handbook 69"NCRP Report Number 22" means "Maximum
 1563 Permissible Body Burdens and Maximum Permissible Concentrations of
 1564 Radionuclides in Air and in Water for Occupational Exposure," available
 1565 from IAEA and ORAUNCRP.
 1566
 1567 "NECi Nitrate-Reductase Method" means Nitrate Elimination Company,
 1568 Inc. (NECi), "Method for Nitrate Reductase Nitrate-Nitrogen Analysis of
 1569 Drinking Water", ver. 1.0, rev. 2.0, February 2016, available from
 1570 Superior Enzymes, Inc.
 1571
 1572 "New Jersey Radium Method" means "Determination of Radium 228 in
 1573 Drinking Water," available from the New Jersey Department of
 1574 Environmental Protection.
 1575
 1576 "New York Radium Method" means "Determination of Ra-226 and Ra-
 1577 228 (Ra-02)," available from the New York Department of Public Health.
 1578
 1579 "OI Analytical Method OIA-1677" means "Method OIA-1677, DW
 1580 Available Cyanide by Flow Injection, Ligand Exchange, and
 1581 Amperometry," available from ALPKEM, Division of OI Analytical.
 1582
 1583 ~~"ONPG-MUG Test" (meaning "minimal medium ortho-nitrophenyl-beta-~~
 1584 ~~d-galactopyranoside 4-methyl-umbelliferyl-beta-d-glucuronide test"),~~
 1585 ~~also called the "Colilert® Test," is Method 9223, available in "Standard~~
 1586 ~~Methods for the Examination of Water and Wastewater," 18th, 19th, 20th, or~~
 1587 ~~21st ed., from American Public Health Association and the American~~
 1588 ~~Water Works Association.~~

1589
1590 "Orion Method AQ4500" means "Determination of Turbidity by LED
1591 Nephelometry," available from Thermo Scientific.
1592
1593 "Palintest ChloroSense" means "Measurement of Free and Total Chlorine
1594 in Drinking Water by Palintest ChloroSense," available from NEMI or
1595 Palintest Ltd.
1596
1597 "Palintest Method 1001" means "Lead in Drinking Water by Differential
1598 Pulse Anodic Stripping Voltammetry, Method Number 1001," available
1599 from Palintest, Ltd. or the Hach Company.
1600
1601 "QuikChem Method 10-204-00-1-X" means "Digestion and distillation of
1602 total cyanide in drinking and wastewaters using MICRO DIST and
1603 determination of cyanide by flow injection analysis," available from
1604 Lachat Instruments.
1605
1606 "~~Readycult® 2000" means "Readycult Coliforms 100 Presence/Absence~~
1607 ~~Test for Detection and Identification of Coliform Bacteria and Escherichia~~
1608 ~~coli in Finished Waters," v. 1.0, available from EMD Millipore.~~
1609
1610 "Readycult® 2007" means "Readycult® Coliforms 100 Presence/Absence
1611 Test for Detection and Identification of Coliform Bacteria and Escherichia
1612 coli in Finished Waters," v. 1.1, available from EMD Millipore.
1613
1614 "SimPlate Method" means "IDEXX SimPlate TM HPC Test Method for
1615 Heterotrophs in Water," available from IDEXX Laboratories, Inc.
1616
1617 "Standard Methods" means "Standard Methods for the Examination of
1618 Water and Wastewater," available from the American Public Health
1619 Association or the American Waterworks Association.
1620
1621 "Standard Methods Online" means the website maintained by the Standard
1622 Methods Organization (at www.standardmethods.org) for purchase of the
1623 latest versions of methods in an electronic format.
1624
1625 "Syngenta AG-625" means "Atrazine in Drinking Water by
1626 Immunoassay," February 2001 is available from Syngenta Crop
1627 Protection, Inc.
1628
1629 "Systea Easy (1-Reagent)" means "Systea Easy (1-Reagent) Nitrate
1630 Method," available from NEMI or Systea Scientific LLC.
1631

1632 "Technical Bulletin 601" means "Technical Bulletin 601, Standard
1633 Method of Testing for Nitrate in Drinking Water," July 1994, available
1634 from Thermo Scientific.
1635
1636 "Technicon Methods" means "Fluoride in Water and Wastewater,"
1637 available from Bran & Luebbe.
1638
1639 "Tecta EC/TC P-A Test" means "TECTA™ EC/TC medium and the
1640 TECTA™ Instrument: a Presence/Absence Method for Simultaneous
1641 Detection of Total Coliforms and Escherichia coli (E. coli) in Drinking
1642 Water," available from Veolia Water Solutions and Technologies.
1643
1644 "Thermo-Fisher Discrete Analyzer" means "Drinking Water
1645 Orthophosphate for Thermo Scientific Gallery discrete analyzer",
1646 available from Thermo-Fisher Scientific.
1647
1648 "USEPA Asbestos Method 100.1" means Method 100.1, "Analytical
1649 Method for Determination of Asbestos Fibers in Water," September 1983,
1650 available from NTIS.
1651
1652 "USEPA Asbestos Method 100.2" means Method 100.2, "Determination
1653 of Asbestos Structures over 10-mm in Length in Drinking Water," June
1654 1994, available from NTIS.
1655
1656 "USEPA Environmental Inorganic Methods" means "Methods for the
1657 Determination of Inorganic Substances in Environmental Samples,"
1658 August 1993, available from NTIS.
1659
1660 "USEPA Environmental Metals Methods" means "Methods for the
1661 Determination of Metals in Environmental Samples," available from
1662 NTIS.
1663
1664 "USEPA Inorganic Methods" means "Methods for Chemical Analysis of
1665 Water and Wastes," March 1983, available from NTIS.
1666
1667 "USEPA Interim Radiochemical Methods" means "Interim Radiochemical
1668 Methodology for Drinking Water," EPA 600/4-75/008 (revised), March
1669 1976 (pages 1-3, 4-5, 6-8, 9-12, 13-15, 16-23, 24-28, 29-33, and 34-37
1670 only). Available from NTIS; USEPA, EMSL; and USEPA, NSCEP.
1671
1672 "USEPA Method 1600" means "Method 1600: Enterococci in Water by
1673 Membrane Filtration Using Membrane-Enterococcus Indoxyl-b-D-

1674 Glucoside Agar (mEI);", available from NEMI; USEPA, NSCEP; and
 1675 USEPA, Water Resource Center.

1676
 1677 "USEPA Method 1601" means "Method 1601: Male-specific (F⁺) and
 1678 Somatic Coliphage in Water by Two-step Enrichment Procedure;";",
 1679 available from NEMI; USEPA, NSCEP; and USEPA, Water Resource
 1680 Center.

1681
 1682 "USEPA Method 1602" means "Method 1602: Male-specific (F⁺) and
 1683 Somatic Coliphage in Water by Single Agar Layer (SAL) Procedure;";",
 1684 available from NEMI; USEPA, NSCEP; and USEPA, Water Resource
 1685 Center.

1686
 1687 "USEPA Method 1604" means "Method 1604: Total Coliforms and
 1688 Escherichia coli in Water by Membrane Filtration Using a Simultaneous
 1689 Detection Technique (MI Medium);";", available from NEMI; USEPA,
 1690 NSCEP; and USEPA, Water Resource Center.

1691
 1692 "USEPA NERL Method 200.5 (rev. 4.2)" means Method 200.5, Revision
 1693 4.2, "Determination of Trace Elements in Drinking Water by Axially
 1694 Viewed Inductively Coupled Plasma – Atomic Emission Spectrometry;";",
 1695 October 2003, EPA 600/R-06/115. Available from USEPA, ORDOffice
 1696 of Research and Development.

1697
 1698 "USEPA NERL Method 415.3 (rev. 1.1)" means Method 415.3, Revision
 1699 1.1, "Determination of Total Organic Carbon and Specific UV Absorbance
 1700 at 254 nm in Source Water and Drinking Water;";", USEPA, February 2005,
 1701 EPA 600/R-05/055. Available from USEPA, NSCEP; and USEPA,
 1702 ORDOffice of Research and Development.

1703
 1704 "USEPA NERL Method 415.3 (rev. 1.2)" means Method 415.3, Revision
 1705 1.2, "Determination of Total Organic Carbon and Specific UV Absorbance
 1706 at 254 nm in Source Water and Drinking Water;";", USEPA, September
 1707 2009, EPA 600/R-09/122. Available from NEMI; USEPA, NSCEP; and
 1708 USEPA, ORDOffice of Research and Development.

1709
 1710 "USEPA NERL Method 525.3 (ver. 1.0)" means Method 525.3, Version
 1711 1.0, "Determination of Total Semivolatile Organic Chemicals in Drinking
 1712 Water by Solid Phase Extraction and Capillary Column Gas
 1713 Chromatography/Mass Spectrometry (GC/MS);";", USEPA, February 2012,
 1714 EPA 600/R-12/010. Available from USEPA, NSCEP and USEPA,
 1715 ORDOffice of Research and Development.

1716

1717 "USEPA NERL Method 549.2" means Method 549.2, Revision 1.0,
 1718 "Determination of Diquat and Paraquat in Drinking Water by Liquid-Solid
 1719 Extraction and High Performance Liquid Chromatography with
 1720 Ultraviolet Detection," June 1997. Available from NEMI and USEPA,
 1721 ORDOffice of Research and Development.
 1722

1723 "USEPA OGWDW Methods" means the methods listed as available from
 1724 the USEPA, Office of Ground Water and Drinking Water (Methods 302.0,
 1725 317.0 (rev. 2.0), 326.0 (rev. 1.0), 327.0 (rev. 1.1), 334.0, 515.4 (rev. 1.0),
 1726 523 (rev. 1.0), 524.3 (rev. 1.0), 524.4, 531.2 (rev. 1.0), 536 (rev. 1.0),
 1727 552.3 (rev. 1.0), 557, 1622 (99), 1622 (01), 1622 (05), 1623 (99), 1623
 1728 (01), 1623 (05), and 1623.1). Available from NEMI (Methods 302.0,
 1729 317.0, 326.0, 327.0, 334.0, 515.4, 524.3, 557, 1622 (01), and 1623 (01)
 1730 only);NTIS; USEPA, NSCEP; or USEPA, OGWDW.
 1731

1732 "USEPA Organic Methods" means "Methods for the Determination of
 1733 Organic Compounds in Drinking Water," December 1988 (revised July
 1734 1991) (Methods 508A (rev. 1.0) and 515.1 (rev. 4.0)); "Methods for the
 1735 Determination of Organic Compounds in Drinking Water – Supplement
 1736 I," July 1990 (Methods 547, 550, and 550.1); "Methods for the
 1737 Determination of Organic Compounds in Drinking Water – Supplement
 1738 II," August 1992 (Methods 548.1 (rev. 1.0), 552.1 (rev. 1.0), and 555 (rev.
 1739 1.0)); and "Methods for the Determination of Organic Compounds in
 1740 Drinking Water – Supplement III," August 1995 (Methods 502.2 (rev.
 1741 2.1), 504.1 (rev. 1.1), 505 (rev. 2.1), 506 (rev. 1.1), 507 (rev. 2.1), 508
 1742 (rev. 3.1), 508.1 (rev. 2.0), 515.2 (rev. 1.1), 524.2 (rev. 4.1), 525.2 (rev.
 1743 2.0), 531.1 (rev. 3.1), 551.1 (rev. 1.0), and 552.2 (rev. 1.0)). Available
 1744 from NEMI;NTIS; USEPA, NSCEP; or USEPA, EMSL.
 1745

1746 "USEPA Organic and Inorganic Methods" means "Methods for the
 1747 Determination of Organic and Inorganic Compounds in Drinking Water,
 1748 Volume 1," EPA 815/R-00/014, PB2000-106981, August 2000 (Methods
 1749 300.1 (rev. 1.0), 321.8 (rev. 1.0), and 515.3 (rev. 1.0) only). Available
 1750 from NEMI;NTIS; and USEPA, NSCEP.
 1751

1752 "USEPA Radioactivity Methods" means "Prescribed Procedures for
 1753 Measurement of Radioactivity in Drinking Water," EPA 600/4-80/032,
 1754 August 1980 (Methods 900.0, 901.0, 901.1, 902.0, 903.0, 903.1, 904.0,
 1755 905.0, 906.0, 908.0, and 908.1). Available from NEMI (Methods 900.0,
 1756 901.1, 903.0, 903.1, and 908.0 only);NTIS; and USEPA, NSCEP.
 1757

1758 "USEPA Radiochemical Analyses" means "Radiochemical Analytical
 1759 Procedures for Analysis of Environmental Samples," March 1979 (pages

1760 1-5, 19-32, 33-48, 65-73, 87-91, and 92-95 only). Available from NTIS
1761 and USEPA, NSCEP.

1762
1763 "USEPA Radiochemistry Procedures" means "Radiochemistry Procedures
1764 Manual," EPA 520/5-84/006, December 1987 (Methods 00-01, 00-02, 00-
1765 07, H-02, Ra-03, Ra-04, Ra-05, Sr-04). Available from NEMI; NTIS; and
1766 USEPA, NSCEP.

1767
1768 "USEPA Technical Notes" means "Technical Notes on Drinking Water
1769 Methods," available from NTIS and USEPA, NSCEP.

1770
1771 "USGS ~~Method~~Methods" means the designated method in "Methods of
1772 Analysis by the U.S. Geological Survey National Water Quality
1773 Laboratory – Determination of Inorganic and Organic Constituents in
1774 Water and Fluvial Sediments," available from NTIS and USGS.
1775 BOARD NOTE: The USGS Methods are available in three volumes
1776 published in 1977, 1989, and 1993, as outlined in subsection (b) of this
1777 Section.

1778
1779 "Waters Method B-1011" means "Waters Test Method for the
1780 Determination of Nitrite/Nitrate in Water Using Single Column Ion
1781 Chromatography," available from Waters Corporation, Technical Services
1782 Division.

1783
1784 b) The Board incorporates the following publications by reference:

1785
1786 ALPKEM, Division of OI Analytical, P.O. Box 9010, College Station, TX
1787 77842-9010, telephone: 979-690-1711, Internet: www.oico.com.

1788
1789 OI Analytical Method OIA-1677, "Method OIA-1677 DW,
1790 Available Cyanide by Flow Injection, Ligand Exchange, and
1791 Amperometry," EPA 821/R-04/001, January 2004 (~~referred to as~~
1792 ~~"OI Analytical Method OIA-1677"~~), referenced in Section
1793 611.611.

1794 BOARD NOTE: Also available online for download from
1795 [www.epa.gov/waterscience/methods/method/cyanide/1677-](http://www.epa.gov/waterscience/methods/method/cyanide/1677-2004.pdf)
1796 [2004.pdf](http://www.epa.gov/waterscience/methods/method/cyanide/1677-2004.pdf).

1797
1798 APHA. American Public Health Association, 1015 Fifteenth Street NW,
1799 Washington, DC 20005 202-777-2742.

1800
1801 Standard Methods, 16th ed., "Standard Methods for the
1802 Examination of Water and Wastewater," 16th Edition, 1985

1803 (referred to as "Standard Methods, 16th ed."). See the methods
 1804 listed separately for the same references under American
 1805 Waterworks Association.

1806
 1807 Standard Methods, 17th ed., "Standard Methods for the
 1808 Examination of Water and Wastewater," 17th Edition, 1989
 1809 (referred to as "Standard Methods, 17th ed."). See the methods
 1810 listed separately for the same references under American
 1811 Waterworks Association.

1812
 1813 Standard Methods, 18th ed., "Standard Methods for the
 1814 Examination of Water and Wastewater," 18th Edition, 1992,
 1815 including "Supplement to the 18th Edition of Standard Methods for
 1816 the Examination of Water and Wastewater," 1994 (collectively
 1817 referred to as "Standard Methods, 18th ed."). See the methods
 1818 listed separately for the same references under American
 1819 Waterworks Association.

1820
 1821 Standard Methods 19th ed., "Standard Methods for the Examination
 1822 of Water and Wastewater," 19th Edition, 1995, including
 1823 "Supplement to the 19th Edition of Standard Methods for the
 1824 Examination of Water and Wastewater", 1996 (referred to as
 1825 "Standard Methods, 19th ed."). See the methods listed separately
 1826 for the same references under American Waterworks Association.

1827
 1828 Standard Methods, 20th ed., "Standard Methods for the
 1829 Examination of Water and Wastewater," 20th Edition, 1998
 1830 (referred to as "Standard Methods, 20th ed."). See the methods
 1831 listed separately for the same references under American
 1832 Waterworks Association.

1833
 1834 Standard Methods, 21st ed., "Standard Methods for the
 1835 Examination of Water and Wastewater," 21st Edition, 2005
 1836 (referred to as "Standard Methods, 21st ed."). See the methods
 1837 listed separately for the same references under American
 1838 Waterworks Association.

1839
 1840 Standard Methods, 22nd ed., "Standard Methods for the
 1841 Examination of Water and Wastewater," 22nd Edition, 2012
 1842 (referred to as "Standard Methods, 22nd ed."). See the methods
 1843 listed separately for the same references under American
 1844 Waterworks Association.

1845

1846 American Society for Microbiology, 1752 N Street N.W., Washington,
1847 DC 20036, 202-737-3600:
1848

1849 Enterollett, "Evaluation of Enterolert for Enumeration of
1850 Enterococci in Recreational Waters," Applied and Environmental
1851 Microbiology, Oct. 1996, vol. 62, no. 10, p. 3881 (referred to as
1852 "Enterolert"), referenced in Section 611.802.
1853

1854 BOARD NOTE: At the table to 40 CFR 141.402(c)(2), USEPA
1855 approved the method as described in the above literature review.
1856 The method itself is embodied in the printed instructions to the
1857 proprietary kit available from IDEXX Laboratories, Inc.
1858 (accessible on-line and available by download from www.asm.org,
1859 as "Enterolert™ Procedure"). ASTM approved the method as
1860 "Standard Test Method for Enterococci in Water Using
1861 Enterolert™," which is available in two versions from ASTM:
1862 ASTM Method D6503-99 (superceded) and ASTM Method
1863 D6503-99. While it is more conventional to incorporate the
1864 method as presented in the kit instructions or as approved by
1865 ASTM by reference, the Board is constrained to incorporate the
1866 version that appears in the technical literature by reference, which
1867 is the version that USEPA has explicitly approved.
1868

1869 AWWA. American Water Works Association et al., 6666 West Quincy
1870 Ave., Denver, CO 80235 (303-794-7711).
1871

1872 ~~"National Field Evaluation of a Defined Substrate Method for the~~
1873 ~~Simultaneous Enumeration of Total Coliforms and Escherichia coli~~
1874 ~~for Drinking Water: Comparison with the Standard Multiple Tube~~
1875 ~~Fermentation Method," S.C. Edberg, M.J. Allen & D.B. Smith,~~
1876 ~~Applied Environmental Microbiology, vol. 54, iss. 6, pp 1595-~~
1877 ~~1601 (1988), referenced in Appendix D to this Part.~~
1878

1879 Standard Methods, 13th ed., "Standard Methods for the
1880 Examination of Water and Wastewater," 13th Edition, 1971
1881 (referred to as "Standard Methods, 13th-ed.").

1882
1883 Method 302, Gross Alpha and Gross Beta Radioactivity in
1884 Water (Total, Suspended, and Dissolved), referenced in
1885 Section 611.720.
1886

1887 Method 303, Total Radioactive Strontium and Strontium 90
1888 in Water, referenced in Section 611.720.

1889	
1890	Method 304, Radium in Water by Precipitation, referenced
1891	in Section 611.720.
1892	
1893	Method 305, Radium 226 by Radon in Water (Soluble,
1894	Suspended, and Total), referenced in Section 611.720.
1895	
1896	Method 306, Tritium in Water, referenced in Section
1897	611.720.
1898	
1899	"Standard Methods for the Examination of Water and
1900	Wastewater," 16th Edition, 1985 (referred to as "Standard Methods,
1901	16th ed.").
1902	
1903	Method 907A, Heterotrophic Plate Count, Pour Plate
1904	Method, referenced in Section 611.213.
1905	
1906	<u>Standard Methods, 17th ed., "Standard Methods for the</u>
1907	<u>Examination of Water and Wastewater," 17th Edition, 1989</u>
1908	<u>(referred to as "Standard Methods, 17th ed.").</u>
1909	
1910	Method 7110 B, Gross Alpha and Gross Beta Radioactivity
1911	in Water (Total, Suspended, and Dissolved), referenced in
1912	Section 611.720.
1913	
1914	Method 7500-Cs B, Radioactive Cesium, Precipitation
1915	Method, referenced in Section 611.720.
1916	
1917	Method 7500- ³ H B, Tritium in Water, referenced in Section
1918	611.720.
1919	
1920	Method 7500-I B, Radioactive Iodine, Precipitation
1921	Method, referenced in Section 611.720.
1922	
1923	Method 7500-I C, Radioactive Iodine, Ion-Exchange
1924	Method, referenced in Section 611.720.
1925	
1926	Method 7500-I D, Radioactive Iodine, Distillation Method,
1927	referenced in Section 611.720.
1928	
1929	Method 7500-Ra B, Radium in Water by Precipitation,
1930	referenced in Section 611.720.
1931	

1932	Method 7500-Ra C, Radium 226 by Radon in Water
1933	(Soluble, Suspended, and Total), referenced in Section
1934	611.720.
1935	
1936	Method 7500-Ra D, Radium, Sequential Precipitation
1937	Method (Proposed), referenced in Section 611.720.
1938	
1939	Method 7500-Sr B, Total Radioactive Strontium and
1940	Strontium 90 in Water, referenced in Section 611.720.
1941	
1942	Method 7500-U B, Uranium, Radiochemical Method
1943	(Proposed), referenced in Section 611.720.
1944	
1945	Method 7500-U C, Uranium, Isotopic Method (Proposed),
1946	referenced in Section 611.720.
1947	
1948	<u>Standard Methods, 18th ed., "Standard Methods for the</u>
1949	<u>Examination of Water and Wastewater," 18th Edition, 1992</u>
1950	<u>(referred to as "Standard Methods, 18th ed.").</u>
1951	
1952	Method 2130 B, Turbidity, Nephelometric Method,
1953	referenced in Section 611.531.
1954	
1955	Method 2320 B, Alkalinity, Titration Method, referenced in
1956	Section 611.611.
1957	
1958	Method 2510 B, Conductivity, Laboratory Method,
1959	referenced in Section 611.611.
1960	
1961	Method 2550, Temperature, Laboratory and Field Methods,
1962	referenced in Section 611.611.
1963	
1964	Method 3111 B, Metals by Flame Atomic Absorption
1965	Spectrometry, Direct Air-Acetylene Flame Method,
1966	referenced in Sections 611.611 and 611.612.
1967	
1968	Method 3111 D, Metals by Flame Atomic Absorption
1969	Spectrometry, Direct Nitrous Oxide-Acetylene Flame
1970	Method, referenced in Section 611.611.
1971	
1972	Method 3112 B, Metals by Cold-Vapor Atomic Absorption
1973	Spectrometry, Cold-Vapor Atomic Absorption
1974	Spectrometric Method, referenced in Section 611.611.

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1979	Method 3113 B, Metals by Electrothermal Atomic Absorption Spectrometry, Electrothermal Atomic Absorption Spectrometric Method, referenced in Sections 611.611 and 611.612.
1980	
1981	
1982	Method 3114 B, Metals by Hydride Generation/Atomic Absorption Spectrometry, Manual Hydride Generation/Atomic Absorption Spectrometric Method, referenced in Section 611.611.
1983	
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1987	Method 3120 B, Metals by Plasma Emission Spectroscopy, Inductively Coupled Plasma (ICP) Method, referenced in Sections 611.611 and 611.612.
1988	
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1990	Method 3500-Ca D, Calcium, EDTA Titrimetric Method, referenced in Section 611.611.
1991	
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1994	Method 3500-Mg E, Magnesium, Calculation Method, referenced in Section 611.611.
1995	
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1997	Method 4110 B, Determination of Anions by Ion Chromatography, Ion Chromatography with Chemical Suppression of Eluent Conductivity, referenced in Section 611.611.
1998	
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2000	
2001	Method 4500-CN⁻-C, Cyanide, Total Cyanide after Distillation, referenced in Section 611.611.
2002	
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2004	Method 4500-CN⁻-E, Cyanide, Colorimetric Method, referenced in Section 611.611.
2005	
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2007	Method 4500-CN⁻-F, Cyanide, Cyanide-Selective Electrode Method, referenced in Section 611.611.
2008	
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2010	Method 4500-CN⁻-G, Cyanide, Cyanides Amenable to Chlorination after Distillation, referenced in Section 611.611.
2011	
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2014	Method 4500-Cl D, Chlorine, Amperometric Titration Method, referenced in Section 611.531.
2015	
2016	
2017	Method 4500-Cl E, Chlorine, Low-Level Amperometric

2018	Titration Method, referenced in Section 611.531.
2019	
2020	Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric
2021	Method, referenced in Section 611.531.
2022	
2023	Method 4500-Cl G, Chlorine, DPD Colorimetric Method,
2024	referenced in Section 611.531.
2025	
2026	Method 4500-Cl H, Chlorine, Syringaldazine (FACTS)
2027	Method, referenced in Section 611.531.
2028	
2029	Method 4500-Cl I, Chlorine, Iodometric Electrode Method,
2030	referenced in Section 611.531.
2031	
2032	Method 4500-ClO ₂ C, Chlorine Dioxide, Amperometric
2033	Method I, referenced in Section 611.531.
2034	
2035	Method 4500-ClO ₂ D, Chlorine Dioxide, DPD Method,
2036	referenced in Section 611.531.
2037	
2038	Method 4500-ClO ₂ E, Chlorine Dioxide, Amperometric
2039	Method II (Proposed), referenced in Section 611.531.
2040	
2041	<u>Method 4500-CN⁻ C, Cyanide, Total Cyanide after</u>
2042	<u>Distillation, referenced in Section 611.611.</u>
2043	
2044	<u>Method 4500-CN⁻ E, Cyanide, Colorimetric Method,</u>
2045	<u>referenced in Section 611.611.</u>
2046	
2047	<u>Method 4500-CN⁻ F, Cyanide, Cyanide-Selective Electrode</u>
2048	<u>Method, referenced in Section 611.611.</u>
2049	
2050	<u>Method 4500-CN⁻ G, Cyanide, Cyanides Amenable to</u>
2051	<u>Chlorination after Distillation, referenced in Section</u>
2052	<u>611.611.</u>
2053	
2054	Method 4500-F ⁻ B, Fluoride, Preliminary Distillation Step,
2055	referenced in Section 611.611.
2056	
2057	Method 4500-F ⁻ C, Fluoride, Ion-Selective Electrode
2058	Method, referenced in Section 611.611.
2059	
2060	Method 4500-F ⁻ D, Fluoride, SPADNS Method, referenced

2061	in Section 611.611.
2062	
2063	Method 4500-F ⁻ E, Fluoride, Complexone Method,
2064	referenced in Section 611.611.
2065	
2066	Method 4500-H ⁺ B, pH Value, Electrometric Method,
2067	referenced in Section 611.611.
2068	
2069	Method 4500-NO ₂ ⁻ B, Nitrogen (Nitrite), Colorimetric
2070	Method, referenced in Section 611.611.
2071	
2072	Method 4500-NO ₃ ⁻ D, Nitrogen (Nitrate), Nitrate Electrode
2073	Method, referenced in Section 611.611.
2074	
2075	Method 4500-NO ₃ ⁻ E, Nitrogen (Nitrate), Cadmium
2076	Reduction Method, referenced in Section 611.611.
2077	
2078	Method 4500-NO ₃ ⁻ F, Nitrogen (Nitrate), Automated
2079	Cadmium Reduction Method, referenced in Section
2080	611.611.
2081	
2082	Method 4500-O ₃ B, Ozone (Residual) (Proposed), Indigo
2083	Colorimetric Method, referenced in Section 611.531.
2084	
2085	Method 4500-P E, Phosphorus, Ascorbic Acid Method,
2086	referenced in Section 611.611.
2087	
2088	Method 4500-P F, Phosphorus, Automated Ascorbic Acid
2089	Reduction Method, referenced in Section 611.611.
2090	
2091	Method 4500-Si D, Silica, Molybdosilicate Method,
2092	referenced in Section 611.611.
2093	
2094	Method 4500-Si E, Silica, Heteropoly Blue Method,
2095	referenced in Section 611.611.
2096	
2097	Method 4500-Si F, Silica, Automated Method for
2098	Molybdate-Reactive Silica, referenced in Section 611.611.
2099	
2100	Method 6651 B, Glyphosate Herbicide (Proposed),
2101	referenced in Section 611.645.
2102	
2103	Method 7110 B, Gross Alpha and Beta Radioactivity

2104	(Total, Suspended, and Dissolved), Evaporation Method for
2105	Gross Alpha-Beta, referenced in Section 611.720.
2106	
2107	Method 7110 C, Gross Alpha and Beta Radioactivity
2108	(Total, Suspended, and Dissolved), Coprecipitation Method
2109	for Gross Alpha Radioactivity in Drinking Water
2110	(Proposed), referenced in Section 611.720.
2111	
2112	Method 7500-Cs B, Radioactive Cesium, Precipitation
2113	Method, referenced in Section 611.720.
2114	
2115	Method 7500- ³ H B, Tritium, Liquid Scintillation
2116	Spectrometric Method, referenced in Section 611.720.
2117	
2118	Method 7500-I B, Radioactive Iodine, Precipitation
2119	Method, referenced in Section 611.720.
2120	
2121	Method 7500-I C, Radioactive Iodine, Ion-Exchange
2122	Method, referenced in Section 611.720.
2123	
2124	Method 7500-I D, Radioactive Iodine, Distillation Method,
2125	referenced in Section 611.720.
2126	
2127	Method 7500-Ra B, Radium, Precipitation Method,
2128	referenced in Section 611.720.
2129	
2130	Method 7500-Ra C, Radium, Emanation Method,
2131	referenced in Section 611.720.
2132	
2133	Method 7500-Ra D, Radium, Sequential Precipitation
2134	Method (Proposed), referenced in Section 611.720.
2135	
2136	Method 7500-Sr B, Total Radioactive Strontium and
2137	Strontium 90, Precipitation Method, referenced in Section
2138	611.720.
2139	
2140	Method 7500-U B, Uranium, Radiochemical Method
2141	(Proposed), referenced in Section 611.720.
2142	
2143	Method 7500-U C, Uranium, Isotopic Method (Proposed),
2144	referenced in Section 611.720.
2145	
2146	Method 9215 B, Heterotrophic Plate Count, Pour Plate

2147 Method, referenced in Section 611.531.
2148
2149 Method 9221 A, Multiple-Tube Fermentation Technique
2150 for Members of the Coliform Group, Introduction,
2151 referenced in Section~~Sections 611.526 and~~ 611.531.
2152
2153 Method 9221 B, Multiple-Tube Fermentation Technique
2154 for Members of the Coliform Group, Standard Total
2155 Coliform Fermentation Technique, referenced in Sections
2156 611.526 and 611.531.
2157
2158 Method 9221 C, Multiple-Tube Fermentation Technique
2159 for Members of the Coliform Group, Estimation of
2160 Bacterial Density, referenced in Section~~Sections 611.526~~
2161 ~~and~~ 611.531.
2162
2163 Method 9221 D, Multiple-Tube Fermentation Technique
2164 for Members of the Coliform Group, Presence-Absence (P-
2165 A) Coliform Test, referenced in ~~Section 611.526.~~
2166
2167 Method 9221 E, Multiple-Tube Fermentation Technique
2168 for Members of the Coliform Group, Fecal Coliform
2169 Procedure, referenced in Section ~~Sections 611.526 and~~
2170 611.531.
2171
2172 Method 9222 A, Membrane Filter Technique for Members
2173 of the Coliform Group, Introduction, referenced in
2174 Section~~Sections 611.526 and~~ 611.531.
2175
2176 Method 9222 B, Membrane Filter Technique for Members
2177 of the Coliform Group, Standard Total Coliform Membrane
2178 Filter Procedure, referenced in Section~~Sections 611.526~~
2179 ~~and~~ 611.531.
2180
2181 Method 9222 C, Membrane Filter Technique for Members
2182 of the Coliform Group, Delayed-Incubation Total Coliform
2183 Procedure, referenced in Section ~~Sections 611.526 and~~
2184 611.531.
2185
2186 Method 9222 D, Membrane Filter Technique for Members
2187 of the Coliform Group, Fecal Coliform Membrane Filter
2188 Procedure, referenced in Section 611.531.
2189

2190	Method 9223, Chromogenic Substrate Coliform Test
2191	(Proposed) (also referred to as the variations "Colilert®
2192	Test" and "Colisure™ Test"), referenced in <u>Section</u> Sections
2193	611.526 and 611.531.
2194	
2195	Method 9223 B, Chromogenic Substrate Coliform Test
2196	(Proposed), referenced in Section 611.1004.
2197	
2198	"Supplement to the 18 th Edition of Standard Methods for the
2199	Examination of Water and Wastewater," American Public Health
2200	Association, 1994.
2201	
2202	Method 6610, Carbamate Pesticide Method, referenced in
2203	Section 611.645.
2204	
2205	<u>Standard Methods, 19th ed.</u> , "Standard Methods for the
2206	Examination of Water and Wastewater," 19 th Edition, 1995
2207	(referred to as "Standard Methods, 19 th ed.").
2208	
2209	Method 2130 B, Turbidity, Nephelometric Method,
2210	referenced in Section 611.531.
2211	
2212	Method 2320 B, Alkalinity, Titration Method, referenced in
2213	Section 611.611.
2214	
2215	Method 2510 B, Conductivity, Laboratory Method,
2216	referenced in Section 611.611.
2217	
2218	Method 2550, Temperature, Laboratory, and Field
2219	Methods, referenced in Section 611.611.
2220	
2221	Method 3111 B, Metals by Flame Atomic Absorption
2222	Spectrometry, Direct Air-Acetylene Flame Method,
2223	referenced in Sections 611.611 and 611.612.
2224	
2225	Method 3111 D, Metals by Flame Atomic Absorption
2226	Spectrometry, Direct Nitrous Oxide-Acetylene Flame
2227	Method, referenced in Section 611.611.
2228	
2229	Method 3112 B, Metals by Cold-Vapor Atomic Absorption
2230	Spectrometry, Cold-Vapor Atomic Absorption
2231	Spectrometric Method, referenced in Section 611.611.
2232	

2233	Method 3113 B, Metals by Electrothermal Atomic
2234	Absorption Spectrometry, Electrothermal Atomic
2235	Absorption Spectrometric Method, referenced in Sections
2236	611.611 and 611.612.
2237	
2238	Method 3114 B, Metals by Hydride Generation/Atomic
2239	Absorption Spectrometry, Manual Hydride
2240	Generation/Atomic Absorption Spectrometric Method,
2241	referenced in Section 611.611.
2242	
2243	Method 3120 B, Metals by Plasma Emission Spectroscopy,
2244	Inductively Coupled Plasma (ICP) Method, referenced in
2245	Sections 611.611 and 611.612.
2246	
2247	Method 3500-Ca D, Calcium, EDTA Titrimetric Method,
2248	referenced in Section 611.611.
2249	
2250	Method 3500-Mg E, Magnesium, Calculation Method,
2251	referenced in Section 611.611.
2252	
2253	Method 4110 B, Determination of Anions by Ion
2254	Chromatography, Ion Chromatography with Chemical
2255	Suppression of Eluent Conductivity, referenced in Section
2256	611.611.
2257	
2258	Method 4500-Cl D, Chlorine, Amperometric Titration
2259	Method, referenced in Sections 611.381 and 611.531.
2260	
2261	Method 4500-Cl E, Chlorine, Low-Level Amperometric
2262	Titration Method, referenced in Sections 611.381 and
2263	611.531.
2264	
2265	Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric
2266	Method, referenced in Sections 611.381 and 611.531.
2267	
2268	Method 4500-Cl G, Chlorine, DPD Colorimetric Method,
2269	referenced in Sections 611.381 and 611.531.
2270	
2271	Method 4500-Cl H, Chlorine, Syringaldazine (FACTS)
2272	Method, referenced in Sections 611.381 and 611.531.
2273	
2274	Method 4500-Cl I, Chlorine, Iodometric Electrode Method,
2275	referenced in Sections 611.381 and 611.531.

2276	
2277	Method 4500-ClO ₂ C, Chlorine Dioxide, Amperometric
2278	Method I, referenced in Section 611.531.
2279	
2280	Method 4500-ClO ₂ D, Chlorine Dioxide, DPD Method,
2281	referenced in Sections 611.381 and 611.531.
2282	
2283	Method 4500-ClO ₂ E, Chlorine Dioxide, Amperometric
2284	Method II, referenced in Sections 611.381 and 611.531.
2285	
2286	Method 4500-CN ⁻ C, Cyanide, Total Cyanide after
2287	Distillation, referenced in Section 611.611.
2288	
2289	Method 4500-CN ⁻ E, Cyanide, Colorimetric Method,
2290	referenced in Section 611.611.
2291	
2292	Method 4500-CN ⁻ F, Cyanide, Cyanide-Selective Electrode
2293	Method, referenced in Section 611.611.
2294	
2295	Method 4500-CN ⁻ G, Cyanide, Cyanides Amenable to
2296	Chlorination after Distillation, referenced in Section
2297	611.611.
2298	
2299	Method 4500-F ⁻ B, Fluoride, Preliminary Distillation Step,
2300	referenced in Section 611.611.
2301	
2302	Method 4500-F ⁻ C, Fluoride, Ion-Selective Electrode
2303	Method, referenced in Section 611.611.
2304	
2305	Method 4500-F ⁻ D, Fluoride, SPADNS Method, referenced
2306	in Section 611.611.
2307	
2308	Method 4500-F ⁻ E, Fluoride, Complexone Method,
2309	referenced in Section 611.611.
2310	
2311	Method 4500-H ⁺ B, pH Value, Electrometric Method,
2312	referenced in Section 611.611.
2313	
2314	Method 4500-NO ₂ ⁻ B, Nitrogen (Nitrite), Colorimetric
2315	Method, referenced in Section 611.611.
2316	
2317	Method 4500-NO ₃ ⁻ D, Nitrogen (Nitrate), Nitrate Electrode
2318	Method, referenced in Section 611.611.

2319	
2320	Method 4500-NO ₃ ⁻ E, Nitrogen (Nitrate), Cadmium
2321	Reduction Method, referenced in Section 611.611.
2322	
2323	Method 4500-NO ₃ ⁻ F, Nitrogen (Nitrate), Automated
2324	Cadmium Reduction Method, referenced in Section
2325	611.611.
2326	
2327	Method 4500-O ₃ B, Ozone (Residual) (Proposed), Indigo
2328	Colorimetric Method, referenced in Section 611.531.
2329	
2330	Method 4500-P E, Phosphorus, Ascorbic Acid Method,
2331	referenced in Section 611.611.
2332	
2333	Method 4500-P F, Phosphorus, Automated Ascorbic Acid
2334	Reduction Method, referenced in Section 611.611.
2335	
2336	Method 4500-Si D, Silica, Molybdosilicate Method,
2337	referenced in Section 611.611.
2338	
2339	Method 4500-Si E, Silica, Heteropoly Blue Method,
2340	referenced in Section 611.611.
2341	
2342	Method 4500-Si F, Silica, Automated Method for
2343	Molybdate-Reactive Silica, referenced in Section 611.611.
2344	
2345	Method 5910 B, UV Absorbing Organic Constituents,
2346	Ultraviolet Absorption Method, referenced in Section
2347	611.381.
2348	
2349	Method 6251 B, Disinfection Byproducts: Haloacetic
2350	Acids and Trichlorophenol, Micro Liquid-Liquid
2351	Extraction Gas Chromatographic Method, referenced in
2352	Section 611.381.
2353	
2354	Method 6610, Carbamate Pesticide Method, referenced in
2355	Section 611.645.
2356	
2357	Method 6651 B, Glyphosate Herbicide, referenced in
2358	Section 611.645.
2359	
2360	Method 7110 B, Gross Alpha and Gross Beta
2361	Radioactivity, Evaporation Method for Gross Alpha-Beta,

2362	referenced in Section 611.720.
2363	
2364	Method 7110 C, Gross Alpha and Beta Radioactivity
2365	(Total, Suspended, and Dissolved), Coprecipitation Method
2366	for Gross Alpha Radioactivity in Drinking Water
2367	(Proposed), referenced in Section 611.720.
2368	
2369	Method 7120, Gamma-Emitting Radionuclides, referenced
2370	in Section 611.720.
2371	
2372	Method 7500-Cs B, Radioactive Cesium, Precipitation
2373	Method, referenced in Section 611.720.
2374	
2375	Method 7500- ³ H B, Tritium, Liquid Scintillation
2376	Spectrometric Method, referenced in Section 611.720.
2377	
2378	Method 7500-I B, Radioactive Iodine, Precipitation
2379	Method, referenced in Section 611.720.
2380	
2381	Method 7500-I C, Radioactive Iodine, Ion-Exchange
2382	Method, referenced in Section 611.720.
2383	
2384	Method 7500-I D, Radioactive Iodine, Distillation Method,
2385	referenced in Section 611.720.
2386	
2387	Method 7500-Ra B, Radium, Precipitation Method,
2388	referenced in Section 611.720.
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2390	Method 7500-Ra C, Radium, Emanation Method,
2391	referenced in Section 611.720.
2392	
2393	Method 7500-Ra D, Radium, Sequential Precipitation
2394	Method, referenced in Section 611.720.
2395	
2396	Method 7500-Sr B, Total Radiactive Strontium and
2397	Strontium 90, Precipitation Method, referenced in Section
2398	611.720.
2399	
2400	Method 7500-U B, Uranium, Radiochemical Method,
2401	referenced in Section 611.720.
2402	
2403	Method 7500-U C, Uranium, Isotopic Method, referenced
2404	in Section 611.720.

2405	
2406	Method 9215 B, Heterotrophic Plate Count, Pour Plate
2407	Method, referenced in Section 611.531.
2408	
2409	Method 9221 A, Multiple-Tube Fermentation Technique
2410	for Members of the Coliform Group, Introduction,
2411	referenced in <u>Section</u> Sections 611.526 and 611.531.
2412	
2413	Method 9221 B, Multiple-Tube Fermentation Technique
2414	for Members of the Coliform Group, Standard Total
2415	Coliform Fermentation Technique, referenced in
2416	<u>Section</u> Sections 611.526 and 611.531.
2417	
2418	Method 9221 C, Multiple-Tube Fermentation Technique
2419	for Members of the Coliform Group, Estimation of
2420	Bacterial Density, referenced in <u>Section</u> Sections 611.526
2421	and 611.531.
2422	
2423	Method 9221 D, Multiple-Tube Fermentation Technique
2424	for Members of the Coliform Group, Presence-Absence (P-
2425	A) Coliform Test, referenced in Section 611.526.
2426	
2427	Method 9221 E, Multiple-Tube Fermentation Technique
2428	for Members of the Coliform Group, Fecal Coliform
2429	Procedure, referenced in <u>Section</u> Sections 611.526 and
2430	611.531.
2431	
2432	Method 9222 A, Membrane Filter Technique for Members
2433	of the Coliform Group, Introduction, referenced in
2434	<u>Sections</u> Sections 611.526 and 611.531.
2435	
2436	Method 9222 B, Membrane Filter Technique for Members
2437	of the Coliform Group, Standard Total Coliform Membrane
2438	Filter Procedure, referenced in <u>Section</u> Sections 611.526
2439	and 611.531.
2440	
2441	Method 9222 C, Membrane Filter Technique for Members
2442	of the Coliform Group, Delayed-Incubation Total Coliform
2443	Procedure, referenced in <u>Section</u> Sections 611.526 and
2444	611.531.
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2407	Method 9215 B, Heterotrophic Plate Count, Pour Plate
2408	Method, referenced in Section 611.531.
2409	
2410	Method 9221 A, Multiple-Tube Fermentation Technique
2411	for Members of the Coliform Group, Introduction,
2412	referenced in <u>Section</u> Sections 611.526 and 611.531.
2413	
2414	Method 9221 B, Multiple-Tube Fermentation Technique
2415	for Members of the Coliform Group, Standard Total
2416	Coliform Fermentation Technique, referenced in
2417	<u>Section</u> Sections 611.526 and 611.531.
2418	
2419	Method 9221 C, Multiple-Tube Fermentation Technique
2420	for Members of the Coliform Group, Estimation of
2421	Bacterial Density, referenced in <u>Section</u> Sections 611.526
2422	and 611.531.
2423	
2424	Method 9221 D, Multiple-Tube Fermentation Technique
2425	for Members of the Coliform Group, Presence-Absence (P-
2426	A) Coliform Test, referenced in Section 611.526.
2427	
2428	Method 9221 E, Multiple-Tube Fermentation Technique
2429	for Members of the Coliform Group, Fecal Coliform
2430	Procedure, referenced in <u>Section</u> Sections 611.526 and
2431	611.531.
2432	
2433	Method 9222 A, Membrane Filter Technique for Members
2434	of the Coliform Group, Introduction, referenced in
2435	<u>Sections</u> Sections 611.526 and 611.531.
2436	
2437	Method 9222 B, Membrane Filter Technique for Members
2438	of the Coliform Group, Standard Total Coliform Membrane
2439	Filter Procedure, referenced in <u>Section</u> Sections 611.526
2440	and 611.531.
2441	
2442	Method 9222 C, Membrane Filter Technique for Members
2443	of the Coliform Group, Delayed-Incubation Total Coliform
2444	Procedure, referenced in <u>Section</u> Sections 611.526 and
2445	611.531.

2446 Method 9222 D, Membrane Filter Technique for Members
2447 of the Coliform Group, Fecal Coliform Membrane Filter
2448 Procedure, referenced in Section 611.531.
2449
2450 ~~Method 9222 G, Membrane Filter Technique for Members~~
2451 ~~of the Coliform Group, MF Partition Procedures,~~
2452 ~~referenced in Section 611.526.~~
2453
2454 Method 9223, Chromogenic Substrate Coliform Test (also
2455 referred to as the variations "Colilert[®] Test" and
2456 "Colisure[™] Test"), referenced in ~~Section~~~~Sections~~ 611.526
2457 ~~and~~ 611.531.
2458
2459 Method 9223 B, Chromogenic Substrate Coliform Test
2460 (Proposed), referenced in Section 611.1004.
2461
2462 "Supplement to the 19th Edition of Standard Methods for the
2463 Examination of Water and Wastewater," American Public Health
2464 Association, 1996.
2465
2466 Method 5310 B, TOC, Combustion-Infrared Method,
2467 referenced in Section 611.381.
2468
2469 Method 5310 C, TOC, Persulfate-Ultraviolet Oxidation
2470 Method, referenced in Section 611.381.
2471
2472 Method 5310 D, TOC, Wet-Oxidation Method, referenced
2473 in Section 611.381.
2474
2475 Standard Methods, 20th ed., "Standard Methods for the
2476 Examination of Water and Wastewater," 20th Edition, 1998
2477 (referred to as "Standard Methods, 20th ed.").
2478
2479 Method 2130 B, Turbidity, Nephelometric Method,
2480 referenced in Section 611.531.
2481
2482 Method 2320 B, Alkalinity, Titration Method, referenced in
2483 Section 611.611.
2484
2485 Method 2510 B, Conductivity, Laboratory Method,
2486 referenced in Section 611.611.
2487

2488	Method 2550, Temperature, Laboratory, and Field
2489	Methods, referenced in Section 611.611.
2490	
2491	Method 3120 B, Metals by Plasma Emission Spectroscopy,
2492	Inductively Coupled Plasma (ICP) Method, referenced in
2493	Sections 611.611 and 611.612.
2494	
2495	Method 3125, Metals by Inductively Coupled Plasma/Mass
2496	Spectrometry, referenced in Section 611.720.
2497	
2498	Method 3500-Ca B, Calcium, EDTA Titrimetric Method,
2499	referenced in Section 611.611.
2500	
2501	Method 3500-Mg B, Magnesium, EDTA Titrimetric
2502	Method, referenced in Section 611.611.
2503	
2504	Method 4110 B, Determination of Anions by Ion
2505	Chromatography, Ion Chromatography with Chemical
2506	Suppression of Eluent Conductivity, referenced in Section
2507	611.611.
2508	
2509	Method 4500-CN⁻ C, Cyanide, Total Cyanide after
2510	Distillation, referenced in Section 611.611.
2511	
2512	Method 4500-CN⁻ E, Cyanide, Colorimetric Method,
2513	referenced in Section 611.611.
2514	
2515	Method 4500-CN⁻ F, Cyanide, Cyanide-Selective Electrode
2516	Method, referenced in Section 611.611.
2517	
2518	Method 4500-CN⁻ G, Cyanide, Cyanides Amenable to
2519	Chlorination after Distillation, referenced in Section
2520	611.611.
2521	
2522	Method 4500-Cl D, Chlorine, Amperometric Titration
2523	Method, referenced in <u>Sections 611.381 and Section</u>
2524	611.531.
2525	
2526	Method 4500-Cl E, Chlorine, Low-Level Amperometric
2527	Titration Method, referenced in <u>Sections 611.381</u>
2528	<u>and Section 611.531.</u>
2529	

2530	Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric
2531	Method, referenced in <u>Sections 611.381 and Section</u>
2532	611.531.
2533	
2534	Method 4500-Cl G, Chlorine, DPD Colorimetric Method,
2535	referenced in <u>Sections 611.381 and Section</u> 611.531.
2536	
2537	Method 4500-Cl H, Chlorine, Syringaldazine (FACTS)
2538	Method, referenced in <u>Sections 611.381 and Section</u>
2539	611.531.
2540	
2541	Method 4500-Cl I, Chlorine, Iodometric Electrode Method,
2542	referenced in <u>Sections 611.381 and Section</u> 611.531.
2543	
2544	Method 4500-ClO ₂ C, Chlorine Dioxide, Amperometric
2545	Method I, referenced in Section 611.531.
2546	
2547	Method 4500-ClO ₂ D, Chlorine Dioxide, DPD Method,
2548	referenced in <u>Sections 611.381 and Section</u> 611.531.
2549	
2550	Method 4500-ClO ₂ E, Chlorine Dioxide, Amperometric
2551	Method II (Proposed), referenced in <u>Sections 611.381 and</u>
2552	<u>Section</u> 611.531.
2553	
2554	<u>Method 4500-CN⁻ C, Cyanide, Total Cyanide after</u>
2555	<u>Distillation, referenced in Section 611.611.</u>
2556	
2557	<u>Method 4500-CN⁻ E, Cyanide, Colorimetric Method,</u>
2558	<u>referenced in Section 611.611.</u>
2559	
2560	<u>Method 4500-CN⁻ F, Cyanide, Cyanide-Selective Electrode</u>
2561	<u>Method, referenced in Section 611.611.</u>
2562	
2563	<u>Method 4500-CN⁻ G, Cyanide, Cyanides Amenable to</u>
2564	<u>Chlorination after Distillation, referenced in Section</u>
2565	<u>611.611.</u>
2566	
2567	Method 4500-F ⁻ B, Fluoride, Preliminary Distillation Step,
2568	referenced in Section 611.611.
2569	
2570	Method 4500-F ⁻ C, Fluoride, Ion-Selective Electrode
2571	Method, referenced in Section 611.611.
2572	

2573	Method 4500-F ⁻ D, Fluoride, SPADNS Method, referenced
2574	in Section 611.611.
2575	
2576	Method 4500-F ⁻ E, Fluoride, Complexone Method,
2577	referenced in Section 611.611.
2578	
2579	Method 4500-H ⁺ B, pH Value, Electrometric Method,
2580	referenced in Section 611.611.
2581	
2582	Method 4500-NO ₂ ⁻ B, Nitrogen (Nitrite), Colorimetric
2583	Method, referenced in Section 611.611.
2584	
2585	Method 4500-NO ₃ ⁻ D, Nitrogen (Nitrate), Nitrate Electrode
2586	Method, referenced in Section 611.611.
2587	
2588	Method 4500-NO ₃ ⁻ E, Nitrogen (Nitrate), Cadmium
2589	Reduction Method, referenced in Section 611.611.
2590	
2591	Method 4500-NO ₃ ⁻ F, Nitrogen (Nitrate), Automated
2592	Cadmium Reduction Method, referenced in Section
2593	611.611.
2594	
2595	Method 4500-O ₃ B, Ozone (Residual) (Proposed), Indigo
2596	Colorimetric Method, referenced in Section 611.531.
2597	
2598	Method 4500-P E, Phosphorus, Ascorbic Acid Method,
2599	referenced in Section 611.611.
2600	
2601	Method 4500-P F, Phosphorus, Automated Ascorbic Acid
2602	Reduction Method, referenced in Section 611.611.
2603	
2604	Method 4500-SiO ₂ C, Silica, Molybdosilicate Method,
2605	referenced in Section 611.611.
2606	
2607	Method 4500-SiO ₂ D, Silica, Heteropoly Blue Method,
2608	referenced in Section 611.611.
2609	
2610	Method 4500-SiO ₂ E, Silica, Automated Method for
2611	Molybdate-Reactive Silica, referenced in Section 611.611.
2612	
2613	Method 5310 B, TOC, Combustion-Infrared Method,
2614	referenced in Section 611.381.
2615	

2616	Method 5310 C, TOC, Persulfate-Ultraviolet Oxidation
2617	Method, referenced in Section 611.381.
2618	
2619	Method 5310 D, TOC, Wet-Oxidation Method, referenced
2620	in Section 611.381.
2621	
2622	Method 5910 B, UV-Absorbing Organic Constituents,
2623	Ultraviolet Absorption Method, referenced in
2624	<u>Section</u> Sections 611.381 and 611.382.
2625	
2626	Method 6251 B, Disinfection By-Products: Haloacetic
2627	Acids and Trichlorophenol, Micro Liquid-Liquid
2628	Extraction Gas Chromatographic Method, referenced in
2629	Section 611.381.
2630	
2631	Method 6610-B, Carbamate Pesticide Method, referenced
2632	in Section 611.645.
2633	
2634	Method 6651 B, Glyphosate Herbicide, Liquid
2635	Chromatographic Post-Column Fluorescence Method,
2636	referenced in Section 611.645.
2637	
2638	Method 7110 B, Gross Alpha and Gross Beta
2639	Radioactivity, Evaporation Method for Gross Alpha-Beta,
2640	referenced in Section 611.720.
2641	
2642	Method 7110 C, Gross Alpha and Beta Radioactivity
2643	(Total, Suspended, and Dissolved), Coprecipitation Method
2644	for Gross Alpha Radioactivity in Drinking Water
2645	(Proposed), referenced in Section 611.720.
2646	
2647	Method 7120, Gamma-Emitting Radionuclides, referenced
2648	in Section 611.720.
2649	
2650	Method 7500-Cs B, Radioactive Cesium, Precipitation
2651	Method, referenced in Section 611.720.
2652	
2653	Method 7500- ³ H B, Tritium, Liquid Scintillation
2654	Spectrometric Method, referenced in Section 611.720.
2655	
2656	Method 7500-I B, Radioactive Iodine, Precipitation
2657	Method, referenced in Section 611.720.
2658	

2701	Bacterial Density, referenced in Sections 611.526 , 611.531,
2702	and 611.1052.
2703	
2704	Method 9221 D, Multiple-Tube Fermentation Technique
2705	for Members of the Coliform Group, Presence-Absence (P-
2706	A) Coliform Test, referenced in Sections <u>611.802</u> 611.526
2707	and 611.1052.
2708	
2709	Method 9221 E, Multiple-Tube Fermentation Technique
2710	for Members of the Coliform Group, Fecal Coliform
2711	Procedure, referenced in <u>Section</u> Sections 611.526 and
2712	611.531.
2713	
2714	Method 9221 F, Multiple-Tube Fermentation Technique for
2715	Members of the Coliform Group, Escherichia Coli
2716	Procedure (Proposed), referenced in <u>Sections</u> Section
2717	611.802 and 611.1052.
2718	
2719	Method 9222 A, Membrane Filter Technique for Members
2720	of the Coliform Group, Introduction, referenced in
2721	<u>Section</u> Sections 611.526 and 611.531.
2722	
2723	Method 9222 B, Membrane Filter Technique for Members
2724	of the Coliform Group, Standard Total Coliform Membrane
2725	Filter Procedure, referenced in Sections 611.526 , 611.531,
2726	<u>611.802</u> , and 611.1052.
2727	
2728	Method 9222 C, Membrane Filter Technique for Members
2729	of the Coliform Group, Delayed-Incubation Total Coliform
2730	Procedure, referenced in Sections 611.526 and 611.531,
2731	<u>611.802</u> , and 611.1052.
2732	
2733	Method 9222 D, Membrane Filter Technique for Members
2734	of the Coliform Group, Fecal Coliform Membrane Filter
2735	Procedure, referenced in <u>Sections</u> Section 611.531 and
2736	<u>611.1004</u> .
2737	
2738	Method 9222 G, Membrane Filter Technique for Members
2739	of the Coliform Group, MF Partition Procedures,
2740	referenced in <u>Sections</u> 611.802, 611.1004, and
2741	<u>611.1052</u> Section 611.526 .
2742	

2743	Method 9223, Chromogenic Substrate Coliform Test (also referred to as the variations "Colilert® Test " and "Colisure™ Test"), referenced in <u>Section</u> Sections 611.526 and 611.531.
2744	
2745	
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2747	
2748	Method 9223 B, Chromogenic Substrate Coliform Test (also referred to as the variations "Colilert® Test" and "Colisure™ Test"), referenced in Sections 611.526, 611.802, 611.1004, and 611.1052.
2749	
2750	
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2753	Method 9230 B, Fecal Streptococcus and Enterococcus Groups, Multiple Tube Techniques, referenced in Section 611.802.
2754	
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2756	
2757	Method 9230 C, Fecal Streptococcus and Enterococcus Groups, Membrane Filter Techniques, referenced in Section 611.802.
2758	
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2761	<u>Standard Methods, 21st ed.</u> , "Standard Methods for the Examination of Water and Wastewater", 21 st Edition, 2005 (referred to as "Standard Methods, 21 st ed.").
2762	
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2765	
2766	Method 2130 B, Turbidity, Nephelometric Method, referenced in Section 611.531.
2767	
2768	Method 2320 B, Alkalinity, Titration Method, referenced in Section 611.611.
2769	
2770	Method 2510 B, Conductivity, Laboratory Method, referenced in Section 611.611.
2771	
2772	
2773	Method 2550, Temperature, Laboratory, and Field Methods, referenced in Section 611.611.
2774	
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2777	Method 3111 B, Metals by Flame Atomic Absorption Spectrometry, Direct Air-Acetylene Flame Method, referenced in Sections 611.611 and 611.612.
2778	
2779	
2780	Method 3111 D, Metals by Flame Atomic Absorption Spectrometry, Direct Nitrous Oxide-Acetylene Flame Method, referenced in Section 611.611.
2781	
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2785	Method 3112 B, Metals by Cold-Vapor Atomic Absorption
2786	Spectrometry, Cold-Vapor Atomic Absorption
2787	Spectrometric Method, referenced in Section 611.611.
2788	
2789	Method 3113 B, Metals by Electrothermal Atomic
2790	Absorption Spectrometry, Electrothermal Atomic
2791	Absorption Spectrometric Method, referenced in Sections
2792	611.611 and 611.612.
2793	
2794	Method 3114 B, Metals by Hydride Generation/Atomic
2795	Absorption Spectrometry, Manual Hydride
2796	Generation/Atomic Absorption Spectrometric Method,
2797	referenced in Section 611.611.
2798	
2799	Method 3120 B, Metals by Plasma Emission Spectroscopy,
2800	Inductively Coupled Plasma (ICP) Method, referenced in
2801	Sections 611.611 and 611.612.
2802	
2803	Method 3125, Metals by Inductively Coupled Plasma/Mass
2804	Spectrometry, referenced in Section 611.720.
2805	
2806	Method 3500-Ca B, Calcium, EDTA Titrimetric Method,
2807	referenced in Section 611.611.
2808	
2809	Method 3500-Mg B, Magnesium, Calculation Method,
2810	referenced in Section 611.611.
2811	
2812	Method 4110 B, Determination of Anions by Ion
2813	Chromatography, Ion Chromatography with Chemical
2814	Suppression of Eluent Conductivity, referenced in Section
2815	611.611.
2816	
2817	Method 4500-Cl D, Chlorine, Amperometric Titration
2818	Method, referenced in <u>Sections</u> Section 611.381 <u>and</u>
2819	<u>611.531</u> .
2820	
2821	Method 4500-Cl E, Chlorine, Low-Level Amperometric
2822	Titration Method, referenced in <u>Sections</u> Section 611.381
2823	<u>and 611.531</u> .
2824	
2825	Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric
2826	Method, referenced in <u>Sections</u> Section 611.381 <u>and</u>
2827	<u>611.531</u> .

2828	
2829	Method 4500-Cl G, Chlorine, DPD Colorimetric Method,
2830	referenced in <u>Sections</u> Section <u>611.381 and 611.531.</u>
2831	
2832	Method 4500-Cl H, Chlorine, Syringaldazine (FACTS)
2833	Method, referenced in <u>Sections</u> Section <u>611.381 and</u>
2834	<u>611.531.</u>
2835	
2836	Method 4500-Cl I, Chlorine, Iodometric Electrode Method,
2837	referenced in <u>Sections</u> Section <u>611.381 and 611.531.</u>
2838	
2839	Method 4500-ClO ₂ C, Chlorine Dioxide, Amperometric
2840	Method I, referenced in Section 611.531.
2841	
2842	<u>Method 4500-ClO₂ D, Chlorine Dioxide, Amperometric</u>
2843	<u>Method I, referenced in Section 611.381.</u>
2844	
2845	Method 4500-ClO ₂ E, Chlorine Dioxide, Amperometric
2846	Method II (Proposed), referenced in <u>Sections</u> Section
2847	<u>611.381 and 611.531.</u>
2848	
2849	Method 4500-CN ⁻ E, Cyanide, Colorimetric Method,
2850	referenced in Section 611.611.
2851	
2852	Method 4500-CN ⁻ F, Cyanide, Cyanide-Selective Electrode
2853	Method, referenced in Section 611.611.
2854	
2855	Method 4500-CN ⁻ G, Cyanide, Cyanides Amenable to
2856	Chlorination after Distillation, referenced in Section
2857	611.611.
2858	
2859	Method 4500-F ⁻ B, Fluoride, Preliminary Distillation Step,
2860	referenced in Section 611.611.
2861	
2862	Method 4500-F ⁻ C, Fluoride, Ion-Selective Electrode
2863	Method, referenced in Section 611.611.
2864	
2865	Method 4500-F ⁻ D, Fluoride, SPADNS Method, referenced
2866	in Section 611.611.
2867	
2868	Method 4500-F ⁻ E, Fluoride, Complexone Method,
2869	referenced in Section 611.611.
2870	

2871	Method 4500-H ⁺ B, pH Value, Electrometric Method, referenced in Section 611.611.
2872	
2873	
2874	Method 4500-NO ₂ ⁻ B, Nitrogen (Nitrite), Colorimetric Method, referenced in Section 611.611.
2875	
2876	
2877	Method 4500-NO ₃ ⁻ D, Nitrogen (Nitrate), Nitrate Electrode Method, referenced in Section 611.611.
2878	
2879	
2880	Method 4500-NO ₃ ⁻ E, Nitrogen (Nitrate), Cadmium Reduction Method, referenced in Section 611.611.
2881	
2882	
2883	Method 4500-NO ₃ ⁻ F, Nitrogen (Nitrate), Automated Cadmium Reduction Method, referenced in Section 611.611.
2884	
2885	
2886	Method 4500-O ₃ B, Ozone (Residual) (Proposed), Indigo Colorimetric Method, referenced in Section 611.531.
2887	
2888	
2889	Method 4500-P E, Phosphorus, Ascorbic Acid Method, referenced in Section 611.611.
2890	
2891	
2892	Method 4500-P F, Phosphorus, Automated Ascorbic Acid Reduction Method, referenced in Section 611.611.
2893	
2894	
2895	Method 4500-SiO ₂ C, Silica, Molybdosilicate Method, referenced in Section 611.611.
2896	
2897	
2898	Method 4500-SiO ₂ D, Silica, Heteropoly Blue Method, referenced in Section 611.611.
2899	
2900	
2901	Method 4500-SiO ₂ E, Silica, Automated Method for Molybdate-Reactive Silica, referenced in Section 611.611.
2902	
2903	
2904	Method 5310 B, TOC, Combustion-Infrared Method, referenced in Section 611.381.
2905	
2906	
2907	Method 5310 C, TOC, Persulfate-Ultraviolet Oxidation Method, referenced in Section 611.381.
2908	
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2910	Method 5310 D, TOC, Wet-Oxidation Method, referenced in Section 611.381.
2911	
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2914	Method 5910 B, UV-Absorbing Organic Constituents, Ultraviolet Absorption Method, referenced in <u>Section</u> Sections 611.381 and 611.382.
2915	
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2917	
2918	Method 6251 B, Disinfection By-Products: Haloacetic Acids and Trichlorophenol, Micro Liquid-Liquid Extraction Gas Chromatography Method, referenced in Section 611.381.
2919	
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2922	
2923	Method 6610 B, Carbamate Pesticide Method, High-Performance Liquid Chromatographic Method, referenced in Section 611.645.
2924	
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2926	
2927	Method 6640 B, Acidic Herbicide Compounds, Micro Liquid-Liquid Extraction Gas Chromatographic Method, referenced in Section 611.645.
2928	
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2930	
2931	Method 6651 B, Glyphosate Herbicide, Liquid Chromatographic Post-Column Fluorescence Method, referenced in Section 611.645.
2932	
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2934	
2935	Method 7110 B, Gross Alpha and Gross Beta Radioactivity, Evaporation Method for Gross Alpha-Beta, referenced in Section 611.720.
2936	
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2938	
2939	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.
2940	
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2944	Method 7120, Gamma-Emitting Radionuclides, referenced in Section 611.720.
2945	
2946	
2947	Method 7500-Cs B, Radioactive Cesium, Precipitation Method, referenced in Section 611.720.
2948	
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2950	Method 7500- ³ H B, Tritium, Liquid Scintillation Spectrometric Method, referenced in Section 611.720.
2951	
2952	
2953	Method 7500-I B, Radioactive Iodine, Precipitation Method, referenced in Section 611.720.
2954	
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2956	Method 7500-I C, Radioactive Iodine, Ion-Exchange
2957	Method, referenced in Section 611.720.
2958	
2959	Method 7500-I D, Radioactive Iodine, Distillation Method,
2960	referenced in Section 611.720.
2961	
2962	Method 7500-Ra B, Radium, Precipitation Method,
2963	referenced in Section 611.720.
2964	
2965	Method 7500-Ra C, Radium, Emanation Method,
2966	referenced in Section 611.720.
2967	
2968	Method 7500-Ra D, Radium, Sequential Precipitation
2969	Method, referenced in Section 611.720.
2970	
2971	Method 7500-Sr B, Total Radioactive Strontium and
2972	Strontium 90, Precipitation Method, referenced in Section
2973	611.720.
2974	
2975	Method 7500-U B, Uranium, Radiochemical Method,
2976	referenced in Section 611.720.
2977	
2978	Method 7500-U C, Uranium, Isotopic Method, referenced
2979	in Section 611.720.
2980	
2981	Method 9060 A, Samples, Collection, referenced in Section
2982	611.1052.
2983	
2984	Method 9215 B, Heterotrophic Plate Count, Pour Plate
2985	Method, referenced in Section 611.531.
2986	
2987	Method 9221 A, Multiple-Tube Fermentation Technique
2988	for Members of the Coliform Group, Introduction,
2989	referenced in <u>Section</u> Sections 611.526 and 611.531.
2990	
2991	Method 9221 B, Multiple-Tube Fermentation Technique
2992	for Members of the Coliform Group, Standard Total
2993	Coliform Fermentation Technique, referenced in Sections
2994	611.526, 611.531, and 611.1052.
2995	
2996	Method 9221 C, Multiple-Tube Fermentation Technique
2997	for Members of the Coliform Group, Estimation of

2998	Bacterial Density, referenced in <u>Section Sections 611.526,</u>
2999	611.531, and 611.1052.
3000	
3001	Method 9221 D, Multiple-Tube Fermentation Technique
3002	for Members of the Coliform Group, Presence-Absence (P-
3003	A) Coliform Test, referenced in <u>Sections 611.802</u> Section
3004	611.526 and 611.1052.
3005	
3006	Method 9221 E, Multiple-Tube Fermentation Technique
3007	for Members of the Coliform Group, Fecal Coliform
3008	Procedure, referenced in <u>Section Sections 611.526 and</u>
3009	611.531.
3010	
3011	Method 9221 F, Multiple-Tube Fermentation Technique for
3012	Members of the Coliform Group, Escherichia Coli
3013	Procedure (Proposed), referenced in Section 611.802.
3014	
3015	Method 9222 A, Membrane Filter Technique for Members
3016	of the Coliform Group, Introduction, referenced in
3017	<u>SectionSections 611.526 and 611.531.</u>
3018	
3019	Method 9222 B, Membrane Filter Technique for Members
3020	of the Coliform Group, Standard Total Coliform Membrane
3021	Filter Procedure, referenced in Sections 611.526, 611.531,
3022	and 611.1052.
3023	
3024	Method 9222 C, Membrane Filter Technique for Members
3025	of the Coliform Group, Delayed-Incubation Total Coliform
3026	Procedure, referenced in Sections 611.526 and 611.531,
3027	<u>611.802, and 611.1052.</u>
3028	
3029	Method 9222 D, Membrane Filter Technique for Members
3030	of the Coliform Group, Fecal Coliform Membrane Filter
3031	Procedure, referenced in <u>Sections Section 611.531 and</u>
3032	<u>611.1052.</u>
3033	
3034	Method 9222 G, Membrane Filter Technique for Members
3035	of the Coliform Group, MF Partition Procedures,
3036	referenced in Section <u>611.1052</u> 611.526.
3037	
3038	Method 9223, Chromogenic Substrate Coliform Test (also
3039	referred to as the variations "Colilert® Test" and

3040 "Colisure™ Test"), referenced in ~~Section~~Sections 611.526
3041 and 611.531.

3042
3043 Method 9223 B, Chromogenic Substrate Coliform Test
3044 (also referred to as the variations "Colilert® Test"
3045 "Colisure™ Test," and "Colilert-18® Test", based on the
3046 particular medium used, available from IDEXX
3047 Laboratories, Inc.), referenced in Sections
3048 ~~611.531, 611.526,~~ 611.802, ~~611.1004,~~ and 611.1052.

3049
3050 BOARD NOTE: See the Board note appended to Standard
3051 Methods Online in this Section about methods that appear in
3052 Standard Methods, 21st ed. which USEPA has cited as available
3053 from Standard Methods Online.

3054
3055 Standard Methods, 22nd ed., "Standard Methods for the
3056 Examination of Water and Wastewater," 22nd Edition, 2012, for
3057 the specified methods, as modified by "22nd Edition of Standard
3058 Methods for the Examination of Water and Wastewater ERRATA"
3059 dated December 16, 2013 and available online for free download at
3060 www.standardmethods.org/PDF/22nd_Ed_Errata_12_16_13.pdf
3061 (referred to as "Standard Methods, 22nd ed."). See the methods
3062 ~~listed separately for the same references under American~~
3063 ~~Waterworks Association.~~

3064
3065 Method 2130 B, Turbidity, Nephelometric Method,
3066 referenced in Section 611.531.

3067
3068 Method 2320 B, Alkalinity, Titration Method, referenced in
3069 Section 611.611.

3070
3071 Method 2510 B, Conductivity, Laboratory Method,
3072 referenced in Section 611.611.

3073
3074 Method 2550, Temperature, Laboratory, and Field
3075 Methods, referenced in Section 611.611.

3076
3077 Method 3111 B, Metals by Flame Atomic Absorption
3078 Spectrometry, Direct Air-Acetylene Flame Method,
3079 referenced in Sections 611.611 and 611.612.
3080

3081	Method 3111 D, Metals by Flame Atomic Absorption Spectrometry, Direct Nitrous Oxide-Acetylene Flame Method, referenced in Section 611.611.
3082	
3083	
3084	
3085	Method 3112 B, Metals by Cold-Vapor Atomic Absorption Spectrometry, Cold-Vapor Atomic Absorption Spectrometric Method, referenced in Section 611.611.
3086	
3087	
3088	
3089	Method 3113 B, Metals by Electrothermal Atomic Absorption Spectrometry, Electrothermal Atomic Absorption Spectrometric Method, referenced in Sections 611.611 and 611.612.
3090	
3091	
3092	
3093	Method 3114 B, Metals by Hydride Generation/Atomic Absorption Spectrometry, Manual Hydride Generation/Atomic Absorption Spectrometric Method, referenced in Section 611.611.
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3097	Method 3120 B, Metals by Plasma Emission Spectroscopy, Inductively Coupled Plasma (ICP) Method, referenced in Sections 611.611 and 611.612.
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3101	Method 3500-Ca B, Calcium, EDTA Titrimetric Method, referenced in Section 611.611.
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3105	Method 3500-Mg B, Magnesium, Calculation Method, referenced in Section 611.611.
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3109	Method 4110 B, Determination of Anions by Ion Chromatography, Ion Chromatography with Chemical Suppression of Eluent Conductivity, referenced in Section 611.611.
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3113	Method 4500-Cl D, Chlorine, Amperometric Titration Method, referenced in <u>Sections</u> Section 611.381 and <u>611.531</u> .
3114	
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3116	
3117	Method 4500-Cl E, Chlorine, Low-Level Amperometric Titration Method, referenced in <u>Sections</u> Section 611.381 and <u>611.531</u> .
3118	
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3122	Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric
3123	Method, referenced in <u>Sections</u> Section 611.381 and
3124	<u>611.531</u> .
3125	
3126	Method 4500-Cl G, Chlorine, DPD Colorimetric Method,
3127	referenced in <u>Sections</u> Section 611.381 and 611.531.
3128	
3129	Method 4500-Cl H, Chlorine, Syringaldazine (FACTS)
3130	Method, referenced in <u>Sections</u> Section 611.381 and
3131	<u>611.531</u> .
3132	
3133	Method 4500-Cl I, Chlorine, Iodometric Electrode Method,
3134	referenced in <u>Sections</u> Section 611.381 and 611.531.
3135	
3136	Method 4500-ClO ₂ C, Chlorine Dioxide, Amperometric
3137	Method I, referenced in Section 611.531.
3138	
3139	Method 4500-ClO ₂ E, Chlorine Dioxide, Amperometric
3140	Method II (Proposed), referenced in <u>Sections</u> Section
3141	611.381 and 611.531.
3142	
3143	Method 4500-CN ⁻ E, Cyanide, Colorimetric Method,
3144	referenced in Section 611.611.
3145	
3146	Method 4500-CN ⁻ F, Cyanide, Cyanide-Selective Electrode
3147	Method, referenced in Section 611.611.
3148	
3149	Method 4500-CN ⁻ G, Cyanide, Cyanides Amenable to
3150	Chlorination after Distillation, referenced in Section
3151	611.611.
3152	
3153	Method 4500-F ⁻ B, Fluoride, Preliminary Distillation Step,
3154	referenced in Section 611.611.
3155	
3156	Method 4500-F ⁻ C, Fluoride, Ion-Selective Electrode
3157	Method, referenced in Section 611.611.
3158	
3159	Method 4500-F ⁻ D, Fluoride, SPADNS Method, referenced
3160	in Section 611.611.
3161	
3162	Method 4500-F ⁻ E, Fluoride, Complexone Method,
3163	referenced in Section 611.611.
3164	

3165	Method 4500-H ⁺ B, pH Value, Electrometric Method,
3166	referenced in Section 611.611.
3167	
3168	Method 4500-NO ₂ ⁻ B, Nitrogen (Nitrite), Colorimetric
3169	Method, referenced in Section 611.611.
3170	
3171	Method 4500-NO ₃ ⁻ D, Nitrogen (Nitrate), Nitrate Electrode
3172	Method, referenced in Section 611.611.
3173	
3174	Method 4500-NO ₃ ⁻ E, Nitrogen (Nitrate), Cadmium
3175	Reduction Method, referenced in Section 611.611.
3176	
3177	Method 4500-NO ₃ ⁻ F, Nitrogen (Nitrate), Automated
3178	Cadmium Reduction Method, referenced in Section
3179	611.611.
3180	
3181	Method 4500-O ₃ B, Ozone (Residual) (Proposed), Indigo
3182	Colorimetric Method, referenced in Section 611.531.
3183	
3184	Method 4500-P E, Phosphorus, Ascorbic Acid Method,
3185	referenced in Section 611.611. <u>Modified by the above-cited</u>
3186	<u>errata sheet.</u>
3187	
3188	Method 4500-P F, Phosphorus, Automated Ascorbic Acid
3189	Reduction Method, referenced in Section 611.611.
3190	
3191	Method 4500-SiO ₂ C, Silica, Molybdosilicate Method,
3192	referenced in Section 611.611.
3193	
3194	Method 4500-SiO ₂ D, Silica, Heteropoly Blue Method,
3195	referenced in Section 611.611.
3196	
3197	Method 4500-SiO ₂ E, Silica, Automated Method for
3198	Molybdate-Reactive Silica, referenced in Section 611.611.
3199	
3200	Method 5310 B, TOC, Combustion-Infrared Method,
3201	referenced in Section 611.381.
3202	
3203	Method 5310 C, TOC, Persulfate-Ultraviolet Oxidation
3204	Method, referenced in Section 611.381.
3205	
3206	Method 5310 D, TOC, Wet-Oxidation Method, referenced
3207	in Section 611.381.

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3210	Method 5910 B, UV-Absorbing Organic Constituents,
3211	Ultraviolet Absorption Method, referenced in
3212	<u>Section</u> Sections 611.381 and 611.382.
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3214	Method 6251 B, Disinfection By-Products: Haloacetic
3215	Acids and Trichlorophenol, referenced in Section 611.381.
3216	
3217	Method 6610 B, Carbamate Pesticide Method, High-
3218	Performance Liquid Chromatographic Method, referenced
3219	in Section 611.645.
3220	
3221	Method 6640 B, Acidic Herbicide Compounds, Micro
3222	Liquid-Liquid Extraction Gas Chromatographic Method,
3223	referenced in Section 611.645.
3224	
3225	Method 6651 B, Glyphosate Herbicide, Liquid
3226	Chromatographic Post-Column Fluorescence Method,
3227	referenced in Section 611.645.
3228	
3229	Method 7110 B, Gross Alpha and Gross Beta
3230	Radioactivity, Evaporation Method for Gross Alpha-Beta,
3231	referenced in Section 611.720.
3232	
3233	Method 7110 C, Gross Alpha and Beta Radioactivity
3234	(Total, Suspended, and Dissolved), Coprecipitation Method
3235	for Gross Alpha Radioactivity in Drinking Water
3236	(Proposed), referenced in Section 611.720. <u>Modified by the</u>
3237	<u>above-cited errata sheet.</u>
3238	
3239	Method 7120, Gamma-Emitting Radionuclides, referenced
3240	in Section 611.720.
3241	
3242	Method 7500-Cs B, Radioactive Cesium, Precipitation
3243	Method, referenced in Section 611.720.
3244	
3245	Method 7500- ³ H B, Tritium, Liquid Scintillation
3246	Spectrometric Method, referenced in Section 611.720.
3247	
3248	Method 7500-I B, Radioactive Iodine, Precipitation
3249	Method, referenced in Section 611.720.

3250	Method 7500-I C, Radioactive Iodine, Ion-Exchange
3251	Method, referenced in Section 611.720.
3252	
3253	Method 7500-I D, Radioactive Iodine, Distillation Method,
3254	referenced in Section 611.720.
3255	
3256	Method 7500-Ra B, Radium, Precipitation Method,
3257	referenced in Section 611.720.
3258	
3259	Method 7500-Ra C, Radium, Emanation Method,
3260	referenced in Section 611.720.
3261	
3262	Method 7500-Ra D, Radium, Sequential Precipitation
3263	Method, referenced in Section 611.720.
3264	
3265	Method 7500-Sr B, Total Radioactive Strontium and
3266	Strontium 90, Precipitation Method, referenced in Section
3267	611.720. <u>Modified by the above-cited errata sheet.</u>
3268	
3269	Method 7500-U B, Uranium, Radiochemical Method,
3270	referenced in Section 611.720.
3271	
3272	Method 7500-U C, Uranium, Isotopic Method, referenced
3273	in Section 611.720.
3274	
3275	Method 9060 A, Samples, Collection, referenced in Section
3276	611.1052.
3277	
3278	Method 9215 B, Heterotrophic Plate Count, Pour Plate
3279	Method, referenced in Section 611.531.
3280	
3281	Method 9221 A, Multiple-Tube Fermentation Technique
3282	for Members of the Coliform Group, Introduction,
3283	referenced in Section Sections 611.526 and 611.531.
3284	
3285	Method 9221 B, Multiple-Tube Fermentation Technique
3286	for Members of the Coliform Group, Standard Total
3287	Coliform Fermentation Technique, referenced in Sections
3288	611.526, 611.531, and 611.1052.
3289	
3290	Method 9221 C, Multiple-Tube Fermentation Technique
3291	for Members of the Coliform Group, Estimation of

3292	Bacterial Density, referenced in <u>Section</u> Sections 611.526
3293	and 611.531. Modified by the above-cited errata sheet.
3294	
3295	Method 9221 E, Multiple-Tube Fermentation Technique
3296	for Members of the Coliform Group, Fecal Coliform
3297	Procedure, referenced in <u>Section</u> Sections 611.526 and
3298	611.531.
3299	
3300	Method 9221 F, Multiple-Tube Fermentation Technique for
3301	Members of the Coliform Group, Escherichia Coli
3302	Procedure (Proposed), referenced in Section 611.802 and
3303	611.1052.
3304	
3305	Method 9222 A, Membrane Filter Technique for Members
3306	of the Coliform Group, Introduction, referenced in
3307	<u>Section</u> Sections 611.526 and 611.531.
3308	
3309	Method 9222 B, Membrane Filter Technique for Members
3310	of the Coliform Group, Standard Total Coliform Membrane
3311	Filter Procedure, referenced in <u>Section</u> Sections 611.526
3312	and 611.531. Modified by the above-cited errata sheet.
3313	
3314	Method 9222 C, Membrane Filter Technique for Members
3315	of the Coliform Group, Delayed-Incubation Total Coliform
3316	Procedure, referenced in <u>Section</u> Sections 611.526 and
3317	611.531.
3318	
3319	Method 9222 D, Membrane Filter Technique for Members
3320	of the Coliform Group, Fecal Coliform Membrane Filter
3321	Procedure, referenced in Section 611.531.
3322	
3323	<u>Method 9223, Chromogenic Substrate Coliform Test (also</u>
3324	<u>referred to as the variations "Colilert® Test" and</u>
3325	<u>"Colisure™ Test"), referenced in Section 611.531.</u>
3326	
3327	Method 9223 B, Chromogenic Substrate Coliform Test
3328	(also referred to as the variations "Colilert® Test,"
3329	"Colisure™ Test," and "Colilert-18® Test", based on the
3330	particular medium used, available from IDEXX
3331	Laboratories, Inc.), referenced in Sections 611.526,
3332	611.802, 611.1004, and 611.1052.
3333	

3334 BOARD NOTE: See the Board note appended to Standard
3335 Methods Online in this Section about methods that appear in
3336 Standard Methods, 22nd ed., which USEPA has cited as available
3337 from Standard Methods Online.

3338
3339 BOARD NOTE: Individual Methods from Standard Methods are
3340 available online from Standard Methods Online.

3341
3342 ASTM. American Society for Testing and Materials, 100 Barr Harbor
3343 Drive, West Conshohocken, PA 19428-2959 (610-832-9585).

3344
3345 ASTM Method D511-93 A and B, "Standard Test Methods for
3346 Calcium and Magnesium in Water," "Test Method A –
3347 Complexometric Titration" & "Test Method B – Atomic
3348 Absorption Spectrophotometric," approved 1993, referenced in
3349 Section 611.611.

3350
3351 ASTM Method D511-03 A and B, "Standard Test Methods for
3352 Calcium and Magnesium in Water," "Test Method A –
3353 Complexometric Titration" & "Test Method B – Atomic
3354 Absorption Spectrophotometric," approved 2003, referenced in
3355 Section 611.611.

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3357 ASTM Method D511-09 A and B, "Standard Test Methods for
3358 Calcium and Magnesium in Water," "Test Method A –
3359 Complexometric Titration" & "Test Method B – Atomic
3360 Absorption Spectrophotometric," approved 2009, referenced in
3361 Section 611.611.

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3363 ASTM Method D511-14 A and B, "Standard Test Methods for
3364 Calcium and Magnesium in Water," "Test Method A –
3365 Complexometric Titration" and "Test Method B – Atomic
3366 Absorption Spectrophotometric", approved 2014, referenced in
3367 Section 611.611.

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3369 ASTM Method D515-88 A, "Standard Test Methods for
3370 Phosphorus in Water," "Test Method A – Colorimetric Ascorbic
3371 Acid Reduction," approved August 19, 1988, referenced in
3372 Section 611.611.

3373
3374 ASTM Method D859-94, "Standard Test Method for Silica in
3375 Water," approved 1994, referenced in Section 611.611.

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3377	ASTM Method D859-00, "Standard Test Method for Silica in Water," approved 2000, referenced in Section 611.611.
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3380	ASTM Method D859-05, "Standard Test Method for Silica in Water," approved 2005, referenced in Section 611.611.
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3383	ASTM Method D859-10, "Standard Test Method for Silica in Water," approved 2010, referenced in Section 611.611.
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3386	ASTM Method D1067-92 B, "Standard Test Methods for Acidity or Alkalinity in Water," "Test Method B – Electrometric or Color-Change Titration," approved May 15, 1992, referenced in Section 611.611.
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3391	ASTM Method D1067-02 B, "Standard Test Methods for Acidity or Alkalinity in Water," "Test Method B – Electrometric or Color-Change Titration," approved in 2002, referenced in Section 611.611.
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3396	ASTM Method D1067-06 B, "Standard Test Methods for Acidity or Alkalinity in Water," "Test Method B – Electrometric or Color-Change Titration," approved in 2006, referenced in Section 611.611.
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3401	ASTM Method D1067-11 B, "Standard Test Methods for Acidity or Alkalinity in Water," "Test Method B – Electrometric or Color-Change Titration," approved in 2011, referenced in Section 611.611.
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3406	ASTM Method D1125-95 (1999) A, "Standard Test Methods for Electrical Conductivity and Resistivity of Water," "Test Method A – Field and Routine Laboratory Measurement of Static (Non-Flowing) Samples," approved 1995, reapproved 1999, referenced in Section 611.611.
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3416	ASTM Method D1179-99 B, "Standard Test Methods for Fluoride in Water," "Test Method B – Ion Selective Electrode," approved 1999, referenced in Section 611.611.
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3420 ASTM Method D1179-04 B, "Standard Test Methods for Fluoride
3421 in Water," "Test Method B – Ion Selective Electrode," approved
3422 2004, referenced in Section 611.611.
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3424 ASTM Method D1179-10 B, "Standard Test Methods for Fluoride
3425 in Water," "Test Method B – Ion Selective Electrode," approved
3426 2010, referenced in Section 611.611.
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3429 Chlorine in Water," reapproved 1992, referenced in Section
3430 611.381.
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3432 ASTM Method D1253-96, "Standard Test Method for Residual
3433 Chlorine in Water," approved 1996, referenced in Section
3434 611.381.
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3436 ASTM Method D1253-03, "Standard Test Method for Residual
3437 Chlorine in Water," approved 2003, referenced in Sections
3438 611.381 and 611.531.
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3442 611.381 and 611.531.
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3444 ASTM Method D1253-14, "Standard Test Method for Residual
3445 Chlorine in Water", approved 2014, referenced in Sections 611.381
3446 and 611.531.
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3448 ASTM Method D1293-95 ~~A or B~~, "Standard Test Methods for pH
3449 of Water," "Test Method A – Precise Laboratory Measurement" &
3450 "Test Method B – Routine or Continuous Measurement," approved
3451 1995, referenced in Section 611.611.
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3453 ASTM Method D1293-99 ~~A or B~~, "Standard Test Methods for pH
3454 of Water," "Test Method A – Precise Laboratory Measurement" &
3455 "Test Method B – Routine or Continuous Measurement," approved
3456 1999, referenced in Section 611.611.
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3458 ASTM Method D1293-12, "Standard Test Methods for pH of
3459 Water," approved 2012, referenced in Section 611.611.
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3461 ASTM Method D1688-95 A or C, "Standard Test Methods for
3462 Copper in Water," "Test Method A – Atomic Absorption, Direct"

3463 & "Test Method C –Atomic Absorption, Graphite Furnace;"₂
3464 approved 1995, referenced in Section 611.611.
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3466 ASTM Method D1688-02 A or C, "Standard Test Methods for
3467 Copper in Water;"₂ "Test Method A – Atomic Absorption, Direct"
3468 & "Test Method C – Atomic Absorption, Graphite Furnace;"₂
3469 approved 2002, referenced in Section 611.611.
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3471 ASTM Method D1688-07 A or C, "Standard Test Methods for
3472 Copper in Water;"₂ "Test Method A – Atomic Absorption, Direct"
3473 & "Test Method C – Atomic Absorption, Graphite Furnace;"₂
3474 approved 2007, referenced in Section 611.611.
3475
3476 ASTM Method D1688-12 A or C, "Standard Test Methods for
3477 Copper in Water", "Test Method A – Atomic Absorption, Direct"
3478 & "Test Method C – Atomic Absorption, Graphite Furnace",
3479 approved 2012, referenced in Section 611.611.
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3481 ASTM Method D2036-98 A or B, "Standard Test Methods for
3482 Cyanide in Water;"₂ "Test Method A – Total Cyanides after
3483 Distillation" & "Test Method B – Cyanides Amenable to
3484 Chlorination by Difference;"₂ approved 1998, referenced in Section
3485 611.611.
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3487 ASTM Method D2036-06 A or B, "Standard Test Methods for
3488 Cyanide in Water;"₂ "Test Method A – Total Cyanides after
3489 Distillation" & "Test Method B – Cyanides Amenable to
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3493 ASTM Method D2459-72, "Standard Test Method for Gamma
3494 Spectrometry in Water;"₂ approved July 28, 1972, discontinued
3495 1988, referenced in Section 611.720.
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3497 ASTM Method D2460-97, "Standard Test Method for
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3510 Arsenic in Water," "Test Method B – Atomic Absorption, Hydride
3511 Generation" & "Test Method C – Atomic Absorption, Graphite
3512 Furnace," approved 1997, referenced in Section 611.611.
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3514 ASTM Method D2972-03 B or C, "Standard Test Methods for
3515 Arsenic in Water," "Test Method B – Atomic Absorption, Hydride
3516 Generation" & "Test Method C – Atomic Absorption, Graphite
3517 Furnace," approved 2003, referenced in Section 611.611.
3518
3519 ASTM Method D2972-08 B or C, "Standard Test Methods for
3520 Arsenic in Water," "Test Method B – Atomic Absorption, Hydride
3521 Generation" & "Test Method C – Atomic Absorption, Graphite
3522 Furnace," approved 2008, referenced in Section 611.611.
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3524 ASTM Method D3223-97, "Standard Test Method for Total
3525 Mercury in Water," approved 1997, referenced in Section
3526 611.611.
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3528 ASTM Method D3223-02, "Standard Test Method for Total
3529 Mercury in Water," approved 2002, referenced in Section
3530 611.611.
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3532 ASTM Method D3223-12, "Standard Test Method for Total
3533 Mercury in Water," approved 2012, referenced in Section
3534 611.611.
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3536 ASTM Method D3454-97, "Standard Test Method for Radium-226
3537 in Water," approved 1997, referenced in Section 611.720.
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3539 ASTM Method D3454-05, "Standard Test Method for Radium-226
3540 in Water," approved 2005, referenced in Section 611.720.
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3542 ASTM Method D3559-96 D, "Standard Test Methods for Lead in
3543 Water," "Test Method D – Atomic Absorption, Graphite
3544 Furnace," approved August 6, 1990, referenced in Section
3545 611.611.
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3547	ASTM Method D3559-03 D, "Standard Test Methods for Lead in Water;" "Test Method D – Atomic Absorption, Graphite Furnace;" approved 2003, referenced in Section 611.611.
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3551	ASTM Method D3559-08 D, "Standard Test Methods for Lead in Water;" "Test Method D – Atomic Absorption, Graphite Furnace;" approved 2008, referenced in Section 611.611.
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3555	ASTM Method D3645-97 B, "Standard Test Methods for Beryllium in Water;" "Method B – Atomic Absorption, Graphite Furnace;" approved 1997, referenced in Section 611.611.
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3559	ASTM Method D3645-03 B, "Standard Test Methods for Beryllium in Water;" "Method B – Atomic Absorption, Graphite Furnace;" approved 2003, referenced in Section 611.611.
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3563	ASTM Method D3645-08 B, "Standard Test Methods for Beryllium in Water;" "Method B – Atomic Absorption, Graphite Furnace;" approved 2008, referenced in Section 611.611.
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3571	ASTM Method D3649-98a, "Standard Test Method for High-Resolution Gamma-Ray Spectrometry of Water;" approved 1998, referenced in Section 611.720.
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3575	ASTM Method D3649-06, "Standard Test Method for High-Resolution Gamma-Ray Spectrometry of Water;" approved 2006, referenced in Section 611.720.
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3585	ASTM Method D3697-07, "Standard Test Method for Antimony in Water;" approved 2007, referenced in Section 611.611.
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3588	<u>ASTM Method D3697-12, "Standard Test Method for Antimony in Water"</u> , approved 2012, referenced in Section 611.611.
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 3591 ASTM Method D3859-98 A and B, "Standard Test Methods for
 3592 Selenium in Water;" "Method A – Atomic Absorption, Hydride
 3593 Method" & "Method B – Atomic Absorption, Graphite Furnace;"
 3594 approved 1998, referenced in Section 611.611.

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 3596 ASTM Method D3859-03 A and B, "Standard Test Methods for
 3597 Selenium in Water;" "Method A – Atomic Absorption, Hydride
 3598 Method" & "Method B – Atomic Absorption, Graphite Furnace;"
 3599 approved 2003, referenced in Section 611.611.

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 3601 ASTM Method D3859-08 A and B, "Standard Test Methods for
 3602 Selenium in Water;" "Method A – Atomic Absorption, Hydride
 3603 Method" & "Method B – Atomic Absorption, Graphite Furnace;"
 3604 approved 2008, referenced in Section 611.611.

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 3606 ASTM Method D3867-90 A and B, "Standard Test Methods for
 3607 Nitrite-Nitrate in Water;" "Test Method A – Automated Cadmium
 3608 Reduction" & "Test Method B – Manual Cadmium Reduction;"
 3609 approved January 10, 1990, referenced in Section 611.611.

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 3611 ASTM Method D3972-97, "Standard Test Method for Isotopic
 3612 Uranium in Water by Radiochemistry;" approved 1997, referenced
 3613 in Section 611.720.

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 3615 ASTM Method D3972-02, "Standard Test Method for Isotopic
 3616 Uranium in Water by Radiochemistry;" approved 2002, referenced
 3617 in Section 611.720.

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 3619 ASTM Method D3972-09, "Standard Test Method for Isotopic
 3620 Uranium in Water by Radiochemistry;" approved 2009, referenced
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 3627 Drinking Water;" approved 1998, referenced in Section 611.720.

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 3629 ASTM Method D4107-08, "Standard Test Method for Tritium in
 3630 Drinking Water;" approved 2008, referenced in Section 611.720.

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 3632 ASTM Method D4327-97, "Standard Test Method for Anions in

3633	Water by Ion Chromatography," approved 1997, referenced in
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3635	ASTM Method D4327-03, "Standard Test Method for Anions in
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3637	Water by Ion Chromatography," approved 2003, referenced in
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3639	ASTM Method D4327-11, "Standard Test Method for Anions in
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3641	Water by Ion Chromatography," approved 2011, referenced in
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3643	ASTM Method D4785-93, "Standard Test Method for Low-Level
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3645	Iodine-131 in Water," approved 1993, referenced in Section
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3649	Low-Level Iodine-131 in Water," approved <u>2000</u> 1998, referenced
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3651	in Section 611.720.
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3653	ASTM Method D4785-08, "Standard Test Method for Low-Level
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3655	Iodine-131 in Water," approved 2008, referenced in Section
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 4150 Water by Liquid-Liquid Microextraction, Derivatization, and Gas
 4151 Chromatography with Electron Capture Detection", July 2003,
 4152 EPA 815/B-03/002, referenced in Sections 611.381 and 611.645.
 4153 See also USEPA, OGWDW and USEPA, NSCEP.

4154

4155 USEPA OGWDW Methods, Method 557, "Determination of
 4156 Haloacetic Acids, Bromate, and Dalapon in Drinking Water by Ion
 4157 Chromatography Electrospray Ionization Tandem Mass
 4158 Spectrometry", September 2009, EPA 815/B-09/012, referenced in
 4159 Sections 611.381, 611.382, and 611.645. (Search for
 4160 "815B09012".) See also USEPA, OGWDW and USEPA, NSCEP.

4161

4162 USEPA OGWDW Methods, Method 1622 (01), "Cryptosporidium
 4163 in Water by Filtration/IMS/FA", April 2001, EPA 821/R-01/026,
 4164 referenced in Section 611.1007. See also USEPA, OGWDW and
 4165 USEPA, NSCEP.

4166

4167 USEPA OGWDW Methods, Method 1623 (01), "Method 1623:
 4168 Cryptosporidium and Giardia in Water by Filtration/IMS/FA",
 4169 April 2001, EPA 821/R-01/025, referenced in Section 611.1007.
 4170 See also USEPA, OGWDW and USEPA, NSCEP.

4171

4172 USEPA Organic and Inorganic Methods, "Methods for the
 4173 Determination of Organic and Inorganic Compounds in Drinking
 4174 Water, Volume 1", August 2000, EPA 815/R-00/014, referenced in
 4175 Sections 611.381, 611.382, 611.611, and 611.645. (Methods 300.1
 4176 (rev. 1.0), 321.8 (rev. 1.0), and 515.3 (rev. 1.0) only.) (Individual
 4177 methods available by method number.) See also NEMI, NTIS, and
 4178 USEPA, NSCEP.

4179

4180 USEPA Organic Methods, "Methods for the Determination of
 4181 Organic Compounds in Drinking Water", December 1988, revised
 4182 July 1991, EPA 600/4-88/039, referenced in Sections 611.645 and
 4183 611.648 (Methods 508A (rev. 1.0) and 515.1 (rev. 4.0) only);
 4184 "Methods for the Determination of Organic Compounds in
 4185 Drinking Water – Supplement I", July 1990, EPA 600/4-90/020,
 4186 referenced in Sections 611.645 and 611.648 (Methods 547, 550,
 4187 and 550.1 only); "Methods for the Determination of Organic

4188 Compounds in Drinking Water – Supplement II", August 1992,
4189 EPA 600/R-92/129, referenced in Sections 611.381 and 611.645
4190 (Methods 548.1 (rev. 1.0), 552.1 (rev. 1.0), and 555 (rev. 1.0)
4191 only); "Methods for the Determination of Organic Compounds in
4192 Drinking Water – Supplement III", August 1995, EPA 600/R-
4193 95/131, referenced in Sections 611.381, 611.645, and 611.648
4194 (Methods 502.2 (rev. 2.1), 504.1 (rev. 1.1), 505 (rev. 2.1), 506
4195 (rev. 1.1), 507 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 515.2
4196 (rev. 1.1), 524.2 (rev. 4.1), 525.2 (rev. 2.0), 531.1 (rev. 3.1), 551.1
4197 (rev. 1.0), and 552.2 (rev. 1.0) only). (Individual methods
4198 available by method number.) See also NTIS; USEPA, EMSL;
4199 and USEPA, NSCEP.
4200
4201 USEPA Radioactivity Methods, "Prescribed Procedures for
4202 Measurement of Radioactivity in Drinking Water", August 1980,
4203 EPA 600/4-80/032, referenced in Section 611.720. (Methods
4204 900.0, 901.1, 903.0, 903.1, and 908.0 only.) (Individual methods
4205 available by method number.) See also NTIS and USEPA,
4206 NSCEP.
4207
4208 USEPA Radiochemistry Procedures, "Radiochemistry Procedures
4209 Manual", EPA 520/5-84-006, August 1984, Doc. No. PB84-
4210 215581, referenced in Section 611.720. (Methods 00-01, 00-02,
4211 00-07, H-02, Ra-03, Ra-04, Ra-05, Sr-04 only.) (Individual
4212 Methods Ra-04 and Sr-04 available by method number.) See also
4213 NTIS and USEPA, NSCEP.
4214
4215 NSF. National Sanitation Foundation International, 3475 Plymouth Road,
4216 PO Box 130140, Ann Arbor, Michigan 48113-0140 (734-769-8010).
4217
4218 NSF Standard 61, section 9, November 1998, referenced in
4219 Sections 611.126 and 611.356.
4220
4221 NTIS. National Technical Information Service, U.S. Department of
4222 Commerce, 5301 Shawnee Road, Alexandria, VA 22312 (703-605-6000
4223 or 800-553-6847, www.ntis.gov).
4224
4225 Aqueous Radiochemical Procedures, "Procedures for
4226 Radiochemical Analysis of Nuclear Reactor Aqueous Solutions",
4227 H.L. Krieger and S. Gold, EPA-R4-73-014, May 1973, Doc. No.
4228 PB222-154/7BA, referenced in Section 611.720. See also USEPA,
4229 EMSL and USEPA, NSCEP.
4230

- 4231 Dioxin and Furan Method 1613, ~~rev.~~Revision B, "Tetra- through
4232 Octa-Chlorinated Dioxins and Furans by Isotope Dilution
4233 HRGC/HRMS," October 1994, Revision B, EPA 821/B-94/005,
4234 Doc. No. 94-104774, referenced in Section 611.645. See also
4235 USEPA, NSCEP.
- 4236
4237 Kelada 01, "Kelada Automated Test Methods for Total Cyanide,
4238 Acid Dissociable Cyanide, and Thiocyanate," Revision 1.2,
4239 August 2001, EPA 821/B-01-009, referenced in Section 611.611.
- 4240
4241 NBS Handbook 69, "Maximum Permissible Body Burdens and
4242 Maximum Permissible Concentrations of Radionuclides in Air and
4243 in Water for Occupational Exposure," ~~NBS (National Bureau of~~
4244 ~~Standards) Handbook 69~~, as amended August 1963, U.S.
4245 Department of Commerce, referenced in Sections 611.101
4246 and Section 611.330.
- 4247
4248 "~~Procedures for Radiochemical Analysis of Nuclear Reactor~~
4249 ~~Aqueous Solutions~~," H.L. Krieger and S. Gold, EPA R4-73-014,
4250 May 1973, Doc. No. PB222-154/7BA, referenced in Section
4251 611.720.
- 4252
4253 USEPA Asbestos Method 100.1, "Analytical Method for
4254 Determination of Asbestos Fibers in Water," EPA 600/4-83-043,
4255 September 1983, Doc. No. PB83-260471, referenced in Section
4256 611.611. See also NEMI and USEPA, NSCEP.
- 4257
4258 USEPA Asbestos Method 100.2, "Determination of Asbestos
4259 Structures over 10-mm in Length in Drinking Water," EPA 600/R-
4260 94-134, June 1994, Doc. No. PB94-201902, referenced in Section
4261 611.611. See also NEMI and USEPA, NSCEP.
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4263 USEPA Environmental Inorganic Methods, "Methods for the
4264 Determination of Inorganic Substances in Environmental
4265 Samples," August 1993, EPA 600/R-93-100, Doc. No. PB94-
4266 121811, referenced in Sections 611.381, 611.531, and 611.611.
4267 (Methods 180.1 (rev. 2.0), 300.0 (rev. 2.1), 335.4 (rev. 1.0), 353.2
4268 (rev. 2.0), and 365.1 (rev. 2.0) only.) See also NEMI and USEPA,
4269 NSCEP.
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4271 USEPA Environmental Metals Methods, "Methods for the
4272 Determination of Metals in Environmental Samples – Supplement
4273 I," May 1994, EPA 600/R-94-111, Doc. No. PB95-125472,

4274 referenced in Sections 611.600, 611.611, 611.612, and 611.720.
 4275 (Methods 200.7 (rev. 4.4), 200.8 (rev. 5.3), 200.9 (rev. 2.2), and
 4276 245.1 (rev. 3.0) only.) See also NEMI and USEPA, NSCEP.
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 4278 USEPA Inorganic Methods, "Methods for Chemical Analysis of
 4279 Water and Wastes," March 1983, EPA 600/4-79-020, Doc. No.
 4280 PB84-128677, referenced in Section 611.611. (Methods 150.1,
 4281 150.2, and 245.2 only.) See also NEMI and USEPA, NSCEP.
 4282
 4283 USEPA Interim Radiochemical Methods, "Interim Radiochemical
 4284 Methodology for Drinking Water," EPA 600/4-75-008 (revised),
 4285 Doc. No. PB253258, March 1976, referenced in Section 611.720
 4286 (pages 1-3, 4-5, 6-8, 9-12, 13-15, 16-23, 24-28, 29-33, and 34-37
 4287 only). See also USEPA, EMSL and USEPA, NSCEP.
 4288
 4289 USEPA OGWDW Methods, Method 326.0, Revision 1.0,
 4290 "Determination of Inorganic Oxyhalide Disinfection By-Products
 4291 in Drinking Water Using Ion Chromatography Incorporating the
 4292 Addition of a Suppressor Acidified Postcolumn Reagent for Trace
 4293 Bromate Analysis," June 2002, EPA 815/R-03/007, Doc. No.
 4294 PB2003-107402, referenced in Sections 611.381 and 611.382. See
 4295 also NEMI; USEPA, NSCEP; and USEPA, OGWDW.
 4296
 4297 USEPA Organic and Inorganic Methods, "Methods for the
 4298 Determination of Organic and Inorganic Compounds in Drinking
 4299 Water, Volume 1," August 2000, EPA 815/R-00/014, Doc. No.
 4300 PB2000-106981, referenced in ~~Sections~~Section 611.381, 611.362,
 4301 611.611, and 611.645. (Methods ~~For methods~~ 300.1 (rev. 1.0),
 4302 321.8 (rev. 1.0), and 515.3 (rev. 1.0).) See also NEMI and USEPA,
 4303 NSCEP.
 4304
 4305 USEPA Organic Methods, "Methods for the Determination of
 4306 Organic Compounds in Drinking Water," December 1988 (revised
 4307 July 1991), EPA 600/4-88/039, Doc. No. PB91-231480, referenced
 4308 in Sections 611.645 and 611.648 (Methods 508A (rev. 1.0) and
 4309 515.1 (rev. 4.0) only); "Methods for the Determination of Organic
 4310 Compounds in Drinking Water – Supplement I," July 1990, EPA
 4311 600/4-90/020, Doc. No. PB91-146027, referenced in Section
 4312 611.645 (Methods 547, 550, and 550.1 only); "Methods for the
 4313 Determination of Organic Compounds in Drinking Water –
 4314 Supplement II," August 1992, EPA 600/R-92/129, Doc. No.
 4315 PB92-207703, referenced in Sections 611.381 and 611.645.
 4316 (Methods 548.1 (rev. 1.0), 552.1 (rev. 1.0), and 555 (rev. 1.0)

4317 only); and "Methods for the Determination of Organic Compounds
4318 in Drinking Water – Supplement III," August 1995, EPA 600/R-
4319 95/131, Doc. No. PB95-261616, referenced in Sections 611.381
4320 and 611.645, and 611.648 (Methods 502.2 (rev. 2.1), 504.1 (rev.
4321 1.1), 505 (rev. 2.1), 506 (rev. 1.1), 507 (rev. 2.1), 508 (rev. 3.1),
4322 508.1 (rev. 2.0), 515.2 (rev. 1.1), 524.2 (rev. 4.1), 525.2 (rev. 2.0),
4323 531.1 (rev. 3.1), 551.1 (rev. 1.0), and 552.2 (rev. 1.0) only.) See
4324 also NEMI; USEPA, EMSL; and USEPA, NSCEP.

4325

4326 USEPA Radioactivity Methods, "Prescribed Procedures for
4327 Measurement of Radioactivity in Drinking Water," EPA 600/4-
4328 80/032, August 1980, Doc. No. PB80-224744, referenced in
4329 Section 611.720 (Methods 900.0, 901.0, 901.1, 902.0, 903.0,
4330 903.1, 904.0, 905.0, 906.0, 908.0, 908.1 only). See also NEMI and
4331 USEPA, NSCEP.

4332

4333 USEPA Radiochemical Analyses, "Radiochemical Analytical
4334 Procedures for Analysis of Environmental Samples," March 1979,
4335 Doc. No. EMSL LV 053917, referenced in Section 611.720.
4336 (Pages 1-5, 19-32, 33-48, 65-73, 87-91, and 92-95 only.) Also
4337 available from USEPA, NSCEP.

4338

4339 USEPA Radiochemistry Procedures, "Radiochemistry Procedures
4340 Manual," EPA 520/5-84-006, August 1984, Doc. No. PB84-
4341 215581, referenced in Section 611.720. (Methods 00-01, 00-02,
4342 00-07, H-02, Ra-03, Ra-04, Ra-05, Sr-04 only.) See also NEMI
4343 and USEPA, NSCEP.

4344

4345 USEPA Technical Notes, "Technical Notes on Drinking Water
4346 Methods," EPA 600/R-94/173, October 1994, Doc. No. PB95-
4347 104766, referenced in Sections 611.531, 611.611, and 611.645.
4348 See also USEPA, NSCEP.

4349

4350 BOARD NOTE: USEPA made the following assertion with
4351 regard to this reference at 40 CFR 141.23(k)(1) and 141.24(e) and
4352 (n)(11) (2014): "This document contains other analytical test
4353 procedures and approved analytical methods that remain available
4354 for compliance monitoring until July 1, 1996." Also available
4355 online at <http://nepis.epa.gov/EPA/html/Pubs/pubtitleORD.htm>
4356 under the document designation "600R94173-".

4357

4358 New Jersey Department of Environment, Division of Environmental
4359 Quality, Bureau of Radiation and Inorganic Analytical Services, 9 Ewing

4360 Street, Trenton, NJ 08625.

4361
4362 New Jersey Radium Method, "Determination of Radium 228 in
4363 Drinking Water,", August 1990 (referred to as "New Jersey
4364 Radium Method"), referenced in Section 611.720.

4365
4366 New York Department of Health, Radiological Sciences Institute, Center
4367 for Laboratories and Research, Empire State Plaza, Albany, NY 12201.

4368
4369 New York Radium Method, "Determination of Ra-226 and Ra-228
4370 (Ra-02),", January 1980, Revised June 1982 (referred to as "New
4371 York Radium Method"), referenced in Section 611.720.

4372
4373 ORAU. Oak Ridge Associated Universities, MC100-44, PO Box 117,
4374 Oak Ridge, TN 37831-0117, telephone: 865-576-3146.

4375
4376 NBS Handbook 69, "Maximum Permissible Body Burdens and
4377 Maximum Permissible Concentrations of Radionuclides in Air and
4378 in Water for Occupational Exposure", August 1963, referenced in
4379 Sections 611.101 and 611.330. Internet link for document:
4380 www.ornl.gov/ptp/Library/NBS/NBS%2069.pdf. Also available
4381 from IAEA and NTIS.

4382 BOARD NOTE: The 1963 version of National Bureau of
4383 Standards Handbook 69 modifies the 1959 publication of the
4384 National Committee on Radiation Protection, NCRP Report No.
4385 22, of the same title. The version available on the NCRP website
4386 is the 1959 document.

4387
4388 Palintest, Ltd., 1455 Jamike Avenue, Suite 100, Erlanger, KY (800-835-
4389 9629).

4390
4391 ChlordioX Plus Test, "Chlorine Dioxide and Chlorite in Drinking
4392 Water by Amperometry using Disposable Sensors,", November
4393 2013, referenced in Sections 611.381 and 611.531.

4394
4395 Palintest Method 1001, "Method 1001: Lead in Drinking Water by
4396 Differential Pulse Anodic Stripping Voltammetry," Method 1001,
4397 August 1999, referenced in Section 611.611.

4398
4399 Palintest ChloroSense, "Measurement of Free and Total Chlorine
4400 in Drinking Water by Palintest ChloroSense,", September 2009
4401 (referred to as "Palintest ChloroSense"), referenced in Sections
4402 611.381 and 611.531. See also NEMI.

4403
4404 Standard Methods Online, available online from the Standard Methods
4405 Organization at www.standardmethods.org.
4406

4407 Method 3113 B-04, Metals by Electrothermal Atomic Absorption
4408 Spectrometry, Electrothermal Atomic Absorption Spectrometric
4409 Method, referenced in Sections 611.611 and 611.612.
4410

4411 Method 9230 B-04, Fecal Streptococcus and Enterococcus Groups,
4412 Multiple Tube Techniques, referenced in Section 611.802.
4413

4414 BOARD NOTE: Where, in appendix A to subpart C of 40 CFR
4415 141 (2014), USEPA has authorized use of an approved alternative
4416 method from Standard Methods Online, and that version of the
4417 method appears also in Standard Methods, 21st or 22nd ed., the
4418 Board cites only to Standard Methods, 21st or 22nd ed. for that
4419 method. The methods that USEPA listed as available from
4420 Standard Methods Online, and which are listed above as in
4421 Standard Methods, 21st or 22nd edition, are the following: 2320 B-
4422 97 (for alkalinity), 3112 B-09 (for mercury), 3114 B-09 (for
4423 arsenic and selenium), 4500-P E-99 and 4500-P F-99; (for
4424 orthophosphate); 4500-SO₄⁻² C-97, 4500-SO₄⁻² D-97, 4500-SO₄⁻²
4425 E-97, and 4500-SO₄⁻² F-97 (for sulfate); 6640 B-01 (for 2,4-D,
4426 2,4,5-TP (silvex), dalapon, dinoseb, pentachlorophenol, and
4427 picloram); 5561 B-00 (for glyphosate); and 9223 B-97 (for E. coli).
4428 Since each method is the same version from both sources, the
4429 Board views a copy from Standard Methods Online as equivalent
4430 to a copy from Standard Methods Online, even though the Board
4431 does not also cite to Standard Methods Online. The Board intends
4432 that use of the version of the method that is incorporated by
4433 reference is acceptable from either source.
4434

4435 SWAN Analytische Instrumente AG, Studbachstrasse 13, CH-8340,
4436 Hinwil, Switzerland.
4437

4438 AMI Turbiwell Method, "Continuous Measurement of Turbidity
4439 Using a SWAN AMI Turbiwell Turbidimeter," August 2009,
4440 referenced in Section 611.531. See also NEMI.
4441

4442 Superior Enzymes, Inc., 334 Hecla Street, Lake Linden, Michigan
4443 49945 (906-296-1115).
4444

4445 NECI Nitrate Reductase Method, "Method for Nitrate Reductase
4446 Nitrate-Nitrogen Analysis of Drinking Water", ver. 1.0, rev. 2.0,
4447 February 2016, referenced in Section 611.611.
4448

4449 Syngenta Crop Protection, Inc., 410 Swing Road, Post Office Box 18300,
4450 Greensboro, NC 27419 (336-632-6000).
4451

4452 Syngenta AG-625, "Atrazine in Drinking Water by
4453 Immunoassay", February 2001 (referred to as "Syngenta AG-
4454 625"), referenced in Section 611.645.
4455

4456 Systea Scientific LLC, 900 Jorie Blvd., Suite 35, Oak Brook, IL 60523
4457 (630-645-0600).
4458

4459 Systea Easy (1-Reagent), "Systea Easy (1-Reagent) Nitrate
4460 Method", February 2009, referenced in Section 611.611. See also
4461 NEMI.
4462

4463 Thermo-FisherThermo Scientific, 168 Third Ave, Waltham, 166
4464 Cummings Center, Beverly, MA 0245101915 (800-556-2323800-225-
4465 1480 or www.thermofisher.comwww.thermo.com).
4466

4467 Orion Method AQ4500, "Determination of Turbidity by LED
4468 Nephelometry", May 2009, referenced in Section 611.531. See
4469 also NEMI.
4470

4471 Technical Bulletin 601, "Standard Method of Testing for Nitrate in
4472 Drinking Water", July, 1994, PN 221890-001 (referred to as
4473 "Technical Bulletin 601"), referenced in Section 611.611.
4474

4475 Thermo-Fisher Scientific, Ratastie 2, 01620 Vantaa, Finland.
4476

4477 Thermo-Fisher Discrete Analyzer, "Thermo Fisher Scientific
4478 Drinking Water Orthophosphate Method for Thermo Scientific
4479 Gallery Discrete Analyzer", February 2016, rev. 5, referenced in
4480 Section 611.611.
4481

4482 USDHS, STD. United States Department of Homeland Security, Science
4483 and Technology Directorate (formerly United States Department of
4484 Energy, Environmental Measurements Laboratory), currently available on-
4485 line in the 28th edition only, at www.hSDL.org/?abstract&doc=100185
4486 &coll=limited.www.nbl.doe.gov/EML_Legacy_Website/proeman.htm.
4487 See also USDOE, EML.

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"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 (28th ed.), "EML Procedures Manual," HASL 300, 28th ed., 1997 (Methods Ga-01-R, Ra-04, Sr-01, Sr-02, U-02, and U-04 only)(referred to as "EML Procedures Manual (28th ed.)"), referenced in Section 611.720.

USDOE, EML. United States Department of Energy, Environmental Measurements Laboratory (United States Department of Homeland Security, Science and Technology Directorate, since 2003), currently available on-line in the 28th edition only, at www.wipp.energy.gov/namp/emllegacy/procman.htm. See also USDHS, STD.

EML Procedures Manual (27th ed.), "EML Procedures Manual", HASL 300, 27th Edition, Volume 1, 1990 (Methods Ga-01-R, Ra-04, Sr-01, Sr-02, U-02, and U-04 only), referenced in Section 611.720.

EML Procedures Manual (28th ed.), "EML Procedures Manual", HASL 300, 28th ed., 1997 (Methods Ga-01-R, Ra-04, Sr-01, Sr-02, U-02, and U-04 only), referenced in Section 611.720.

BOARD NOTE: Although only the 28th edition is currently available, USEPA has approved use of the methods from the 27th edition also. The Board has retained the reference to the 27th edition for the benefit of any laboratory that may be using that edition.

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

Aqueous Radiochemical Procedures, "Procedures for Radiochemical Analysis of Nuclear Reactor Aqueous Solutions", EPA-R4-73-014, May 1973, referenced in Section 611.720. See also NTIS and USEPA, NSCEP.

USEPA Interim Radiochemical Methods, "Interim Radiochemical Methodology for Drinking Water," EPA 600/4-75/008 (revised), March 1976, referenced in Section 611.720 (pages 1-3, 4-5, 6-8, 9-

4530 12, 13-15, 16-23, 24-28, 29-33, and 34-37 only). See also NTIS
 4531 and USEPA, NSCEP.
 4532
 4533 USEPA Organic Methods, "Methods for the Determination of
 4534 Organic Compounds in Drinking Water," December 1988 (revised
 4535 July 1991), EPA 600/4-88/039, referenced in Sections 611.645 and
 4536 611.648 (Methods 508A (rev. 1.0) and 515.1 (rev. 4.0) only);
 4537 "Methods for the Determination of Organic Compounds in
 4538 Drinking Water – Supplement I," July 1990, EPA 600/4-90/020,
 4539 referenced in ~~Section~~Sections 611.645 and 611.648 (Methods 547,
 4540 550, and 550.1 only); "Methods for the Determination of Organic
 4541 Compounds in Drinking Water – Supplement II," August 1992,
 4542 EPA 600/R-92/129, referenced in Sections 611.381 and 611.645
 4543 (Methods 548.1 (rev. 1.0), 552.1 (rev. 1.0), and 555 (rev. 1.0)
 4544 only); "Methods for the Determination of Organic Compounds in
 4545 Drinking Water – Supplement III," August 1995, EPA 600/R-
 4546 95/131, referenced in Sections 611.381 ~~and~~, 611.645, ~~and~~ 611.648
 4547 (Methods 502.2 (rev. 2.1), 504.1 (rev. 1.1), 505 (rev. 2.1), 506 (rev.
 4548 1.1), 507 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 515.2 (rev. 1.1
 4549 4.1), 524.2 (rev. 4.1), 525.2 (rev. 2.0), 531.1 (rev. 3.1), 551.1 (rev.
 4550 1.0), and 552.2 (rev. 1.0) only). See also NEMI; NTIS; and
 4551 USEPA, NSCEP.
 4552
 4553 ~~"Procedures for Radiochemical Analysis of Nuclear Reactor~~
 4554 ~~Aqueous Solutions," EPA R4-73-014, May 1973, referenced in~~
 4555 ~~Section 611.720. See also NTIS.~~
 4556
 4557 USEPA, NSCEP. United States Environmental Protection Agency,
 4558 National Service Center for Environmental Publications, P.O. Box 42419,
 4559 Cincinnati, OH 45242-0419 (except for OGWDW Method 1622 (99),
 4560 accessible on-line and available by download from [http://www.epa.](http://www.epa.gov/nscep/)
 4561 [gov/nscep/](http://www.epa.gov/nscep/) using the search term indicated for the individual method).
 4562
 4563 Aqueous Radiochemical Procedures, "Procedures for
 4564 Radiochemical Analysis of Nuclear Reactor Aqueous Solutions",
 4565 EPA-R4-73-014, May 1973, referenced in Section 611.720.
 4566 (Search for "R473014".) See also NTIS and USEPA, EMSL.
 4567
 4568 Dioxin and Furan Method 1613, ~~rev. Revision~~ B, "Tetra- through
 4569 Octa-Chlorinated Dioxins and Furans by Isotope Dilution
 4570 HRGC/HRMS," October 1994, EPA 821/B-94/005, referenced in
 4571 Section 611.645. (Search for "821B94005".) See also NEMI and
 4572 NTIS.

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- 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 and 611.212. (Search for "570391001".)
- 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. (Search for "600483043".) See also NEMI and 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. (Search for "600R94134".) See also NEMI and NTIS.
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 4638 [1602ap01.pdf](http://www.epa.gov/nerlcwww/1602ap01.pdf)), referenced in Section 611.802. (Search for
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4651 USEPA NERL Method 200.5, rev. 4.2, "Determination of Trace
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 4653 Coupled Plasma-Atomic Emission Spectrometry", October 2003,
 4654 EPA 600/R-06/115, referenced in Sections 611.611 and 611.612.
 4655 (Search for "600R06115".) See also NEMI and USEPA, ORD.

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4659 Water and Drinking Water", February 2005, EPA 600/R-05/055,
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 4661 also USEPA, ORD.
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 4672 Spectrometry (GC/MS)", February 2012, EPA 600/R-12/010,
 4673 referenced in Section 611.645. (Search for "600R12010".) See
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 4678 Chromatography with Suppressed Conductivity Detection;,
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4702 Detection by Visible Spectrophotometry," May 2005, EPA 815/R-
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 4731 OGWDW.

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4757 Chromatography with Electron Capture Detection," July 2003,
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4764 Chromatography Electrospray Ionization Tandem Mass
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 4825 (rev. 2.0), 515.2 (rev. 1.1), 524.2 (rev. 4.1), 525.2 (rev. 2.0),
 4826 531.1 (rev. 3.1), 551.1 (rev. 1.0), and 552.2 (rev. 1.0) only) (search
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 4849 (n)(11) (2014): "This document contains other analytical test
 4850 procedures and approved analytical methods that remain available
 4851 for compliance monitoring until July 1, 1996." ~~Also available~~
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 4856 Office of Ground Water and Drinking Water (accessible on-line and
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 4859 ~~safewater/methods/~~).

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 4863 Chromatography with Suppressed Conductivity Detection,"
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4885 Detection by Visible Spectrophotometry," USEPA, May 2005,
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4895 "Determination of Chlorinated Acids in Drinking Water by Liquid-
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4900 NSCEP.

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4905 February 2011, EPA 815/B-09/009815/R-11/002, referenced in
4906 Section 611.645. See also NEMI and USEPA, NSCEP.

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4911 June 2009, EPA 815/B-09/009, referenced in Sections 611.381 and
4912 611.645.

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 4927 USEPA OGWDW Methods, Method 536, ver. 1.0, "Determination
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 4929 Liquid Chromatography Electrospray Ionization Tandem Mass
 4930 Spectrometry (LC/ESI-MS/MS)," October 2007, EPA 815/B-
 4931 07/002~~815/R-07/002~~, referenced in Section 611.645. See also
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 4950 2005, EPA 815/R-05/001, referenced in Sections 611.1004 and
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- 4965 611.1004 and 611.1007. See also USEPA, NSCEP.
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- 4973 Cryptosporidium and Giardia in Water by Filtration/IMS/FA₅",
- 4974 January 1999, EPA 821/R-99/006, referenced in Section 611.1007.
- 4975 See also USEPA, NSCEP.
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- 4977 USEPA OGWDW Methods, Method 1623.1, "Method 1623.1:
- 4978 Cryptosporidium and Giardia in Water by Filtration/IMS/FA₅",
- 4979 January 2012, EPA 816/R-12/001, referenced in Section 611.1004.
- 4980 See also USEPA, NSCEP.
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- 4982 BOARD NOTE: Many of the above-listed documents available from the
- 4983 USEPA, Office of Ground Water and Drinking Water are also listed as
- 4984 available from USEPA, NSCEP and NTIS.
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- 4986 USEPA, ORD. USEPA, Office of Research and Development, National
- 4987 Exposure Research Laboratory, Microbiological & Chemical Exposure
- 4988 Assessment Research Division (accessible on-line and available by
- 4989 download from www.epa.gov/water-research/epa-drinking-water-
- 4990 researchmethods, with the exception of USEPA NERL Method 549.2, rev.
- 4991 1.0 <http://www.epa.gov/nerlewww/ordmeth.htm>).
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- 4993 USEPA NERL Method 200.5, rev. 4.2, "Determination of Trace
- 4994 Elements in Drinking Water by Axially Viewed Inductively
- 4995 Coupled Plasma – Atomic Emission Spectrometry₅", October
- 4996 2003, EPA 600/R-06/115, referenced in Sections 611.611 and
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5013 Spectrometry (GC/MS)," February 2012, EPA 600/R-12/010,
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5022 USEPA, Water Resource Center (RC-4100T), 1200 Pennsylvania Avenue,
5023 NW, Washington, DC 20460:
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5025 E*Colite Test, "Charm E*Colite Presence/Absence Test for
5026 Detection and Identification of Coliform Bacteria and Escherichia
5027 coli in Drinking Water," January 9, 1998, referenced in Sections
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5030 m-ColiBlue24 Test, "Total Coliforms and E. coli Membrane
5031 Filtration Method with m-ColiBlue24® Broth," Method No.
5032 10029, rev. 2, August 17, 1999, referenced in Sections 611.802 and
5033 611.1052. See also The Hach Company.
5034
5035 USEPA Method 1600, "Method 1600: Enterococci in Water by
5036 Membrane Filtration Using Membrane-Enterococcus Indoxyl-b-D-
5037 Glucoside Agar (mEI)," September 2002, EPA 821/R-02/022 is an
5038 approved variation of Standard Methods, Method 9230 C, "Fecal
5039 Streptococcus and Enterococcus Groups, Membrane Filter
5040 Techniques" (which has not itself been approved for use by
5041 USEPA) (accessible on-line and available by download from

5042 <http://www.epa.gov/nerlcwww/1600sp02.pdf>), referenced in
5043 Section 611.802. See also USEPA, NSCEP.

5044
5045 USEPA Method 1601, "Method 1601: Male-specific (F⁺) and
5046 Somatic Coliphage in Water by Two-step Enrichment Procedure,"
5047 April 2001, EPA 821/R-01/030 (accessible on-line and available
5048 by download from <http://www.epa.gov/nerlcwww/1601ap01.pdf>),
5049 referenced in Section 611.802. See also USEPA, NSCEP.

5050
5051 USEPA Method 1602, "Method 1602: Male-specific (F⁺) and
5052 Somatic Coliphage in Water by Single Agar Layer (SAL)
5053 Procedure," April 2001, EPA 821/R-01/029 (accessible on-line
5054 and available by download from
5055 <http://www.epa.gov/nerlcwww/1602ap01.pdf>), referenced in
5056 Section 611.802. See also USEPA, NSCEP.

5057
5058 USEPA Method 1604, "Method 1604: Total Coliforms and
5059 Escherichia coli in Water by Membrane Filtration Using a
5060 Simultaneous Detection Technique (MI Medium)," September
5061 2002, EPA 821/R-02/024 (accessible on-line and available by
5062 download from <http://www.epa.gov/nerlcwww/1604sp02.pdf>),
5063 referenced in Sections 611.802 and 611.1052. See also USEPA,
5064 NSCEP.

5065
5066 USGS. United States Geological Survey, Federal Center, Box 25286,
5067 Denver, CO 80225-0425.

5068
5069 Open File Report 93-125, methodMethod available upon request
5070 by method number from "Methods for Analysis by the U.S.
5071 Geological Survey National Water Quality Laboratory –
5072 Determination of Inorganic and Organic Constituents in Water and
5073 Fluvial Sediments," Open File Report 93-125, 1993 (referred to as
5074 "USGS Methods"). Available on-line as a digital document at
5075 <https://pubs.usgs.gov/of/1993/0125/report.pdf>.

5076
5077 USGS Method I-2601-90, referenced in Section 611.611.

5078
5079 USGS Techniques of Water-Resource Investigation: 05-A1,
5080 methodsMethods available upon request by method number from
5081 Book 5, Chapter A-1, "Methods for Determination of Inorganic
5082 Substances in Water and Fluvial Sediments," 3rd ed., USGS
5083 Techniques of Water-Resource Investigation: 05-A1, 1989
5084 (referred to as "USGS Methods"). Available on-line as a digital

5085 document at [https://pubs.usgs.gov/twri/twri5-a#/pdf/TWRI_5-](https://pubs.usgs.gov/twri/twri5-a#/pdf/TWRI_5-A1.pdf)
 5086 [A1.pdf](https://pubs.usgs.gov/twri/twri5-a#/pdf/TWRI_5-A1.pdf).

5087
 5088 USGS Method I-1030-85, "Alkalinity, electrometric
 5089 titration", I-1030-85, referenced in Section 611.611.

5090
 5091 USGS Method I-1601-85, "Phosphorus, orthophosphate,
 5092 colorimetric, phosphomolybdate", I-1601-85, referenced in
 5093 Section 611.611.

5094
 5095 USGS Method I-1700-85, "Silica, colorimetric, molybdate
 5096 blue", I-1700-85, referenced in Section 611.611.

5097
 5098 USGS Method I-2598-85, "Phosphorus, orthophosphate,
 5099 colorimetric, phosphomolybdate, automated-discrete", I-
 5100 2598-85, referenced in Section 611.611.

5101
 5102 USGS Method I-2700-85, "Silica, colorimetric, molybdate
 5103 blue, automated-segmented flow", I-2700-85, referenced in
 5104 Section 611.611.

5105
 5106 USGS Method I-3300-85, "Cyanide, colorimetric, pyridine-
 5107 pyrazolone", I-3300-85, referenced in Section 611.611.

5108
 5109 USGS Techniques of Water-Resource Investigation: 05-A5,
 5110 methods available upon request by method number from
 5111 Book 5, Chapter A-5, "Methods for Determination of Radioactive
 5112 Substances in Water and Fluvial Sediments", Chapter A5 in Book
 5113 5 of "Techniques of Water Resources Investigations of the United
 5114 States Geological Survey," 1977. Available on-line as a digital
 5115 document at [https://pubs.usgs.gov/twri/twri5a5/pdf/TWRI_5-](https://pubs.usgs.gov/twri/twri5a5/pdf/TWRI_5-A5.pdf)
 5116 [A5.pdf](https://pubs.usgs.gov/twri/twri5a5/pdf/TWRI_5-A5.pdf).

5117
 5118 USGS Method R-1110-76, "Cesium-137 and cesium-134,
 5119 dissolved. Inorganic ion-exchange method – gamma
 5120 counting", R-1110-76, referenced in Section 611.720.

5121
 5122 USGS Method R-1111-76, "Radiocesium, dissolved, as
 5123 cesium-137. Inorganic ion-exchange method – beta
 5124 counting", R-1111-76, referenced in Section 611.720.

5125
 5126 USGS Method R-1120-76, "Gross alpha and beta
 5127 radioactivity, dissolved and suspended", R-1140-76,

5128 referenced in Section 611.720.

5129
5130 USGS Method R-1140-76, "Radium, dissolved, as radium-
5131 226. Precipitation method", R-1140-76, referenced in
5132 Section 611.720.

5133
5134 USGS Method R-1141-76, "Radium-226, dissolved. Radon
5135 emanation method", R-1141-76, referenced in Section
5136 611.720.

5137
5138 USGS Method R-1142-76, "Radium-228, dissolved.
5139 Determination by separation and counting of actinium-
5140 228", R-1142-76, referenced in Section 611.720.

5141
5142 USGS Method R-1160-76, "Strontium-90, dissolved.
5143 Chemical separation and precipitation method", R-1160-76,
5144 referenced in Section 611.720.

5145
5146 USGS Method R-1171-76, "Tritium. Liquid scintillation,
5147 Denver lab method – gamma counting", R-1171-76,
5148 referenced in Section 611.720.

5149
5150 USGS Method R-1180-76, "Uranium, dissolved.
5151 Fluorometric method – direct", R-1180-76, referenced in
5152 Section 611.720.

5153
5154 USGS Method R-1181-76, "Uranium, dissolved.
5155 Fluorometric method – R-1181-76, referenced in Section
5156 611.720.

5157
5158 USGS Method R-1182-76, "Uranium, dissolved, isotopic
5159 ratios. Alpha spectrometry – chemical separation", R-1182-
5160 76, referenced in Section 611.720.

5161
5162 BOARD NOTE: USGS methods are freely available for download
5163 in an electronic format from the USGS Publications Warehouse, at
5164 pubs.er.usgs.gov/. Sections 611.611 and 611.720 do not
5165 distinguish the volume in which each USGS method appears. The
5166 distinction as to which volume where a particular method appears
5167 is made in this incorporation by reference.

5168
5169 Veolia Water Solutions and Technologies, Suite 4697, Biosciences
5170 Complex, 116 Barrie Street, Kingston, Ontario, Canada K7L 3N6.

5171
5172 "Tecta EC/TC P-A Test, "TECTA™ EC/TC medium and the
5173 TECTA™ Instrument: a Presence/Absence Method for
5174 Simultaneous Detection of Total Coliforms and Escherichia coli
5175 (E. coli) in Drinking Water," April 2014, referenced in Sections
5176 611.802 and 611.1052~~Section 611.526~~.

5177
5178 Waters Corporation, Technical Services Division, 34 Maple St., Milford,
5179 MA 01757 (800-252-4752 or 508-478-2000, www.waters.com).

5180
5181 Waters Method B-1011, "Waters Test Method for Determination
5182 of Nitrite/Nitrate in Water Using Single Column Ion
5183 Chromatography," Method B-1011, August 1987 (~~referred to as~~
5184 ~~"Waters Method B-1011"~~), referenced in Section 611.611.

5185
5186 c) The Board incorporates the following federal regulations by reference:

5187
5188 40 CFR 3.2 (2014) (~~How Does This Part Provide for Electronic~~
5189 ~~Reporting?~~), referenced in Section 611.105.

5190
5191 40 CFR 3.3 (2016)(2014) (What Definitions Are Applicable to This
5192 Part?), referenced in Section 611.105.

5193
5194 40 CFR 3.10 (2016)(2014) (What Are the Requirements for Electronic
5195 Reporting to EPA?), referenced in Section 611.105.

5196
5197 40 CFR 3.2000 (2016)(2014) (What Are the Requirements Authorized
5198 State, Tribe, and Local Programs' Reporting Systems Must Meet?),
5199 referenced in Section 611.105.

5200
5201 40 CFR 136.3(a) (2016)(2014), referenced in Section 611.1004.

5202
5203 Appendix B to 40 CFR 136 (2016)(2014), referenced in Sections 611.359,
5204 611.609, and 611.646.

5205
5206 40 CFR 142.20(b)(1) (2016)(2014), referenced in Section 611.112.

5207
5208 Subpart G of 40 CFR 142 (2016)(2014), referenced in Section 611.113.

5209
5210 d) This Part incorporates no later amendments or editions.

5211
5212 (Source: Amended at 41 Ill. Reg. _____, effective _____)

5213

5214 **Section 611.105 Electronic Reporting**
 5215

5216 The submission of any document pursuant to any provision of this Part as an electronic
 5217 document in lieu of a paper document is subject to this Section.
 5218

5219 a) Scope and Applicability.
 5220

5221 1) The USEPA, the Board, or the Agency may allow for the submission of
 5222 electronic documents in lieu of paper documents. This Section does not
 5223 require submission of electronic documents in lieu of paper documents.
 5224 This Section sets forth the requirements for the optional electronic
 5225 submission of any document that must be submitted to the appropriate of
 5226 the following:
 5227

5228 A) To USEPA directly under Title 40 of the Code of Federal
 5229 Regulations; or
 5230

5231 B) To the Board or the Agency pursuant to any provision of 35 Ill.
 5232 Adm. Code 702 through 705, 720 through 728, 730, 733, 738, or
 5233 739.
 5234

5235 2) Electronic document submission under this Section can occur only as
 5236 follows:
 5237

5238 A) For submissions of documents to USEPA, submissions may occur
 5239 only after USEPA has published a notice in the Federal Register
 5240 announcing that USEPA is prepared to receive, in an electronic
 5241 format, documents required or permitted by the identified part or
 5242 subpart of Title 40 of the Code of Federal Regulations; or
 5243

5244 B) For submissions of documents to the State, submissions may occur
 5245 only under the following circumstances: the Board or the Agency
 5246 may use any electronic document receiving system for which
 5247 USEPA has granted approval pursuant to 40 CFR 3.1000, so long
 5248 as the system complies with 40 CFR 3.2000, incorporated by
 5249 reference in Section 611.102(c), and USEPA has not withdrawn its
 5250 approval of the system in writing.
 5251

5252 i) ~~As to any existing electronic document receiving system~~
 5253 ~~(i.e., one in use or substantially developed on or before~~
 5254 ~~October 13, 2005) for which an electronic reporting~~
 5255 ~~application has not been submitted on behalf of the Board~~
 5256 ~~or the Agency to USEPA pursuant to 40 CFR 3.1000, the~~

- 5257 Board or the Agency may use that system until October 13,
 5258 2007, or until such later date as USEPA has approved in
 5259 writing as the extended deadline for submitting the
 5260 application;
- 5261
- 5262 ii) ~~As to any existing electronic document receiving system~~
 5263 ~~(i.e., one in use or substantially developed on or before~~
 5264 ~~October 13, 2005) for which an electronic reporting~~
 5265 ~~application has been submitted on behalf of the Board or~~
 5266 ~~the Agency to USEPA pursuant to 40 CFR 3.1000 on or~~
 5267 ~~before October 13, 2007, or on or before such later date as~~
 5268 ~~USEPA has approved in writing as the extended deadline~~
 5269 ~~for submitting the application, the Board or the Agency~~
 5270 ~~may use that system until USEPA disapproves its use in~~
 5271 ~~writing; or~~
- 5272
- 5273 iii) ~~The Board or the Agency may use any electronic document~~
 5274 ~~receiving system for which USEPA has granted approval~~
 5275 ~~pursuant to 40 CFR 3.1000, so long as the system complies~~
 5276 ~~with 40 CFR 3.2000, incorporated by reference in Section~~
 5277 ~~611.102(e), and USEPA has not withdrawn its approval of~~
 5278 ~~the system in writing.~~
- 5279
- 5280 3) This Section does not apply to any of the following documents, whether or
 5281 not the document is a document submitted to satisfy the requirements cited
 5282 in subsection (a)(1) of this Section:
- 5283
- 5284 A) Any document submitted via facsimile;
- 5285
- 5286 B) Any document submitted via magnetic or optical media, such as
 5287 diskette, compact disc, digital video disc, or tape; or
- 5288
- 5289 C) Any data transfer between USEPA, any state, or any local
 5290 government and either the Board or the Agency as part of
 5291 administrative arrangements between the parties to the transfer to
 5292 share data.
- 5293
- 5294 4) Upon USEPA conferring written approval for the submission of any types
 5295 of documents as electronic documents in lieu of paper documents, as
 5296 described in subsection (a)(2)(B)(iii) of this Section, the Agency or the
 5297 Board, as appropriate, must publish a Notice of Public Information in the
 5298 Illinois Register that describes the documents approved for submission as
 5299 electronic documents, the electronic document receiving system approved
 5300 to receive them, the acceptable formats and procedures for their

5301 submission, and, as applicable, the date on which the Board or the Agency
5302 will begin to receive those submissions. In the event of written cessation
5303 of USEPA approval for receiving any type of document as an electronic
5304 document in lieu of a paper document, the Board or the Agency must
5305 similarly cause publication of a Notice of Public Information in the Illinois
5306 Register.

5307
5308 BOARD NOTE: Subsection (a) ~~of this Section~~ is derived from 40 CFR 3.1, 3.2,
5309 3.10, 3.20, and 3.1000 ~~(2016)(2010)~~.

5310
5311 b) Definitions. For the purposes of this Section, terms will have the meaning
5312 attributed them in 40 CFR 3.3, incorporated by reference in 35 Ill. Adm. Code
5313 611.102(c).

5314
5315 c) Procedures for submission of electronic documents in lieu of paper documents to
5316 USEPA. Except as provided in subsection (a)(3) ~~of this Section~~, any person who
5317 is required under Title 40 of the Code of Federal Regulations to create and submit
5318 or otherwise provide a document to USEPA may satisfy this requirement with an
5319 electronic document, in lieu of a paper document, provided the following
5320 conditions are met:

- 5321
5322 1) The person satisfies the requirements of 40 CFR 3.10, incorporated by
5323 reference in Section 611.102(c); and
5324
5325 2) USEPA has first published a notice in the Federal Register as described in
5326 subsection (a)(2)(A) ~~of this Section~~.

5327
5328 BOARD NOTE: Subsection (c) ~~of this Section~~ is derived from 40 CFR 3.2(a)
5329 and subpart B of 40 CFR 3 ~~(2016)(2010)~~.

5330
5331 d) Procedures for submission of electronic documents in lieu of paper documents to
5332 the Board or the Agency.

- 5333
5334 1) The Board or the Agency may, but is not required to, establish procedural
5335 rules for the electronic submission of documents. The Board or the
5336 Agency must establish any such procedural rules under the Administrative
5337 Procedure Act [5 ILCS 100/Art. 5].

- 5338
5339 2) The Board or the Agency may accept electronic documents under this
5340 Section only as provided in subsection (a)(2)(B) ~~of this Section~~.

5341
5342 BOARD NOTE: Subsection (d) ~~of this Section~~ is derived from 40 CFR 3.2(b)
5343 and subpart D of 40 CFR 3 ~~(2016)(2010)~~.

- 5344
5345 e) Effects of submission of an electronic document in lieu of paper documents.
5346
5347 1) If a person who submits a document as an electronic document fails to
5348 comply with the requirements of this Section, that person is subject to the
5349 penalties prescribed for failure to comply with the requirement that the
5350 electronic document was intended to satisfy.
5351
5352 2) Where a document submitted as an electronic document to satisfy a
5353 reporting requirement bears an electronic signature, the electronic
5354 signature legally binds, obligates, and makes the signer responsible to the
5355 same extent as the signer's handwritten signature would on a paper
5356 document submitted to satisfy the same reporting requirement.
5357
5358 3) Proof that a particular signature device was used to create an electronic
5359 signature will suffice to establish that the individual uniquely entitled to
5360 use the device did so with the intent to sign the electronic document and
5361 give it effect.
5362
5363 4) Nothing in this Section limits the use of electronic documents or
5364 information derived from electronic documents as evidence in
5365 enforcement or other proceedings.
5366

5367 BOARD NOTE: Subsection (e) of this Section is derived from 40 CFR 3.4 and
5368 3.2000(c) (2016)(2010).
5369

- 5370 f) Public document subject to State laws. Any electronic document filed with the
5371 Board is a public document. The document, its submission, its retention by the
5372 Board, and its availability for public inspection and copying are subject to various
5373 State laws, including, but not limited to, the following:
5374
5375 1) The Administrative Procedure Act [5 ILCS 100];
5376
5377 2) The Freedom of Information Act [5 ILCS 140];
5378
5379 3) The State Records Act [5 ILCS 160];
5380
5381 4) The Electronic Commerce Security Act [5 ILCS 175];
5382
5383 5) The Environmental Protection Act [415 ILCS 5];
5384
5385 6) Regulations relating to public access to Board records (2 Ill. Adm. Code
5386 2175); and

- 5387
5388 7) Board procedural rules relating to protection of trade secrets and
5389 confidential information (35 Ill. Adm. Code 130).
5390
5391 g) Nothing in this Section or in any provisions adopted pursuant to subsection (d)(1)
5392 of this Section will create any right or privilege to submit any document as an
5393 electronic document.
5394

5395 BOARD NOTE: Subsection (g) of this Section is derived from 40 CFR 3.2(c)
5396 (2016)(2010).

5397
5398 BOARD NOTE: Derived from 40 CFR 3, as added, and 40 CFR 142.10(g)
5399 (2016)(2010).

5400
5401 (Source: Amended at 41 Ill. Reg. _____, effective _____)
5402

5403 **Section 611.108 Delegation to Local Government**
5404

5405 The Agency may delegate portions of its inspection, investigating and enforcement functions to
5406 units of local government pursuant to Section 4(r) of the Act [415 ILCS 5/4(r)].
5407

5408 (Source: Amended at 41 Ill. Reg. _____, effective _____)
5409

5410 **Section 611.109 Enforcement**
5411

- 5412 a) Any person may file an enforcement action pursuant to Title VIII of the Act [415
5413 ILCS 5/Title VIII].
5414
5415 b) The results of monitoring required under this Part may be used in an enforcement
5416 action.
5417

5418 BOARD NOTE: Derived from 40 CFR 141.22(e) and 141.23(a)(4) (2016)(2002).
5419

5420 (Source: Amended at 41 Ill. Reg. _____, effective _____)
5421

5422 **Section 611.110 Special Exception Permits**
5423

- 5424 a) Unless otherwise specified, each Agency determination in this Part is to be made
5425 by way of a written permit pursuant to Section 39(a) of the Act [415 ILCS
5426 5/39(a)]. Such permit is titled a "special exception" permit ("SEP").
5427
5428 b) No person may cause or allow the violation of any condition of a SEP.
5429

5430 c) The supplier may appeal the denial of or the conditions of a SEP to the Board
5431 pursuant to Section 40 of the Act ~~[415 ILCS 5/40]~~.

5432
5433 d) A SEP may be initiated in either of the following ways:

5434
5435 1) By an application filed by the supplier; or

5436
5437 2) By the Agency, when authorized by Board regulations.

5438
5439 BOARD NOTE: The Board does not intend to mandate by any provision
5440 of this Part that the Agency exercise its discretion and initiate a SEP
5441 pursuant to this subsection (d)(2). Rather, the Board intends to clarify by
5442 this subsection (d)(2) that the Agency may opt to initiate a SEP without
5443 receiving a request from the supplier.

5444
5445 e) The Agency must evaluate a request for a SEP from the monitoring requirements
5446 of Section 611.601, 611.602, or 611.603 (IOCs, excluding the Section 611.603
5447 monitoring frequency requirements for cyanide); Section 611.646(e) and (f)
5448 (Phase I, Phase II, and Phase V VOCs); Section 611.646(d), only as to initial
5449 monitoring for 1,2,4-trichlorobenzene; or Section 611.648(d) (for Phase II, Phase
5450 IIB, and Phase V SOCs); ~~or Section 611.510 (for unregulated organic~~
5451 ~~contaminants)~~ on the basis of knowledge of previous use (including transport,
5452 storage, or disposal) of the contaminant in the watershed or zone of influence of
5453 the system, as determined pursuant to 35 Ill. Adm. Code 671.

5454
5455 BOARD NOTE: The Agency must grant a SEP from the Section 611.603
5456 monitoring frequency requirements for cyanide only on the basis of subsection (g)
5457 ~~of this Section~~, not on the basis of this subsection (e).

5458
5459 1) If the Agency determines that there was no prior use of the contaminant, it
5460 must grant the SEP; or

5461
5462 2) If the contaminant was previously used or the previous use was unknown,
5463 the Agency must consider the following factors:

5464
5465 A) Previous analytical results;

5466
5467 B) The proximity of the system to any possible point source of
5468 contamination (including spills or leaks at or near a water
5469 treatment facility; at manufacturing, distribution, or storage
5470 facilities; from hazardous and municipal waste land fills; or from
5471 waste handling or treatment facilities) or non-point source of
5472 contamination (including the use of pesticides and other land

- 5473 application uses of the contaminant);
 5474
 5475 C) The environmental persistence and transport of the contaminant;
 5476
 5477 D) How well the water source is protected against contamination,
 5478 including whether it is a SWS or a GWS.
 5479
 5480 i) A GWS must consider well depth, soil type, well casing
 5481 integrity, and wellhead protection; and
 5482
 5483 ii) A SWS must consider watershed protection;
 5484
 5485 E) For Phase II, Phase IIB, and Phase V SOCs, as follows:
 5486
 5487 i) Elevated nitrate levels at the water source; and
 5488
 5489 ii) The use of PCBs in equipment used in the production,
 5490 storage, or distribution of water (including pumps,
 5491 transformers, etc.); and
 5492
 5493 F) For Phase I, Phase II, and Phase V VOCs (pursuant to Section
 5494 611.646): the number of persons served by the PWS and the
 5495 proximity of a smaller system to a larger one.
 5496
 5497 f) If a supplier refuses to provide any necessary additional information requested by
 5498 the Agency, or if a supplier delivers any necessary information late in the
 5499 Agency's deliberations on a request, the Agency may deny the requested SEP or
 5500 grant the SEP with conditions within the time allowed by law.
 5501
 5502 g) The Agency must grant a supplier a SEP that allows it to discontinue monitoring
 5503 for cyanide if it determines that the supplier's water is not vulnerable due to a lack
 5504 of any industrial source of cyanide.
 5505

5506 BOARD NOTE: Subsection (e) of this Section is derived from 40 CFR 141.24(f)(8) and
 5507 (h)(6) (2016)(2003). Subsection (f) of this Section is derived from 40 CFR 141.82(d)(2),
 5508 and 141.83(b)(2) (2016)(2003). Subsection (g) is derived from 40 CFR 141.23(c)(2)
 5509 (2016)(2003). USEPA has reserved the discretion, at 40 CFR 142.18 (2016)(2003), to
 5510 review and nullify Agency determinations of the types made pursuant to Sections
 5511 611.510, 611.602, 611.603, 611.646, and 611.648 and the discretion, at 40 CFR
 5512 141.82(i), 141.83(b)(7), and 142.19 (2016)(2003), to establish federal standards for any
 5513 supplier, superseding any Agency determination made pursuant to Sections 611.352(d),
 5514 611.352(f), 611.353(b)(2), and 611.353(b)(4).
 5515

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.111 Relief Equivalent to SDWA Section 1415(a) Variances

This Section is intended to describe how the Board grants State relief equivalent to that available from USEPA under section 1415(a)(1)(A) and (a)(1)(B) of the SDWA (42 USC 300g-4(a)(1)(A) and (a)(1)(B)). SDWA section 1415 variances do not require ultimate compliance within five years in every situation. Variances under Sections 35 through 37 of the Act [~~415 ILCS 5/35-37~~] do require compliance within five years in every case. Consequently, a PWS may have the option of seeking State regulatory relief equivalent to a SDWA section 1415 variance through one of three procedural mechanisms: a variance under Sections 35 through 37 of the Act [415 ILCS 5/35-37] and Subpart B of 35 Ill. Adm. Code 104; a site-specific rule under Sections 27 and 28 of the Act [~~415 ILCS 5/27-28~~] and 35 Ill. Adm. Code 102; or an adjusted standard under Section 28.1 of the Act [~~415 ILCS 5/28.1~~] and Subpart D of 35 Ill. Adm. Code 104.

- a) The Board will grant a PWS a variance, a site-specific rule, or an adjusted standard from an MCL or a treatment technique pursuant to this Section.
 - 1) The PWS must file a petition pursuant to 35 Ill. Adm. Code 102 or 104, as applicable.
 - 2) If a State requirement does not have a federal counterpart, the Board may grant relief from the State requirements without following this Section.

- b) Relief from an MCL.
 - 1) As part of the justification for relief from an MCL under this Section, the PWS must demonstrate the following:
 - A) Because of characteristics of the raw water sources and alternative sources that are reasonably available to the system, the PWS cannot meet the MCL; and
 - B) The PWS will install or has installed the best available technology (BAT) (as identified in Subpart F of this Part), treatment technique, or other means that the Agency finds available. BAT may vary depending on the following:
 - i) The number of persons served by the system;
 - ii) Physical conditions related to engineering feasibility; and
 - iii) Costs of compliance; and

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- C) The variance will not result in an unreasonable risk to health.
 - 2) In any order granting relief under this subsection, the Board will prescribe a schedule for the following:
 - A) Compliance, including increments of progress, by the PWS, with each MCL with respect to which the relief was granted; and
 - B) Implementation by the PWS of each additional control measure for each MCL with respect to which the relief is granted, during the period ending on the date compliance with such requirement is required.
 - 3) Schedule of compliance for relief from an MCL.
 - A) A schedule of compliance will require compliance with each MCL with respect to which the relief was granted as expeditiously as practicable.
 - B) If the Board prescribes a schedule requiring compliance with an MCL for which the relief is granted later than five years from the date of issuance of the relief, the Board will do the following:
 - i) Document its rationale for the extended compliance schedule;
 - ii) Discuss the rationale for the extended compliance schedule in the required public notice and opportunity for public hearing; and
 - iii) Provide the shortest practicable time schedule feasible under the circumstances.
 - c) Relief from a treatment technique requirement.
 - 1) As part of the justification for relief from a treatment technique requirement under this Section, the PWS must demonstrate that the treatment technique is not necessary to protect the health of persons served because of the nature of the raw water source.
 - 2) The Board may prescribe monitoring and other requirements as a condition for relief from a treatment technique requirement.

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- d) The Board will hold at least one public hearing. In addition the Board will accept comments as appropriate pursuant to 35 Ill. Adm. Code 102 or 104.
- e) The Board will not grant relief from any of the following:
 - 1) From the MCLs for total coliforms and E. coli. ~~The~~Until March 31, 2016, the Board may grant a variance from the total coliform MCL of Section 611.325 for PWSs that prove that the violation of the total coliform MCL is due to persistent growth of total coliform in the distribution system, rather than from fecal or pathogenic contamination, from a treatment lapse or deficiency, or from a problem in the operation or maintenance of the distribution system. Effective March 31, 2016, when the total coliform MCL is no longer effective, the Board can no longer grant relief from the total coliform MCL.
 - BOARD NOTE: As provided in Section 611.131(c)(1) and 40 CFR 142.304(a), a small system variance is not available for rules that address microbial contaminants, which include Subparts B, R, S, X, Z, and AA of this Part.
 - 2) From any of the treatment technique requirements of Subpart B of this Part.
 - 3) From the residual disinfectant concentration (RDC) requirements of Sections 611.241(c) and 611.242(b).
- f) The Agency must promptly send USEPA the opinion and order of the Board granting relief pursuant to this Section. The Board may reconsider and modify a grant of relief, or relief conditions, if USEPA notifies the Board of a finding pursuant to section 1415 of the SDWA (42 USC 300g-4).
- g) In addition to the requirements of this Section, the provisions of Section 611.130 or 611.131 may apply to relief granted pursuant to this Section.

BOARD NOTE: Derived from 40 CFR 141.4 (2016)(2013), from section 1415(a)(1)(A) and (a)(1)(B) of the SDWA (42 USC 300g-4(a)(1)(A) and (a)(1)(B) (2015)(2011)) and from the "Guidance Manual for Filtration and Disinfection", incorporated by reference in Section 611.102 and available from USEPA, NSCEP. USEPA has established a procedure at 40 CFR 142.23 (2016)(2013) to review and potentially modify or nullify state determinations granting relief from NPDWRs where USEPA finds that the state has abused its discretion or failed to prescribe required schedules for compliance in a substantial number of instances.

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.112 Relief Equivalent to SDWA Section 1416 Exemptions

This Section is intended to describe how the Board grants State relief equivalent to that available from USEPA under section 1416 of the SDWA (42 USC 300g-5). SDWA section 1416 exemptions do not require ultimate compliance within five years in every situation. Variances under Sections 35 through 37 of the Act [~~415 ILCS 5/35-37~~] do require compliance within five years in every case. Consequently, a PWS may have the option of seeking State regulatory relief equivalent to a SDWA section 1416 exemption through one of three procedural mechanisms: a variance under Sections 35 through 37 of the Act [~~415 ILCS 5/35-37~~] and Subpart B of 35 Ill. Adm. Code 104; a site-specific rule under Sections 27 and 28 of the Act [~~415 ILCS 5/27-28~~] and 35 Ill. Adm. Code 102; or an adjusted standard under Section 28.1 of the Act [~~415 ILCS 5/28.1~~] and Subpart D of 35 Ill. Adm. Code 104.

- a) The Board will grant a PWS a variance, a site-specific rule, or an adjusted standard from an MCL or treatment technique requirement, or from both, pursuant to this Section.
 - 1) The PWS must file a petition pursuant to 35 Ill. Adm. Code 102 or 104, as applicable.
 - 2) If a State requirement does not have a federal counterpart, the Board may grant relief from the State requirements without following this Section.
- b) As part of the justification for relief under this Section, the PWS must demonstrate the following:
 - 1) Due to compelling factors (which may include economic factors), the PWS is unable to comply with the MCL or treatment technique requirement, or to implement measures to develop an alternative source of water supply;
 - 2) The PWS was either of the following:
 - A) In operation on the effective date of the MCL or treatment technique requirement; or
 - B) Not in operation on the effective date of the MCL or treatment technique requirement and no reasonable alternative source of drinking water is available to the PWS;
 - 3) The relief will not result in an unreasonable risk to health; and

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- 4) Management or restructuring changes cannot reasonably be made that will result in compliance with the NPDWR or, if compliance cannot be achieved, improve the quality of the drinking water.

BOARD NOTE: In determining that management or restructuring changes cannot reasonably be made that will result in compliance with the NPDWR, the Board will consider the factors required by USEPA under 40 CFR 142.20(b)(1), incorporated by reference in Section 611.102(c).

- c) In any order granting relief under this Section, the Board will prescribe a schedule for the following:
 - 1) Compliance, including increments of progress, by the PWS, with each MCL and treatment technique requirement with respect to which the relief was granted; and
 - 2) Implementation by the PWS, of each additional control measure for each contaminant subject to the MCL or treatment technique requirement, with respect to which relief is granted.
- d) Schedule of compliance. A schedule of compliance will require compliance with each MCL or treatment technique requirement with respect to which relief was granted as expeditiously as practicable, but not later than three years after the otherwise applicable compliance date established in section 1412(b)(10) of the SDWA (42 USC 300g-1(b)(10)), except as follows:
 - 1) No relief may be granted unless the PWS establishes that it is taking all practicable steps to meet the NPDWR; and
 - A) The PWS cannot meet the NPDWR without capital improvements that cannot be completed within 12 months;
 - B) In the case of a PWS that needs financial assistance for the necessary improvements, the PWS has entered into an agreement to obtain such financial assistance; or
 - C) The PWS has entered into an enforceable agreement to become a part of a regional PWS.
 - 2) In the case of a PWS that serves 3,300 or fewer persons that needs financial assistance for the necessary improvements, relief may be renewed for one or more additional two year periods, not to exceed a total

5731 of six years, if the PWS establishes that it is taking all practicable steps to
5732 meet the final date for compliance.

5733
5734 3) A PWS may not receive relief under this Section if the PWS was granted
5735 relief under Section 611.111 or 611.131.

5736
5737 e) The Board will hold at least one public hearing. In addition the Board will accept
5738 comments as appropriate pursuant to 35 Ill. Adm. Code 102 or 104.

5739
5740 f) The Agency must promptly send USEPA the Opinion and Order of the Board
5741 granting relief pursuant to this Section. The Board may reconsider and modify a
5742 grant of relief, or relief conditions, if USEPA notifies the Board of a finding
5743 pursuant to section 1416 of the SDWA (42 USC 300g-5).

5744
5745 BOARD NOTE: Derived from section 1416 of the SDWA (42 USC 300g-5
5746 (2011)).

5747
5748 g) The Board will not grant relief from any of the following:

5749
5750 1) From the MCLs for total coliforms and E. coli. ~~Until March 31, 2016,~~
5751 ~~the Board may grant relief from the total coliform MCL of Section~~
5752 ~~611.325 for PWSs that prove that the violation of the total coliform MCL~~
5753 ~~is due to persistent growth of total coliforms in the distribution system,~~
5754 ~~rather than from fecal or pathogenic contamination, from a treatment lapse~~
5755 ~~or deficiency, or from a problem in the operation or maintenance of the~~
5756 ~~distribution system. Effective March 31, 2016, when the total coliform~~
5757 ~~MCL is no longer effective, the Board can no longer grant relief from the~~
5758 ~~total coliform MCL.~~

5759
5760 BOARD NOTE: As provided in Section 611.131(c)(1) and 40 CFR
5761 142.304(a), a small system variance is not available for rules that address
5762 microbial contaminants, which include Subparts B, R, S, X, Z, and AA of
5763 this Part.

5764
5765 2) From any of the treatment technique requirements of Subpart B of this
5766 Part.

5767
5768 3) From the residual disinfectant concentration (RDC) requirements of
5769 Sections 611.241(c) and 611.242(b).

5770
5771 h) In addition to the requirements of this Section, the provisions of Section 611.130
5772 or 611.131 may apply to relief granted pursuant to this Section.

5773

5774 BOARD NOTE: Derived from 40 CFR 141.4 (2016)(2013). USEPA has established a procedure
5775 at 40 CFR 142.23 (2016)(2013) to review and potentially modify or nullify state determinations
5776 granting relief from NPDWRs where USEPA finds that the state has abused its discretion or
5777 failed to prescribe required schedules for compliance in a substantial number of instances.
5778

5779 (Source: Amended at 41 Ill. Reg. _____, effective _____)
5780

5781 **Section 611.125 Fluoridation Requirement**
5782

5783 All CWSs that are required to add fluoride to the water must maintain a fluoride ion
5784 concentration, reported as F, of 0.7 ~~mg/L~~ in its distribution system.
5785

5786 BOARD NOTE: This is an additional State requirement.
5787

5788 (Source: Amended at 41 Ill. Reg. _____, effective _____)
5789

5790 **Section 611.126 Prohibition on Use of Lead**
5791

5792 a) In general. Prohibition. Any pipe, any pipe or plumbing fitting or fixture, any
5793 solder or any flux must be lead free, as defined by subsection (b) of this Section,
5794 if it is used after June 19, 1986 in the installation or repair of either of the
5795 following:
5796

5797 1) Any PWS; or
5798

5799 2) Any plumbing in a residential or nonresidential facility providing water
5800 for human consumption that is connected to a PWS. This subsection (a)
5801 does not apply to leaded joints necessary for the repair of cast iron pipes.
5802

5803 b) Definition of lead free. For purposes of this Section, the term "lead free" means
5804 as follows:
5805

5806 1) When used with respect to solders and flux, refers to solders and flux
5807 containing not more than 0.2 percent lead;
5808

5809 2) When used with respect to pipes and pipe fittings, refers to pipes and pipe
5810 fittings containing not more than 8.0 percent lead; and
5811

5812 3) When used with respect to plumbing fittings and fixtures that are intended
5813 by the manufacturer to dispense water for human ingestion, refers to
5814 plumbing fittings and fixtures in compliance with NSF Standard 61,
5815 section 9, incorporated by reference in Section 611.102.
5816

5817 BOARD NOTE: Derived from 40 CFR 141.43(a) and (d) (2016)(2002), and section
5818 1417 of SDWA, 42 USC 300g-6(a)(1) (2015)(2000). USEPA has stated that NSF
5819 Standard 61 is the standard for plumbing fittings and fixtures developed pursuant to 42
5820 USC 300g-6(e). See 62 Fed. Reg. 44684 (Aug. 22, 1997).

5821
5822 (Source: Amended at 41 Ill. Reg. _____, effective _____)

5823
5824 **Section 611.130 Special Requirements for Certain Variances and Adjusted Standards**

- 5825
5826 a) Relief from the fluoride MCL.
- 5827
5828 1) In granting any variance or adjusted standard to a supplier that is a CWS
5829 from the maximum contaminant level for fluoride listed in Section
5830 611.301(b), the Board will require application of the best available
5831 technology (BAT) identified at subsection (a)(4) ~~of this Section~~ for that
5832 constituent as a condition to the relief, unless the supplier has
5833 demonstrated through comprehensive engineering assessments that
5834 application of BAT is not technically appropriate and technically feasible
5835 for that supplier.
- 5836
5837 2) The Board will require the following as a condition for relief from the
5838 fluoride MCL where it does not require the application of BAT:
- 5839
5840 A) That the supplier continue to investigate the following methods as
5841 an alternative means of significantly reducing the level of fluoride,
5842 according to a definite schedule:
- 5843
5844 i) A modification of lime softening;
- 5845
5846 ii) Alum coagulation;
- 5847
5848 iii) Electrodialysis;
- 5849
5850 iv) Anion exchange resins;
- 5851
5852 v) Well field management;
- 5853
5854 vi) The use of alternative sources of raw water; and
- 5855
5856 vii) Regionalization; and
- 5857
5858 B) That the supplier report results of that investigation to the Agency.
5859

5860 3) The Agency must petition the Board to reconsider or modify a variance or
5861 adjusted standard, pursuant to Subpart I of 35 Ill. Adm. Code 101, if it
5862 determines that an alternative method identified by the supplier pursuant
5863 to subsection (a)(2) of this Section is technically feasible and would result
5864 in a significant reduction in fluoride.

5865
5866 4) Best available technology for fluoride reduction is as follows:

5867 A) Activated alumina absorption centrally applied; and

5868 B) Reverse osmosis centrally applied.

5869
5870 BOARD NOTE: Subsection (a) derived from 40 CFR 142.61 (2016)(2014).

5871
5872 b) Relief from an IOC, VOC, or SOC MCL.

5873
5874 1) In granting to a supplier that is a CWS or NTNCWS any variance or
5875 adjusted standard from the maximum contaminant levels for any VOC or
5876 SOC, listed in Section 611.311(a) or (c), or for any IOC, listed in Section
5877 611.301, the supplier must have first applied the best available technology
5878 (BAT) identified at Section 611.311(b) (VOCs and SOCs) or Section
5879 611.301(c) (IOCs) for that constituent, unless the supplier has
5880 demonstrated through comprehensive engineering assessments that
5881 application of BAT would achieve only a minimal and insignificant
5882 reduction in the level of contaminant.

5883
5884 BOARD NOTE: USEPA lists BAT for each SOC and VOC at 40 CFR
5885 142.62(a), for the purposes of variances and exemptions (adjusted
5886 standards). That list is identical to the list at 40 CFR 141.61(b).

5887
5888 2) The Board may require any of the following as a condition for relief from
5889 an MCL listed in Section 611.301 or 611.311:

5890 A) That the supplier continue to investigate alternative means of
5891 compliance according to a definite schedule; and

5892 B) That the supplier report results of that investigation to the Agency.

5893
5894 3) The Agency must petition the Board to reconsider or modify a variance or
5895 adjusted standard, pursuant to Subpart I of 35 Ill. Adm. Code 101, if it
5896 determines that an alternative method identified by the supplier pursuant
5897 to subsection (b)(2) of this Section is technically feasible.

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5903 BOARD NOTE: Subsection (b) derived from 40 CFR 142.62(a) through (e)
5904 (2016)~~(2014)~~.
5905

5906 c) Conditions requiring use of bottled water, a point-of-use treatment device, or a
5907 point-of-entry treatment device. In granting any variance or adjusted standard
5908 from the maximum contaminant levels for organic and inorganic chemicals or an
5909 adjusted standard from the treatment technique for lead and copper, the Board
5910 may impose certain conditions requiring the use of bottled water, a point-of-entry
5911 treatment device, or a point-of-use treatment device to avoid an unreasonable risk
5912 to health, limited as provided in subsections (d) and (e) ~~of this Section~~.
5913

5914 1) Relief from an MCL. The Board may, when granting any variance or
5915 adjusted standard from the MCL requirements of Sections 611.301 and
5916 611.311, impose a condition that requires a supplier to use bottled water, a
5917 point-of-entry treatment device, a point-of-use treatment device, or other
5918 means to avoid an unreasonable risk to health.
5919

5920 2) Relief from corrosion control treatment. The Board may, when granting
5921 an adjusted standard from the corrosion control treatment requirements for
5922 lead and copper of Sections 611.351 and 611.352, impose a condition that
5923 requires a supplier to use bottled water, a point-of-use treatment device, or
5924 other means, but not a point-of-entry treatment device, to avoid an
5925 unreasonable risk to health.
5926

5927 3) Relief from source water treatment or service line replacement. The
5928 Board may, when granting an exemption from the source water treatment
5929 and lead service line replacement requirements for lead and copper under
5930 Sections 611.353 or 611.354, impose a condition that requires a supplier to
5931 use a point-of-entry treatment device to avoid an unreasonable risk to
5932 health.
5933

5934 BOARD NOTE: Subsection (c) derived from 40 CFR 142.62(f) (2016)~~(2014)~~.
5935

5936 d) Use of bottled water. Suppliers that propose to use or use bottled water as a
5937 condition for receiving a variance or an adjusted standard from the requirements
5938 of Section 611.301 or Section 611.311 or an adjusted standard from the
5939 requirements of Sections 611.351 through 611.354 must meet the requirements of
5940 either subsections (d)(1), (d)(2), (d)(3), and (d)(6) or (d)(4), (d)(5), and (d)(6) ~~of~~
5941 ~~this Section~~.
5942

5943 1) The supplier must develop a monitoring program for Board approval that
5944 provides reasonable assurances that the bottled water meets all MCLs of
5945 Sections 611.301 and 611.311 and submit a description of this program as

5946 part of its petition. The proposed program must describe how the supplier
 5947 will comply with each requirement of this subsection (d).
 5948

5949 2) The supplier must monitor representative samples of the bottled water for
 5950 all contaminants regulated under Sections 611.301 and 611.311 during the
 5951 first three-month period that it supplies the bottled water to the public, and
 5952 annually thereafter.
 5953

5954 3) The supplier must annually provide the results of the monitoring program
 5955 to the Agency.
 5956

5957 4) The supplier must receive a certification from the bottled water company
 5958 as to each of the following:
 5959

5960 A) ~~That~~ that the bottled water supplied has been taken from an
 5961 approved source of bottled water, as such is defined in Section
 5962 611.101;
 5963

5964 B) ~~That~~ that the approved source of bottled water has conducted
 5965 monitoring in accordance with 21 CFR 129.80(g)(1) through
 5966 (g)(3); and
 5967

5968 C) ~~That~~and that the bottled water does not exceed any MCLs or
 5969 quality limits as set out in 21 CFR 165.110, 110, and 129.
 5970

5971 5) The supplier must provide the certification required by subsection (d)(4)
 5972 of this Section to the Agency during the first quarter after it begins
 5973 supplying bottled water and annually thereafter.
 5974

5975 6) The supplier must assure the provision of sufficient quantities of bottled
 5976 water to every affected person supplied by the supplier via door-to-door
 5977 bottled water delivery.
 5978

5979 BOARD NOTE: Subsection (d) derived from 40 CFR 142.62(g) (2016)(2014).
 5980

5981 e) Use of a point-of-entry treatment device. Before the Board grants any PWS a
 5982 variance or adjusted standard from any NPDWR that includes a condition
 5983 requiring the use of a point-of-entry treatment device, the supplier must
 5984 demonstrate to the Board each of the following:
 5985

5986 1) That the supplier will operate and maintain the device;
 5987

5988 2) That the device provides health protection equivalent to that provided by

- 5989 central treatment;
5990
5991 3) That the supplier will maintain the microbiological safety of the water at
5992 all times;
5993
5994 4) That the supplier has established standards for performance, conducted a
5995 rigorous engineering design review, and field tested the device;
5996
5997 5) That the operation and maintenance of the device will account for any
5998 potential for increased concentrations of heterotrophic bacteria resulting
5999 through the use of activated carbon, by backwashing, post-contactor
6000 disinfection, and heterotrophic plate count monitoring;
6001
6002 6) That buildings connected to the supplier's distribution system have
6003 sufficient devices properly installed, maintained, and monitored to assure
6004 that all consumers are protected; and
6005
6006 7) That the use of the device will not cause increased corrosion of lead and
6007 copper bearing materials located between the device and the tap that could
6008 increase contaminant levels at the tap.
6009

6010 BOARD NOTE: Subsection (e) derived from 40 CFR 142.62(h) ~~(2016)~~(2014).

6011 f) Relief from the maximum contaminant levels for radionuclides.
6012

6013
6014 1) Relief from the maximum contaminant levels for combined radium-226
6015 and radium-228, uranium, gross alpha particle activity (excluding radon
6016 and uranium), and beta particle and photon radioactivity.
6017

6018 A) Section 611.330(g) sets forth what USEPA has identified as the
6019 best available technology (BAT), treatment techniques, or other
6020 means available for achieving compliance with the maximum
6021 contaminant levels for the radionuclides listed in Section
6022 611.330(b), (c), (d), and (e), for the purposes of issuing relief
6023 equivalent to a federal section 1415 variance or a section 1416
6024 exemption.
6025

6026 B) In addition to the technologies listed in Section 611.330(g),
6027 Section 611.330(h) sets forth what USEPA has identified as the
6028 BAT, treatment techniques, or other means available for achieving
6029 compliance with the maximum contaminant levels for the
6030 radionuclides listed in Section 611.330(b), (c), (d), and (e), for the
6031 purposes of issuing relief equivalent to a federal section 1415

- 6032 variance or a section 1416 exemption to small drinking water
 6033 systems, defined here as those serving 10,000 persons or fewer, as
 6034 shown in the second table set forth at Section 611.330(h).
 6035
- 6036 2) The Board will require a CWS supplier to install and use any treatment
 6037 technology identified in Section 611.330(g), or in the case of small water
 6038 systems (those serving 10,000 persons or fewer), listed in Section
 6039 611.330(h), as a condition for granting relief equivalent to a federal
 6040 section 1415 variance or a section 1416 exemption, except as provided in
 6041 subsection (f)(3) ~~of this Section~~. If, after the system's installation of the
 6042 treatment technology, the system cannot meet the MCL, that system will
 6043 be eligible for relief.
 6044
- 6045 3) If a CWS supplier can demonstrate through comprehensive engineering
 6046 assessments, which may include pilot plant studies, that the treatment
 6047 technologies identified in this Section would only achieve a de minimus
 6048 reduction in the contaminant level, the Board may issue a schedule of
 6049 compliance that requires the system being granted relief equivalent to a
 6050 federal section 1415 variance or a section 1416 exemption to examine
 6051 other treatment technologies as a condition of obtaining the relief.
 6052
- 6053 4) If the Agency determines that a treatment technology identified under
 6054 subsection (f)(3) ~~of this Section~~ is technically feasible, it may request that
 6055 the Board require the supplier to install and use that treatment technology
 6056 in connection with a compliance schedule issued pursuant to Section 36
 6057 of the Act ~~[415 ILCS 5/36]~~. The Agency's determination must be based upon
 6058 studies by the system and other relevant information.
 6059
- 6060 5) The Board may require a CWS to use bottled water, point-of-use devices,
 6061 point-of-entry devices, or other means as a condition of granting relief
 6062 equivalent to a federal section 1415 variance or a section 1416 exemption
 6063 from the requirements of Section 611.330, to avoid an unreasonable risk to
 6064 health.
 6065
- 6066 6) A CWS supplier that uses bottled water as a condition for receiving relief
 6067 equivalent to a federal section 1415 variance or a section 1416 exemption
 6068 from the requirements of Section 611.330 must meet the requirements
 6069 specified in subsection (d)(6) ~~of this Section~~ and either subsections (d)(1)
 6070 through (d)(3) or (d)(4) and (d)(5) ~~of this Section~~.
 6071
- 6072 7) A CWS supplier that uses point-of-use or point-of-entry devices as a
 6073 condition for obtaining relief equivalent to a federal section 1415 variance
 6074 or a section 1416 exemption from the radionuclides NPDWRs must meet

6075 the conditions in subsections (e)(1) through (e)(6) of this Section.
6076

6077 BOARD NOTE: Subsection (f) derived from 40 CFR 142.65 (2016)(2014).
6078

6079 (Source: Amended at 41 Ill. Reg. _____, effective _____)
6080

6081 **Section 611.131 Relief Equivalent to SDWA Section 1415(e) Small System Variance**
6082

6083 This Section is intended as a State equivalent of section 1415(e) of the federal SDWA (42 USC
6084 300g-4(e)).
6085

- 6086 a) Variances may be obtained from the requirement to comply with an MCL or
6087 treatment technique to a PWS serving fewer than 10,000 persons in this Section.
6088 The PWS must file a variance petition pursuant to Subpart B of 35 Ill. Adm. Code
6089 104, except as modified or supplemented by this Section.
6090
- 6091 b) The Board will grant a small system variance to a PWS serving fewer than 3,300
6092 persons. The Board will grant a small system variance to a PWS serving more
6093 than 3,300 persons but fewer than 10,000 persons with the approval of the
6094 USEPA. In determining the number of persons served by the PWS, the Board
6095 will include persons served by consecutive systems. A small system variance
6096 granted to a PWS also applies to any consecutive system served by it.
6097
- 6098 c) Availability of a variance.
- 6100 1) A small system variance is not available under this Section for an
6101 NPDWR for a microbial contaminant (including a bacterium, virus, or
6102 other organism) or an indicator or treatment technique for a microbial
6103 contaminant.
6104
- 6105 2) A small system variance under this Section is available for compliance
6106 with a requirement specifying an MCL or treatment technique for a
6107 contaminant with respect to which the following is true:
6108
- 6109 A) An NPDWR was promulgated on or after January 1, 1986; and
6110
- 6111 B) The USEPA has published a small system variance technology
6112 pursuant to section 1412(b)(15) of the federal SDWA (42 USC
6113 300g-1(b)(15)).
6114

6115 BOARD NOTE: Small system variances are not available for PWSs above the
6116 pre-1986 MCL even if subsequently revised. If the USEPA revises a pre-1986
6117 MCL and makes it more stringent, then a variance would be available for that

contaminant, but only up to the pre-1986 maximum contaminant level.

- d) No small system variance will be in effect until the later of the following:
- 1) 90 days after the Board proposes to grant the small system variance;
 - 2) If the Board is proposing to grant a small system variance to a PWS serving fewer than 3,300 persons and the USEPA objects to the small system variance, the date on which the Board makes the recommended modifications or responds in writing to each objection; or
 - 3) If the Board is proposing to grant a small system variance to a PWS serving a population of more than 3,300 and fewer than 10,000 persons, the date the USEPA approves the small system variance.
- e) As part of the showing of arbitrary or unreasonable hardship, the PWS must prove and document the following to the Board:
- 1) That the PWS is eligible for a small system variance pursuant to subsection (c) of this Section;
 - 2) That the PWS cannot afford to comply with the NPDWR for which a small system variance is sought, including by the following:
 - A) Treatment;
 - B) Alternative sources of water supply;
 - C) Restructuring or consolidation changes, including ownership change or physical consolidation with another PWS; or
 - D) Obtaining financial assistance pursuant to Section 1452 of the federal SDWA or any other federal or State program;
 - 3) That the PWS meets the source water quality requirements for installing the small system variance technology developed pursuant to guidance published under section 1412(b)(15) of the federal SDWA (42 USC 300g-1(b)(15));
 - 4) That the PWS is financially and technically capable of installing, operating, and maintaining the applicable small system variance technology; and

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- 5) That the terms and conditions of the small system variance ensure adequate protection of human health, considering the following:
 - A) The quality of the source water for the PWS; and
 - B) Removal efficiencies and expected useful life of the small system variance technology.

 - f) Terms and Conditions.
 - 1) The Board will set the terms and conditions of a small system variance issued under this Section and will include, at a minimum, the following requirements:
 - A) Proper and effective installation, operation, and maintenance of the applicable small system variance technology in accordance with guidance published by the USEPA, taking into consideration any relevant source water characteristics and any other site-specific conditions that may affect proper and effective operation and maintenance of the technology;
 - B) Monitoring requirements for the contaminant for which a small system variance is sought; and
 - C) Any other terms or conditions that are necessary to ensure adequate protection of public health, which may include the following:
 - i) Public education requirements; and
 - ii) Source water protection requirements.

 - 2) The Board will establish a schedule for the PWS to comply with the terms and conditions of the small system variance that will include, at a minimum, the following requirements:
 - A) Increments of progress, such as milestone dates for the PWS to apply for financial assistance and begin capital improvements;
 - B) Quarterly reporting to the Agency of the PWSs compliance with the terms and conditions of the small system variance;
 - C) Schedule for the Board to review the small system variance; and

6204
6205 BOARD NOTE: Corresponding 40 CFR 142.307(d) (2016)
6206 (2002) provides that the states must review variances no less
6207 frequently than every five years. Section 36 of the Act [415 ILCS
6208 5/36] provides that 5 years is the maximum term of a variance.
6209

- 6210 D) Compliance with the terms and conditions of the small system
6211 variance as soon as practicable, but not later than three years after
6212 the date on which the small system variance is granted. The Board
6213 may allow up to two additional years if the Board determines that
6214 additional time is necessary for the PWS to do the following:
6215
6216 i) Complete necessary capital improvements to comply with
6217 the small system variance technology, secure an alternative
6218 source of water, or restructure or consolidate; or
6219
6220 ii) Obtain financial assistance provided pursuant to Section
6221 1452 of the SDWA or any other federal or State program.
6222

6223 g) The Board will provide notice and opportunity for a public hearing as provided in
6224 Subpart B of 35 Ill. Adm. Code 104, except as modified or supplemented by this
6225 Section.
6226

- 6227 1) At least 30 days before the public hearing to discuss the proposed small
6228 system variance, the PWS must provide notice to all persons served by the
6229 PWS. For billed customers, this notice must include the information listed
6230 in subsection (g)(2) of this Section. For other persons regularly served by
6231 the PWS, notice must provide sufficient information to alert readers to the
6232 proposed variance and direct them to where to receive additional
6233 information, and must be as provided in subsection (g)(1)(B) of this
6234 Section. Notice must be by the following means:
6235

- 6236 A) Direct mail or other home delivery to billed customers or other
6237 service connections; and
6238
6239 B) Any other method reasonably calculated to notify, in a brief and
6240 concise manner, other persons regularly served by the PWS. Such
6241 methods may include publication in a local newspaper, posting in
6242 public places or delivery to community organizations.
6243

- 6244 2) The notice in subsection (g)(1)(A) of this Section must include, at a
6245 minimum, the following:
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- A) Identification of the contaminants for which a small system variance is sought;
 - B) A brief statement of the health effects associated with the contaminants for which a small system variance is sought, using language in Appendix H of this Part;
 - C) The address and telephone number at which interested persons may obtain further information concerning the contaminant and the small system variance;
 - D) A brief summary, in easily understandable terms, of the terms and conditions of the small system variance;
 - E) A description of the consumer petition process under subsection (h) of this Section and information on contacting the USEPA Regional Office;
 - F) A brief statement announcing the public meeting required under subsection (g)(3) ~~of this Section~~, including a statement of the purpose of the meeting, information regarding the time and location for the meeting, and the address and telephone number at which interested persons may obtain further information concerning the meeting; and
 - G) In communities with a large proportion of non-English-speaking residents, as determined by the Board, information in the appropriate language regarding the content and importance of the notice.
- 3) The Board will provide for at least one public hearing on the small system variance. The PWS must provide notice in the manner required under subsection (g)(1) ~~of this Section~~ at least 30 days prior to the public hearing.
- 4) Prior to promulgating the final variance, the Board will respond in writing to all significant public comments received relating to the small system variance. Response to public comment and any other documentation supporting the issuance of a variance will be made available to the public after final promulgation.
- h) Any person served by the PWS may petition the USEPA to object to the granting of a small system variance within 30 days after the Board proposes to grant a

6290 small system variance for the PWS.

6291
6292 i) The Agency must promptly send the USEPA the Opinion and Order of the Board
6293 granting the proposed small system variance. The Board will make the
6294 recommended modifications, respond in writing to each objection, or withdraw
6295 the proposal to grant the small system variance if USEPA notifies the Board of a
6296 finding pursuant to section 1415 of the SDWA (42 USC 300g-4).

6297
6298 j) In addition to the requirements of this Section, the provisions of Section 611.111,
6299 611.112, or 611.130 may apply to relief granted pursuant to this Section.

6300
6301 BOARD NOTE: Derived from 40 CFR 142, Subpart K (2016)(2002).

6302
6303 (Source: Amended at 41 Ill. Reg. _____, effective _____)

6304
6305 **Section 611.160 Composite Correction Program**

6306
6307 a) The Agency may require in writing that a PWS conduct a Composite Correction
6308 Program (CCP). The CCP must consist of two elements: a Comprehensive
6309 Performance Evaluation (CPE) and a Comprehensive Technical Assistance
6310 (CTA).

6311
6312 1) A CPE is a thorough review and analysis of a plant's performance-based
6313 capabilities and associated administrative, operation, and maintenance
6314 practices. It must identify factors that may be adversely impacting a
6315 plant's capability to achieve compliance and emphasize approaches that
6316 can be implemented without significant capital improvements.

6317
6318 2) For purposes of compliance with Subparts R and X of this Part, the
6319 comprehensive performance evaluation must consist of at least the
6320 following components: Assessment of plant performance; evaluation of
6321 major unit processes; identification and prioritization of performance
6322 limiting factors; assessment of the applicability of comprehensive
6323 technical assistance; and preparation of the CPE report.

6324
6325 BOARD NOTE: Subsection (a)(2) of this Section is derived from the third
6326 sentence of the definition of "comprehensive performance evaluation" in
6327 40 CFR 141.2 (2006).

6328
6329 3) A CTA is the performance improvement phase that is implemented if the
6330 CPE results indicate improved performance potential. During the CTA
6331 phase, the PWS must identify and systematically address plant-specific
6332 factors. The CTA is a combination of utilizing CPE results as a basis for

6333 followup, implementing process control priority-setting techniques and
6334 maintaining long-term involvement to systematically train staff and
6335 administrators.
6336

6337 b) A PWS must implement any followup recommendations made in writing by the
6338 Agency that result as part of the CCP.
6339

6340 c) A PWS may appeal to the Board, pursuant to Section 40 of the Act [~~415 ILCS~~
6341 ~~5/40~~], any Agency requirement that it conduct a CCP or any followup
6342 recommendations made in writing by the Agency that result as part of the CCP,
6343 except when a CPE is required under Section 611.745(b)(4).
6344

6345 BOARD NOTE: Derived from 40 CFR 142.16(g) (2016)(~~2006~~).
6346

6347 (Source: Amended at 41 Ill. Reg. _____, effective _____)
6348

6349 SUBPART B: FILTRATION AND DISINFECTION
6350

6351 **Section 611.212 Groundwater under Direct Influence of Surface Water**
6352

6353 The Agency shall, pursuant to Section 611.201, require all CWSs to demonstrate whether they
6354 are using "groundwater under the direct influence of surface water.". The Agency must
6355 determine with information provided by the supplier whether a PWS uses "groundwater under
6356 the direct influence of surface water" on an individual basis. The Agency must determine that a
6357 groundwater source is under the direct influence of surface water based upon the following:
6358

6359 a) Physical characteristics of the source: whether the source is obviously a surface
6360 water source, such as a lake or stream. Other sources that may be subject to
6361 influence from surface waters include: springs, infiltration galleries, wells, or
6362 other collectors in subsurface aquifers.
6363

6364 b) Well construction characteristics and geology with field evaluation.
6365

6366 1) The Agency may use the wellhead protection program's requirements,
6367 which include delineation of wellhead protection areas, assessment of
6368 sources of contamination and implementation of management control
6369 systems, to determine if the wellhead is under the influence of surface
6370 water.
6371

6372 2) Wells less than or equal to 50 feet in depth are likely to be under the
6373 influence of surface water.
6374

6375 3) Wells greater than 50 feet in depth are likely to be under the influence of

- 6376 surface water, unless they include the following:
6377
6378 A) A surface sanitary seal using bentonite clay, concrete, or similar
6379 material;
6380
6381 B) A well casing that penetrates consolidated (slowly permeable)
6382 material; and
6383
6384 C) A well casing that is only perforated or screened below
6385 consolidated (slowly permeable) material.
6386
6387 4) A source that is less than 200 feet from any surface water is likely to be
6388 under the influence of surface water.
6389
6390 c) Any structural modifications to prevent the direct influence of surface water and
6391 eliminate the potential for Giardia lamblia cyst contamination.
6392
6393 d) Source water quality records. The following are indicative that a source is under
6394 the influence of surface water:
6395
6396 1) A record of total coliform or fecal coliform contamination in untreated
6397 samples collected over the past three years;
6398
6399 2) A history of turbidity problems associated with the source; or
6400
6401 3) A history of known or suspected outbreaks of Giardia lamblia,
6402 Cryptosporidium or other pathogenic organisms associated with surface
6403 water that has been attributed to that source.
6404
6405 e) Significant and relatively rapid shifts in water characteristics such as turbidity,
6406 temperature, conductivity, or pH.
6407
6408 1) A variation in turbidity of 0.5 NTU or more over one year is indicative of
6409 surface influence.
6410
6411 2) A variation in temperature of nine Fahrenheit degrees or more over one
6412 year is indicative of surface influence.
6413
6414 f) Significant and relatively rapid shifts in water characteristics such as turbidity,
6415 temperature, conductivity, or pH that closely correlate to climatological or surface
6416 water conditions are indicative of surface water influence.
6417
6418 1) Evidence of particulate matter associated with the surface water; or

- 6419
6420 2) Turbidity or temperature data that correlates to that of a nearby surface
6421 water source.
6422
6423 g) Particulate analysis: Significant occurrence of insects or other macroorganisms,
6424 algae, or large diameter pathogens such as Giardia lamblia is indicative of surface
6425 influence.
6426
6427 1) "Large diameter" particulates are those over seven micrometers.
6428
6429 2) Particulates must be measured as specified in the "Guidance Manual for
6430 Compliance with the Filtration and Disinfection Requirements for Public
6431 Water Systems using Surface Water Sources," incorporated by reference
6432 in Section 611.102.
6433
6434 h) The potential for contamination by small-diameter pathogens, such as bacteria or
6435 viruses, does not alone render the source "under the direct influence of surface
6436 water.".

6437
6438 BOARD NOTE: Derived from the definition of "groundwater under the direct influence of
6439 surface water" in 40 CFR 141.2 (2016)(2005); from the Preamble at 54 Fed. Reg. 27489 (June
6440 29, 1989); and from the USEPA "Guidance Manual for Compliance with the Filtration and
6441 Disinfection Requirements for Public Water Systems using Surface Water Sources,"
6442 incorporated by reference in Section 611.102.

6443
6444 (Source: Amended at 41 Ill. Reg. _____, effective _____)
6445

6446 **Section 611.213 No Method of HPC Analysis**
6447

6448 This Section is used in Sections 611.241(d)(2), 611.242(c)(2), 611.261(b)(8)(G),
6449 611.262(b)(3)(G), 611.532(f)(2), and 611.533(c)(2). The Agency must determine that a system
6450 has no means for having a sample analyzed for HPC if the Agency determines that such action is
6451 warranted, based on the following site-specific conditions:
6452

- 6453 a) There is no certified laboratory that can analyze the sample within the time and
6454 temperatures specified in the Board note appended to Section
6455 611.531(a)(2)(A); Standard Methods, 16th Edition, Method 907A, incorporated by
6456 reference in Section 611.102, considering the following:
6457
6458 1) ~~Transportation time to the nearest laboratory pursuant to Section 611.490;~~
6459 ~~and~~
6460
6461 2) ~~Based on the size of the PWS, whether it should acquire in-house~~

- 6462 laboratory capacity to measure HPC; and
6463
6464 b) The supplier is providing adequate disinfection in the distribution system,
6465 considering the following:
6466
6467 1) Other measurements that show the presence of RDC in the distribution
6468 system;
6469
6470 2) The size of the distribution system;
6471
6472 3) The adequacy of the supplier's cross connection control program; and.
6473
6474 c) The PWS cannot maintain an RDC in the distribution system.
6475

6476 BOARD NOTE: Derived from 40 CFR 141.72(a)(4)(ii) (2016)(2002).

6477
6478 (Source: Amended at 41 Ill. Reg. _____, effective _____)
6479

6480 **Section 611.230 Filtration Effective Dates**

- 6481
6482 a) A supplier that uses a surface water source must meet all of the conditions of
6483 Section 611.231 and 611.232, unless the Agency has determined that filtration is
6484 required.
6485
6486 b) A supplier that uses a groundwater source under the direct influence of surface
6487 water must meet all of the conditions of Section 611.231 and 611.232, and is
6488 subject to Section 611.233, beginning 18 months after the Agency determines that
6489 it is under the direct influence of surface water, unless the Agency has determined
6490 that filtration is required.
6491
6492 c) This subsection (c) corresponds with the third sentence in the preamble to 40 CFR
6493 141.71, which pertains exclusively to implementation of the Surface Water
6494 Treatment rule. This statement maintains structural consistency with the federal
6495 rules. If the Agency determined, before December 30, 1991, that filtration is
6496 required, the system must have installed filtration and must have met the criteria
6497 for filtered systems specified in Section 611.242 and Section 611.250 by June 29,
6498 1993.
6499
6500 d) Within 18 months after the failure of a system using surface water or a
6501 groundwater source under the direct influence of surface water to meet any one of
6502 the requirements of Sections 611.231 and 611.232, the system must have
6503 installed filtration and meet the criteria for filtered systems specified in Sections
6504 611.242 and 611.250.

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BOARD NOTE: Derived from 40 CFR 141.71 preamble (2016)(2003).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.240 Disinfection

- a) A supplier that uses a surface water source and does not provide filtration treatment must provide the disinfection treatment specified in Section 611.241 beginning ~~December 30, 1991~~.
- b) A supplier that uses a groundwater source under the influence of surface water and does not provide filtration treatment must provide disinfection treatment specified in Section 611.241 beginning ~~December 30, 1991~~, or 18 months after the Agency determines that the groundwater source is under the influence of surface water, ~~whichever is later~~, unless the Agency has determined that filtration is required.
- c) If the Agency determines that filtration is required, the Agency may, by a SEP issued pursuant to Section 611.110, require the supplier to comply with interim disinfection requirements before filtration is installed.
- d) A system that uses a surface water source that provides filtration treatment must provide the disinfection treatment specified in Section 611.242 ~~beginning June 29, 1993, or beginning when filtration is installed, whichever is later~~.
- e) A system that uses a groundwater source under the direct influence of surface water and provides filtration treatment must have provided disinfection treatment as specified in Section 611.242 ~~by June 29, 1993 or beginning when filtration is installed, whichever is later~~.
- f) Failure to meet any requirement of the following Sections after the applicable date specified in this Section is a treatment technique violation.

BOARD NOTE: Derived from 40 CFR 141.72 preamble (2016)(2003).

- g) CWS suppliers using groundwater that is not under the direct influence of surface water must chlorinate the water before it enters the distribution system, unless the Agency has granted the supplier an exemption pursuant to Section 17(b) of the Act ~~[415 ILCS 5/17(b)]~~.
- 1) All GWS supplies that are required to chlorinate pursuant to this Section must maintain residuals of free or combined chlorine at levels sufficient to

6548 provide adequate protection of human health and the ability of the
 6549 distribution system to continue to deliver potable water that complies with
 6550 the requirements of this Part.

6551
 6552 2) The Agency may establish procedures and levels for chlorination
 6553 applicable to a GWS using groundwater that is not under the direct
 6554 influence of surface water by a SEP pursuant to Section 610.110.

6555
 6556 3) Those supplies having hand-pumped wells and no distribution system are
 6557 exempted from the requirements of this Section.

6558
 6559 BOARD NOTE: This is an additional State requirement originally codified at 35 Ill.
 6560 Adm. Code 604.401.

6561
 6562 (Source: Amended at 41 Ill. Reg. _____, effective _____)

6563
 6564 **Section 611.250 Filtration**

6565
 6566 A supplier that uses a surface water source or a groundwater source under the direct influence of
 6567 surface water, and does not meet all of the criteria in Sections 611.231 and 611.232 for avoiding
 6568 filtration, must ~~provide~~~~have provided~~ treatment consisting of both disinfection, as specified in
 6569 Section 611.242, and filtration treatment that complies with the requirements of subsection (a),
 6570 (b), (c), (d), or (e) ~~by June 29, 1993, or~~ within 18 months after the failure to meet any one of the
 6571 criteria for avoiding filtration in Sections 611.231 and 611.232, ~~whichever is later~~. Failure to
 6572 meet any requirement after the date specified in this introductory paragraph is a treatment
 6573 technique violation.

6574
 6575 a) Conventional filtration treatment or direct filtration.

6576
 6577 1) For a system using conventional filtration or direct filtration, the turbidity
 6578 level of representative samples of the system's filtered water must be less
 6579 than or equal to 0.5 NTU in at least 95 percent of the measurements taken
 6580 each month, measured as specified in Section 611.531(a) and 611.533(a),
 6581 except that if the Agency determines, by a SEP issued pursuant to Section
 6582 611.110, that the system is capable of achieving at least 99.9 percent
 6583 removal or inactivation of Giardia lamblia cysts at some turbidity level
 6584 higher than 0.5 NTU in at least 95 percent of the measurements taken each
 6585 month, the Agency must substitute this higher turbidity limit for that
 6586 system. However, in no case may the Agency approve a turbidity limit that
 6587 allows more than 1 NTU in more than five percent of the samples taken
 6588 each month, measured as specified in Section 611.531(a) and 611.533(a).

6589
 6590 2) The turbidity level of representative samples of a system's filtered water

- 6591 must at no time exceed 5 NTU.
 6592
 6593 3) ~~A~~Beginning January 1, 2001, a supplier serving at least 10,000 or more
 6594 persons must meet the turbidity requirements of Section 611.743(a).
 6595
 6596 4) ~~A~~Beginning January 1, 2005, a supplier that serves fewer than 10,000
 6597 people must meet the turbidity requirements in Section 611.955.
 6598
 6599 b) Slow sand filtration.
 6600
 6601 1) For a system using slow sand filtration, the turbidity level of
 6602 representative samples of the system's filtered water must be less than or
 6603 equal to 1 NTU in at least 95 percent of the measurements taken each
 6604 month, measured as specified in Section 611.531(a) and 611.533(a),
 6605 except that if the Agency determines, by a SEP issued pursuant to Section
 6606 611.110, that there is no significant interference with disinfection at a
 6607 higher level, the Agency must substitute the higher turbidity limit for that
 6608 system.
 6609
 6610 2) The turbidity level of representative samples of a system's filtered water
 6611 must at no time exceed 5 NTU, measured as specified in Section
 6612 611.531(a) and 611.533(a).
 6613
 6614 c) Diatomaceous earth filtration.
 6615
 6616 1) For a system using diatomaceous earth filtration, the turbidity level of
 6617 representative samples of the system's filtered water must be less than or
 6618 equal to 1 NTU in at least 95 percent of the measurements taken each
 6619 month, measured as specified in Section 611.531(a) and 611.533(a).
 6620
 6621 2) The turbidity level of representative samples of a system's filtered water
 6622 must at no time exceed 5 NTU, measured as specified in Section
 6623 611.531(a) and 611.533(a).
 6624
 6625 d) Other filtration technologies. A supplier may use a filtration technology not listed
 6626 in subsections (a) through (c) if it demonstrates, by a SEP application pursuant to
 6627 Section 611.110, to the Agency, using pilot plant studies or other means, that the
 6628 alternative filtration technology, in combination with disinfection treatment that
 6629 meets the requirements of Section 611.242, consistently achieves 99.9 percent
 6630 removal or inactivation of *Giardia lamblia* cysts and 99.99 percent removal or
 6631 inactivation of viruses. For a supplier that makes this demonstration, the
 6632 requirements of subsection (b) apply. ~~A~~Beginning January 1, 2002, a supplier
 6633 serving 10,000 or more persons must meet the requirements for other filtration

6634 technologies in Section 611.743(b). ~~Beginning January 1, 2005,~~ a supplier that
6635 serves fewer than 10,000 people must meet the requirements for other filtration
6636 technologies in Section 611.955.
6637

6638 BOARD NOTE: Derived from 40 CFR 141.73 ~~(2016)~~(2003).

6639
6640 (Source: Amended at 41 Ill. Reg. _____, effective _____)
6641

6642 **Section 611.261 Unfiltered PWSs: Reporting and Recordkeeping**
6643

6644 A supplier that uses a surface water source and does not provide filtration treatment must report
6645 monthly to the Agency the information specified in this Section ~~beginning December 31, 1990,~~
6646 unless the Agency has determined that filtration is required, in which case the Agency must, by a
6647 SEP issued pursuant to Section 611.110, specify alternative reporting requirements, as
6648 appropriate, until filtration is in place. A supplier that uses a groundwater source under the direct
6649 influence of surface water and does not provide filtration treatment must report monthly to the
6650 Agency the information specified in this Section ~~beginning December 31, 1990,~~ or six months
6651 after the Agency determines that the groundwater source is under the direct influence of surface
6652 water, ~~whichever is later,~~ unless the Agency has determined that filtration is required, in which
6653 case the Agency must, by a SEP issued pursuant to Section 611.110, specify alternative reporting
6654 requirements, as appropriate, until filtration is in place.
6655

6656 a) Source water quality information must be reported to the Agency within ten days
6657 after the end of each month the system serves water to the public. Information that
6658 must be reported includes the following:
6659

- 6660 1) The cumulative number of months for which results are reported.
- 6661 2) The number of fecal or total coliform samples, whichever are analyzed
6662 during the month (if a system monitors for both, only fecal coliforms must
6663 be reported), the dates of sample collection, and the dates when the
6664 turbidity level exceeded 1 NTU.
- 6665 3) The number of samples during the month that had equal to or fewer than
6666 20/100 ml fecal coliforms or equal to or fewer than 100/100 ml total
6667 coliforms, whichever are analyzed.
- 6668 4) The cumulative number of fecal or total coliform samples, whichever are
6669 analyzed, during the previous six months the system served water to the
6670 public.
- 6671 5) The cumulative number of samples that had equal to or fewer than 20/100
6672 ml fecal coliforms or equal to or fewer than 100/100 ml total coliforms,
6673
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- 6677 whichever are analyzed, during the previous six months the system served
6678 water to the public.
6679
- 6680 6) The percentage of samples that had equal to or fewer than 20/100 ml fecal
6681 coliforms or equal to or fewer than 100/100 ml total coliforms, whichever
6682 are analyzed, during the previous six months the system served water to
6683 the public.
6684
- 6685 7) The maximum turbidity level measured during the month, the dates of
6686 occurrence for any measurements that exceeded 5 NTU and the dates the
6687 occurrences were reported to the Agency.
6688
- 6689 8) For the first 12 months of recordkeeping, the dates and cumulative number
6690 of events during which the turbidity exceeded 5 NTU, and after one year
6691 of recordkeeping for turbidity measurements, the dates and cumulative
6692 number of events during which the turbidity exceeded 5 NTU in the
6693 previous 12 months the system served water to the public.
6694
- 6695 9) For the first 120 months of recordkeeping, the dates and cumulative
6696 number of events during which the turbidity exceeded 5 NTU, and after
6697 ten years of recordkeeping for turbidity measurements, the dates and
6698 cumulative number of events during which the turbidity exceeded 5 NTU
6699 in the previous 120 months the system served water to the public.
6700
- 6701 b) Disinfection information specified in Section 611.532 must be reported to the
6702 Agency within ten days after the end of each month the system serves water to the
6703 public. Information that must be reported includes the following:
6704
- 6705 1) For each day, the lowest measurement of RDC in mg/ℓ in water entering
6706 the distribution system.
6707
- 6708 2) The date and duration of each period when the RDC in water entering the
6709 distribution system fell below 0.2 mg/ℓ and when the Agency was notified
6710 of the occurrence.
6711
- 6712 3) The daily RDCs (in mg/ℓ) and disinfectant contact times (in minutes) used
6713 for calculating the CT values.
6714
- 6715 4) If chlorine is used, the daily measurements of pH of disinfected water
6716 following each point of chlorine disinfection.
6717
- 6718 5) The daily measurements of water temperature in degrees C following each
6719 point of disinfection.

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- 6) The daily CT_{calc} and A_i values for each disinfectant measurement or sequence and the sum of all A_i values (B) before or at the first customer.
- 7) The daily determination of whether disinfection achieves adequate Giardia cyst and virus inactivation, i.e., whether A_i is at least 1.0 or, where disinfectants other than chlorine are used, other indicator conditions that the Agency, pursuant to Section 611.241(a)(1), determines are appropriate, are met.
- 8) The following information on the samples taken in the distribution system in conjunction with total coliform monitoring pursuant to Section 611.240 through 611.242:
 - A) Number of instances where the RDC is measured;
 - B) Number of instances where the RDC is not measured but HPC is measured;
 - C) Number of instances where the RDC is measured but not detected and no HPC is measured;
 - D) Number of instances where no RDC is detected and where HPC is greater than 500/ml;
 - E) Number of instances where the RDC is not measured and HPC is greater than 500/ml;
 - F) For the current and previous month the system served water to the public, the value of "V" in the following formula:

$$V = \frac{100 (c + d + e)}{(a + b)}$$

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where the terms mean the following:

- a = Value in subsection (b)(8)(A) of this Section;
- b = Value in subsection (b)(8)(B) of this Section;
- c = Value in subsection (b)(8)(C) of this Section;
- d = Value in subsection (b)(8)(D) of this Section; and
- e = Value in subsection (b)(8)(E) of this Section.

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- G) The requirements of subsections (b)(8)(A) through (b)(8)(F) of this Section do not apply if the Agency determines, pursuant to Section 611.213, that a system has no means for having a sample analyzed for HPC by a certified laboratory under the requisite time and temperature conditions specified by Section 611.531(a) and that the supplier is providing adequate disinfection in the distribution system.
 - 9) A system need not report the data listed in subsections (b)(1) and (b)(3) through (b)(6) of this Section, if all data listed in subsections (b)(1) through (b)(8) of this Section remain on file at the system, and the Agency determines, by a SEP issued pursuant to Section 611.110, that the following is true:
 - A) The system has submitted to the Agency all the information required by subsections (b)(1) through (b)(8) of this Section for at least 12 months; and
 - B) The Agency has determined that the system is not required to provide filtration treatment.
 - c) By October 10 of each year, each system must provide to the Agency a report that summarizes its compliance with all watershed control program requirements specified in Section 611.232(b).
 - d) By October 10 of each year, each system must provide to the Agency a report on the on-site inspection conducted during that year pursuant to Section 611.232(c), unless the on-site inspection was conducted by the Agency. If the inspection was conducted by the Agency, the Agency must provide a copy of its report to the supplier.
 - e) Reporting health threats.
 - 1) Each system, upon discovering that a waterborne disease outbreak potentially attributable to that water system has occurred, must report that occurrence to the Agency as soon as possible, but no later than by the end of the next business day.
 - 2) If at any time the turbidity exceeds 5 NTU, the system must consult with the Agency as soon as practical, but no later than 24 hours after the exceedance is known, in accordance with the public notification requirements under Section 611.903(b)(3).

- 6798 3) If at any time the RDC falls below 0.2 mg/ℓ in the water entering the
6799 distribution system, the system must notify the Agency as soon as
6800 possible, but no later than by the end of the next business day. The system
6801 also must notify the Agency by the end of the next business day whether
6802 or not the RDC was restored to at least 0.2 mg/ℓ within four hours.
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6804 BOARD NOTE: Derived from 40 CFR 141.75(a) (2016)(2014).

6805 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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6808 **Section 611.262 Filtered PWSs: Reporting and Recordkeeping**
6809

6810 A supplier that uses a surface water source or a groundwater source under the direct influence of
6811 surface water and provides filtration treatment must report monthly to the Agency the
6812 information specified in this Section.
6813

- 6814 a) Turbidity measurements as required by Section 611.533(a) must be reported
6815 within ten days after the end of each month the supplier serves water to the public.
6816 Information that must be reported includes the following:
6817
- 6818 1) The total number of filtered water turbidity measurements taken during the
6819 month.
 - 6820
 - 6821 2) The number and percentage of filtered water turbidity measurements taken
6822 during the month that are less than or equal to the turbidity limits specified
6823 in Section 611.250 for the filtration technology being used.
 - 6824
 - 6825 3) The date and value of any turbidity measurements taken during the month
6826 that exceed 5 NTU.
6827
- 6828 b) Disinfection information specified in Section 611.533 must be reported to the
6829 Agency within ten days after the end of each month the supplier serves water to
6830 the public. Information that must be reported includes the following:
6831
- 6832 1) For each day, the lowest measurement of RDC in mg/ℓ in water entering
6833 the distribution system.
6834
 - 6835 2) The date and duration of each period when the RDC in water entering the
6836 distribution system fell below 0.2 mg/ℓ and when the Agency was notified
6837 of the occurrence.
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 - 6839 3) The following information on the samples taken in the distribution system
6840 in conjunction with total coliform monitoring pursuant to Sections

6841 611.240 through 611.242:

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- A) Number of instances where the RDC is measured;
- B) Number of instances where the RDC is not measured but HPC is measured;
- C) Number of instances where the RDC is measured but not detected and no HPC is measured;
- D) Number of instances where no RDC is detected and where HPC is greater than 500/ml;
- E) Number of instances where the RDC is not measured and HPC is greater than 500/ml;
- F) For the current and previous month the supplier serves water to the public, the value of "V" in the following formula:

$$V = \frac{100(c + d + e)}{(a + b)}$$

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where the terms mean the following:

- a = Value in subsection (b)(3)(A) of this Section;
- b = Value in subsection (b)(3)(B) of this Section;
- c = Value in subsection (b)(3)(C) of this Section;
- d = Value in subsection (b)(3)(D) of this Section; and
- e = Value in subsection (b)(3)(E) of this Section.

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- G) Subsections (b)(3)(A) through (b)(3)(F) of this Section do not apply if the Agency determines, pursuant to Section 611.213, that a supplier has no means for having a sample analyzed for HPC by a certified laboratory under the requisite time and temperature conditions specified by Section 611.531(a) and that the supplier is providing adequate disinfection in the distribution system.

c) Reporting health threats.

- 1) Each supplier, upon discovering that a waterborne disease outbreak potentially attributable to that water system has occurred, must report that occurrence to the Agency as soon as possible, but no later than by the end of the next business day.

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- 2) If at any time the turbidity exceeds 5 NTU, the supplier must consult with the Agency as soon as practical, but no later than 24 hours after the exceedance is known, in accordance with the public notification requirements under Section 611.903(b)(3).
- 3) If at any time the residual falls below 0.2 mg/ℓ in the water entering the distribution system, the supplier must notify the Agency as soon as possible, but no later than by the end of the next business day. The supplier also must notify the Agency by the end of the next business day whether or not the residual was restored to at least 0.2 mg/ℓ within four hours.

6890 BOARD NOTE: Derived from 40 CFR 141.75(b) (2016)(2014).

6891 (Source: Amended at 41 Ill. Reg. _____, effective _____)

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6894 **Section 611.276 Recycle Provisions**

- 6895
- 6896 a) **Applicability.** A Subpart B system supplier that employs conventional filtration or direct filtration treatment and which recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes must meet the requirements in subsections (b) through (d) of this Section.
- 6897
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- 6901 b) **Reporting.** A supplier must ~~notify~~have notified the Agency in writing by ~~December 8, 2003,~~ if the supplier recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes. This notification must include, at a minimum, the information specified in subsections (b)(1) and (b)(2) of this Section, as follows:
- 6902
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- 6907 1) A plant schematic showing the origin of all flows that are recycled (including, but not limited to, spent filter backwash water, thickener supernatant, and liquids from dewatering processes), the hydraulic conveyance used to transport them, and the location where they are re-introduced back into the treatment plant.
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- 6913 2) Typical recycle flow in gallons per minute (gpm), the highest observed plant flow experienced in the previous year (gpm), design flow for the treatment plant (gpm), and Agency-approved operating capacity for the plant where the Agency has made such a determination.
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- 6915
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- 6917
- 6918 c) **Treatment technique requirement.** Any supplier that recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes must
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6920 return these flows through the processes of the supplier's existing conventional or
6921 direct filtration system, as defined in Section 611.101, or at an alternative location
6922 approved by a permit issued by the Agency ~~by June 8, 2004~~. If capital
6923 improvements are required to modify the recycle location to meet this
6924 requirement, all capital improvements must be completed no later than June 8,
6925 2006.

6926
6927 d) Recordkeeping. The supplier must collect and retain on file recycle flow
6928 information specified in subsections (d)(1) through (d)(6) ~~of this Section~~ for
6929 review and evaluation by the Agency ~~beginning June 8, 2004~~, as follows:

- 6930
6931 1) A copy of the recycle notification and information submitted to the State
6932 under subsection (b) ~~of this Section~~.
- 6933
6934 2) A list of all recycle flows and the frequency with which they are returned.
- 6935
6936 3) The average and maximum backwash flow rate through the filters and the
6937 average and maximum duration of the filter backwash process in minutes.
- 6938
6939 4) The typical filter run length and a written summary of how filter run
6940 length is determined.
- 6941
6942 5) The type of treatment provided for the recycle flow.
- 6943
6944 6) Data on the physical dimensions of the equalization or treatment units,
6945 typical and maximum hydraulic loading rates, type of treatment chemicals
6946 used and average dose and frequency of use, and frequency at which
6947 solids are removed, if applicable.

6948
6949 BOARD NOTE: Derived from 40 CFR 141.76 ~~(2016)~~(2003).

6950
6951 (Source: Amended at 41 Ill. Reg. _____, effective _____)

6952
6953 SUBPART F: MAXIMUM CONTAMINANT LEVELS (MCLs)
6954 AND MAXIMUM RESIDUAL DISINFECTANT LEVELS (MRDLs)

6955
6956 **Section 611.300 Old MCLs for Inorganic Chemical Contaminants**

- 6957
6958 a) The old MCLs listed in subsection (b) ~~of this Section~~ for inorganic chemical
6959 contaminants (IOCs) apply only to CWS suppliers. Compliance with old MCLs
6960 for inorganic chemicals is calculated pursuant to Section 611.612.

6961
6962 BOARD NOTE: Formerly derived from 40 CFR 141.11(a), this subsection ~~(a)~~(b)

6963 has become an additional State requirement.

6964
6965 b) The following are the old MCLs for IOCs:

Contaminant	Level, mg/ℓ	Additional State Requirement (*)
Iron	1.0	*
Manganese	0.15	*
Zinc	5.	*

6967
6968 BOARD NOTE: Formerly derived from 40 CFR 141.11(b), this subsection (b)
6969 has become an additional State requirement.

6970
6971 c) This subsection corresponds with 40 CFR 141.11(c), marked as reserved by
6972 USEPA. This statement maintains structural parity with the federal rules.

6973
6974 d) Nitrate.
6975 Non-CWSs may exceed the MCL for nitrate under the following circumstances:

- 6976
6977 1) The nitrate level must not exceed 20 mg/ℓ,
6978
6979 2) The water must not be available to children under six months of age,
6980
6981 3) The NCWS supplier is meeting the public notification requirements under
6982 Section 611.909, including continuous posting of the fact that the nitrate
6983 level exceeds 10 mg/ℓ together with the potential health effects of
6984 exposure,
6985
6986 4) The supplier will annually notify local public health authorities and the
6987 Department of Public Health of the nitrate levels that exceed 10 mg/ℓ; and
6988
6989 5) No adverse public health effects result.

6990
6991 BOARD NOTE: Derived from 40 CFR 141.11(d) (2012). The Department of
6992 Public Health regulations may impose a nitrate limitation requirement. Those
6993 regulations are at 77 Ill. Adm. Code 900.50.

6994
6995 e) The following supplementary condition applies to the MCLs listed in subsection
6996 (b) of this Section for iron and manganese:

- 6997
6998 1) CWS suppliers that serve a population of 1000 or fewer, or 300 service
6999 connections or fewer, are exempt from the standards for iron and
7000 manganese.

7001
 7002 2) The Agency may, by a SEP issued pursuant to Section 611.110, allow iron
 7003 and manganese in excess of the MCL if sequestration tried on an
 7004 experimental basis proves to be effective. If sequestration is not effective,
 7005 positive iron or manganese reduction treatment as applicable must be
 7006 provided. Experimental use of a sequestering agent may be tried only if
 7007 approved by a SEP issued pursuant to Section 611.110.
 7008

7009 BOARD NOTE: This subsection (e) is an additional State requirement.
 7010

7011 (Source: Amended at 41 Ill. Reg. _____, effective _____)
 7012

7013 **Section 611.301 Revised MCLs for Inorganic Chemical Contaminants**
 7014

- 7015 a) This subsection corresponds with 40 CFR 141.62(a), reserved by USEPA. This
 7016 statement maintains structural consistency with USEPA rules.
 7017
 7018 b) The MCLs in the following table apply to CWSs. Except for fluoride, the MCLs
 7019 also apply to NTNCWSs. The MCLs for nitrate, nitrite, and total nitrate and
 7020 nitrite also apply to transient non-CWSs.
 7021

Contaminant	MCL	Units
Antimony	0.006	mg/ℓ
Arsenic	0.010	mg/ℓ
Asbestos	7	MFL
Barium	2	mg/ℓ
Beryllium	0.004	mg/ℓ
Cadmium	0.005	mg/ℓ
Chromium	0.1	mg/ℓ
Cyanide (as free CN ⁻)	0.2	mg/ℓ
Fluoride	4.0	mg/ℓ
Mercury	0.002	mg/ℓ
Nitrate (as N)	10	mg/ℓ
Nitrite (as N)	1	mg/ℓ
Total Nitrate and Nitrite (as N)	10	mg/ℓ
Selenium	0.05	mg/ℓ
Thallium	0.002	mg/ℓ

7022
 7023 BOARD NOTE: See Section 611.300(d) for an elevated nitrate level for
 7024 non-CWSs. USEPA removed and reserved the MCL for nickel on June 29,
 7025 1995, at 60 Fed. Reg. 33932, as a result of a judicial order in Nickel
 7026 Development Institute v. EPA, No. 92-1407, and Specialty Steel Industry

7027 of the U.S. v. Browner, No. 92-1410 (D.C. Cir. Feb. 23 & Mar. 6, 1995),
 7028 while retaining the contaminant, analytical methodology, and detection
 7029 limit listings for this contaminant.
 7030

7031 c) USEPA has identified the following as BAT for achieving compliance with the
 7032 MCL for the IOCs identified in subsection (b) of this Section, except for fluoride:
 7033

Contaminant	BATs
Antimony	C/F RO
Arsenic (BATs for As ^V . Pre-oxidation may be required to convert As ^{III} to As ^V .)	AAL C/F IX LIME RO ED O/F (To obtain high removals, the iron to arsenic ratio must be at least 20:1)
Asbestos	C/F DDF CC
Barium	IX LIME RO ED
Beryllium	AA C/F IX LIME RO
Cadmium	C/F IX LIME RO
Chromium	C/F IX

	LIME, BAT for Cr ^{III} only RO
Cyanide	IX RO ALK Cl ₂
Mercury	C/F, BAT only if influent Hg concentrations less than or equal to 10 µg/ℓ GAC LIME, BAT only if influent Hg concentrations less than or equal to 10 µg/ℓ RO, BAT only if influent Hg concentrations less than or equal to 10 µg/ℓ
Nickel	IX LIME RO
Nitrate	IX RO ED
Nitrite	IX RO
Selenium	AAL C/F, BAT for Se ^{IV} only LIME RO ED
Thallium	AAL IX

7034

Abbreviations

AAL	Activated alumina
ALK Cl ₂	Alkaline chlorination (pH ≥ 8.5)
C/F	Coagulation/filtration (not BAT for a system that has fewer than 500 service connections)

CC	Corrosion control
C1 ₂	Oxidation (chlorine)
DDF	Direct and diatomite filtration
ED	Electrodialysis
GAC	Granular activated carbon
IX	Ion exchange
LIME	Lime softening
O/F	Oxidation/filtration
RO	Reverse osmosis
UV	Ultraviolet irradiation

7035
 7036 d) At 40 CFR 141.62(d) (2016)(2012), USEPA identified the following as the
 7037 affordable technology, treatment technique, or other means available to systems
 7038 serving 10,000 persons or fewer for achieving compliance with the maximum
 7039 contaminant level for arsenic:
 7040

Small System Compliance Technologies (SSCTs)¹ for Arsenic²

Small system compliance technology	Affordable for listed small system categories ³
Activated alumina (centralized)	All size categories
Activated alumina (point-of-use) ⁴	All size categories
Coagulation/filtration ⁵	501-3,300 persons, 3,301-10,000 persons
Coagulation-assisted microfiltration	501-3,300 persons, 3,301-10,000 persons
Electrodialysis reversal ⁶	501-3,300 persons, 3,301-10,000 persons
Enhanced coagulation/filtration	All size categories
Enhanced lime softening (pH >10.5)	All size categories
Ion exchange	All size categories
Lime softening ⁵	501-3,300 persons, 3,301-10,000 persons
Oxidation/filtration ⁷	All size categories
Reverse osmosis (centralized) ⁶	501-3,300 persons, 3,301-10,000 persons
Reverse osmosis (point-of-use) ⁴	All size categories

7041
 7042 ¹ Section 1412(b)(4)(E)(ii) of the federal SDWA (42 USC 300g-1(b)(4)(E)(ii))
 7043 specifies that SSCTs must be affordable and technically feasible for a small
 7044 system supplier.
 7045 ² SSCTs for As^V. Pre-oxidation may be required to convert As^{III} to As^V.
 7046 ³ The federal SDWA specifies three categories of small system suppliers: (1)
 7047 those serving 25 or more, but fewer than 501 persons, (2) those serving more

- 7048 than 500 but fewer than 3,301 persons, and (3) those serving more than 3,300
 7049 but fewer than 10,001 persons.
 7050 4 When POU or POE devices are used for compliance, programs to ensure
 7051 proper long-term operation, maintenance, and monitoring must be provided
 7052 by the water supplier to ensure adequate performance.
 7053 5 Unlikely to be installed solely for arsenic removal. May require pH
 7054 adjustment to optimal range if high removals are needed.
 7055 6 Technologies reject a large volume of water – may not be appropriate for
 7056 areas where water quantity may be an issue.
 7057 7 To obtain high removals, iron to arsenic ratio must be at least 20:1.
 7058

7059 BOARD NOTE: Derived from 40 CFR 141.62 (2016)(~~2012~~).
 7060

7061 (Source: Amended at 41 Ill. Reg. _____, effective _____)
 7062

7063 **Section 611.311 Revised MCLs for Organic Chemical Contaminants**
 7064

- 7065 a) Volatile organic chemical contaminants. The following MCLs for volatile organic
 7066 chemical contaminants (VOCs) apply to CWS suppliers and NTNCWS suppliers.
 7067

CAS No.	Contaminant	MCL (mg/ℓ)
71-43-2	Benzene	0.005
56-23-5	Carbon tetrachloride	0.005
95-50-1	o-Dichlorobenzene	0.6
106-46-7	p-Dichlorobenzene	0.075
107-06-2	1,2-Dichloroethane	0.005
75-35-4	1,1-Dichloroethylene	0.007
156-59-2	cis-1,2-Dichloroethylene	0.07
156-60-5	trans-1,2-Dichloroethylene	0.1
75-09-2	Dichloromethane (methylene chloride)	0.005
78-87-5	1,2-Dichloropropane	0.005
100-41-4	Ethylbenzene	0.7
108-90-7	Monochlorobenzene	0.1
100-42-5	Styrene	0.1
127-18-4	Tetrachloroethylene	0.005
108-88-3	Toluene	1
120-82-1	1,2,4-Trichlorobenzene	0.07
71-55-6	1,1,1-Trichloroethane	0.2
79-00-5	1,1,2-Trichloroethane	0.005
79-01-6	Trichloroethylene	0.005
75-01-4	Vinyl chloride	0.002
1330-20-7	Xylenes (total)	10

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BOARD NOTE: See the definition of "initial compliance period" at Section 611.101.

- b) USEPA has identified, as indicated below, granular activated carbon (GAC), packed tower aeration (PTA), or oxidation (OX) as BAT for achieving compliance with the MCLs for volatile organic chemical contaminants (VOCs) and synthetic organic chemical contaminants (SOCs) in subsections (a) and (c) of this Section.

15972-60-8	Alachlor	GAC
116-06-3	Aldicarb*	GAC
1646-87-4	Aldicarb sulfone*	GAC
1646-87-3	Aldicarb sulfoxide*	GAC
1912-24-9	Atrazine	GAC
71-43-2	Benzene	GAC, PTA
50-32-8	Benzo(a)pyrene	GAC
1563-66-2	Carbofuran	GAC
56-23-5	Carbon tetrachloride	GAC, PTA
57-74-9	Chlordane	GAC
94-75-7	2,4-D	GAC
75-99-0	Dalapon	GAC
96-12-8	Dibromochloropropane	GAC, PTA
95-50-1	o-Dichlorobenzene	GAC, PTA
106-46-7	p-Dichlorobenzene	GAC, PTA
107-06-2	1,2-Dichloroethane	GAC, PTA
156-59-2	cis-1,2-Dichloroethylene	GAC, PTA
156-60-5	trans-1,2-Dichloroethylene	GAC, PTA
75-35-4	1,1-Dichloroethylene	GAC, PTA
75-09-2	Dichloromethane	PTA
78-87-5	1,2-Dichloropropane	GAC, PTA
103-23-1	Di(2-ethylhexyl)adipate	GAC, PTA
117-81-7	Di(2-ethylhexyl)phthalate	GAC
88-85-7	Dinoseb	GAC
85-00-7	Diquat	GAC
145-73-3	Endothall	GAC
72-20-8	Endrin	GAC
106-93-4	Ethylene dibromide (EDB)	GAC, PTA
100-41-4	Ethylbenzene	GAC, PTA
1071-53-6	Glyphosate	OX
76-44-8	Heptachlor	GAC
1024-57-3	Heptachlor epoxide	GAC
118-74-1	Hexachlorobenzene	GAC

77-47-3	Hexachlorocyclopentadiene	GAC, PTA
58-89-9	Lindane	GAC
72-43-5	Methoxychlor	GAC
108-90-7	Monochlorobenzene	GAC, PTA
23135-22-0	Oxamyl	GAC
87-86-5	Pentachlorophenol	GAC
1918-02-1	Picloram	GAC
1336-36-3	Polychlorinated biphenyls (PCB)	GAC
122-34-9	Simazine	GAC
100-42-5	Styrene	GAC, PTA
1746-01-6	2,3,7,8-TCDD	GAC
127-18-4	Tetrachloroethylene	GAC, PTA
108-88-3	Toluene	GAC
8001-35-2	Toxaphene	GAC
120-82-1	1,2,4-trichlorobenzene	GAC, PTA
71-55-6	1,1,1-Trichloroethane	GAC, PTA
79-00-5	1,1,2-trichloroethane	GAC, PTA
79-01-6	Trichloroethylene	GAC, PTA
93-72-1	2,4,5-TP	GAC
75-01-4	Vinyl chloride	PTA
1330-20-7	Xylene	GAC, PTA

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*See the Board note appended to the end of this Section.

c) Synthetic organic chemical contaminants. The following MCLs for SOCs apply to CWS and NTNCWS suppliers.

CAS Number	Contaminant	MCL (mg/ℓ)
15972-60-8	Alachlor	0.002
116-06-3	Aldicarb*	0.002
1646-87-4	Aldicarb sulfone*	0.002
1646-87-3	Aldicarb sulfoxide*	0.004
1912-24-9	Atrazine	0.003
50-32-8	Benzo(a)pyrene	0.0002
1563-66-2	Carbofuran	0.04
57-74-9	Chlordane	0.002
94-75-7	2,4-D	0.07
75-99-0	Dalapon	0.2
96-12-8	Dibromochloropropane	0.0002
103-23-1	Di(2-ethylhexyl)adipate	0.4
117-81-7	Di(2-ethylhexyl)phthalate	0.006
88-85-7	Dinoseb	0.007

85-00-7	Diquat	0.02
145-73-3	Endothall	0.1
72-20-8	Endrin	0.002
106-93-4	Ethylene dibromide	0.00005
1071-53-6	Glyphosate	0.7
76-44-8	Heptachlor	0.0004
1024-57-3	Heptachlor epoxide	0.0002
118-74-1	Hexachlorobenzene	0.001
77-47-4	Hexachlorocyclopentadiene	0.05
58-89-9	Lindane	0.0002
72-43-5	Methoxychlor	0.04
23135-22-0	Oxamyl (Vydate)	0.2
87-86-5	Pentachlorophenol	0.001
1918-02-1	Picloram	0.5
1336-36-3	Polychlorinated biphenyls (PCBs)	0.0005
122-34-9	Simazine	0.004
1746-01-6	2,3,7,8-TCDD (Dioxin)	0.00000003
8001-35-2	Toxaphene	0.003
93-72-1	2,4,5-TP	0.05

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* See the Board note appended to the end of this Section.

BOARD NOTE: Derived from 40 CFR 141.61 ~~(2016)~~(2012). See the definition of "initial compliance period" at Section 611.101. More stringent state MCLs for 2,4-D, heptachlor, and heptachlor epoxide appear at Section 611.310. See the Board Note at that provision. In 40 CFR 141.6(g), USEPA postponed the effectiveness of the MCLs for aldicarb, aldicarb sulfone, and aldicarb sulfoxide until it took further action on those MCLs. See 40 CFR 141.6(g) and 57 Fed. Reg. 22178 (May 27, 1992). USEPA has since stated that it anticipates taking no action until 2005 on a federal national primary drinking water regulation (NPDWR) applicable to the aldicarbs. 68 Fed. Reg. 31108 (May 27, 2003). In 2005, USEPA indicated no projected date for final action on the aldicarbs. See 70 Fed. Reg. 27501, 671 (May 16, 2005). An entry for the aldicarbs last appeared in USEPA's Spring 2007 semiannual regulatory agenda, indicating no projected dates for further action. See 72 Fed. Reg. 23156, 97 (Apr. 30, 2007); see also 72 Fed. Reg. 70118, 23 (Dec. 10, 2007) (the first USEPA regulatory agenda that included no entry for the aldicarbs). While the Board must maintain entries for aldicarb, aldicarb sulfoxide, and aldicarb sulfone to maintain consistency with the letter of the federal regulations (see Sections 7.2 and 17.5 of the Act ~~415 ILCS 5/7.2 and 17.5 (2010)~~; 42 USC 300g-2 ~~(2016)~~(2010); 40 CFR 142.10 ~~(2016)~~(2012)), the Board intends that no aldicarb requirements apply in Illinois until after USEPA adopts such requirements and the Board has removed this statement.

(Source: Amended at 41 Ill. Reg. _____, effective _____)

7108
 7109 **Section 611.312 Maximum Contaminant Levels (MCLs) for Disinfection Byproducts**
 7110 **(DBPs)**
 7111

7112 a) Bromate and chlorite. The maximum contaminant levels (MCLs) for bromate and
 7113 chlorite are as follows:
 7114

Disinfection <u>Byproduct</u> byproduct	MCL (mg/ℓ)
Bromate	0.010
Chlorite	1.0

7115
 7116 1) Compliance dates for CWSs and NTNCWSs. A Subpart B system
 7117 supplier that serves 10,000 or more persons must comply with this
 7118 subsection (a). A Subpart B system supplier that serves fewer than 10,000
 7119 persons and systems using only groundwater not under the direct influence
 7120 of surface water must comply with this subsection (a).
 7121

7122 2) USEPA has identified the following as the best available technology,
 7123 treatment techniques, or other means available for achieving compliance
 7124 with the maximum contaminant levels for bromate and chlorite identified
 7125 in this subsection (a):
 7126

Disinfection Byproduct	Best Available Technology
Bromate	Control of ozone treatment process to reduce production of bromate.
Chlorite	Control of treatment processes to reduce disinfectant demand and control of disinfection treatment processes to reduce disinfectant levels.

7127
 7128 b) TTHM and HAA5.
 7129
 7130 1) Subpart I – Running annual average compliance.
 7131
 7132 A) Compliance dates. ~~A Subpart B system supplier that serves 10,000~~
 7133 ~~or more persons must comply with this subsection (b)(1) beginning~~
 7134 ~~January 1, 2002. A Subpart B system supplier that serves fewer~~
 7135 ~~than 10,000 persons and systems using only groundwater not under~~
 7136 ~~the direct influence of surface water must comply with this~~
 7137 subsection (b)(1). All systems must comply with these MCLs until
 7138 the date specified for Subpart Y compliance in Section 611.980(c).

7139

Disinfection Byproduct	MCL (mg/ℓ)
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Total trihalomethanes (TTHM)	0.080
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Haloacetic acids (five) (HAA5)	0.060
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B) USEPA has identified the following as the best available technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for TTHM and HAA5 identified in this subsection (b)(1):

Disinfection Byproduct	Best Available Technology
------------------------	---------------------------

Total trihalomethanes (TTHM) and Haloacetic acids (five) (HAA5)	Enhanced coagulation or enhanced softening or GAC10, with chlorine as the primary and residual disinfectant.
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2) Subpart Y – Locational running annual average compliance.

A) Compliance dates. The Subpart Y MCLs for TTHM and HAA5 must be complied with as a locational running annual average at each monitoring location beginning the date specified for Subpart Y compliance in Section 611.980(c).

Disinfection Byproduct	MCL (mg/ℓ)
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Total trihalomethanes (TTHM)	0.080
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Haloacetic acids (five) (HAA5)	0.060
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B) USEPA has identified the following as the best available technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for TTHM and HAA5 identified in this subsection (b)(2) for any supplier that disinfects its source water:

Disinfection Byproduct	Best Available Technology
------------------------	---------------------------

Total trihalomethanes (TTHM) and Haloacetic acids (five) (HAA5)	Enhanced coagulation or enhanced softening, plus GAC10; or nanofiltration with a molecular weight
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cutoff ≤ 1000 Daltons; or
GAC20.

- 7161
- 7162 C) USEPA has identified the following as the best available
- 7163 technology, treatment techniques, or other means available for
- 7164 achieving compliance with the maximum contaminant levels for
- 7165 TTHM and HAA5 identified in this subsection (b)(2) for
- 7166 consecutive systems and applies only to the disinfected water that a
- 7167 consecutive system buys or otherwise receives from a wholesale
- 7168 system:
- 7169

Disinfection Byproduct	Best Available Technology
Total trihalomethanes (TTHM) and Haloacetic acids (five) (HAA5)	Any system that serves 10,000 or more persons: Improved distribution system and storage tank management to reduce residence time, plus the use of chloramines for disinfectant residual maintenance; or Any system that serves fewer than 10,000 persons: Improved distribution system and storage tank management to reduce residence time.

7170
7171 BOARD NOTE: Derived from 40 CFR 141.64 (2016)(2006).

7172
7173 (Source: Amended at 41 Ill. Reg. _____, effective _____)

7174
7175 **Section 611.313 Maximum Residual Disinfectant Levels (MRDLs)**

- 7176 a) Maximum residual disinfectant levels (MRDLs) are as follows:

Disinfectant residual	MRDL (mg/ℓ)
Chlorine	4.0 (as Cl ₂)
Chloramines	4.0 (as Cl ₂)
Chlorine dioxide	0.8 (as ClO ₂)

- 7179
7180 b) Compliance dates.

- 7181
 7182 1) CWSs and NTNCWSs. A Subpart B system supplier serving 10,000 or
 7183 more persons must comply with this Section ~~beginning January 1, 2002.~~
 7184 A Subpart B system supplier serving fewer than 10,000 persons or a
 7185 supplier using only groundwater not under the direct influence of surface
 7186 water must comply with this Section ~~beginning January 1, 2004.~~
 7187
 7188 2) Transient NCWSs. A Subpart B system supplier serving 10,000 or more
 7189 persons and using chlorine dioxide as a disinfectant or oxidant must
 7190 comply with the chlorine dioxide MRDL ~~beginning January 1, 2002.~~ A
 7191 Subpart B system supplier serving fewer than 10,000 persons and using
 7192 chlorine dioxide as a disinfectant or oxidant or a supplier using only
 7193 groundwater not under the direct influence of surface water and using
 7194 chlorine dioxide as a disinfectant or oxidant must comply with the
 7195 chlorine dioxide MRDL ~~beginning January 1, 2004.~~
 7196
 7197 c) The following are identified as the best technology, treatment techniques, or other
 7198 means available for achieving compliance with the maximum residual disinfectant
 7199 levels identified in subsection (a) ~~of this Section:~~ control of treatment processes to
 7200 reduce disinfectant demand and control of disinfection treatment processes to
 7201 reduce disinfectant levels.
 7202

7203 BOARD NOTE: Derived from 40 CFR 141.65 (2016)~~(2002)~~.

7204 (Source: Amended at 41 Ill. Reg. _____, effective _____)
 7205
 7206

7207 **Section 611.325 Microbiological Contaminants**
 7208

- 7209 a) ~~Until March 31, 2016, the MCL is based on the presence or absence of total~~
 7210 ~~coliforms in a sample, rather than coliform density.~~
 7211
 7212 1) ~~For a supplier that collects at least 40 samples per month, if no more than~~
 7213 ~~5.0 percent of the samples collected during a month are total coliform-~~
 7214 ~~positive, the supplier is in compliance with the MCL for total coliforms.~~
 7215
 7216 2) ~~For a supplier that collects fewer than 40 samples per month, if no more~~
 7217 ~~than one sample collected during a month is a total coliform positive, the~~
 7218 ~~supplier is in compliance with the MCL for total coliforms.~~
 7219
 7220 b) ~~Until March 31, 2016, any fecal coliform positive repeat sample or E. coli-~~
 7221 ~~positive repeat sample, or any total coliform positive repeat sample following a~~
 7222 ~~fecal coliform positive or E. coli positive routine sample, constitutes a violation~~
 7223 ~~of the MCL for total coliforms. For purposes of the public notification~~

- 7224 requirements in Subpart V of this Part, this is a violation that may pose an acute
 7225 risk to health.
 7226
- 7227 ae) ~~A~~Beginning April 1, 2016, a supplier is in compliance with the MCL for E. coli
 7228 for samples taken under the provisions of Subpart AA of this Part, unless any of
 7229 the conditions identified in subsections ~~(a)(1)(e)(1)~~ through ~~(a)(4)(e)(4)~~ of this
 7230 Section occur. For purposes of the public notification requirements in Subpart V
 7231 of this Part, violation of the MCL may pose an acute risk to health.
 7232
- 7233 1) The supplier has an E. coli-positive repeat sample following a total
 7234 coliform-positive routine sample.
 - 7235
 - 7236 2) The supplier has a total coliform-positive repeat sample following an E.
 7237 coli-positive routine sample.
 - 7238
 - 7239 3) The supplier fails to take all required repeat samples following an E. coli-
 7240 positive routine sample.
 - 7241
 - 7242 4) The supplier fails to test for E. coli when any repeat sample tests positive
 7243 for total coliform.
 7244
- 7245 bd) ~~U~~ntil March 31, 2016, a supplier must determine compliance with the MCL for
 7246 total coliforms in subsections (a) and (b) of this Section for each month in which
 7247 it is required to monitor for total coliforms. ~~B~~eginning April 1, 2016, a supplier
 7248 must determine compliance with the MCL for E. coli in subsection ~~(a)(e)~~ of this
 7249 Section for each month in which it is required to monitor for total coliforms.
 7250
- 7251 ce) ~~B~~ATs for achieving compliance with the MCL for total coliforms in subsections
 7252 (a) and (b) of this Section and for achieving compliance with the maximum
 7253 contaminant level for E. coli in subsection ~~(a)(e)~~ of this Section are the following:
 7254
- 7255 1) Protection of wells from fecal contamination by appropriate placement
 7256 and construction;
 - 7257
 - 7258 2) Maintenance of RDC throughout the distribution system;
 - 7259
 - 7260 3) Proper maintenance of the distribution system including appropriate pipe
 7261 replacement and repair procedures, main flushing programs, proper
 7262 operation and maintenance of storage tanks and reservoirs, cross-
 7263 connection control, and continual maintenance positive water pressure in
 7264 all parts of the distribution system;
 - 7265
 - 7266 4) Filtration and disinfection of surface water, as described in Subparts B, R,

7267 X, and Z of this Part, or disinfection of groundwater, as described in
 7268 Subpart S of this Part, using strong oxidants such as chlorine, chlorine
 7269 dioxide, or ozone; or

7270
 7271 5) For systems using groundwater, compliance with the wellhead protection
 7272 program, after USEPA approves the program.

7273
 7274 f) USEPA has identified, pursuant to 42 USC 300g-1, the technology, treatment
 7275 techniques, or other means available identified in subsection (c)(e) of this Section
 7276 as affordable technology, treatment techniques, or other means available to
 7277 suppliers serving 10,000 or fewer people for achieving compliance with the MCL
 7278 for total coliforms in subsections (a) and (b) of this Section and for achieving
 7279 compliance with the MCL for E. coli in subsection (a)(e) of this Section.

7280
 7281 BOARD NOTE: Derived from 40 CFR 141.63 (2016)(2013).

7282
 7283 (Source: Amended at 41 Ill. Reg. _____, effective _____)

7284
 7285 **Section 611.330 Maximum Contaminant Levels for Radionuclides**

7286
 7287 a) This subsection corresponds with 40 CFR 141.66(a), marked reserved by USEPA.
 7288 This statement maintains structural consistency with USEPA rules.

7289
 7290 b) MCL for combined radium-226 and -228. The maximum contaminant level for
 7291 combined radium-226 and radium-228 is 5 pCi/l. The combined radium-226 and
 7292 radium-228 value is determined by the addition of the results of the analysis for
 7293 radium-226 and the analysis for radium-228.

7294
 7295 c) MCL for gross alpha particle activity (excluding radon and uranium). The
 7296 maximum contaminant level for gross alpha particle activity (including radium-
 7297 226 but excluding radon and uranium) is 15 pCi/l.

7298
 7299 d) MCL for beta particle and photon radioactivity.

7300
 7301 1) The average annual concentration of beta particle and photon radioactivity
 7302 from man-made radionuclides in drinking water must not produce an
 7303 annual dose equivalent to the total body or any internal organ greater than
 7304 4 millirem/year (mrem/year).

7305
 7306 2) Except for the radionuclides listed in the following table, the concentration
 7307 of man-made radionuclides causing 4 mrem total body or organ dose
 7308 equivalents must be calculated on the basis of two liters per day drinking
 7309 water intake, using the 168-hour data list set forth in NBS Handbook

7310 69"Maximum Permissible Body Burdens and Maximum Permissible
 7311 Concentrations of Radionuclides in Air and in Water for Occupational
 7312 Exposure," incorporated by reference in Section 611.102, available from
 7313 the NTIS. If two or more radionuclides are present, the sum of their
 7314 annual dose equivalent to the total body or to any organ must not exceed 4
 7315 mrem/year.
 7316

Average Annual Concentrations Assumed to Produce
 a Total Body or Organ Dose of 4 mrem/yr

Radionuclide	Critical organ	pCi per liter
1. Tritium	Total body	20,000
2. Strontium-90	Bone Marrow	8

- 7317
 7318 e) MCL for uranium. The maximum contaminant level for uranium is 30 µg/l.
 7319
 7320 f) Compliance dates for combined radium-226 and -228, gross alpha particle
 7321 activity, gross beta particle and photon radioactivity, and uranium. A CWS
 7322 supplier must comply with the MCLs listed in subsections (b) through (e) of this
 7323 Section, and compliance must be determined in accordance with the requirements
 7324 of Subpart Q of this Part.
 7325
 7326 g) Best available technologies (BATs) for radionuclides. USEPA has identified the
 7327 technologies indicated in the following table as the BAT for achieving
 7328 compliance with the MCLs for combined radium-226 and -228, uranium, gross
 7329 alpha particle activity, and beta particle and photon radioactivity.
 7330

BAT for Combined Radium-226 and Radium-228, Uranium, Gross Alpha
 Particle Activity, and Beta Particle and Photon Radioactivity

Contaminant	BAT
1. Combined radium-226 and radium-228	Ion exchange, reverse osmosis, lime softening.
2. Uranium	Ion exchange, reverse osmosis, lime softening, coagulation/filtration.
3. Gross alpha particle activity (excluding Radon and Uranium)	Reverse osmosis.
4. Beta particle and photon radioactivity	Ion exchange, reverse osmosis.

- 7331
 7332 h) Small systems compliance technologies list for radionuclides.
 7333

List of Small Systems Compliance Technologies for Radionuclides and Limitations to Use

Unit technologies	Limitations (see footnotes)	Operator skill level required ¹	Raw water quality range and considerations ¹
1. Ion exchange (IE)	(a)	Intermediate	All ground waters.
2. Point of use (POU ²) IE	(b)	Basic	All ground waters.
3. Reverse osmosis (RO)	(c)	Advanced	Surface waters usually require pre-filtration.
4. POU ² RO	(b)	Basic	Surface waters usually require pre-filtration.
5. Lime softening	(d)	Advanced	All waters.
6. Green sand filtration	(e)	Basic	
7. Co-precipitation with Barium sulfate	(f)	Intermediate to Advanced	Ground waters with suitable water quality.
8. Electrodialysis/ electrodialysis reversal		Basic to Intermediate	All ground waters.
9. Pre-formed hydrous Manganese oxide filtration	(g)	Intermediate	All ground waters.
10. Activated alumina	(a), (h)	Advanced	All ground waters; competing anion concentrations may affect regeneration frequency.
11. Enhanced coagulation/ filtration	(i)	Advanced	Can treat a wide range of water qualities.

¹ National Research Council (NRC). "Safe Water from Every Tap: Improving Water Service to Small Communities," National Academy Press, Washington, D.C. 1997.

² A POU, or "point-of-use" technology is a treatment device installed at a single tap used for the purpose of reducing contaminants in drinking water at that one tap. POU devices are typically installed at the kitchen tap. BOARD NOTE: USEPA refers the reader to the notice of data availability (NODA) at 66 Fed. Reg. 21576 (April 21, 2000) for more details.

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Limitations Footnotes: Technologies for Radionuclides:

- (a) The regeneration solution contains high concentrations of the contaminant ions. Disposal options should be carefully considered before choosing this technology.
- (b) When POU devices are used for compliance, programs for long-term operation, maintenance, and monitoring must be provided by water utility to ensure proper performance.
- (c) Reject water disposal options should be carefully considered before choosing this technology.

BOARD NOTE: In corresponding 40 CFR 141.66, Table C, footnote c states in part as follows: "See other RO limitations described in the SWTR Compliance Technologies Table." Table C was based in significant part on "Table 13. – Technologies for Radionuclides" that appears at 63 Fed. Reg. 42032, at 42043 (Aug. August 6, 1998). Table 13, which refers to "Table 2. – SWTR Compliance Technology Table: Filtration-". That Table 2 lists the limitations on RO as follows:

- ^d Blending (combining treated water with untreated raw water) cannot be practiced at risk of increasing microbial concentrations in finished water.
- ^e Post-disinfection recommended as a safety measure and for residual maintenance.
- ^f Post-treatment corrosion control will be needed prior to distribution.

63 Fed. Reg. at 42036.

- (d) The combination of variable source water quality and the complexity of the water chemistry involved may make this technology too complex for small surface water systems.

- 7371 (e) Removal efficiencies can vary depending on water quality.
 7372
 7373 (f) This technology may be very limited in application to small systems.
 7374 Since the process requires static mixing, detention basins, and filtration, it
 7375 is most applicable to systems with sufficiently high sulfate levels that
 7376 already have a suitable filtration treatment train in place.
 7377
 7378 (g) This technology is most applicable to small systems that already have
 7379 filtration in place.
 7380
 7381 (h) Handling of chemicals required during regeneration and pH adjustment
 7382 may be too difficult for small systems without an adequately trained
 7383 operator.
 7384
 7385 (i) Assumes modification to a coagulation/filtration process already in place.
 7386

Compliance Technologies by System Size Category
 for Radionuclide NPDWRs

Contaminant	Compliance technologies ¹ for system size categories (population served)		
	25-500	501-3,300	3,300-10,000
1. Combined radium-226 and radium-228	1, 2, 3, 4, 5, 6, 7, 8, 9	1, 2, 3, 4, 5, 6, 7, 8, 9	1, 2, 3, 4, 5, 6, 7, 8, 9
2. Gross alpha particle activity	3, 4	3, 4	3, 4
3. Beta particle activity and photon activity	1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4
4. Uranium	1, 2, 4, 10, 11	1, 2, 3, 4, 5, 10, 11	1, 2, 3, 4, 5, 10, 11

7387
 7388 Note:

7389
 7390 ¹ Numbers correspond to those technologies found listed in the table, "List of Small Systems
 7391 Compliance Technologies for Radionuclides and Limitations to Use,"² set forth above.
 7392

7393 BOARD NOTE: Derived from 40 CFR 141.66 (2016)(2012).

7394
 7395 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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7397 SUBPART G: LEAD AND COPPER

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Section 611.350 General Requirements

- a) Applicability and Scope
 - 1) Applicability. The requirements of this Subpart G constitute national primary drinking water regulations for lead and copper. This Subpart G applies to all community water systems (CWSs) and non-transient, non-community water systems (NTNCWSs).
 - 2) Scope. This Subpart G establishes a treatment technique that includes requirements for corrosion control treatment, source water treatment, lead service line replacement, and public education. These requirements are triggered, in some cases, by lead and copper action levels measured in samples collected at consumers' taps.
- b) Definitions. For the purposes of only this Subpart G, the following terms have the following meanings:
 - "Action level" means that concentration of lead or copper in water computed pursuant to subsection (c) of this Section that determines, in some cases, the treatment requirements of this Subpart G that a supplier must complete. The action level for lead is 0.015 mg/ℓ. The action level for copper is 1.3 mg/ℓ.
 - "Corrosion inhibitor" means a substance capable of reducing the corrosivity of water toward metal plumbing materials, especially lead and copper, by forming a protective film on the interior surface of those materials.
 - "Effective corrosion inhibitor residual" means a concentration of inhibitor in the drinking water sufficient to form a passivating film on the interior walls of a pipe.
 - "Exceeds", as this term is applied to either the lead or the copper action level, means that the 90th percentile level of the supplier's samples collected during a six-month monitoring period is greater than the action level for that contaminant.
 - "First draw sample" means a one-liter sample of tap water, collected in accordance with Section 611.356(b)(2), that has been standing in plumbing pipes for at least six hours and which is collected without flushing the tap.

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"Large system" means a water system that regularly serves water to more than 50,000 persons.

"Lead service line" means a service line made of lead that connects the water main to the building inlet, including any lead pigtail, gooseneck, or other fitting that is connected to such lead line.

"Maximum permissible concentration" or "MPC" means that concentration of lead or copper for finished water entering the supplier's distribution system, designated by the Agency by a SEP pursuant to Sections 611.110 and 611.353(b) that reflects the contaminant removal capability of the treatment properly operated and maintained.
BOARD NOTE: Derived from 40 CFR 141.83(b)(4) ~~(2016)~~(2007). (See Section 611.353(b)(4)(B).)

"Medium-sized system" means a water system that regularly serves water to more than 3,300 up to 50,000 or fewer persons.

"Meet," as this term is applied to either the lead or the copper action level, means that the 90th percentile level of the supplier's samples collected during a six-month monitoring period is less than or equal to the action level for that contaminant.

"Method detection limit" or "MDL" is as defined at Section 611.646(a). The MDL for lead is 0.001 mg/l. The MDL for copper is 0.001 mg/l, or 0.020 mg/l by atomic absorption direct aspiration method.
BOARD NOTE: Derived from 40 CFR 141.89(a)(1)(iii) ~~(2016)~~(2007).

"Monitoring period" means any of the six-month periods of time during which a supplier must complete a cycle of monitoring under this Subpart G.

BOARD NOTE: USEPA refers to these as "monitoring periods." The Board uses "six-month monitoring period" to avoid confusion with "compliance period," as used elsewhere in this Part and defined at Section 611.101.

"Multiple-family residence" means a building that is currently used as a multiple-family residence, but not one that is also a "single-family structure."

"90th percentile level" means that concentration of lead or copper contaminant exceeded by ten percent or fewer of all samples collected

7484 during a six-month monitoring period pursuant to Section 611.356 (i.e.,
7485 that concentration of contaminant greater than or equal to the results
7486 obtained from 90 percent of the samples). The 90th percentile levels for
7487 copper and lead must be determined pursuant to subsection (c)(3) of this
7488 Section.

7489 BOARD NOTE: Derived from 40 CFR 141.80(c) (2016)~~(2007)~~.

7490
7491 "Optimal corrosion control treatment" means the corrosion control
7492 treatment that minimizes the lead and copper concentrations at users' taps
7493 while ensuring that the treatment does not cause the water system to
7494 violate any national primary drinking water regulations.

7495
7496 "Practical quantitation limit" or "PQL" means the lowest concentration of
7497 a contaminant that a well-operated laboratory can reliably achieve within
7498 specified limits of precision and accuracy during routine laboratory
7499 operating conditions. The PQL for lead is 0.005 mg/ℓ. The PQL for
7500 copper is 0.050 mg/ℓ.

7501 BOARD NOTE: Derived from 40 CFR 141.89(a)(1)(ii) and (a)(1)(iv)
7502 (2016)~~(2007)~~.

7503
7504 "Service line sample" means a one-liter sample of water, collected in
7505 accordance with Section 611.356(b)(3), that has been standing for at least
7506 six hours in a service line.

7507
7508 "Single-family structure" means a building that was constructed as a
7509 single-family residence and which is currently used as either a residence
7510 or a place of business.

7511
7512 "Small system" means a water system that regularly serves water to 3,300
7513 or fewer persons.

7514
7515 BOARD NOTE: Derived from 40 CFR 141.2 (2016)~~(2007)~~.

7516
7517 c) Lead and Copper Action Levels.

7518
7519 1) The lead action level is exceeded if the 90th percentile lead level is greater
7520 than 0.015 mg/ℓ.

7521
7522 2) The copper action level is exceeded if the 90th percentile copper level is
7523 greater than 1.3 mg/ℓ.

7524
7525 3) Suppliers must compute the 90th percentile lead and copper levels as
7526 follows:

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7569
- A) List the results of all lead or copper samples taken during a six-month monitoring period in ascending order, ranging from the sample with the lowest concentration first to the sample with the highest concentration last. Assign each sampling result a number, ascending by single integers beginning with the number 1 for the sample with the lowest contaminant level. The number assigned to the sample with the highest contaminant level must be equal to the total number of samples taken.
 - B) Determine the number for the 90th percentile sample by multiplying the total number of samples taken during the six-month monitoring period by 0.9.
 - C) The contaminant concentration in the sample with the number yielded by the calculation in subsection (c)(3)(B) ~~of this Section~~ is the 90th percentile contaminant level.
 - D) For suppliers that collect five samples per six-month monitoring period, the 90th percentile is computed by taking the average of the highest and second highest concentrations.
 - E) For a supplier that has been allowed by the Agency to collect fewer than five samples in accordance with Section 611.356(c), the sample result with the highest concentration is considered the 90th percentile value.
- d) Corrosion Control Treatment Requirements.
- 1) All suppliers must install and operate optimal corrosion control treatment.
 - 2) Any supplier that complies with the applicable corrosion control treatment requirements specified by the Agency pursuant to Sections 611.351 and 611.352 is deemed in compliance with the treatment requirement of subsection (d)(1) ~~of this Section~~.
- e) Source water treatment requirements. Any supplier whose system exceeds the lead or copper action level must implement all applicable source water treatment requirements specified by the Agency pursuant to Section 611.353.
- f) Lead service line replacement requirements. Any supplier whose system exceeds the lead action level after implementation of applicable corrosion control and source water treatment requirements must complete the lead service line

7570 replacement requirements contained in Section 611.354.
7571

- 7572 g) Public education requirements. Pursuant to Section 611.355, the supplier must
7573 provide a consumer notice of the lead tap water monitoring results to the persons
7574 served at each site (tap) that is tested. Any supplier whose system exceeds the
7575 lead action level must implement the public education requirements.
7576
- 7577 h) Monitoring and analytical requirements. Suppliers must complete all tap water
7578 monitoring for lead and copper, monitoring for water quality parameters, source
7579 water monitoring for lead and copper, and analyses of the monitoring results
7580 under this Subpart G in compliance with Sections 611.356, 611.357, 611.358, and
7581 611.359.
7582
- 7583 i) Reporting requirements. Suppliers must report to the Agency any information
7584 required by the treatment provisions of this Subpart G and Section 611.360.
7585
- 7586 j) Recordkeeping requirements. Suppliers must maintain records in accordance with
7587 Section 611.361.
7588
- 7589 k) Violation of national primary drinking water regulations. Failure to comply with
7590 the applicable requirements of this Subpart G, including conditions imposed by
7591 the Agency by SEP pursuant to these provisions and Section 611.110, will
7592 constitute a violation of the national primary drinking water regulations for lead
7593 or copper.
7594

7595 BOARD NOTE: Derived from 40 CFR 141.80 (2016)(2007), as amended at 72 Fed.
7596 Reg. 57782 (October 10, 2007).
7597

7598 (Source: Amended at 41 Ill. Reg. _____, effective _____)
7599

7600 **Section 611.351 Applicability of Corrosion Control**
7601

- 7602 a) Corrosion control required. Suppliers must complete the applicable corrosion
7603 control treatment requirements described in Section 611.352 on or before the
7604 deadlines set forth in this Section.
7605
- 7606 1) Large systems. Each large system supplier (one regularly serving more
7607 than 50,000 persons) must complete the corrosion control treatment steps
7608 specified in subsection (d) of this Section, unless it is deemed to have
7609 optimized corrosion control under subsection (b)(2) or (b)(3) of this
7610 Section.
7611
- 7612 2) Medium-sized and small systems. Each small system supplier (one

7613 regularly serving 3,300 or fewer persons) and each medium-sized system
 7614 (one regularly serving more than 3,300 up to 50,000 persons) must
 7615 complete the corrosion control treatment steps specified in subsection (e)
 7616 of this Section, unless it is deemed to have optimized corrosion control
 7617 under one of subsections (b)(1), (b)(2), or (b)(3) of this Section.
 7618

b) Suppliers deemed to have optimized corrosion control. A supplier is deemed to
 7619 have optimized corrosion control, and is not required to complete the applicable
 7620 corrosion control treatment steps identified in this Section, if the supplier satisfies
 7621 one of the criteria specified in subsections (b)(1) through (b)(3) of this Section.
 7622 Any such system deemed to have optimized corrosion control under this
 7623 subsection, and which has treatment in place, must continue to operate and
 7624 maintain optimal corrosion control treatment and meet any requirements that the
 7625 Agency determines are appropriate to ensure optimal corrosion control treatment
 7626 is maintained.
 7627

1) Small- or medium-sized system meeting action levels. A small system or
 7629 medium-sized system supplier is deemed to have optimized corrosion
 7630 control if the system meets the lead and copper action levels during each
 7631 of two consecutive six-month monitoring periods with monitoring
 7632 conducted in accordance with Section 611.356.
 7633

2) SEP for equivalent activities to corrosion control. The Agency must, by a
 7635 SEP issued pursuant to Section 611.110, deem any supplier to have
 7636 optimized corrosion control treatment if it determines that the supplier has
 7637 conducted activities equivalent to the corrosion control steps applicable
 7638 under this Section. In making this determination, the Agency must specify
 7639 the water quality control parameters representing optimal corrosion
 7640 control in accordance with Section 611.352(f). A water supplier that is
 7641 deemed to have optimized corrosion control under this subsection (b)(2)
 7642 must operate in compliance with the Agency-designated optimal water
 7643 quality control parameters in accordance with Section 611.352(g) and
 7644 must continue to conduct lead and copper tap and water quality parameter
 7645 sampling in accordance with Sections 611.356(d)(3) and 611.357(d),
 7646 respectively. A supplier must provide the Agency with the following
 7647 information in order to support an Agency SEP determination under this
 7648 subsection (b)(2):
 7649

A) The results of all test samples collected for each of the water
 7651 quality parameters in Section 611.352(c)(3);
 7652

B) A report explaining the test methods the supplier used to evaluate
 7653 the corrosion control treatments listed in Section 611.352(c)(1), the
 7654
 7655

- 7656 results of all tests conducted, and the basis for the supplier's
 7657 selection of optimal corrosion control treatment;
 7658
 7659 C) A report explaining how the supplier has installed corrosion
 7660 control and how the supplier maintains it to insure minimal lead
 7661 and copper concentrations at consumer's taps; and
 7662
 7663 D) The results of tap water samples collected in accordance with
 7664 Section 611.356 at least once every six months for one year after
 7665 corrosion control has been installed.
 7666
 7667 3) Results less than practical quantitation level (PQL) for lead. Any supplier
 7668 is deemed to have optimized corrosion control if it submits results of tap
 7669 water monitoring conducted in accordance with Section 611.356 and
 7670 source water monitoring conducted in accordance with Section 611.358
 7671 that demonstrate that for two consecutive six-month monitoring periods
 7672 the difference between the 90th percentile tap water lead level, computed
 7673 pursuant to Section 611.350(c)(3), and the highest source water lead
 7674 concentration is less than the practical quantitation level for lead specified
 7675 in Section 611.359(a)(1)(B)(i).
 7676
 7677 A) Those systems whose highest source water lead level is below the
 7678 method detection limit (MDL) may also be deemed to have
 7679 optimized corrosion control under this subsection (b) if the 90th
 7680 percentile tap water lead level is less than or equal to the PQL for
 7681 lead for two consecutive six-month monitoring periods.
 7682
 7683 B) Any water system deemed to have optimized corrosion control in
 7684 accordance with this subsection (b) must continue monitoring for
 7685 lead and copper at the tap no less frequently than once every three
 7686 calendar years using the reduced number of sites specified in
 7687 Section 611.356(c) and collecting the samples at times and
 7688 locations specified in Section 611.356(d)(4)(D). ~~Any such system~~
 7689 ~~that has not conducted a round of monitoring pursuant to Section~~
 7690 ~~611.356(d) since September 30, 1997, must have completed a~~
 7691 ~~round of monitoring pursuant to this subsection (b) no later than~~
 7692 ~~September 30, 2000.~~
 7693
 7694 C) Any water system deemed to have optimized corrosion control
 7695 pursuant to this subsection (b) must notify the Agency in writing
 7696 pursuant to Section 611.360(a)(3) of any upcoming long-term
 7697 change in treatment or the addition of a new source, as described in
 7698 that Section. The Agency must review and approve the addition of

- 7699 a new source or any long-term change in water treatment before
7700 the addition or long-term change is implemented by the water
7701 system.
7702
- 7703 D) A supplier is not deemed to have optimized corrosion control
7704 under this subsection (b), and must implement corrosion control
7705 treatment pursuant to subsection (b)(3)(E) of this Section, unless it
7706 meets the copper action level.
7707
- 7708 E) Any supplier triggered into corrosion control because it is no
7709 longer deemed to have optimized corrosion control under this
7710 subsection must implement corrosion control treatment in
7711 accordance with the deadlines in subsection (e) of this Section.
7712 Any such large system supplier must adhere to the schedule
7713 specified in that subsection (e) for a medium-sized system supplier,
7714 with the time periods for completing each step being triggered by
7715 the date the supplier is no longer deemed to have optimized
7716 corrosion control under this subsection (b).
7717
- 7718 c) Suppliers not required to complete corrosion control steps for having met both
7719 action levels.
7720
- 7721 1) Any small system or medium-sized system supplier, otherwise required to
7722 complete the corrosion control steps due to its exceedance of the lead or
7723 copper action level, may cease completing the treatment steps after the
7724 supplier has fulfilled both of the following conditions:
7725
- 7726 A) It has met both the copper action level and the lead action level
7727 during each of two consecutive six-month monitoring periods
7728 conducted pursuant to Section 611.356; and
7729
- 7730 B) The supplier has submitted the results for those two consecutive
7731 six-month monitoring periods to the Agency.
7732
- 7733 2) A supplier that has ceased completing the corrosion control steps pursuant
7734 to subsection (c)(1) of this Section (or the Agency, if appropriate) must
7735 resume completion of the applicable treatment steps, beginning with the
7736 first treatment step that the supplier previously did not complete in its
7737 entirety, if the supplier thereafter exceeds the lead or copper action level
7738 during any monitoring period.
7739
- 7740 3) The Agency may, by SEP, require a supplier to repeat treatment steps
7741 previously completed by the supplier where it determines that this is

- 7742 necessary to properly implement the treatment requirements of this
 7743 Section. Any such SEP must explain the basis for this decision.
 7744
- 7745 4) The requirement for any small- or medium-sized system supplier to
 7746 implement corrosion control treatment steps in accordance with subsection
 7747 (e) ~~of this Section~~ (including systems deemed to have optimized corrosion
 7748 control under subsection (b)(1) ~~of this Section~~) is triggered whenever any
 7749 small- or medium-sized system supplier exceeds the lead or copper action
 7750 level.
 7751
- 7752 d) Treatment steps and deadlines for large systems. Except as provided in
 7753 subsections (b)(2) and (b)(3) ~~of this Section~~, large system suppliers must have
 7754 completed ~~complete~~ the following corrosion control treatment steps (described in
 7755 the referenced portions of Sections 611.352, 611.356, and 611.357) ~~on or before~~
 7756 the indicated dates.
 7757
- 7758 1) Step 1: Initial ~~The supplier must have conducted initial~~ monitoring
 7759 (Sections 611.356(d)(1) and 611.357(b)) during two consecutive six-
 7760 month monitoring periods ~~on or before January 1, 1993~~.
 7761
- 7762 2) Step 2: Corrosion ~~The supplier must have completed corrosion control~~
 7763 studies (Section 611.352(c)) ~~on or before July 1, 1994~~.
 7764
- 7765 3) Step 3: The Agency approval of ~~must have approved~~ optimal corrosion
 7766 control treatment (Section 611.352(d)) by a SEP issued pursuant to
 7767 Section 611.110 ~~on or before January 1, 1995~~.
 7768
- 7769 4) Step 4: Installing ~~The supplier must have installed~~ optimal corrosion
 7770 control treatment (Section 611.352(e)) ~~by January 1, 1997~~.
 7771
- 7772 5) Step 5: Completing ~~The supplier must have completed~~ follow-up sampling
 7773 (Sections 611.356(d)(2) and 611.357(c)) ~~by January 1, 1998~~.
 7774
- 7775 6) Step 6: The Agency review of ~~must have reviewed~~ installation of
 7776 treatment and approval of ~~approve~~ optimal water quality control
 7777 parameters (Section 611.352(f)) ~~by July 1, 1998~~.
 7778
- 7779 7) Step 7: Operating ~~The supplier must operate~~ in compliance with the
 7780 Agency-specified optimal water quality control parameters (Section
 7781 611.352(g)) and continue to conduct tap sampling (Sections 611.356(d)(3)
 7782 and 611.357(d)).
 7783
- 7784 e) Treatment steps and deadlines for small- and medium-sized system suppliers.

7785 Except as provided in subsection (b) ~~of this Section~~, small- and medium-sized
 7786 system suppliers must complete the following corrosion control treatment steps
 7787 (described in the referenced portions of Sections 611.352, 611.356, and 611.357)
 7788 by the indicated time periods.
 7789

- 7790 1) Step 1: The supplier must conduct initial tap sampling (Sections
 7791 611.356(d)(1) and 611.357(b)) until the supplier either exceeds the lead
 7792 action level or the copper action level or it becomes eligible for reduced
 7793 monitoring under Section 611.356(d)(4). A supplier exceeding the lead
 7794 action level or the copper action level must recommend optimal corrosion
 7795 control treatment (Section 611.352(a)) within six months after the end of
 7796 the monitoring period during which it exceeds one of the action levels.
 7797
- 7798 2) Step 2: Within 12 months after the end of the monitoring period during
 7799 which a supplier exceeds the lead action level or the copper action level,
 7800 the Agency may require the supplier to perform corrosion control studies
 7801 (Section 611.352(b)). If the Agency does not require the supplier to
 7802 perform such studies, the Agency must, by a SEP issued pursuant to
 7803 Section 611.110, specify optimal corrosion control treatment (Section
 7804 611.352(d)) within the appropriate of the following timeframes:
 7805
 - 7806 A) For medium-sized systems, within 18 months after the end of the
 7807 monitoring period during which such supplier exceeds the lead
 7808 action level or the copper action level; or
 7809
 - 7810 B) For small systems, within 24 months after the end of the
 7811 monitoring period during which such supplier exceeds the lead
 7812 action level or the copper action level.
 7813
- 7814 3) Step 3: If the Agency requires a supplier to perform corrosion control
 7815 studies under step 2 (subsection (e)(2) ~~of this Section~~), the supplier must
 7816 complete the studies (Section 611.352(c)) within 18 months after the
 7817 Agency requires that such studies be conducted.
 7818
- 7819 4) Step 4: If the supplier has performed corrosion control studies under step
 7820 2 (subsection (e)(2) ~~of this Section~~), the Agency must, by a SEP issued
 7821 pursuant to Section 611.110, approve optimal corrosion control treatment
 7822 (Section 611.352(d)) within six months after completion of step 3
 7823 (subsection (e)(3) ~~of this Section~~).
 7824
- 7825 5) Step 5: The supplier must install optimal corrosion control treatment
 7826 (Section 611.352(e)) within 24 months after the Agency approves such
 7827 treatment.

- 7828
7829 6) Step 6: The supplier must complete follow-up sampling (Sections
7830 611.356(d)(2) and 611.357(c)) within 36 months after the Agency
7831 approves optimal corrosion control treatment.
7832
7833 7) Step 7: The Agency must review the supplier's installation of treatment
7834 and, by a SEP issued pursuant to Section 611.110, approve optimal water
7835 quality control parameters (Section 611.352(f)) within six months after
7836 completion of step 6 (subsection (e)(6)-of this Section).
7837
7838 8) Step 8: The supplier must operate in compliance with the Agency-
7839 approved optimal water quality control parameters (Section 611.352(g))
7840 and continue to conduct tap sampling (Sections 611.356(d)(3) and
7841 611.357(d)).
7842

7843 BOARD NOTE: Derived from 40 CFR 141.81 (2016)(2014).

7844 (Source: Amended at 41 Ill. Reg. _____, effective _____)
7845
7846

7847 **Section 611.352 Corrosion Control Treatment**
7848

7849 Each supplier must complete the corrosion control treatment requirements described below that
7850 are applicable to such supplier under Section 611.351.
7851

- 7852 a) System recommendation regarding corrosion control treatment.
7853
7854 1) Based on the results of lead and copper tap monitoring and water quality
7855 parameter monitoring, small- and medium-sized system suppliers
7856 exceeding the lead action level or the copper action level must recommend
7857 to the Agency installation of one or more of the corrosion control
7858 treatments listed in subsection (c)(1)-of this Section that the supplier
7859 believes constitutes optimal corrosion control for its system.
7860
7861 2) The Agency may, by a SEP issued pursuant to Section 611.110, require
7862 the supplier to conduct additional water quality parameter monitoring in
7863 accordance with Section 611.357(b) to assist it in reviewing the supplier's
7864 recommendation.
7865
7866 b) Agency-required studies of corrosion control treatment. The Agency may, by a
7867 SEP issued pursuant to Section 611.110, require any small- or medium-sized
7868 system supplier that exceeds the lead action level or the copper action level to
7869 perform corrosion control studies under subsection (c)-of this Section to identify
7870 optimal corrosion control treatment for its system.

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- c) Performance of studies.
 - 1) Any supplier performing corrosion control studies must evaluate the effectiveness of each of the following treatments, and, if appropriate, combinations of the following treatments, to identify the optimal corrosion control treatment for its system:
 - A) Alkalinity and pH adjustment;
 - B) Calcium hardness adjustment; and
 - C) The addition of a phosphate- or silicate-based corrosion inhibitor at a concentration sufficient to maintain an effective residual concentration in all test tap samples.
 - 2) The supplier must evaluate each of the corrosion control treatments using pipe rig/loop tests; metal coupon tests; partial-system tests; or analyses based on documented analogous treatments in other systems of similar size, water chemistry, and distribution system configuration.
 - 3) The supplier must measure the following water quality parameters in any tests conducted under this subsection (c) before and after evaluating the corrosion control treatments listed above:
 - A) Lead;
 - B) Copper;
 - C) pH;
 - D) Alkalinity;
 - E) Calcium;
 - F) Conductivity;
 - G) Orthophosphate (when an inhibitor containing a phosphate compound is used);
 - H) Silicate (when an inhibitor containing a silicate compound is used); and

- 7914 I) Water temperature.
 7915
 7916 4) The supplier must identify all chemical or physical constraints that limit or
 7917 prohibit the use of a particular corrosion control treatment, and document
 7918 such constraints with at least one of the following:
 7919
 7920 A) Data and documentation showing that a particular corrosion
 7921 control treatment has adversely affected other water treatment
 7922 processes when used by another supplier with comparable water
 7923 quality characteristics; or
 7924
 7925 B) Data and documentation demonstrating that the supplier has
 7926 previously attempted to evaluate a particular corrosion control
 7927 treatment, finding either that the treatment is ineffective or that it
 7928 adversely affects other water quality treatment processes.
 7929
 7930 5) The supplier must evaluate the effect of the chemicals used for corrosion
 7931 control treatment on other water quality treatment processes.
 7932
 7933 6) On the basis of an analysis of the data generated during each evaluation,
 7934 the supplier must recommend to the Agency, in writing, that treatment
 7935 option the corrosion control studies indicate constitutes optimal corrosion
 7936 control treatment for its system. The supplier must provide a rationale for
 7937 its recommendation, along with all supporting documentation specified in
 7938 subsections (c)(1) through (c)(5) of this Section.
 7939
 7940 d) Agency approval of treatment.
 7941
 7942 1) Based on consideration of available information including, where
 7943 applicable, studies performed under subsection (c) of this Section and a
 7944 supplier's recommended treatment alternative, the Agency must, by a SEP
 7945 issued pursuant to Section 611.110, either approve the corrosion control
 7946 treatment option recommended by the supplier, or deny and require
 7947 investigation and recommendation of alternative corrosion control
 7948 treatments from among those listed in subsection (c)(1) of this Section.
 7949 When approving optimal treatment, the Agency must consider the effects
 7950 that additional corrosion control treatment will have on water quality
 7951 parameters and on other water quality treatment processes.
 7952
 7953 2) The Agency must, in any SEP issued under subsection (d)(1) of this
 7954 Section, notify the supplier of the basis for this determination.
 7955
 7956 e) Installation of optimal corrosion control. Each supplier must properly install and

7957 operate, throughout its distribution system, that optimal corrosion control
 7958 treatment approved by the Agency pursuant to subsection (d) ~~of this Section~~.
 7959

- 7960 f) Agency review of treatment and specification of optimal water quality control
 7961 parameters. The Agency must evaluate the results of all lead and copper tap
 7962 samples and water quality parameter samples submitted by the supplier and
 7963 determine whether it has properly installed and operated the optimal corrosion
 7964 control treatment approved pursuant to subsection (d) ~~of this Section~~.
 7965
- 7966 1) Upon reviewing the results of tap water and water quality parameter
 7967 monitoring by the supplier, both before and after the installation of
 7968 optimal corrosion control treatment, the Agency must, by a SEP issued
 7969 pursuant to Section 611.110, specify the following:
 7970
- 7971 A) A minimum value or a range of values for pH measured at each
 7972 entry point to the distribution system;
 7973
- 7974 B) A minimum pH value, measured in all tap samples. Such value
 7975 must be equal to or greater than 7.0, unless the Agency determines
 7976 that meeting a pH level of 7.0 is not technologically feasible or is
 7977 not necessary for the supplier to optimize corrosion control;
 7978
- 7979 C) If a corrosion inhibitor is used, a minimum concentration or a
 7980 range of concentrations for the inhibitor, measured at each entry
 7981 point to the distribution system and in all tap samples, that the
 7982 Agency determines is necessary to form a passivating film on the
 7983 interior walls of the pipes of the distribution system;
 7984
- 7985 D) If alkalinity is adjusted as part of optimal corrosion control
 7986 treatment, a minimum concentration or a range of concentrations
 7987 for alkalinity, measured at each entry point to the distribution
 7988 system and in all tap samples;
 7989
- 7990 E) If calcium carbonate stabilization is used as part of corrosion
 7991 control, a minimum concentration or a range of concentrations for
 7992 calcium, measured in all tap samples.
 7993
- 7994 2) The values for the applicable water quality control parameters listed in
 7995 subsection (f)(1) ~~of this Section~~ must be those that the Agency determines
 7996 reflect optimal corrosion control treatment for the supplier.
 7997
- 7998 3) The Agency may, by a SEP issued pursuant to Section 611.110, approve
 7999 values for additional water quality control parameters determined by the

8000 Agency to reflect optimal corrosion control for the supplier's system.

8001
8002 4) The Agency must, in issuing a SEP, explain these determinations to the
8003 supplier, along with the basis for its decisions.

8004
8005 g) Continued Operation and Monitoring. All suppliers optimizing corrosion control
8006 must continue to operate and maintain optimal corrosion control treatment,
8007 including maintaining water quality parameter values at or above minimum values
8008 or within ranges approved by the Agency under subsection (f) of this Section, in
8009 accordance with this subsection (g) for all samples collected under Section
8010 611.357(d) through (f). Compliance with the requirements of this subsection (g)
8011 must be determined every six months, as specified under Section 611.357(d). A
8012 water system is out of compliance with the requirements of this subsection for a
8013 six-month period if it has excursions for any Agency-specified parameter on more
8014 than nine days during the period. An excursion occurs whenever the daily value
8015 for one or more of the water quality parameters measured at a sampling location is
8016 below the minimum value or outside the range designated by the Agency. Daily
8017 values are calculated as provided in subsections (g)(1) through (g)(3) of this
8018 Section. The Agency must delete results that it determines are obvious sampling
8019 errors from this calculation.

8020
8021 1) On days when more than one measurement for the water quality parameter
8022 is collected at the sampling location, the daily value must be the average
8023 of all results collected during the day regardless of whether the samples
8024 are collected through continuous monitoring, grab sampling, or a
8025 combination of both.

8026
8027 BOARD NOTE: Corresponding 40 CFR 141.82(g)(1) further provides as
8028 follows: If USEPA approves an alternative formula under 40 CFR 142.16
8029 in the State's application for a program revision submitted pursuant to 40
8030 CFR 142.12, the State's formula must be used to aggregate multiple
8031 measurements taken at a sampling point for the water quality parameter in
8032 lieu of the formula in this subsection (g).

8033
8034 2) On days when only one measurement for the water quality parameter is
8035 collected at the sampling location, the daily value must be the result of that
8036 measurement.

8037
8038 3) On days when no measurement is collected for the water quality parameter
8039 at the sampling location, the daily value must be the daily value calculated
8040 on the most recent day on which the water quality parameter was
8041 measured at the sample site.

8042

- 8043 h) Modification of Agency treatment decisions.
8044
8045 1) On its own initiative, or in response to a request by a supplier, the Agency
8046 may, by a SEP issued pursuant to this subsection and Section 611.110,
8047 modify its determination of the optimal corrosion control treatment under
8048 subsection (d) of this Section or of the optimal water quality control
8049 parameters under subsection (f) ~~of this Section~~.
8050
8051 2) A request for modification must be in writing, explain why the
8052 modification is appropriate, and provide supporting documentation.
8053
8054 3) The Agency may modify its determination where it determines that such
8055 change is necessary to ensure that the supplier continues to optimize
8056 corrosion control treatment. A revised determination must set forth the
8057 new treatment requirements, explain the basis for the Agency's decision,
8058 and provide an implementation schedule for completing the treatment
8059 modifications.
8060
8061 4) Any interested person may submit information to the Agency bearing on
8062 whether the Agency should, within its discretion, issue a SEP to modify its
8063 determination pursuant to subsection (h)(1) ~~of this Section~~. An Agency
8064 determination not to act on a submission of such information by an
8065 interested person is not an Agency determination for the purposes of
8066 Sections 39 and 40 of the Act ~~[415 ILCS 5/39 and 40]~~.
8067
8068 i) Treatment decisions by USEPA. Pursuant to the procedures in 40 CFR 142.19,
8069 the USEPA Regional Administrator has reserved the prerogative to review
8070 treatment determinations made by the Agency under subsections (d), (f), or (h) ~~of~~
8071 ~~this Section~~ and issue federal treatment determinations consistent with the
8072 requirements of 40 CFR 141.82(d), (e), or (h), where the Regional Administrator
8073 finds that the following is true:
8074
8075 1) The Agency has failed to issue a treatment determination by the applicable
8076 deadlines contained in Section 611.351 (40 CFR 141.81);
8077
8078 2) The Agency has abused its discretion in a substantial number of cases or
8079 in cases affecting a substantial population; or
8080
8081 3) The technical aspects of the Agency's determination would be indefensible
8082 in an expected federal enforcement action taken against a supplier.
8083

8084 BOARD NOTE: Derived from 40 CFR 141.82 (2016)~~(2002)~~.
8085

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.353 Source Water Treatment

Suppliers must complete the applicable source water monitoring and treatment requirements (described in the referenced portions of subsection (b) of this Section, and in Sections 611.356 and 611.358) by the following deadlines.

- a) Deadlines for completing source water treatment steps.
 - 1) Step 1: A supplier exceeding the lead action level or the copper action level must complete lead and copper and source water monitoring (Section 611.358(b)) and make a treatment recommendation to the Agency (subsection (b)(1) of this Section) within 180 days after the end of the monitoring period during which the supplier exceeded the pertinent action level.
 - 2) Step 2: The Agency must, by a SEP issued pursuant to Section 611.110, make a determination regarding source water treatment (subsection (b)(2) of this Section) within six months after submission of monitoring results under step 1.
 - 3) Step 3: If the Agency requires installation of source water treatment, the supplier must install that treatment (subsection (b)(3) of this Section) within 24 months after completion of step 2.
 - 4) Step 4: The supplier must complete follow-up tap water monitoring (Section 611.356(d)(2)) and source water monitoring (Section 611.358(c)) within 36 months after completion of step 2.
 - 5) Step 5: The Agency must, by a SEP issued pursuant to Section 611.110, review the supplier's installation and operation of source water treatment and specify MPCs for lead and copper (subsection (b)(4) of this Section) within six months after completion of step 4.
 - 6) Step 6: The supplier must operate in compliance with the Agency-specified lead and copper MPCs (subsection (b)(4) of this Section) and continue source water monitoring (Section 611.358(d)).
- b) Description of Source Water Treatment Requirements.
 - 1) System treatment recommendation. Any supplier that exceeds the lead action level or the copper action level must recommend in writing to the

- 8129 Agency the installation and operation of one of the source water
8130 treatments listed in subsection (b)(2) ~~of this Section~~. A supplier may
8131 recommend that no treatment be installed based on a demonstration that
8132 source water treatment is not necessary to minimize lead and copper levels
8133 at users' taps.
8134
- 8135 2) Agency determination regarding source water treatment.
8136
- 8137 A) The Agency must complete an evaluation of the results of all
8138 source water samples submitted by the supplier to determine
8139 whether source water treatment is necessary to minimize lead or
8140 copper levels in water delivered to users' taps.
8141
- 8142 B) If the Agency determines that treatment is needed, the Agency
8143 must, by a SEP issued pursuant to Section 611.110, either require
8144 installation and operation of the source water treatment
8145 recommended by the supplier (if any) or require the installation
8146 and operation of another source water treatment from among the
8147 following:
8148
- 8149 i) ion exchange;
8150
8151 ii) reverse osmosis;
8152
8153 iii) lime softening; or
8154
8155 iv) coagulation/filtration.
8156
- 8157 C) The Agency may request and the supplier must submit such
8158 additional information, on or before a certain date, as the Agency
8159 determines is necessary to aid in its review.
8160
- 8161 D) The Agency must notify the supplier in writing of its determination
8162 and set forth the basis for its decision.
8163
- 8164 3) Installation of source water treatment. Each supplier must properly install
8165 and operate the source water treatment approved by the Agency under
8166 subsection (b)(2) ~~of this Section~~.
8167
- 8168 4) Agency review of source water treatment and specification of maximum
8169 permissible source water levels (MPCs).
8170
- 8171 A) The Agency must review the source water samples taken by the

- 8172 supplier both before and after the supplier installs source water
 8173 treatment, and determine whether the supplier has properly
 8174 installed and operated the approved source water treatment.
 8175
- 8176 B) Based on its review, the Agency must, by a SEP issued pursuant to
 8177 Section 611.110, approve the lead and copper MPCs for finished
 8178 water entering the supplier's distribution system. Such levels must
 8179 reflect the contaminant removal capability of the treatment
 8180 properly operated and maintained.
 8181
- 8182 C) The Agency must explain the basis for its decision under
 8183 subsection (b)(4)(B) ~~of this Section~~.
 8184
- 8185 5) Continued operation and maintenance. Each supplier must maintain lead
 8186 and copper levels below the MPCs approved by the Agency at each
 8187 sampling point monitored in accordance with Section 611.358. The
 8188 supplier is out of compliance with this subsection if the level of lead or
 8189 copper at any sampling point is greater than the MPC approved by the
 8190 Agency pursuant to subsection (b)(4)(B) ~~of this Section~~.
 8191
- 8192 6) Modification of Agency treatment decisions.
 8193
- 8194 A) On its own initiative, or in response to a request by a supplier, the
 8195 Agency may, by a SEP issued pursuant to Section 611.110, modify
 8196 its determination of the source water treatment under subsection
 8197 (b)(2) ~~of this Section~~, or the lead and copper MPCs under
 8198 subsection (b)(4) ~~of this Section~~.
 8199
- 8200 B) A request for modification by a supplier must be in writing,
 8201 explain why the modification is appropriate, and provide
 8202 supporting documentation.
 8203
- 8204 C) The Agency may, by a SEP issued pursuant to Section 611.110,
 8205 modify its determination where it concludes that such change is
 8206 necessary to ensure that the supplier continues to minimize lead
 8207 and copper concentrations in source water.
 8208
- 8209 D) A revised determination made pursuant to subsection (b)(6)(C) ~~of~~
 8210 ~~this Section~~ must set forth the new treatment requirements, explain
 8211 the basis for the Agency's decision, and provide an implementation
 8212 schedule for completing the treatment modifications.
 8213
- 8214 E) Any interested person may submit information to the Agency, in

8215 writing, that bears on whether the Agency should, within its
 8216 discretion, issue a SEP to modify its determination pursuant to
 8217 subsection (h)(1) of this Section. An Agency determination not to
 8218 act on a submission of such information by an interested person is
 8219 not an Agency determination for the purposes of Sections 39 and
 8220 40 of the Act [~~415 ILCS 5/39 and 40~~].

- 8221
- 8222 7) Treatment decisions by USEPA. Pursuant to the procedures in 40 CFR
 8223 142.19, the USEPA Regional Administrator reserves the prerogative to
 8224 review treatment determinations made by the Agency under subsections
 8225 (b)(2), (b)(4), or (b)(6) of this Section and issue federal treatment
 8226 determinations consistent with the requirements of 40 CFR 141.83(b)(2),
 8227 (b)(4), and (b)(6), where the Administrator finds that the following is true:
 8228
- 8229 A) the Agency has failed to issue a treatment determination by the
 8230 applicable deadline contained in subsection (a) of this Section;
 - 8231
 - 8232 B) the Agency has abused its discretion in a substantial number of
 8233 cases or in cases affecting a substantial population; or
 - 8234
 - 8235 C) the technical aspects of the Agency's determination would be
 8236 indefensible in an expected federal enforcement action taken
 8237 against a supplier.
 - 8238

8239 BOARD NOTE: Derived from 40 CFR 141.83 (2016)(2007), as amended at 72 Fed.
 8240 Reg. 57782 (October 10, 2007).

8241 (Source: Amended at 41 Ill. Reg. _____, effective _____)

8242

8243

8244 **Section 611.354 Lead Service Line Replacement**

- 8245
- 8246 a) Suppliers required to replace lead service lines.
 - 8247
 - 8248 1) If the results from tap samples taken pursuant to Section 611.356(d)(2)
 8249 exceed the lead action level after the supplier has installed corrosion
 8250 control or source water treatment (whichever sampling occurs later), the
 8251 supplier must recommence replacing lead service lines in accordance with
 8252 the requirements of subsection (b) of this Section.
 - 8253
 - 8254 2) If a supplier is in violation of Section 611.351 or Section 611.353 for
 8255 failure to install source water or corrosion control treatment, the Agency
 8256 may, by a SEP issued pursuant to Section 611.110, require the supplier to
 8257 commence lead service line replacement under this Section after the date

8258 by which the supplier was required to conduct monitoring under Section
 8259 611.356(d)(2) has passed.

8260
 8261 b) Annual replacement of lead service lines.

8262
 8263 1) Initiation of a lead service line replacement program.

8264
 8265 A) A supplier that is required to commence lead service line
 8266 replacement pursuant to subsection (a) ~~of this Section~~ must
 8267 annually replace at least seven percent of the initial number of lead
 8268 service lines in its distribution system.

8269
 8270 B) The initial number of lead service lines is the number of lead lines
 8271 in place at the time the replacement program begins.

8272
 8273 C) The supplier must identify the initial number of lead service lines
 8274 in its distribution system, including an identification of the portions
 8275 of the system owned by the supplier, based on a materials
 8276 evaluation, including the evaluation required under Section
 8277 611.356(a) and relevant legal authorities (e.g., contracts, local
 8278 ordinances) regarding the portion owned by the system.

8279
 8280 D) The first year of lead service line replacement must begin on the
 8281 first day following the end of the monitoring period in which the
 8282 supplier exceeded the action level pursuant to subsection (a) ~~of this~~
 8283 ~~Section~~.

8284
 8285 E) If monitoring is required annually or less frequently, the end of the
 8286 monitoring period is September 30 of the calendar year in which
 8287 the sampling occurs.

8288
 8289 F) If the Agency has established an alternate monitoring period by a
 8290 SEP issued pursuant to Section 611.110, then the end of the
 8291 monitoring period will be the last day of that period.

8292
 8293 2) Resumption of a lead service line replacement program after cessation.

8294
 8295 A) A supplier that is resuming a program after cessation of its lead
 8296 service line replacement program, as allowed pursuant to
 8297 subsection (f) ~~of this Section~~, must update its inventory of lead
 8298 service lines to include those sites that it had previously
 8299 determined did not require replacement pursuant to the sampling
 8300 provision of subsection (c) ~~of this Section~~.

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- B) The supplier will then divide the updated number of remaining lead service lines by the number of remaining years in the program to determine the number of lines that must be replaced per year (seven percent lead service line replacement is based on a 15-year replacement program, so that, for example, a supplier resuming lead service line replacement after previously conducting two years of replacement would divide the updated inventory by 13).
 - C) For a supplier that has completed a 15-year lead service line replacement program, the Agency must, by a SEP issued pursuant to Section 611.110, determine a schedule for replacing or retesting lines that were previously tested out under the completed replacement program, whenever the supplier has re-exceeded the action level.
- c) Service lines not needing replacement. A supplier is not required to replace any individual lead service line for which the lead concentrations in all service line samples taken from that line pursuant to Section 611.356(b)(3) are less than or equal to 0.015 mg/l.
- d) A water supplier must replace that portion of the lead service line that it owns. In cases where the supplier does not own the entire lead service line, the supplier must notify the owner of the line, or the owner's authorized agent, that the supplier will replace the portion of the service line that it owns and must offer to replace the owner's portion of the line. A supplier is not required to bear the cost of replacing the privately-owned portion of the line, nor is it required to replace the privately-owned portion where the owner chooses not to pay the cost of replacing the privately-owned portion of the line, or where replacing the privately-owned portion would be precluded by State, local, or common law. A water supplier that does not replace the entire length of the service line also must complete the following tasks:
- 1) Notice Prior to Commencement of Work.
 - A) At least 45 days prior to commencing the partial replacement of a lead service line, the water supplier must provide notice to the residents of all buildings served by the line explaining that they may experience a temporary increase of lead levels in their drinking water, along with guidance on measures consumers can take to minimize their exposure to lead.
 - B) The Agency, by issuing an appropriate SEP, may allow the water

8344 supplier to provide notice under the previous sentence less than 45
8345 days prior to commencing partial lead service line replacement
8346 where it determines that such replacement is in conjunction with
8347 emergency repairs.
8348

8349 C) In addition, the water supplier must inform the residents served by
8350 the line that the supplier will, at the supplier's expense, collect a
8351 sample from each partially-replaced lead service line that is
8352 representative of the water in the service line for analysis of lead
8353 content, as prescribed by Section 611.356(b)(3), within 72 hours
8354 after the completion of the partial replacement of the service line.
8355 The supplier must collect the sample and report the results of the
8356 analysis to the owner and the residents served by the line within
8357 three business days after receiving the results.
8358

8359 D) Mailed notices post-marked within three business days after
8360 receiving the results must be considered "on time."
8361

8362 2) The water supplier must provide the information required by subsection
8363 ~~(d)(1) of this Section~~ to the residents of individual dwellings by mail or by
8364 other methods approved by the Agency by a SEP issued pursuant to
8365 Section 611.110. In instances where multi-family dwellings are served by
8366 the service line, the water supplier must have the option to post the
8367 information at a conspicuous location.
8368

8369 e) Agency determination of shorter replacement schedule.
8370

8371 1) The Agency must, by a SEP issued pursuant to Section 611.110, require a
8372 supplier to replace lead service lines on a shorter schedule than that
8373 otherwise required by this Section if it determines, taking into account the
8374 number of lead service lines in the system, that such a shorter replacement
8375 schedule is feasible.
8376

8377 2) The Agency must notify the supplier of its finding pursuant to subsection
8378 ~~(e)(1) of this Section~~ within six months after the supplier is triggered into
8379 lead service line replacement based on monitoring, as referenced in
8380 subsection ~~(a) of this Section~~.
8381

8382 f) Cessation of service line replacement.
8383

8384 1) Any supplier may cease replacing lead service lines whenever it fulfills
8385 both of the following conditions:
8386

- 8387 A) First draw tap samples collected pursuant to Section 611.356(b)(2)
8388 meet the lead action level during each of two consecutive six-
8389 month monitoring periods; and
8390
8391 B) The supplier has submitted those results to the Agency.
8392
8393 2) If any of the supplier's first draw tap samples thereafter exceed the lead
8394 action level, the supplier must recommence replacing lead service lines
8395 pursuant to subsection (b)(2) ~~of this Section~~.
8396
8397 g) To demonstrate compliance with subsections (a) through (d) ~~of this Section~~, a
8398 supplier must report to the Agency the information specified in Section
8399 611.360(e).
8400

8401 BOARD NOTE: Derived from 40 CFR 141.84 ~~(2016)(2007)~~, as amended at 57782
8402 ~~(October 10, 2007)~~.

8403
8404 (Source: Amended at 41 Ill. Reg. _____, effective _____)
8405

8406 **Section 611.355 Public Education and Supplemental Monitoring**
8407

8408 A supplier that exceeds the lead action level based on tap water samples collected in accordance
8409 with Section 611.356 must deliver the public education materials required by subsection (a) ~~of~~
8410 ~~this Section~~ in accordance with the requirements of subsection (b) ~~of this Section~~. A supplier
8411 that exceeds the lead action level must sample the tap water of any customer who requests it in
8412 accordance with subsection (c) ~~of this Section~~. A supplier must deliver a consumer notice of
8413 lead tap water monitoring results to persons who are served by the supplier at each site that the
8414 supplier has tested, as specified in subsection (d) ~~of this Section~~.
8415

8416 a) Content of written public education materials.
8417

- 8418 1) Community water systems and non-transient non-community water
8419 systems. A CWS or NTNCWS supplier must include the following
8420 elements in printed materials (e.g., brochures and pamphlets) in the same
8421 order as listed in subsections (a)(1)(A) through (a)(1)(F) ~~of this Section~~.
8422 In addition, the supplier must include the language set forth in subsections
8423 (a)(1)(A), (a)(1)(B), and (a)(1)(F) ~~of this Section~~ in the materials, exactly
8424 as written, except for the text in brackets in these subsections, for which
8425 the supplier must include system-specific information. Any additional
8426 information presented by a supplier must be consistent with the
8427 information set forth in subsections (a)(1)(A) through (a)(1)(F) ~~of this~~
8428 ~~Section~~, and the supplier must present the additional information in plain

8429 language that can be understood by the general public. The supplier must
8430 submit all written public education materials to the Agency.

8431
8432 A) IMPORTANT INFORMATION ABOUT LEAD IN YOUR
8433 DRINKING WATER. [INSERT NAME OF SUPPLIER] found
8434 elevated levels of lead in drinking water in some homes/buildings.
8435 Lead can cause serious health problems, especially for pregnant
8436 women and young children. Please read this information closely to
8437 see what you can do to reduce lead in your drinking water.

8438
8439 BOARD NOTE: The supplier must use the verbatim text set forth
8440 in this subsection (a)(1)(A), with the exception that the supplier
8441 must insert its name in place of the bracketed text.

8442
8443 B) Health effects of lead. Lead can cause serious health problems if
8444 too much enters your body from drinking water or other sources.
8445 It can cause damage to the brain and kidneys, and can interfere
8446 with the production of red blood cells that carry oxygen to all parts
8447 of your body. The greatest risk of lead exposure is to infants,
8448 young children, and pregnant women. Scientists have linked the
8449 effects of lead on the brain with lowered IQ in children. Adults
8450 with kidney problems and high blood pressure can be affected by
8451 low levels of lead more than healthy adults. Lead is stored in the
8452 bones, and it can be released later in life. During pregnancy, the
8453 child receives lead from the mother's bones, which may affect
8454 brain development.

8455
8456 BOARD NOTE: The supplier must use the verbatim text set forth
8457 in this subsection (a)(1)(B).

8458
8459 C) Sources of Lead.

8460
8461 i) Explain what lead is.

8462
8463 ii) Explain possible sources of lead in drinking water and how
8464 lead enters drinking water. Include information on home
8465 and building plumbing materials and service lines that may
8466 contain lead.

8467
8468 iii) Discuss other important sources of lead exposure in
8469 addition to drinking water (e.g., paint).

8470

8471 BOARD NOTE: The supplier must use text that provides the
8472 information described in this subsection (a)(1)(C).
8473

- 8474 D) Discuss the steps the consumer can take to reduce his or her
8475 exposure to lead in drinking water.
8476
- 8477 i) Encourage running the water to flush out the lead.
 - 8478
 - 8479 ii) Explain concerns with using hot water from the tap and
8480 specifically caution against the use of hot water for
8481 preparing baby formula.
8482
 - 8483 iii) Explain that boiling water does not reduce lead levels.
8484
 - 8485 iv) Discuss other options consumers can take to reduce
8486 exposure to lead in drinking water, such as alternative
8487 sources or treatment of water.
8488
 - 8489 v) Suggest that parents have their child's blood tested for lead.

8490 BOARD NOTE: The supplier must use text that provides the
8491 information described in this subsection (a)(1)(D).
8492

- 8493
- 8494 E) Explain why there are elevated levels of lead in the supplier's
8495 drinking water (if known) and what the supplier is doing to reduce
8496 the lead levels in homes and buildings in this area.
8497

8498 BOARD NOTE: The supplier must use text that provides the
8499 information described in this subsection (a)(1)(E).
8500

- 8501 F) For more information, call us at [INSERT THE SUPPLIER'S
8502 NUMBER] [(IF APPLICABLE), or visit our Web site at [INSERT
8503 THE SUPPLIER'S WEB SITE HERE]]. For more information on
8504 reducing lead exposure around your home/building and the health
8505 effects of lead, visit USEPA's Web site at <http://www.epa.gov/lead>
8506 or contact your health care provider.
8507

8508 BOARD NOTE: The supplier must use the verbatim text set forth
8509 in this subsection (a)(1)(F), with the exception that the supplier
8510 must insert its name in place of the first segment of bracketed text,
8511 and it must add the second segment of bracketed text and substitute
8512 its Web address for the internal bracketed text.
8513

- 8514 2) Community water systems. In addition to including the elements specified
 8515 in subsection (a)(1) ~~of this Section~~, a CWS supplier must do both of the
 8516 following:
 8517
 8518 A) It must tell consumers how to get their water tested; and
 8519
 8520 B) It must discuss lead in plumbing components and the difference
 8521 between low-lead and lead-free components.
 8522

8523 BOARD NOTE: At corresponding 40 CFR 141.85(a)(1) ~~(2016)~~(2007), USEPA
 8524 allowed the State to require prior approval of written public information materials.
 8525 Rather than require prior Agency approval, the Board has chosen to allow the
 8526 Agency to raise any deficiencies that it may perceive using its existing procedure
 8527 for review of public education materials. The Agency has outlined its standard
 8528 practice for review of public information materials as follows: The Agency
 8529 provides a comprehensive public education packet to the supplier together with
 8530 the notice that the supplier has exceeded the lead action level. That packet
 8531 includes guidance and templates for the supplier to use in preparing and
 8532 distributing its public education materials. The supplier must send a copy of the
 8533 public education materials that it distributes to the Agency, and the Agency
 8534 reviews the copy of the materials after their distribution to the public. The
 8535 Agency directly communicates to the supplier any perceived defects in the
 8536 materials. The Agency will request correction when it perceives minor defects in
 8537 future distributions of the public education materials, or the Agency will request a
 8538 redistribution of corrected public education materials when it perceives major
 8539 defects in the materials already distributed.
 8540

8541 b) Delivery of public education materials.

- 8542
 8543 1) The public education materials of a supplier that serves a large proportion
 8544 of non-English speaking consumers must contain information in the
 8545 appropriate languages regarding the importance of the notice, or it must
 8546 contain a telephone number or address where a person served may contact
 8547 the supplier to obtain a translated copy of the public education materials or
 8548 to request assistance in the appropriate language.
 8549
 8550 2) A CWS supplier that exceeds the lead action level on the basis of tap
 8551 water samples collected in accordance with Section 611.356 and which is
 8552 not already conducting public education tasks pursuant to this Section
 8553 must, within 60 days after the end of the monitoring period in which the
 8554 exceedance occurred, complete the public education tasks according to the
 8555 following requirements:
 8556

- 8557 A) The CWS supplier must deliver printed materials that meet the
 8558 content requirements of subsection (a) ~~of this Section~~ to all of its
 8559 bill-paying customers.
 8560
- 8561 B) Methods of delivery for a CWS supplier.
 8562
- 8563 i) The CWS supplier must contact customers who are most at
 8564 risk by delivering education materials that meet the content
 8565 requirements of subsection (a) ~~of this Section~~ to local
 8566 public health agencies, even if the agencies are not located
 8567 within the supplier's service area, along with an
 8568 informational notice that encourages distribution to all of
 8569 the agencies' potentially affected customers or the supplier's
 8570 users. The supplier must contact the local public health
 8571 agencies directly by phone or in person. The local public
 8572 health agencies may provide a specific list of additional
 8573 community-based organizations that serve the target
 8574 populations, which may include organizations outside the
 8575 service area of the supplier. If such lists are provided, the
 8576 supplier must deliver education materials that meet the
 8577 content requirements of subsection (a) ~~of this Section~~ to
 8578 each of the organizations on the provided lists.
 8579
- 8580 ii) The CWS supplier must contact customers who are most at
 8581 risk by delivering materials that meet the content
 8582 requirements of subsection (a) ~~of this Section~~ to the
 8583 organizations listed in subsections (b)(2)(H)(i) through
 8584 (b)(2)(H)(vi) that are located within the supplier's service
 8585 area, along with an informational notice that encourages
 8586 distribution to all the organization's potentially affected
 8587 customers or supplier's users.
 8588
- 8589 BOARD NOTE: The Board found it necessary to move the
 8590 text of 40 CFR 141.85(b)(2)(ii)(B)(1) through
 8591 (b)(2)(ii)(B)(6) (2007), as added at 72 Fed. Reg. 57782
 8592 (Oct. 10, 2007), to appear as subsection (b)(2)(H)(i)
 8593 through subsection (b)(2)(H)(vi) ~~of this Section~~, in order to
 8594 comport with Illinois Administrative Code codification
 8595 requirements relating to allowed indent levels in rules.
 8596
- 8597 iii) The CWS supplier must make a good faith effort to locate
 8598 the organizations listed in subsections (b)(2)(I)(i) through
 8599 (b)(2)(I)(iii) ~~of this Section~~ that are located within the

8600 service area and deliver materials that meet the content
8601 requirements of subsection (a) ~~of this Section~~ to them,
8602 along with an informational notice that encourages
8603 distribution to all potentially affected customers or users.
8604 The good faith effort to contact at-risk customers may
8605 include requesting a specific contact list of these
8606 organizations from the local public health agencies, even if
8607 the agencies are not located within the supplier's service
8608 area.
8609

8610 BOARD NOTE: The Board found it necessary to move the
8611 text of 40 CFR 141.85(b)(2)(ii)(C)(1) through
8612 (b)(2)(ii)(C)(3) (2007), as added at 72 Fed. Reg. 57782
8613 (Oct. 10, 2007), to appear as subsection (b)(2)(I)(i) through
8614 subsection (b)(2)(I)(iii) ~~of this Section~~, in order to comport
8615 with Illinois Administrative Code codification requirements
8616 relating to allowed indent levels in rules.
8617

- 8618 C) No less often than quarterly, the CWS supplier must provide
8619 information on or in each water bill as long as the system exceeds
8620 the action level for lead. The message on the water bill must
8621 include the following statement exactly as written, except for the
8622 text in brackets for which the supplier must include system-
8623 specific information:
8624

8625 [INSERT NAME OF SUPPLIER] found high levels of lead
8626 in drinking water in some homes. Lead can cause serious
8627 health problems. For more information please call
8628 [INSERT NAME OF SUPPLIER] [or visit (INSERT
8629 SUPPLIER'S WEB SITE HERE)]. The message or
8630 delivery mechanism can be modified in consultation with
8631 the Illinois Environmental Protection Agency, Division of
8632 Public Water Supply; specifically, the Agency may allow a
8633 separate mailing of public education materials to customers
8634 if the water system cannot place the information on water
8635 bills.
8636

- 8637 D) The CWS supplier must post material meeting the content
8638 requirements of subsection (a) ~~of this Section~~ on the supplier's
8639 Web site if the CWS supplier serves a population greater than
8640 100,000.
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- E) The CWS supplier must submit a press release to newspaper, television, and radio stations.
 - F) In addition to subsections (b)(2)(A) through (b)(2)(E) ~~of this Section~~, the CWS supplier must implement at least three activities from one or more of the categories listed below. The educational content and selection of these activities must be determined in consultation with the Agency.
 - i) Public Service Announcements.
 - ii) Paid advertisements.
 - iii) Public Area Information Displays.
 - iv) E-mails to customers.
 - v) Public Meetings.
 - vi) Household Deliveries.
 - vii) Targeted Individual Customer Contact.
 - viii) Direct material distribution to all multi-family homes and institutions.
 - ix) Other methods approved by the State.
 - G) For a CWS supplier that is required to conduct monitoring annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs, or, if the Agency has established an alternate monitoring period, by a SEP issued pursuant to Section 611.110, the last day of that period.
 - H) Organizations that the CWS supplier must contact when required to do so pursuant to subsection (b)(2)(B)(ii) ~~of this Section~~.
 - i) Public and private schools or school boards.
 - ii) Women, Infants and Children (WIC) and Head Start programs.

- 8685 iii) Public and private hospitals and medical clinics.
- 8686
- 8687 vi) Pediatricians.
- 8688
- 8689 v) Family planning clinics.
- 8690
- 8691 vi) Local welfare agencies.
- 8692

8693 BOARD NOTE: This subsection (b)(2)(H) corresponds with 40
8694 CFR 141.85(b)(2)(ii)(B)(1) through (b)(2)(ii)(B)(6) (2016)(2007),
8695 as added at 72 Fed. Reg. 57782 (Oct. 10, 2007). The Board found
8696 it necessary to move the text of those federal provisions to comport
8697 with Illinois Administrative Code codification requirements
8698 relating to allowed indent levels in rules.

8700 I) Organizations that the CWS supplier must contact when required
8701 to do so pursuant to subsection (b)(2)(B)(iii) ~~of this Section.~~

- 8702
- 8703 i) Licensed childcare centers.
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- 8705 ii) Public and private preschools.
- 8706
- 8707 iii) Obstetricians-gynecologists and midwives.
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8709 BOARD NOTE: This subsection (b)(2)(H) corresponds with 40
8710 CFR 141.85(b)(2)(ii)(C)(1) through (b)(2)(ii)(C)(3) (2007), as
8711 added at 72 Fed. Reg. 57782 (Oct. 10, 2007). The Board found it
8712 necessary to move the text of those federal provisions to comport
8713 with Illinois Administrative Code codification requirements
8714 relating to allowed indent levels in rules.

8715

8716 3) As long as a CWS supplier exceeds the action level, it must repeat the
8717 activities described in subsection (b)(2) ~~of this Section~~, as described in
8718 subsections (b)(3)(A) through (b)(3)(D) ~~of this Section~~.

8719

8720 A) A CWS supplier must repeat the tasks contained in subsections
8721 (b)(2)(A), (b)(2)(B), and (b)(2)(D) ~~of this Section~~ every 12 months.

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8723 B) A CWS supplier must repeat tasks contained in subsection
8724 (b)(2)(C) ~~of this Section~~ with each billing cycle.

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- C) A CWS supplier serving a population greater than 100,000 must post and retain material on a publicly accessible Web site pursuant to subsection (b)(2)(D) ~~of this Section.~~

 - D) The CWS supplier must repeat the task in subsection (b)(2)(E) ~~of this Section~~ twice every 12 months on a schedule agreed upon with the Agency by a SEP issued pursuant to Section 611.110. The Agency must, on a case-by-case basis, by a SEP issued pursuant to Section 611.110, extend the time for the supplier to complete the public education tasks set forth in subsection (b)(2) ~~of this Section~~ beyond the 60-day limit if it determines that the extended time is needed for implementation purposes; however, the Agency must issue the SEP granting any extension prior to expiration of the 60-day deadline.

 - 4) Within 60 days after the end of the monitoring period in which a NTNCWS supplier exceeds the lead action level (unless it already is repeating public education tasks pursuant to subsection (b)(5) ~~of this Section~~), it must deliver the public education materials specified by subsection (a).
 - A) The public education materials shall be delivered as follows ~~of this Section, as in subsections (b)(4)(A) and (b)(4)(B) of this Section, subject to the limitation set forth in subsection (b)(4)(C) of this Section:~~
 - iA) The NTNCWS supplier must post informational posters on lead in drinking water in a public place or common area in each of the buildings served by the supplier; and

 - iiB) The NTNCWS supplier must distribute informational pamphlets or brochures on lead in drinking water to each person served by the NTNCWS supplier. The Agency may, by a SEP issued pursuant to Section 611.110, allow the system to utilize electronic transmission in lieu of or combined with printed materials as long as it achieves at least the same coverage.

 - BE) For a NTNCWS supplier that is required to conduct monitoring annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs, or, if the Agency has established an alternate monitoring period, by

- 8768 a SEP issued pursuant to Section 611.110, the last day of that
 8769 period.
 8770
- 8771 5) A NTNCWS supplier must repeat the tasks set forth in subsection (b)(4) of
 8772 ~~this Section~~ at least once during each calendar year in which the supplier
 8773 exceeds the lead action level. The Agency must, on a case-by-case basis,
 8774 by a SEP issued pursuant to Section 611.110, extend the time for the
 8775 supplier to complete the public education tasks set forth in subsection
 8776 (b)(2) of ~~this Section~~ beyond the 60-day limit if it determines that the
 8777 extended time is needed for implementation purposes; however, the
 8778 Agency must issue the SEP granting any extension prior to expiration of
 8779 the 60-day deadline.
 8780
- 8781 6) A supplier may discontinue delivery of public education materials after it
 8782 has met the lead action level during the most recent six-month monitoring
 8783 period conducted pursuant to Section 611.356. Such a supplier must begin
 8784 public education anew in accordance with this Section if it subsequently
 8785 exceeds the lead action level during any six-month monitoring period.
 8786
- 8787 7) A CWS supplier may apply to the Agency, in writing, to use only the text
 8788 specified in subsection (a)(1) of ~~this Section~~ in lieu of the text in
 8789 subsections (a)(1) and (a)(2) of ~~this Section~~ and to perform the tasks listed
 8790 in subsections (b)(4) and (b)(5) of ~~this Section~~ in lieu of the tasks in
 8791 subsections (b)(2) and (b)(3) of ~~this Section~~ if the following are true:
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- 8793 A) The supplier is a facility, such as a prison or a hospital, where the
 8794 population served is not capable of or is prevented from making
 8795 improvements to plumbing or installing point of use treatment
 8796 devices; and
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- 8798 B) The system provides water as part of the cost of services provided,
 8799 and it does not separately charge for water consumption.
 8800
- 8801 8) A CWS supplier that serves 3,300 or fewer people may limit certain
 8802 aspects of its public education programs as follows:
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- 8804 A) With respect to the requirements of subsection (b)(2)(F) of ~~this~~
 8805 ~~Section~~, a supplier that serves 3,300 or fewer people must
 8806 implement at least one of the activities listed in that subsection.
 8807
- 8808 B) With respect to the requirements of subsection (b)(2)(B) of ~~this~~
 8809 ~~Section~~, a supplier that serves 3,300 or fewer people may limit the
 8810 distribution of the public education materials required under that

8811 subsection to facilities and organizations that it serves which are
 8812 most likely to be visited regularly by pregnant women and
 8813 children.
 8814

8815 C) With respect to the requirements of subsection (b)(2)(E) ~~of this~~
 8816 ~~Section~~, the Agency may, by a SEP issued pursuant to Section
 8817 611.110, waive this requirement for a supplier that serves 3,300 or
 8818 fewer persons, as long as the supplier distributes notices to every
 8819 household that it serves.
 8820

8821 c) Supplemental monitoring and notification of results. A supplier that fails to meet
 8822 the lead action level on the basis of tap samples collected in accordance with
 8823 Section 611.356 must offer to sample the tap water of any customer who requests
 8824 it. The supplier is not required to pay for collecting or analyzing the sample, nor
 8825 is the supplier required to collect and analyze the sample itself.
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8827 d) Requirement for consumer notice of tap water monitoring results.
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8829 1) Consumer notice requirement. A supplier must provide a notice of the
 8830 individual tap results from lead tap water monitoring carried out under the
 8831 requirements of Section 611.356 to the persons served by the water system
 8832 at the specific sampling site from which the sample was taken (e.g., the
 8833 occupants of the residence where the tap was tested).
 8834

8835 2) Timing of consumer notice. The supplier must provide the consumer
 8836 notice as soon as practical, but no later than 30 days after it learns of the
 8837 tap monitoring results.
 8838

8839 3) Content of consumer notice. The consumer notice must include the results
 8840 of lead tap water monitoring for the tap that was tested, an explanation of
 8841 the health effects of lead, a list of steps that consumers can take to reduce
 8842 exposure to lead in drinking water, and contact information for the water
 8843 utility. The notice must also provide the maximum contaminant level goal
 8844 and the action level for lead and the definitions for these two terms from
 8845 Section 611.883(c).
 8846

8847 4) Delivery of consumer notice. The consumer notice must be provided to
 8848 persons served at the tap that was tested, either by mail or by another
 8849 method approved by the Agency, by a SEP issued pursuant to Section
 8850 611.110. For example, upon approval by the Agency, a NTNCWS
 8851 supplier could post the results on a bulletin board in the facility to allow
 8852 users to review the information. The supplier must provide the notice to

8853 customers at sample taps tested, including consumers who do not receive
8854 water bills.

8855
8856 BOARD NOTE: Derived from 40 CFR 141.85 (2016)(2013).

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8858 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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8860 **Section 611.356 Tap Water Monitoring for Lead and Copper**

8861
8862 a) Sampling site location.

8863
8864 1) Selecting a pool of targeted sampling sites.

8865
8866 A) By the applicable date for commencement of monitoring under
8867 subsection (d)(1) of this Section, each supplier must complete a
8868 materials evaluation of its distribution system in order to identify a
8869 pool of targeted sampling sites that meets the requirements of this
8870 Section.

8871
8872 B) The pool of targeted sampling sites must be sufficiently large to
8873 ensure that the supplier can collect the number of lead and copper
8874 tap samples required by subsection (c) of this Section.

8875
8876 C) The supplier must select the sites for collection of first draw
8877 samples from this pool of targeted sampling sites.

8878
8879 D) The supplier must not select as sampling sites any faucets that have
8880 point-of-use or point-of-entry treatment devices designed to
8881 remove or capable of removing inorganic contaminants.

8882
8883 2) Materials evaluation.

8884
8885 A) A supplier must use the information on lead, copper, and
8886 galvanized steel collected pursuant to 40 CFR 141.42(d) (special
8887 monitoring for corrosivity characteristics) when conducting a
8888 materials evaluation.

8889
8890 B) When an evaluation of the information collected pursuant to 40
8891 CFR 141.42(d) is insufficient to locate the requisite number of lead
8892 and copper sampling sites that meet the targeting criteria in
8893 subsection (a) of this Section, the supplier must review the
8894 following sources of information in order to identify a sufficient
8895 number of sampling sites:

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- i) All plumbing codes, permits, and records in the files of the building departments that indicate the plumbing materials that are installed within publicly- and privately-owned structures connected to the distribution system;
 - ii) All inspections and records of the distribution system that indicate the material composition of the service connections which connect a structure to the distribution system;
 - iii) All existing water quality information, which includes the results of all prior analyses of the system or individual structures connected to the system, indicating locations that may be particularly susceptible to high lead or copper concentrations; and
 - iv) The supplier must seek to collect such information where possible in the course of its normal operations (e.g., checking service line materials when reading water meters or performing maintenance activities).
- 3) Tiers of sampling sites. Suppliers must categorize the sampling sites within their pool according to the following tiers:
- A) CWS Tier 1 sampling sites. "CWS Tier 1 sampling sites" must include the following single-family structures:
 - i) Those that contain copper pipes with lead solder installed after 1982 or which contain lead pipes; or
 - ii) Those that are served by a lead service line.
- BOARD NOTE: Subsection (a)(3)(A) was derived from segments of 40 CFR 141.86(a)(3) (2016)(2007). This allows the pool of CWS tier 1 sampling sites to consist exclusively of structures served by lead service lines.
- B) CWS Tier 2 sampling sites. "CWS Tier 2 sampling sites" must include the following buildings, including multiple-family structures:
 - i) Those that contain copper pipes with lead solder installed

8939 after 1982 or which contain lead pipes; or

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ii) Those that are served by a lead service line.

BOARD NOTE: Subsection (a)(3)(B) was derived from segments of 40 CFR 141.86(a)(4) (2016)(2007). This allows the pool of CWS tier 2 sampling sites to consist exclusively of structures served by lead service lines.

C) CWS Tier 3 sampling sites. "CWS Tier 3 sampling sites" must include the following single-family structures: those that contain copper pipes with lead solder installed before 1983.

BOARD NOTE: Subsection (a)(3)(C) was derived from segments of 40 CFR 141.86(a)(5) (2016)(2007).

D) NTNCWS Tier 1 sampling sites. "NTNCWS Tier 1 sampling sites" must include the following buildings:

i) Those that contain copper pipes with lead solder installed after 1982 or which contain lead pipes; or

ii) Those that are served by a lead service line.

BOARD NOTE: Subsection (a)(3)(D) was derived from segments of 40 CFR 141.86(a)(6) (2016)(2007). This allows the pool of NTNCWS tier 1 sampling sites to consist exclusively of buildings served by lead service lines.

E) Alternative NTNCWS sampling sites. "Alternative NTNCWS sampling sites" must include the following buildings: those that contain copper pipes with lead solder installed before 1983.

BOARD NOTE: Subsection (a)(3)(E) was derived from segments of 40 CFR 141.86(a)(7) (2016)(2007).

4) Selection of sampling sites. Suppliers must select sampling sites for their sampling pool as follows:

A) CWS Suppliers. CWS suppliers must use CWS tier 1 sampling sites, except that the supplier may include CWS tier 2 or CWS tier 3 sampling sites in its sampling pool as follows:

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- i) If multiple-family residences comprise at least 20 percent of the structures served by a supplier, the supplier may use CWS tier 2 sampling sites in its sampling pool; or

BOARD NOTE: Subsection (a)(4)(A)(i) was derived from a segment of 40 CFR 141.86(a)(3)(ii) (2016)~~(2007)~~.
 - ii) If the CWS supplier has an insufficient number of CWS tier 1 sampling sites on its distribution system, the supplier may use CWS tier 2 sampling sites in its sampling pool; or

BOARD NOTE: Subsection (a)(4)(A)(ii) was derived from a segment of 40 CFR 141.86(a)(4) (2016)~~(2007)~~.
 - iii) If the CWS supplier has an insufficient number of CWS tier 1 and CWS tier 2 sampling sites on its distribution system, the supplier may complete its sampling pool with CWS tier 3 sampling sites.

BOARD NOTE: Subsection (a)(4)(A)(iii) was derived from a segment of 40 CFR 141.86(a)(5) (2016)~~(2007)~~.
 - iv) If the CWS supplier has an insufficient number of CWS tier 1 sampling sites, CWS tier 2 sampling sites, and CWS tier 3 sampling sites, the supplier must use those CWS tier 1 sampling sites, CWS tier 2 sampling sites, and CWS tier 3 sampling sites that it has and complete its sampling pool with representative sites throughout its distribution system for the balance of its sampling sites. For the purpose of this subsection (a)(4)(A)(iv), a representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

BOARD NOTE: Subsection (a)(4)(A)(iv) was derived from segments of 40 CFR 141.86(a)(5) (2016)~~(2007)~~.
- B) NTNCWS suppliers.
- i) An NTNCWS supplier must select NTNCWS tier 1 sampling sites for its sampling pool.

BOARD NOTE: Subsection (a)(4)(B)(i) was derived from segments of 40 CFR 141.86(a)(6) (2016)~~(2007)~~.

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ii) If the NTNCWS supplier has an insufficient number of NTNCWS tier 1 sampling sites, the supplier may complete its sampling pool with alternative NTNCWS sampling sites.

BOARD NOTE: Subsection (a)(4)(B)(ii) was derived from segments of 40 CFR 141.86(a)(7) ~~(2016)(2007)~~.

iii) If the NTNCWS supplier has an insufficient number of NTNCWS tier 1 sampling sites and NTNCWS alternative sampling sites, the supplier must use representative sites throughout its distribution system. For the purpose of this subsection (a)(4)(B)(ii), a representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

BOARD NOTE: Subsection (a)(4)(B)(iii) was derived from segments of 40 CFR 141.86(a)(7) ~~(2016)(2007)~~.

C) Suppliers with lead service lines. Any supplier whose distribution system contains lead service lines must draw samples during each six-month monitoring period from sampling sites as follows:

i) 50 percent of the samples from sampling sites that contain lead pipes or from sampling sites that have copper pipes with lead solder; and

ii) 50 percent of those samples from sites served by a lead service line.

iii) A supplier that cannot identify a sufficient number of sampling sites served by a lead service line must collect first-draw samples from all of the sites identified as being served by such lines.

BOARD NOTE: Subsection (a)(4)(C) was derived from segments of 40 CFR 141.86(a)(8) ~~(2016)(2007)~~. This allows the pool of sampling sites to consist exclusively of structures or buildings served by lead service lines.

b) Sample collection methods.

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- 1) All tap samples for lead and copper collected in accordance with this Subpart G, with the exception of lead service line samples collected under Section 611.354(c) and samples collected under subsection (b)(5) of this Section, must be first-draw samples.
 - 2) First-draw tap samples.
 - A) Each first-draw tap sample for lead and copper must be one liter in volume and have stood motionless in the plumbing system of each sampling site for at least six hours.
 - B) First-draw samples from residential housing must be collected from the cold water kitchen tap or bathroom sink tap.
 - C) First-draw samples from a non-residential building must be one liter in volume and must be collected at an interior tap from which water is typically drawn for consumption.
 - D) Non-first-draw samples collected in lieu of first-draw samples pursuant to subsection (b)(5) of this Section must be one liter in volume and must be collected at an interior tap from which water is typically drawn for consumption.
 - E) First-draw samples may be collected by the supplier or the supplier may allow residents to collect first-draw samples after instructing the residents of the sampling procedures specified in this subsection (b).
 - i) To avoid problems of residents handling nitric acid, acidification of first-draw samples may be done up to 14 days after the sample is collected.
 - ii) After acidification to resolubilize the metals, the sample must stand in the original container for the time specified in the approved USEPA method before the sample can be analyzed.
 - F) If a supplier allows residents to perform sampling under subsection (b)(2)(D) of this Section, the supplier may not challenge the accuracy of sampling results based on alleged errors in sample collection.
 - 3) Service line samples.

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- A) Each service line sample must be one liter in volume and have stood motionless in the lead service line for at least six hours.
 - B) Lead service line samples must be collected in one of the following three ways:
 - i) At the tap after flushing that volume of water calculated as being between the tap and the lead service line based on the interior diameter and length of the pipe between the tap and the lead service line;
 - ii) Tapping directly into the lead service line; or
 - iii) If the sampling site is a single-family structure, allowing the water to run until there is a significant change in temperature that would be indicative of water that has been standing in the lead service line.
- 4) Follow-up first-draw tap samples.
- A) A supplier must collect each follow-up first-draw tap sample from the same sampling site from which it collected the previous samples.
 - B) If, for any reason, the supplier cannot gain entry to a sampling site in order to collect a follow-up tap sample, the supplier may collect the follow-up tap sample from another sampling site in its sampling pool, as long as the new site meets the same targeting criteria and is within reasonable proximity of the original site.
- 5) Substitute non-first-draw samples.
- A) A NTNCWS supplier or a CWS supplier that meets the criteria of Sections 611.355(b)(7)(A) and (b)(7)(B), that does not have enough taps that can supply first-draw samples, as defined in Section 611.102, may apply to the Agency in writing to substitute non-first-draw samples by a SEP granted under Section 611.110.
 - B) A supplier approved to substitute non-first-draw samples must collect as many first-draw samples from appropriate taps as possible and identify sampling times and locations that would likely result in the longest standing time for the remaining sites.

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C) The Agency may grant a SEP that waives the requirement for prior Agency approval of non-first-draw sampling sites selected by the system.

c) Number of samples.

- 1) Suppliers must collect at least one sample from the number of sites listed in the first column of Table D of this Part (labelled "standard monitoring") during each six-month monitoring period specified in subsection (d) of this Section.
- 2) A supplier conducting reduced monitoring pursuant to subsection (d)(4) of this Section must collect one sample from the number of sites specified in the second column of Table D of this Part (labelled "reduced monitoring") during each reduced monitoring period specified in subsection (d)(4) of this Section. Such reduced monitoring sites must be representative of the sites required for standard monitoring. A supplier whose system has fewer than five drinking water taps that can be used for human consumption and which can meet the sampling site criteria of subsection (a) of this Section to reach the required number of sampling sites listed in this subsection (c) must collect multiple samples from individual taps. To accomplish this, the supplier must collect at least one sample from each tap, then it must collect additional samples from those same taps on different days during the monitoring period, in order to collect a total number of samples that meets the required number of sampling sites. Alternatively, the Agency must, by a SEP issued pursuant to Section 611.110, allow a supplier whose system has fewer than five drinking water taps to collect a number of samples that is fewer than the number of sites specified in this subsection (c) if it determines that 100 percent of all taps that can be used for human consumption are sampled and that the reduced number of samples will produce the same results as would the collection of multiple samples from some taps. Any Agency approval of a reduction of the minimum number of samples must be based on a request from the supplier or on on-site verification by the Agency. The Agency may, by a SEP issued pursuant to Section 611.110, specify sampling locations when a system is conducting reduced monitoring.

d) Timing of monitoring.

- 1) Six-Month Sampling Periods. Six-month sampling periods begin on January 1 and July 1 of each year. Initial tap sampling. The first six-month monitoring period for small, medium-sized and large system suppliers

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must begin on the dates specified in Table E of this Part.

- A) All large system suppliers must monitor during each of two consecutive six-month period, except as provided in subsection (d)(4)(B) periods.
 - B) All small- and medium-sized system suppliers must monitor during each consecutive six-month monitoring period until the following is true:
 - i) The supplier exceeds the lead action level or the copper action level and is therefore required to implement the corrosion control treatment requirements under Section 611.351, in which case the supplier must continue monitoring in accordance with subsection (d)(2) ~~of this Section;~~ or
 - ii) The supplier meets the lead action level and the copper action level during each of two consecutive six-month monitoring periods, in which case the supplier may reduce monitoring in accordance with subsection (d)(4) ~~of this Section.~~
- 2) Monitoring after installation of corrosion control and source water treatment.
- A) Any large system supplier that installs optimal corrosion control treatment pursuant to Section 611.351(d)(4) must monitor ~~have monitored~~ during each of two consecutive six-month monitoring periods ~~before January 1, 1998.~~
 - B) Any small- or medium-sized system supplier that installs optimal corrosion control treatment pursuant to Section 611.351(e)(5) must monitor during each of two consecutive six-month monitoring periods before 36 months after the Agency approves optimal corrosion control treatment, as specified in Section 611.351(e)(6).
 - C) Any supplier that installs source water treatment pursuant to Section 611.353(a)(3) must monitor during each of two consecutive six-month monitoring periods before 36 months after completion of step 2, as specified in Section 611.353(a)(4).
- 3) Monitoring after the Agency specification of water quality parameter

9240 values for optimal corrosion control.
 9241 After the Agency specifies the values for water quality control parameters
 9242 pursuant to Section 611.352(f), the supplier must monitor during each
 9243 subsequent six-month monitoring period, with the first six-month
 9244 monitoring period to begin on the date the Agency specifies the optimal
 9245 values.

4) Reduced monitoring.

A) Reduction to annual for small- and medium-sized system suppliers meeting the lead and copper action levels. A small- or medium-sized system supplier that meets the lead and copper action levels during each of two consecutive six-month monitoring periods may reduce the number of samples in accordance with subsection (c) of this Section, and reduce the frequency of sampling to once per year. A small- or medium-sized system supplier that collects fewer than five samples as specified in subsection (c) of this Section and which meets the lead and copper action levels during each of two consecutive six-month monitoring periods may reduce its frequency of sampling to once per year. In no case can the supplier reduce the number of samples required below the minimum of one sample per available tap. This reduced sampling may only begin during the calendar year immediately following the end of the second consecutive six-month monitoring period.

B) SEP allowing reduction to annual for suppliers maintaining water quality control parameters.

i) Any supplier that meets the lead action level and which maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the Agency under Section 611.352(f) during each of two consecutive six-month monitoring periods may reduce the frequency of monitoring to once per year and the number of lead and copper samples to that specified by subsection (c) of this Section if it receives written approval from the Agency in the form of a SEP issued pursuant to Section 611.110. This reduced sampling may only begin during the calendar year immediately following the end of the second consecutive six-month monitoring period.

ii) The Agency must review monitoring, treatment, and other relevant information submitted by the water system in

- 9283 accordance with Section 611.360, and must notify the
9284 system in writing by a SEP issued pursuant to Sections
9285 611.110 when it determines the system is eligible to reduce
9286 its monitoring frequency to once every three years pursuant
9287 to this subsection (d)(4).
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- 9289 iii) The Agency must review, and where appropriate, revise its
9290 determination under subsection (d)(4)(B)(i) ~~of this Section~~
9291 when the supplier submits new monitoring or treatment
9292 data, or when other data relevant to the number and
9293 frequency of tap sampling becomes available to the
9294 Agency.
9295
- 9296 C) Reduction to triennial for small- and medium-sized system
9297 suppliers.
9298
- 9299 i) Small- and medium-sized system suppliers meeting lead
9300 and copper action levels. A small- or medium-sized system
9301 supplier that meets the lead action level and which meets
9302 the lead and copper action levels during three consecutive
9303 years of monitoring may reduce the frequency of
9304 monitoring for lead and copper from annually to once every
9305 three years.
9306
- 9307 ii) SEP for suppliers meeting optimal corrosion control
9308 treatment. Any supplier that maintains the range of values
9309 for the water quality control parameters reflecting optimal
9310 corrosion control treatment specified by the Agency under
9311 Section 611.352(f) during three consecutive years of
9312 monitoring may reduce its monitoring frequency from
9313 annual to once every three years if it receives written
9314 approval from the Agency in the form of a SEP issued
9315 pursuant to Section 611.110. Samples collected once every
9316 three years must be collected no later than every third
9317 calendar year.
9318
- 9319 iii) The Agency must review, and where appropriate, revise its
9320 determination under subsection (d)(4)(C)(ii) ~~of this Section~~
9321 when the supplier submits new monitoring or treatment
9322 data, or when other data relevant to the number and
9323 frequency of tap sampling becomes available to the
9324 Agency.
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- D) Sampling at a reduced frequency. A supplier that reduces the number and frequency of sampling must collect these samples from representative sites included in the pool of targeted sampling sites identified in subsection (a) ~~of this Section~~, preferentially selecting those sampling sites from the highest tier first. Suppliers sampling annually or less frequently must conduct the lead and copper tap sampling during the months of June, July, August, or September, unless the Agency has approved a different sampling period in accordance with subsection (d)(4)(D)(i) ~~of this Section~~.
- i) The Agency may grant a SEP pursuant to Section 611.110 that approves a different period for conducting the lead and copper tap sampling for systems collecting a reduced number of samples. Such a period must be no longer than four consecutive months and must represent a time of normal operation where the highest levels of lead are most likely to occur. For a NTNCWS supplier that does not operate during the months of June through September and for which the period of normal operation where the highest levels of lead are most likely to occur is not known, the Agency must designate a period that represents a time of normal operation for the system. This reduced sampling may only begin during the period approved or designated by the Agency in the calendar year immediately following the end of the second consecutive six-month monitoring period for systems initiating annual monitoring and during the three-year period following the end of the third consecutive calendar year of annual monitoring for a supplier initiating triennial monitoring.
- ii) A supplier monitoring annually that has been collecting samples during the months of June through September and which receives Agency approval to alter its sample collection period under subsection (d)(4)(D)(i) ~~of this Section~~ must collect its next round of samples during a time period that ends no later than 21 months after the previous round of sampling. A supplier monitoring once every three years that has been collecting samples during the months of June through September and which receives Agency approval to alter the sampling collection period as provided in subsection (d)(4)(D)(i) ~~of this Section~~ must collect its next round of samples during a time period that ends no later than 45 months after the previous round of sampling.

Subsequent rounds of sampling must be collected annually or once every three years, as required by this Section. A small system supplier with a waiver granted pursuant to subsection (g) of this Section that has been collecting samples during the months of June through September and which receives Agency approval to alter its sample collection period under subsection (d)(4)(D)(i) of this Section must collect its next round of samples before the end of the nine-year compliance cycle (as that term is defined in Section 611.101).

E) Any water system that demonstrates for two consecutive six-month monitoring periods that the tap water lead level computed under Section 611.350(c)(3) is less than or equal to 0.005 mg/l and that the tap water copper level computed under Section 611.350(c)(3) is less than or equal to 0.65 mg/l may reduce the number of samples in accordance with subsection (c) of this Section and reduce the frequency of sampling to once every three calendar years.

F) Resumption of standard monitoring.

i) Small- or medium-sized suppliers exceeding lead or copper action level. A small- or medium-sized system supplier subject to reduced monitoring that exceeds the lead action level or the copper action level must resume sampling in accordance subsection (d)(3) of this Section and collect the number of samples specified for standard monitoring under subsection (c) of this Section. Such a supplier must also conduct water quality parameter monitoring in accordance with Section 611.357(b), (c), or (d) (as appropriate) during the six-month monitoring period in which it exceeded the action level. Any such supplier may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in subsection (c) of this Section after it has completed two subsequent consecutive six-month rounds of monitoring that meet the criteria of subsection (d)(4)(A) of this Section. Any such supplier may resume monitoring once every three years for lead and copper at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either subsection (d)(4)(C) or (d)(4)(E) of this Section.

9412 ii) Suppliers failing to operate within water quality control
9413 parameters. Any supplier subject to reduced monitoring
9414 frequency that fails to meet the lead action level during any
9415 four-month monitoring period or that fails to operate within
9416 the range of values for the water quality control parameters
9417 specified pursuant to Section 611.352(f) for more than nine
9418 days in any six-month period specified in Section
9419 611.357(d) must conduct tap water sampling for lead and
9420 copper at the frequency specified in subsection (d)(3) of
9421 this Section, must collect the number of samples specified
9422 for standard monitoring under subsection (c) of this
9423 Section, and must resume monitoring for water quality
9424 parameters within the distribution system in accordance
9425 with Section 611.357(d). This standard tap water sampling
9426 must begin no later than the six-month period beginning
9427 January 1 of the calendar year following the lead action
9428 level exceedance or water quality parameter excursion. A
9429 supplier may resume reduced monitoring for lead and
9430 copper at the tap and for water quality parameters within
9431 the distribution system only if it fulfills the conditions set
9432 forth in subsection (d)(4)(H) of this Section.
9433

9434 BOARD NOTE: The Board moved the material from the last
9435 sentence of 40 CFR 141.86(d)(4)(vi)(B) and 40 CFR
9436 141.86(d)(4)(vi)(B)(1) through (d)(4)(vi)(B)(3) (2007) to
9437 subsections (d)(4)(H) and (d)(4)(H)(i) through (d)(4)(H)(iii), since
9438 Illinois Administrative Code codification requirements allow
9439 subsections only to four indent levels.
9440

9441 G) Any water supplier subject to a reduced monitoring frequency
9442 under subsection (d)(4) of this Section must notify the Agency in
9443 writing in accordance with Section 611.360(a)(3) of any upcoming
9444 long-term change in treatment or addition of a new source as
9445 described in that Section. The Agency must review and approve
9446 the addition of a new source or long-term change in water
9447 treatment before it is implemented by the supplier. The Agency
9448 may, by a SEP issued pursuant to Section 611.110, require the
9449 system to resume sampling in accordance with subsection (d)(3) of
9450 this Section and collect the number of samples specified for
9451 standard monitoring under subsection (c) of this Section or take
9452 other appropriate steps such as increased water quality parameter
9453 monitoring or re-evaluation of its corrosion control treatment given
9454 the potentially different water quality considerations.

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- H) A supplier required under subsection (d)(4)(F) ~~of this Section~~ to resume monitoring in accordance with Section 611.357(d) may resume reduced monitoring for lead and copper at the tap and for water quality parameters within the distribution system under the following conditions:
- i) The supplier may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in subsection (c) ~~of this Section~~ after it has completed two subsequent six-month rounds of monitoring that meet the criteria of subsection (d)(4)(B) ~~of this Section~~ and the supplier has received written approval from the Agency by a SEP pursuant to Section 611.110 that it is appropriate to resume reduced monitoring on an annual frequency. This sampling must begin during the calendar year immediately following the end of the second consecutive six-month monitoring period.
 - ii) The supplier may resume monitoring for lead and copper once every three years at the tap at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either subsection (d)(4)(C) or (d)(4)(E) ~~of this Section~~ and the system has received a SEP under Section 611.110 from the Agency that it is appropriate to resume monitoring once every three years.
 - iii) The supplier may reduce the number of water quality parameter tap water samples required in accordance with Section 611.357(e)(1) and the frequency with which it collects such samples in accordance with Section 611.357(e)(2). Such a system may not resume monitoring once every three years for water quality parameters at the tap until it demonstrates, in accordance with the requirements of Section 611.357(e)(2), that it has re-qualified for monitoring once every three years.

BOARD NOTE: Subsections (d)(4)(H) and (d)(4)(H)(i) through (d)(4)(H)(iii) are derived from the last sentence of 40 CFR 141.86(d)(4)(vi)(B) and 40 CFR 141.86 (d)(4)(vi)(B)(1) through (d)(4)(vi)(B)(3) ~~(2016)(2007)~~, since Illinois Administrative Code codification requirements allow only four indent levels of subsections.

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- e) Additional monitoring. The results of any monitoring conducted in addition to the minimum requirements of this Section must be considered by the supplier and the Agency in making any determinations (i.e., calculating the 90th percentile lead action level or the copper level) under this Subpart G.
 - f) Invalidation of lead or copper tap water samples. A sample invalidated under this subsection does not count toward determining lead or copper 90th percentile levels under Section 611.350(c)(3) or toward meeting the minimum monitoring requirements of subsection (c) ~~of this Section~~.
 - 1) The Agency must invalidate a lead or copper tap water sample if it determines that one of the following conditions exists:
 - A) The laboratory establishes that improper sample analysis caused erroneous results;
 - B) The sample was taken from a site that did not meet the site selection criteria of this Section;
 - C) The sample container was damaged in transit; or
 - D) There is substantial reason to believe that the sample was subject to tampering.
 - 2) The supplier must report the results of all samples to the Agency and all supporting documentation for samples the supplier believes should be invalidated.
 - 3) To invalidate a sample under subsection (f)(1) ~~of this Section~~, the decision and the rationale for the decision must be documented in writing. The Agency may not invalidate a sample solely on the grounds that a follow-up sample result is higher or lower than that of the original sample.
 - 4) The water supplier must collect replacement samples for any samples invalidated under this Section if, after the invalidation of one or more samples, the supplier has too few samples to meet the minimum requirements of subsection (c) ~~of this Section~~. Any such replacement samples must be taken as soon as possible, but no later than 20 days after the date the Agency invalidates the sample or by the end of the applicable monitoring period, whichever occurs later. Replacement samples taken after the end of the applicable monitoring period must not also be used to meet the monitoring requirements of a subsequent monitoring period. The

9541 replacement samples must be taken at the same locations as the
 9542 invalidated samples or, if that is not possible, at locations other than those
 9543 already used for sampling during the monitoring period.
 9544

9545 g) Monitoring waivers for small system suppliers. Any small system supplier that
 9546 meets the criteria of this subsection (g) may apply to the Agency to reduce the
 9547 frequency of monitoring for lead and copper under this Section to once every nine
 9548 years (i.e., a "full waiver") if it meets all of the materials criteria specified in
 9549 subsection (g)(1) ~~of this Section~~ and all of the monitoring criteria specified in
 9550 subsection (g)(2) ~~of this Section~~. Any small system supplier that meets the
 9551 criteria in subsections (g)(1) and (g)(2) ~~of this Section~~ only for lead, or only for
 9552 copper, may apply to the State for a waiver to reduce the frequency of tap water
 9553 monitoring to once every nine years for that contaminant only (i.e., a "partial
 9554 waiver").
 9555

9556 1) Materials criteria. The supplier must demonstrate that its distribution
 9557 system and service lines and all drinking water supply plumbing,
 9558 including plumbing conveying drinking water within all residences and
 9559 buildings connected to the system, are free of lead-containing materials or
 9560 copper-containing materials, as those terms are defined in this subsection
 9561 (g)(1), as follows:
 9562

9563 A) Lead. To qualify for a full waiver, or a waiver of the tap water
 9564 monitoring requirements for lead (i.e., a "lead waiver"), the water
 9565 supplier must provide certification and supporting documentation
 9566 to the Agency that the system is free of all lead-containing
 9567 materials, as follows:
 9568

- 9569 i) It contains no plastic pipes that contain lead plasticizers, or
 9570 plastic service lines that contain lead plasticizers; and
- 9571 ii) It is free of lead service lines, lead pipes, lead soldered pipe
 9572 joints, and leaded brass or bronze alloy fittings and fixtures,
 9573 unless such fittings and fixtures meet the specifications of
 9574 NSF Standard 61, section 9, incorporated by reference in
 9575 Section 611.102.
 9576

9577
 9578 BOARD NOTE: Corresponding 40 CFR
 9579 141.86(g)(1)(i)(B) specifies "any standard established
 9580 pursuant to 42 USC 300g-6(e) (SDWA section 1417(e))".
 9581 USEPA has stated that the NSF standard is that standard.
 9582 See 62 Fed. Reg. 44684 (Aug. 22, 1997).
 9583

- 9584 B) Copper. To qualify for a full waiver, or a waiver of the tap water
 9585 monitoring requirements for copper (i.e., a "copper waiver"), the
 9586 water supplier must provide certification and supporting
 9587 documentation to the Agency that the system contains no copper
 9588 pipes or copper service lines.
 9589
- 9590 2) Monitoring criteria for waiver issuance. The supplier must have completed
 9591 at least one six-month round of standard tap water monitoring for lead and
 9592 copper at sites approved by the Agency and from the number of sites
 9593 required by subsection (c) of this Section and demonstrate that the 90th
 9594 percentile levels for any and all rounds of monitoring conducted since the
 9595 system became free of all lead-containing or copper-containing materials,
 9596 as appropriate, meet the following criteria:
 9597
- 9598 A) Lead levels. To qualify for a full waiver, or a lead waiver, the
 9599 supplier must demonstrate that the 90th percentile lead level does
 9600 not exceed 0.005 mg/l.
 9601
- 9602 B) Copper levels. To qualify for a full waiver, or a copper waiver, the
 9603 supplier must demonstrate that the 90th percentile copper level does
 9604 not exceed 0.65 mg/l.
 9605
- 9606 3) State approval of waiver application. The Agency must notify the supplier
 9607 of its waiver determination by a SEP issued pursuant to Section 611.110,
 9608 in writing, setting forth the basis of its decision and any condition of the
 9609 waiver. As a condition of the waiver, the Agency may require the supplier
 9610 to perform specific activities (e.g., limited monitoring, periodic outreach
 9611 to customers to remind them to avoid installation of materials that might
 9612 void the waiver) to avoid the risk of lead or copper concentration of
 9613 concern in tap water. The small system supplier must continue monitoring
 9614 for lead and copper at the tap as required by subsections (d)(1) through
 9615 (d)(4) of this Section, as appropriate, until it receives written notification
 9616 from the Agency that the waiver has been approved.
 9617
- 9618 4) Monitoring frequency for suppliers with waivers.
 9619
- 9620 A) A supplier with a full waiver must conduct tap water monitoring
 9621 for lead and copper in accordance with subsection (d)(4)(D) of this
 9622 Section at the reduced number of sampling sites identified in
 9623 subsection (c) of this Section at least once every nine years and
 9624 provide the materials certification specified in subsection (g)(1) of
 9625 this Section for both lead and copper to the Agency along with the
 9626 monitoring results. Samples collected every nine years must be

- 9627 collected no later than every ninth calendar year.
- 9628
- 9629 B) A supplier with a partial waiver must conduct tap water monitoring
- 9630 for the waived contaminant in accordance with subsection
- 9631 ~~(d)(4)(D) of this Section~~ at the reduced number of sampling sites
- 9632 specified in subsection (c) ~~of this Section~~ at least once every nine
- 9633 years and provide the materials certification specified in subsection
- 9634 ~~(g)(1) of this Section~~ pertaining to the waived contaminant along
- 9635 with the monitoring results. Such a supplier also must continue to
- 9636 monitor for the non-waived contaminant in accordance with
- 9637 requirements of subsections (d)(1) through (d)(4) ~~of this Section~~,
- 9638 as appropriate.
- 9639
- 9640 C) Any supplier with a full or partial waiver must notify the Agency
- 9641 in writing in accordance with Section 611.360(a)(3) of any
- 9642 upcoming long-term change in treatment or addition of a new
- 9643 source, as described in that Section. The Agency must review and
- 9644 approve the addition of a new source or long-term change in water
- 9645 treatment before it is implemented by the supplier. The Agency
- 9646 has the authority to require the supplier to add or modify waiver
- 9647 conditions (e.g., require recertification that the supplier's system is
- 9648 free of lead-containing or copper-containing materials, require
- 9649 additional rounds of monitoring), if it deems such modifications
- 9650 are necessary to address treatment or source water changes at the
- 9651 system.
- 9652
- 9653 D) If a supplier with a full or partial waiver becomes aware that it is
- 9654 no longer free of lead-containing or copper-containing materials,
- 9655 as appropriate (e.g., as a result of new construction or repairs), the
- 9656 supplier must notify the Agency in writing no later than 60 days
- 9657 after becoming aware of such a change.
- 9658
- 9659 5) Continued eligibility. If the supplier continues to satisfy the requirements
- 9660 of subsection (g)(4) ~~of this Section~~, the waiver will be renewed
- 9661 automatically, unless any of the conditions listed in ~~subsection~~ subsection
- 9662 ~~(g)(5)(A) through (g)(5)(C) of this Section~~ occur. A supplier whose
- 9663 waiver has been revoked may re-apply for a waiver at such time as it again
- 9664 meets the appropriate materials and monitoring criteria of subsections
- 9665 ~~(g)(1) and (g)(2) of this Section~~.
- 9666
- 9667 A) A supplier with a full waiver or a lead waiver no longer satisfies
- 9668 the materials criteria of subsection (g)(1)(A) ~~of this Section~~ or has
- 9669 a 90th percentile lead level greater than 0.005 mg/l.

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- B) A supplier with a full waiver or a copper waiver no longer satisfies the materials criteria of subsection (g)(1)(B) ~~of this Section~~ or has a 90th percentile copper level greater than 0.65 mg/ℓ.
 - C) The State notifies the supplier, in writing, that the waiver has been revoked, setting forth the basis of its decision.
- 6) Requirements following waiver revocation. A supplier whose full or partial waiver has been revoked by the Agency is subject to the corrosion control treatment and lead and copper tap water monitoring requirements, as follows:
- A) If the supplier exceeds the lead or copper action level, the supplier must implement corrosion control treatment in accordance with the deadlines specified in Section 611.351(e), and any other applicable requirements of this Subpart G.
 - B) If the supplier meets both the lead and the copper action level, the supplier must monitor for lead and copper at the tap no less frequently than once every three years using the reduced number of sampling sites specified in subsection (c) ~~of this Section~~.
- 7) Pre-existing waivers. Small system supplier waivers approved by the Agency in writing prior to April 11, 2000 must remain in effect under the following conditions:
- A) If the supplier has demonstrated that it is both free of lead-containing and copper-containing materials, as required by subsection (g)(1) ~~of this Section~~ and that its 90th percentile lead levels and 90th percentile copper levels meet the criteria of subsection (g)(2) ~~of this Section~~, the waiver remains in effect so long as the supplier continues to meet the waiver eligibility criteria of subsection (g)(5) ~~of this Section~~. The first round of tap water monitoring conducted pursuant to subsection (g)(4) ~~of this Section~~ must be completed no later than nine years after the last time the supplier monitored for lead and copper at the tap.
 - B) If the supplier has met the materials criteria of subsection (g)(1) ~~of this Section~~ but has not met the monitoring criteria of subsection (g)(2) ~~of this Section~~, the supplier must conduct a round of monitoring for lead and copper at the tap demonstrating that it met the criteria of subsection (g)(2) ~~of this Section~~ no later than

September 30, 2000. Thereafter, the waiver must remain in effect as long as the supplier meets the continued eligibility criteria of subsection (g)(5) of this Section. The first round of tap water monitoring conducted pursuant to subsection (g)(4) of this Section must be completed no later than nine years after the round of monitoring conducted pursuant to subsection (g)(2) of this Section.

BOARD NOTE: Derived from 40 CFR 141.86 (2016)(2013).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.357 Monitoring for Water Quality Parameters

All large system suppliers, and all small- and medium-sized system suppliers that exceed the lead action level or the copper action level, must monitor water quality parameters in addition to lead and copper in accordance with this Section. The requirements of this Section are summarized in Table G of this Part.

a) General Requirements.

1) Sample collection methods.

A) Use of tap samples. The totality of all tap samples collected by a supplier must be representative of water quality throughout the distribution system taking into account the number of persons served, the different sources of water, the different treatment methods employed by the supplier, and seasonal variability. Although a supplier may conveniently conduct tap sampling for water quality parameters at sites used for coliform sampling performed pursuant to Subpart L of this Part, it is not required to do so, and a supplier is not required to perform tap sampling pursuant to this Section at taps targeted for lead and copper sampling under Section 611.356(a).

B) Use of entry point samples. Each supplier must collect samples at entry points to the distribution system from locations representative of each source after treatment. If a supplier draws water from more than one source and the sources are combined before distribution, the supplier must sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water is representative of all sources being used).

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- 2) Number of samples.
 - A) Tap samples. Each supplier must collect two tap samples for applicable water quality parameters during each six-month monitoring period specified under subsections (b) through (e) of this Section from the number of sites indicated in the first column of Table E of this Part.
 - B) Entry point samples.
 - i) Initial monitoring. Except as provided in subsection (c)(3) of this Section, each supplier must collect two samples for each applicable water quality parameter at each entry point to the distribution system during each six-month monitoring period specified in subsection (b) of this Section.
 - ii) Subsequent monitoring. Each supplier must collect one sample for each applicable water quality parameter at each entry point to the distribution system during each six-month monitoring period specified in subsections (c) through (e) of this Section.
 - b) Initial Sampling.
 - 1) Large systems. Each large system supplier must measure the applicable water quality parameters specified in subsection (b)(3) of this Section at taps and at each entry point to the distribution system during each six-month monitoring period specified in Section 611.356(d)(1).
 - 2) Small- and medium-sized systems. Each small- and medium-sized system supplier must measure the applicable water quality parameters specified in subsection (b)(3) of this Section at the locations specified in this subsection during each six-month monitoring period specified in Section 611.356(d)(1) during which the supplier exceeds the lead action level or the copper action level.
 - 3) Water quality parameters.
 - A) pH;
 - B) Alkalinity;

- 9799 C) Orthophosphate, when an inhibitor containing a phosphate
 9800 compound is used;
 9801
 9802 D) Silica, when an inhibitor containing a silicate compound is used;
 9803
 9804 E) Calcium;
 9805
 9806 F) Conductivity; and
 9807
 9808 G) Water temperature.
 9809
- 9810 c) Monitoring after installation of corrosion control.
 9811
- 9812 1) Large systems. Each large system supplier that installs optimal corrosion
 9813 control treatment pursuant to Section 611.351(d)(4) must measure the
 9814 water quality parameters at the locations and frequencies specified in
 9815 subsections (c)(4) and (c)(5) ~~of this Section~~ during each six-month
 9816 monitoring period specified in Section 611.356(d)(2)(A).
 9817
- 9818 2) Small- and medium-sized systems. Each small- or medium-sized system
 9819 that installs optimal corrosion control treatment pursuant to Section
 9820 611.351(e)(5) must measure the water quality parameters at the locations
 9821 and frequencies specified in subsections (c)(4) and (c)(5) ~~of this Section~~
 9822 during each six-month monitoring period specified in Section
 9823 611.356(d)(2)(B) in which the supplier exceeds the lead action level or the
 9824 copper action level.
 9825
- 9826 3) Any groundwater system can limit entry point sampling described in
 9827 subsection (c)(2) ~~of this Section~~ to those entry points that are
 9828 representative of water quality and treatment conditions throughout the
 9829 system. If water from untreated groundwater sources mixes with water
 9830 from treated groundwater sources, the system must monitor for water
 9831 quality parameters both at representative entry points receiving treatment
 9832 and representative entry points receiving no treatment. Prior to the start of
 9833 any monitoring under this subsection, the system must provide to the
 9834 Agency written information identifying the selected entry points and
 9835 documentation, including information on seasonal variability, sufficient to
 9836 demonstrate that the sites are representative of water quality and treatment
 9837 conditions throughout the system.
 9838
- 9839 4) Tap water samples, two samples at each tap for each of the following
 9840 water quality parameters:
 9841

- 9842 A) pH;
 9843
 9844 B) Alkalinity;
 9845
 9846 C) Orthophosphate, when an inhibitor containing a phosphate
 9847 compound is used;
 9848
 9849 D) Silica, when an inhibitor containing a silicate compound is used;
 9850 and
 9851
 9852 E) Calcium, when calcium carbonate stabilization is used as part of
 9853 corrosion control.
 9854
 9855 5) Entry point samples, except as provided in subsection (c)(3)-of this
 9856 Section, one sample at each entry point to the distribution system every
 9857 two weeks (bi-weekly) for each of the following water quality parameters:
 9858
 9859 A) pH;
 9860
 9861 B) When alkalinity is adjusted as part of optimal corrosion control, a
 9862 reading of the dosage rate of the chemical used to adjust alkalinity,
 9863 and the alkalinity concentration; and
 9864
 9865 C) When a corrosion inhibitor is used as part of optimal corrosion
 9866 control, a reading of the dosage rate of the inhibitor used, and the
 9867 concentration of orthophosphate or silica (whichever is applicable).
 9868
 9869 d) Monitoring after the Agency specifies water quality parameter values for optimal
 9870 corrosion control.
 9871
 9872 1) Large system suppliers. After the Agency has specified the values for
 9873 applicable water quality control parameters reflecting optimal corrosion
 9874 control treatment pursuant to Section 611.352(f), each large system
 9875 supplier must measure the applicable water quality parameters in
 9876 accordance with subsection (c)-of this Section and determine compliance
 9877 with the requirements of Section 611.352(g) every six months with the
 9878 first six-month period to begin on either January 1 or July 1, whichever
 9879 comes first, after the Agency specifies the optimal values under Section
 9880 611.352(f).
 9881
 9882 2) Small- and medium-sized system suppliers. Each small- or medium-sized
 9883 system supplier must conduct such monitoring during each six-month
 9884 monitoring period specified in this subsection (d) in which the supplier

9885 exceeds the lead action level or the copper action level. For any such
 9886 small and medium-size system that is subject to a reduced monitoring
 9887 frequency pursuant to Section 611.356(d)(4) at the time of the action level
 9888 exceedance, the start of the applicable six-month monitoring period under
 9889 this subsection (d) must coincide with the start of the applicable
 9890 monitoring period under Section 611.356(d)(4).
 9891

9892 3) Compliance with Agency-designated optimal water quality parameter
 9893 values must be determined as specified under Section 611.352(g).
 9894

9895 e) Reduced monitoring.
 9896

9897 1) Reduction in tap monitoring. A supplier that has maintained the range of
 9898 values for the water quality parameters reflecting optimal corrosion
 9899 control treatment during each of two consecutive six-month monitoring
 9900 periods under subsection (d) ~~of this Section~~ must continue monitoring at
 9901 the entry points to the distribution system as specified in subsection (c)(4)
 9902 ~~of this Section~~. Such a supplier may collect two samples from each tap for
 9903 applicable water quality parameters from the reduced number of sites
 9904 indicated in the second column of Table E of this Part during each
 9905 subsequent six-month monitoring period.
 9906

9907 2) Reduction in monitoring frequency.
 9908

9909 A) Staged reductions in monitoring frequency.
 9910

9911 i) Annual monitoring. A supplier that maintains the range of
 9912 values for the water quality parameters reflecting optimal
 9913 corrosion control treatment specified pursuant to Section
 9914 611.352(f) during three consecutive years of monitoring
 9915 may reduce the frequency with which it collects the number
 9916 of tap samples for applicable water quality parameters
 9917 specified in subsection (e)(1) ~~of this Section~~ from every six
 9918 months to annually. This reduced sampling may only begin
 9919 during the calendar year immediately following the end of
 9920 the monitoring period in which the third consecutive year
 9921 of six-month monitoring occurs.
 9922

9923 ii) Triennial monitoring. A supplier that maintains the range
 9924 of values for the water quality parameters reflecting
 9925 optimal corrosion control treatment specified pursuant to
 9926 Section 611.352(f) during three consecutive years of annual
 9927 monitoring under subsection (e)(2)(A)(i) ~~of this Section~~

- 9928 may reduce the frequency with which it collects the number
 9929 of tap samples for applicable water quality parameters
 9930 specified in subsection (e)(1) ~~of this Section~~ from annually
 9931 to once every three years. This reduced sampling may only
 9932 begin no later than the third calendar year following the end
 9933 of the monitoring period in which the third consecutive
 9934 year of monitoring occurs.
 9935
- 9936 B) A water supplier may reduce the frequency with which it collects
 9937 tap samples for applicable water quality parameters specified in
 9938 subsection (e)(1) ~~of this Section~~ to every three years if it
 9939 demonstrates that it has fulfilled the conditions set forth in
 9940 subsections (e)(2)(B)(i) through (e)(2)(B)(iii) ~~of this Section~~
 9941 during two consecutive monitoring periods, subject to the
 9942 limitation of subsection (e)(2)(B)(iv) ~~of this Section~~.
 9943
- 9944 i) The supplier must demonstrate that its tap water lead level
 9945 at the 90th percentile is less than or equal to the PQL for
 9946 lead specified in Section 611.359(a)(1)(B);
 9947
- 9948 ii) The supplier must demonstrate that its tap water copper
 9949 level at the 90th percentile is less than or equal to 0.65 mg/ℓ
 9950 for copper in Section 611.350(c)(2); and
 9951
- 9952 iii) The supplier must demonstrate that it also has maintained
 9953 the range of values for the water quality parameters
 9954 reflecting optimal corrosion control treatment specified by
 9955 the Agency under Section 611.352(f).
 9956
- 9957 iv) Monitoring conducted every three years must be done no
 9958 later than every third calendar year.
 9959
- 9960 3) A supplier that conducts sampling annually or every three years must
 9961 collect these samples evenly throughout the calendar year so as to reflect
 9962 seasonal variability.
 9963
- 9964 4) Any supplier subject to a reduced monitoring frequency pursuant to this
 9965 subsection that fails to operate at or above the minimum value or within
 9966 the range of values for the water quality parameters specified pursuant to
 9967 Section 611.352(f) for more than nine days in any six-month period
 9968 specified in Section 611.352(g) must resume tap water sampling in
 9969 accordance with the number and frequency requirements of subsection (d)
 9970 ~~of this Section~~. Such a system may resume annual monitoring for water

9971 quality parameters at the tap at the reduced number of sites specified in
9972 subsection (e)(1) ~~of this Section~~ after it has completed two subsequent
9973 consecutive six-month rounds of monitoring that meet the criteria of that
9974 subsection or may resume monitoring once every three years for water
9975 quality parameters at the tap at the reduced number of sites after it
9976 demonstrates through subsequent rounds of monitoring that it meets the
9977 criteria of either subsection (e)(2)(A) or (e)(2)(B) ~~of this Section~~.
9978

- 9979 f) Additional monitoring by suppliers. The results of any monitoring conducted in
9980 addition to the minimum requirements of this Section must be considered by the
9981 supplier and the Agency in making any determinations (i.e., determining
9982 concentrations of water quality parameters) under this Section or Section 611.352.
9983

9984 BOARD NOTE: Derived from 40 CFR 141.87 ~~(2016)~~(2014).

9985 (Source: Amended at 41 Ill. Reg. _____, effective _____)
9986
9987

9988 **Section 611.358 Monitoring for Lead and Copper in Source Water**
9989

- 9990 a) Sample location, collection methods, and number of samples.
9991

- 9992 1) A supplier that fails to meet the lead action level or the copper action level
9993 on the basis of tap samples collected in accordance with Section 611.356
9994 must collect lead and copper source water samples in accordance with the
9995 following requirements regarding sample location, number of samples,
9996 and collection methods:
9997

9998 A) A groundwater supplier must take a minimum of one sample at
9999 every entry point to the distribution system that is representative of
10000 each well after treatment (hereafter called a sampling point). The
10001 supplier must take one sample at the same sampling point unless
10002 conditions make another sampling point more representative of
10003 each source or treatment plant.
10004

10005 B) A surface water supplier must take a minimum of one sample at
10006 every entry point to the distribution system after any application of
10007 treatment or in the distribution system at a point that is
10008 representative of each source after treatment (hereafter called a
10009 sampling point). The system must take each sample at the same
10010 sampling point unless conditions make another sampling point
10011 more representative of each source or treatment plant.
10012

10013 BOARD NOTE: For the purposes of this subsection (a)(1)(B),

- 10014 surface water systems include systems with a combination of
 10015 surface and ground sources.
 10016
 10017 C) If a supplier draws water from more than one source and the
 10018 sources are combined before distribution, the supplier must sample
 10019 at an entry point to the distribution system during periods of
 10020 normal operating conditions (i.e., when water is representative of
 10021 all sources being used).
 10022
 10023 D) The Agency may, by a SEP issued pursuant to Section 611.110,
 10024 reduce the total number of samples that must be analyzed by
 10025 allowing the use of compositing. Compositing of samples must be
 10026 done by certified laboratory personnel. Composite samples from a
 10027 maximum of five samples are allowed, provided that if the lead
 10028 concentration in the composite sample is greater than or equal to
 10029 0.001 mg/ℓ or the copper concentration is greater than or equal to
 10030 0.160 mg/ℓ, then the supplier must do either of the following:
 10031
 10032 i) The supplier must take and analyze a follow-up sample
 10033 within 14 days at each sampling point included in the
 10034 composite; or
 10035
 10036 ii) If duplicates of or sufficient quantities from the original
 10037 samples from each sampling point used in the composite
 10038 are available, the supplier may use these instead of
 10039 resampling.
 10040
 10041 2) SEP requiring an additional sample.
 10042
 10043 A) When the Agency determines that the results of sampling indicate
 10044 an exceedance of the lead or copper MPC established under
 10045 Section 611.353(b)(4), it must, by a SEP issued pursuant to Section
 10046 611.110, require the supplier to collect one additional sample as
 10047 soon as possible after the initial sample at the same sampling point,
 10048 but no later than two weeks after the supplier took the initial
 10049 sample.
 10050
 10051 B) If a supplier takes an Agency-required confirmation sample for
 10052 lead or copper, the supplier must average the results obtained from
 10053 the initial sample with the results obtained from the confirmation
 10054 sample in determining compliance with the Agency-specified lead
 10055 and copper MPCs.
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- i) Any analytical result below the MDL must be considered as zero for the purposes of averaging.
 - ii) Any value above the MDL but below the PQL must either be considered as the measured value or be considered one-half the PQL.
- b) Monitoring frequency after system exceeds tap water action level. A supplier that exceeds the lead action level or the copper action level in tap sampling must collect one source water sample from each entry point to the distribution system no later than six months after the end of the monitoring period during which the lead or copper action level was exceeded. For monitoring periods that are annual or less frequent, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs, or if the Agency has established an alternate monitoring period by a SEP issued pursuant to Section 611.110, the last day of that period.
- c) Monitoring frequency after installation of source water treatment. A supplier that installs source water treatment pursuant to Section 611.353(a)(3) must collect an additional source water sample from each entry point to the distribution system during each of two consecutive six-month monitoring periods on or before 36 months after completion of step 2, as specified in Section 611.353(a)(4).
- d) Monitoring frequency after the Agency has specified the lead and copper MPCs or has determined that source water treatment is not needed.
- 1) A supplier must monitor at the frequency specified by subsection (d)(1)(A) or (d)(1)(B) ~~of this Section~~ where the Agency has specified the MPCs pursuant to Section 611.353(b)(4) or has determined that the supplier is not required to install source water treatment pursuant to Section 611.353(b)(2).
 - A) GWS suppliers.
 - i) A GWS supplier required to sample by subsection (d)(1) ~~of this Section~~ must collect samples once during the three-year compliance period (as that term is defined in Section 611.101) during which the Agency makes its determination pursuant to Section 611.353(b)(4) or 611.353(b)(2).
 - ii) A GWS supplier required to sample by subsection (d)(1) ~~of this Section~~ must collect samples once during each subsequent compliance period.

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- iii) Triennial samples must be collected every third calendar year.
 - B) A SWS or mixed system supplier must collect samples once during each calendar year, the first annual monitoring period to begin during the year in which the Agency makes its determination pursuant to Section 611.353(b)(4) or 611.353(b)(2).
 - 2) A supplier is not required to conduct source water sampling for lead or copper if the supplier meets the action level for the specific contaminant in all tap water samples collected during the entire source water sampling period applicable under subsection (d)(1)(A) or (d)(1)(B) of this Section.
 - e) Reduced monitoring frequency.
 - 1) A GWS supplier may reduce the monitoring frequency for lead and copper in source water to once during each nine-year compliance cycle (as that term is defined in Section 611.101), provided that the samples are collected no later than every ninth calendar year, and only if the supplier meets one of the following criteria:
 - A) The supplier demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the State in Section 611.353(b)(4) during at least three consecutive compliance periods under subsection (d)(1) of this Section; or
 - B) The Agency has determined, by a SEP issued pursuant to Section 611.110, that source water treatment is not needed and the system demonstrates that, during at least three consecutive compliance periods in which sampling was conducted under subsection (d)(1) of this Section, the concentration of lead in source water was less than or equal to 0.005 mg/l and the concentration of copper in source water was less than or equal to 0.65 mg/l.
 - 2) A SWS or mixed system supplier may reduce the monitoring frequency in subsection (d)(1) of this Section to once during each nine-year compliance cycle (as that term is defined in Section 611.101), provided that the samples are collected no later than every ninth calendar year, and only if the supplier meets one of the following criteria:
 - A) The supplier demonstrates that finished drinking water entering the

10143 distribution system has been maintained below the maximum
10144 permissible lead and copper concentrations specified by the
10145 Agency under Section 611.353(b)(4) for at least three consecutive
10146 years; or

10147
10148 B) The Agency has determined, by a SEP issued pursuant to Section
10149 611.110, that source water treatment is not needed and the supplier
10150 demonstrates that, during at least three consecutive years, the
10151 concentration of lead in source water was less than or equal to
10152 0.005 mg/ℓ and the concentration of copper in source water was
10153 less than or equal to 0.65 mg/ℓ.

10154
10155 3) A supplier that uses a new source of water is not eligible for reduced
10156 monitoring for lead or copper until it demonstrates by samples collected
10157 from the new source during three consecutive monitoring periods, of the
10158 appropriate duration provided by subsection (d)(1) of this Section, that
10159 lead or copper concentrations are below the MPC as specified by the
10160 Agency pursuant to Section 611.353(a)(4).

10161
10162 BOARD NOTE: Derived from 40 CFR 141.88 (2016)(2014).

10163
10164 (Source: Amended at 41 Ill. Reg. _____, effective _____)

10165
10166 **Section 611.359 Analytical Methods**

10167
10168 Analyses for lead, copper, pH, conductivity, calcium, alkalinity, orthophosphate, silica, and
10169 temperature must be conducted using the methods set forth in Section 611.611(a).

10170
10171 a) Analyses for lead and copper performed for the purposes of compliance with this
10172 Subpart G must only be conducted by a certified laboratory in one of the
10173 categories listed in Section 611.490(a). To obtain certification to conduct
10174 analyses for lead and copper, laboratories must do the following:

10175
10176 1) Analyze performance evaluation samples that include lead and copper
10177 provided by USEPA Environmental Monitoring and Support Laboratory
10178 or equivalent samples provided by the Agency;

10179
10180 2) Achieve quantitative acceptance limits as follows:

10181
10182 A) For lead: ± 30 percent of the actual amount in the performance
10183 evaluation sample when the actual amount is greater than or equal
10184 to 0.005 mg/ℓ (the PQL for lead is 0.005 mg/ℓ);

10185

- 10186 B) For copper: ± 10 percent of the actual amount in the performance
10187 evaluation sample when the actual amount is greater than or equal
10188 to 0.050 mg/l (the PQL for copper is 0.050 mg/l);
10189
10190 3) Achieve the method detection limit (MDL) for lead (0.001 mg/l, as
10191 defined in Section 611.350(a)) according to the procedures in 35 Ill. Adm.
10192 Code 186 and appendix B to 40 CFR 136: "Definition and Procedure for
10193 the Determination of the Method Detection Limit – Revision 1.11",
10194 incorporated by reference in Section 611.102(c). This need only be
10195 accomplished if the laboratory will be processing source water composite
10196 samples under Section 611.358(a)(1)(D); and
10197
10198 4) Be currently certified to perform analyses to the specifications described
10199 in subsection (a)(1) of this Section.
10200

10201 BOARD NOTE: Subsection (a) is derived from 40 CFR 141.89(a) and (a)(1)
10202 ~~(2016)(2013)~~.
10203

- 10204 b) The Agency must, by a SEP issued pursuant to Section 611.110, allow a supplier
10205 to use previously collected monitoring data for the purposes of monitoring under
10206 this Subpart G if the data were collected and analyzed in accordance with the
10207 requirements of this Subpart G.
10208

10209 BOARD NOTE: Subsection (b) is derived from 40 CFR 141.89(a)(2)
10210 ~~(2016)(2013)~~.
10211

- 10212 c) Reporting lead and copper levels.
10213

- 10214 1) All lead and copper levels greater than or equal to the lead and copper
10215 PQL ($Pb \geq 0.005$ mg/l and $Cu \geq 0.050$ mg/l) must be reported as
10216 measured.
10217
10218 2) All lead and copper levels measured less than the PQL and greater than
10219 the MDL (0.005 mg/l $> Pb > MDL$ and 0.050 mg/l $> Cu > MDL$) must
10220 be either reported as measured or as one-half the PQL set forth in
10221 subsection (a) of this Section (i.e., reported as 0.0025 mg/l for lead or
10222 0.025 mg/l for copper).
10223
10224 3) All lead and copper levels below the lead and copper MDL ($MDL > Pb$)
10225 must be reported as zero.
10226

10227 BOARD NOTE: Subsection (c) is derived from 40 CFR 141.89(a)(3) and (a)(4)
10228 ~~(2016)(2013)~~.

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(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.360 Reporting

A supplier must report all of the following information to the Agency in accordance with this Section.

- a) Reporting for tap, lead, and copper, and water quality parameter monitoring.
 - 1) Except as provided in subsection ~~(a)(1)(H)(a)(1)(viii)~~ of this Section, a supplier must report the following information for all samples specified in Section 611.356 and for all water quality parameter samples specified in Section 611.357 within ten days ~~after~~ of the end of each applicable sampling period specified in Sections 611.356 and 611.357 (i.e., every six months, annually, every three years, or every nine years). For a monitoring period with a duration less than six months, the end of the monitoring period is the last date on which samples can be collected during that period, as specified in Sections 611.356 and 611.357.
 - A) The results of all tap samples for lead and copper, including the location of each site and the criteria under Section 611.356(a)(3) through (a)(7) under which the site was selected for the supplier's sampling pool;
 - B) Documentation for each tap water lead or copper sample for which the water supplier requests invalidation pursuant to Section 611.356(f)(2);
 - C) This subsection (a)(1)(C) corresponds with 40 CFR 141.90(a)(1)(iii), a provision that USEPA removed and marked "reserved-". This statement preserves structural parity with the federal rules;
 - D) The 90th percentile lead and copper concentrations measured from among all lead and copper tap samples collected during each sampling period (calculated in accordance with Section 611.350(c)(3)), unless the Agency calculates the system's 90th percentile lead and copper levels under subsection ~~(h)~~ of this Section;
 - E) With the exception of initial tap sampling conducted pursuant to Section 611.356(d)(1), the supplier must designate any site that

- 10272 was not sampled during previous sampling periods, and include an
 10273 explanation of why sampling sites have changed;
 10274
- 10275 F) The results of all tap samples for pH, and where applicable,
 10276 alkalinity, calcium, conductivity, temperature, and orthophosphate
 10277 or silica collected pursuant to Section 611.357(b) through (e);
 10278
- 10279 G) The results of all samples collected at entry points for applicable
 10280 water quality parameters pursuant to Section 611.357(b) through
 10281 (e);
 10282
- 10283 H) A water supplier must report the results of all water quality
 10284 parameter samples collected under Section 611.357(c) through (f)
 10285 during each six-month monitoring period specified in Section
 10286 611.357(d) within the first 10 days following the end of the
 10287 monitoring period, unless the Agency has specified, by a SEP
 10288 issued pursuant to Section 611.110, a more frequent reporting
 10289 requirement.
 10290
- 10291 2) For a NTNCWS supplier, or a CWS supplier meeting the criteria of
 10292 Sections 611.355(b)(7)(A) and (b)(7)(B), that does not have enough taps
 10293 which can provide first-draw samples, the supplier must do either of the
 10294 following:
 10295
- 10296 A) Provide written documentation to the Agency that identifies
 10297 standing times and locations for enough non-first-draw samples to
 10298 make up its sampling pool under Section 611.356(b)(5) ~~by the start~~
 10299 ~~of the first applicable monitoring period under Section 611.356(d)~~
 10300 ~~that commenced after April 11, 2000~~, unless the Agency has
 10301 waived prior Agency approval of non-first-draw sampling sites
 10302 selected by the supplier pursuant to Section 611.356(b)(5); or
 10303
- 10304 B) If the Agency has waived prior approval of non-first-draw
 10305 sampling sites selected by the supplier, identify, in writing, each
 10306 site that did not meet the six-hour minimum standing time and the
 10307 length of standing time for that particular substitute sample
 10308 collected pursuant to Section 611.356(b)(5) and include this
 10309 information with the lead and copper tap sample results required to
 10310 be submitted pursuant to subsection (a)(1)(A) ~~of this Section~~.
 10311
- 10312 3) At a time specified by the Agency, by a SEP issued pursuant to Section
 10313 611.110, or if no specific time is designated by the Agency, then as early
 10314 as possible prior to the addition of a new source or any change in water

10315 treatment, a water supplier deemed to have optimized corrosion control
 10316 under Section 611.351(b)(3), a water supplier subject to reduced
 10317 monitoring pursuant to Section 611.356(d)(4), or a water supplier subject
 10318 to a monitoring waiver pursuant to Section 611.356(g), must submit
 10319 written documentation to the Agency describing the change or addition.
 10320

10321 4) Any small system supplier applying for a monitoring waiver under Section
 10322 611.356(g), or subject to a waiver granted pursuant to Section
 10323 611.356(g)(3), must provide the following information to the Agency in
 10324 writing by the specified deadline:
 10325

10326 A) By the start of the first applicable monitoring period in Section
 10327 611.356(d), any small water system supplier applying for a
 10328 monitoring waiver must provide the documentation required to
 10329 demonstrate that it meets the waiver criteria of Sections
 10330 611.356(g)(1) and (g)(2).
 10331

10332 B) No later than nine years after the monitoring previously conducted
 10333 pursuant to Section 611.356(g)(2) or Section 611.356(g)(4)(A),
 10334 each small system supplier desiring to maintain its monitoring
 10335 waiver must provide the information required by Sections
 10336 611.356(g)(4)(A) and (g)(4)(B).
 10337

10338 C) No later than 60 days after it becomes aware that it is no longer
 10339 free of lead-containing or copper-containing material, as
 10340 appropriate, each small system supplier with a monitoring waiver
 10341 must provide written notification to the Agency, setting forth the
 10342 circumstances resulting in the lead-containing or copper-containing
 10343 materials being introduced into the system and what corrective
 10344 action, if any, the supplier plans to remove these materials.
 10345

10346 D) ~~AnyBy October 10, 2000, any~~ small system supplier with a waiver
 10347 granted prior to April 11, 2000 and that had not previously met the
 10348 requirements of Section 611.356(g)(2) must have provided the
 10349 information required by that ~~provisionsubsection~~.
 10350

10351 5) Each GWS supplier that limits water quality parameter monitoring to a
 10352 subset of entry points under Section 611.357(c)(3) must provide, by the
 10353 commencement of such monitoring, written correspondence to the Agency
 10354 that identifies the selected entry points and includes information sufficient
 10355 to demonstrate that the sites are representative of water quality and
 10356 treatment conditions throughout the system.
 10357

- 10358 b) Reporting for source water monitoring.
 10359
 10360 1) A supplier must report the sampling results for all source water samples
 10361 collected in accordance with Section 611.358 within ten days ~~after~~ of the
 10362 end of each source water sampling period (i.e., annually, per compliance
 10363 period, per compliance cycle) specified in Section 611.358.
 10364
 10365 2) With the exception of the first round of source water sampling conducted
 10366 pursuant to Section 611.358(b), a supplier must specify any site that was
 10367 not sampled during previous sampling periods, and include an explanation
 10368 of why the sampling point has changed.
 10369
 10370 c) Reporting for corrosion control treatment. By the applicable dates under Section
 10371 611.351, a supplier must report the following information:
 10372
 10373 1) For a supplier demonstrating that it has already optimized corrosion
 10374 control, the information required by Section 611.352(b)(2) or (b)(3).
 10375
 10376 2) For a supplier required to optimize corrosion control, its recommendation
 10377 regarding optimal corrosion control treatment pursuant to Section
 10378 611.352(a).
 10379
 10380 3) For a supplier required to evaluate the effectiveness of corrosion control
 10381 treatments pursuant to Section 611.352(c), the information required by
 10382 Section 611.352(c).
 10383
 10384 4) For a supplier required to install optimal corrosion control approved by the
 10385 Agency pursuant to Section 611.352(d), a copy of the Agency permit
 10386 letter, which acts as certification that the supplier has completed installing
 10387 the permitted treatment.
 10388
 10389 d) Reporting for source water treatment. On or before the applicable dates in
 10390 Section 611.353, a supplier must provide the following information to the
 10391 Agency:
 10392
 10393 1) If required by Section 611.353(b)(1), its recommendation regarding source
 10394 water treatment; or
 10395
 10396 2) For suppliers required to install source water treatment pursuant to Section
 10397 611.353(b)(2), a copy of the Agency permit letter, which acts as
 10398 certification that the supplier has completed installing the treatment
 10399 approved by the Agency within 24 months after the Agency approved the
 10400 treatment.

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- e) Reporting for lead service line replacement. A supplier must report the following information to the Agency to demonstrate compliance with the requirements of Section 611.354:
 - 1) No later than 12 months after the end of a monitoring period in which a supplier exceeds the lead action level in sampling referred to in Section 611.354(a), the supplier must submit each of the following to the Agency in writing:
 - A) The material evaluation conducted as required by Section 611.356(a);
 - B) Identify the initial number of lead service lines in its distribution system at the time the supplier exceeds the lead action level; and
 - C) Provide the Agency with the supplier's schedule for annually replacing at least seven percent of the initial number of lead service lines in its distribution system.
 - 2) No later than 12 months after the end of a monitoring period in which a supplier exceeds the lead action level in sampling referred to in Section 611.354(a), and every 12 months thereafter, the supplier must demonstrate to the Agency in writing that the supplier has done either of the following:
 - A) That the supplier has replaced, in the previous 12 months, at least seven percent of the initial number of lead service lines in its distribution system (or any greater number of lines specified by the Agency pursuant to Section 611.354(e)); or
 - B) That the supplier has conducted sampling that demonstrates that the lead concentration in all service line samples from individual lines, taken pursuant to Section 611.356(b)(3), is less than or equal to 0.015 mg/l. This demonstration requires that the total number of lines that the supplier has replaced, combined with the total number that meet the criteria of Section 611.354(c), must equal at least seven percent of the initial number of lead lines identified pursuant to subsection (e)(1) of this Section (or the percentage specified by the Agency pursuant to Section 611.354(e)).
 - 3) The annual letter submitted to the Agency pursuant to subsection (e)(2) of this Section must contain the following information:

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- A) The number of lead service lines originally scheduled to be replaced during the previous year of the supplier's replacement schedule;
 - B) The number and location of each lead service line actually replaced during the previous year of the supplier's replacement schedule; and
 - C) If measured, the water lead concentration from each lead service line sampled pursuant to Section 611.356(b)(3) and the location of each lead service line sampled, the sampling method used, and the date of sampling.
- 4) Any supplier that collects lead service line samples following partial lead service line replacement required by Section 611.354 must report the results to the Agency within the first ten days of the month following the month in which the supplier receives the laboratory results, or as specified by the Agency. The Agency may, by a SEP issued pursuant to Section 611.110, eliminate this requirement to report these monitoring results. A supplier must also report any additional information as specified by the Agency, and in a time and manner prescribed by the Agency, to verify that all partial lead service line replacement activities have taken place.
- f) Reporting for public education program.
- 1) Any water supplier that is subject to the public education requirements in Section 611.355 must, within ten days after the end of each period in which the supplier is required to perform public education in accordance with Section 611.355(b), send written documentation to the Agency that contains the following:
 - A) A demonstration that the supplier has delivered the public education materials that meet the content requirements in Sections 611.355(a) and the delivery requirements in Section 611.355(b); and
 - B) A list of all the newspapers, radio stations, television stations, and facilities and organizations to which the supplier delivered public education materials during the period in which the supplier was required to perform public education tasks.
 - 2) Unless required by the Agency, by a SEP issued pursuant to Section 611.110, a supplier that previously has submitted the information required

- 10487 by subsection (f)(1)(B) ~~of this Section~~ need not resubmit the information
 10488 required by subsection (f)(1)(B) ~~of this Section~~, as long as there have been
 10489 no changes in the distribution list and the supplier certifies that the public
 10490 education materials were distributed to the same list submitted previously.
 10491
- 10492 3) No later than three months following the end of the monitoring period,
 10493 each supplier must mail a sample copy of the consumer notification of tap
 10494 results to the Agency, along with a certification that the notification has
 10495 been distributed in a manner consistent with the requirements of Section
 10496 611.355(d).
 10497
- 10498 g) Reporting of additional monitoring data. Any supplier that collects sampling data
 10499 in addition to that required by this Subpart G must report the results of that
 10500 sampling to the Agency within the first ten days following the end of the
 10501 applicable sampling periods specified by Sections 611.356 through 611.358
 10502 during which the samples are collected.
 10503
- 10504 h) Reporting of 90th percentile lead and copper concentrations where the Agency
 10505 calculates a system's 90th percentile concentrations. A water supplier is not
 10506 required to report the 90th percentile lead and copper concentrations measured
 10507 from among all lead and copper tap water samples collected during each
 10508 monitoring period, as required by subsection (a)(1)(D) ~~of this Section~~ if the
 10509 following is true:
 10510
- 10511 1) The Agency has previously notified the water supplier that it will calculate
 10512 the water system's 90th percentile lead and copper concentrations, based on
 10513 the lead and copper tap results submitted pursuant to subsection (h)(2)(A)
 10514 ~~of this Section~~, and has specified a date before the end of the applicable
 10515 monitoring period by which the supplier must provide the results of lead
 10516 and copper tap water samples;
 10517
- 10518 2) The supplier has provided the following information to the Agency by the
 10519 date specified in subsection (h)(1) ~~of this Section~~:
- 10520
- 10521 A) The results of all tap samples for lead and copper including the
 10522 location of each site and the criteria under Section 611.356(a)(3),
 10523 (a)(4), (a)(5), (a)(6), or (a)(7) under which the site was selected for
 10524 the system's sampling pool, pursuant to subsection (a)(1)(A) of this
 10525 Section; and
 10526
- 10527 B) An identification of sampling sites utilized during the current
 10528 monitoring period that were not sampled during previous
 10529 monitoring periods, and an explanation why sampling sites have

10530 changed; and

- 10531
10532 3) The Agency has provided the results of the 90th percentile lead and copper
10533 calculations, in writing, to the water supplier before the end of the
10534 monitoring period.

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10536 BOARD NOTE: Derived from 40 CFR 141.90 (2016)(2013).

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10538 (Source: Amended at 41 Ill. Reg. _____, effective _____)

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10540 SUBPART I: DISINFECTANT RESIDUALS, DISINFECTION
10541 BYPRODUCTS, AND DISINFECTION BYPRODUCT PRECURSORS
10542

10543 **Section 611.380 General Requirements**

- 10544
10545 a) The requirements of this Subpart I constitute NPDWRs.
10546
10547 1) The regulations in this Subpart I establish standards under which a CWS
10548 supplier or an NTNCWS supplier that adds a chemical disinfectant to the
10549 water in any part of the drinking water treatment process must modify its
10550 practices to meet MCLs and MRDLs in Sections 611.312 and 611.313,
10551 respectively, and must meet the treatment technique requirements for DBP
10552 precursors in Section 611.385.
10553
10554 2) The regulations in this Subpart I establish standards under which a
10555 transient non-CWS supplier that uses chlorine dioxide as a disinfectant or
10556 oxidant must modify its practices to meet the MRDL for chlorine dioxide
10557 in Section 611.313.
10558
10559 3) The Board has established MCLs for TTHM and HAA5 and treatment
10560 technique requirements for DBP precursors to limit the levels of known
10561 and unknown DBPs that may have adverse health effects. These DBPs
10562 may include chloroform, bromodichloromethane, dibromochloromethane,
10563 bromoform, dichloroacetic acid, and trichloroacetic acid.
10564
10565 b) This subsection (b) corresponds with 40 CFR 141.130(b), which recites past
10566 implementation deadlines. This statement maintains structural consistency with
10567 the corresponding federal rules. Compliance dates.
10568
10569 ~~1) CWSs and NTNCWSs. Unless otherwise noted, a supplier must comply~~
10570 ~~with the requirements of this Subpart I as follows: A Subpart B system~~
10571 ~~supplier serving 10,000 or more persons must comply with this Subpart I~~
10572 ~~beginning January 1, 2002. A Subpart B system supplier serving fewer~~

10573 than 10,000 persons or a supplier using only groundwater not under the
10574 direct influence of surface water must comply with this Subpart I
10575 beginning January 1, 2004.
10576

10577 2) ~~Transient non-CWSs. A Subpart B system supplier serving 10,000 or~~
10578 ~~more persons and using chlorine dioxide as a disinfectant or oxidant must~~
10579 ~~comply with any requirements for chlorine dioxide in this Subpart I~~
10580 ~~beginning January 1, 2002. A Subpart B system supplier that serves fewer~~
10581 ~~than 10,000 persons and which uses chlorine dioxide as a disinfectant or~~
10582 ~~oxidant or a supplier that uses only groundwater not under the direct~~
10583 ~~influence of surface water and which uses chlorine dioxide as a~~
10584 ~~disinfectant or oxidant must comply with any requirements for chlorine~~
10585 ~~dioxide in this Subpart I beginning January 1, 2004.~~
10586

10587 c) Each CWS or NTNCWS supplier regulated under subsection (a) ~~of this Section~~
10588 must be operated by qualified personnel who meet the requirements specified in
10589 35 Ill. Adm. Code 680.
10590

10591 d) Control of disinfectant residuals. Notwithstanding the MRDLs in Section
10592 611.313, a supplier may increase residual disinfectant levels in the distribution
10593 system of chlorine or chloramines (but not chlorine dioxide) to a level and for a
10594 time necessary to protect public health, to address specific microbiological
10595 contamination problems caused by circumstances such as, but not limited to,
10596 distribution line breaks, storm run-off events, source water contamination events,
10597 or cross-connection events.
10598

10599 BOARD NOTE: Derived from 40 CFR 141.130 (2016)(2005).
10600

10601 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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10603 **Section 611.381 Analytical Requirements**
10604

10605 a) A supplier must use only the analytical methods specified in this Section, each of
10606 which is incorporated by reference in Section 611.102, or alternative methods
10607 approved by the Agency pursuant to Section 611.480 to demonstrate compliance
10608 with the requirements of this Subpart I and with the requirements of Subparts W
10609 and Y of this Part.
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10611 b) Disinfection byproducts (DBPs).
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10613 1) A supplier must measure disinfection byproducts (DBPs) by the appropriate
10614 of the following methods:
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A) TTHM:

- i) By purge and trap, gas chromatography, electrolytic conductivity detector, and photoionization detector: USEPA Organic Methods, Method 502.2 (rev. 2.1). If TTHMs are the only analytes being measured in the sample, then a photoionization detector is not required.
- ii) By purge and trap, gas chromatography-mass spectrometer: USEPA Organic Methods, Method 524.2 (rev. 4.1).
- iii) By liquid-liquid extraction, gas chromatography, electron capture detector: USEPA Organic Methods, Method 551.1 (rev. 1.0).
- iv) By purge and trap, gas chromatography-mass spectrometry: USEPA OGWDW Methods, Method 524.3 (rev. 1.0) and 524.4.

BOARD NOTE: USEPA added USEPA OGWDW Methods, Method 524.3 (rev. 1.0) as an approved alternative method for TTHM in appendix A to subpart C of 40 CFR 141 on August 3, 2009 (at 74 Fed. Reg. 38348). USEPA added USEPA OGWDW Methods, Method 524.4 as approved alternative methods for total trihalomethanes in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558).

B) HAA5:

- i) By liquid-liquid extraction (diazomethane), gas chromatography, electron capture detector: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 6251 B.
- ii) By solid phase extractor (acidic methanol), gas chromatography, electron capture detector: USEPA Organic Methods, Method 552.1 (rev. 1.0).
- iii) By liquid-liquid extraction (acidic methanol), gas chromatography, electron capture detector: USEPA Organic Methods, Method 552.2 (rev. 1.0) or USEPA OGWDW Methods, Method 552.3 (rev. 1.0).

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- iv) By ion chromatography, electrospray ionization, tandem mass spectrometry: USEPA OGWDW Methods, Method 557.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 6251 B as an approved alternative method for HAA5 in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added USEPA OGWDW Methods, Method 557 as an approved alternative ~~method~~ methods for HAA5 in ~~appendix A to subpart C of 40 CFR 141~~ on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods, 22nd ed., Method 6251 B as an approved alternative ~~method~~ methods for HAA5 in ~~appendix A to subpart C of 40 CFR 141~~ on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Method 6251 B-07 as an approved alternative method for HAA5 in ~~appendix A to subpart C of 40 CFR 141~~ on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 6251 B is the same version as Standard Methods Online, Method 6251 B-07, the Board has not listed the Standard Methods Online versions separately.

C) Bromate:

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- i) By ion chromatography: USEPA Organic and Inorganic Methods, Method 300.1 (rev. 1.0) or ASTM Method D6581-00.
 - ii) By ion chromatography and post-column reaction: USEPA OGWDW Methods, Method 317.0 (rev. 2.0) or 326.0 (rev. 1.0).
 - iii) By inductively coupled plasma-mass spectrometer: USEPA Organic and Inorganic Methods, Method 321.8 (rev. 1.0).
 - iv) By two-dimensional ion chromatography: USEPA OGWDW Methods, Method 302.0.
 - v) By ion chromatography, electrospray ionization, tandem mass spectrometry: USEPA OGWDW Methods, Method 557.

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vi) By chemically suppressed chromatography: ASTM Method D6581-08 A.

vii) By electrolytically suppressed chromatography: ASTM Method D6581-08 B.

BOARD NOTE: Ion chromatography and post column reaction or inductively coupled plasma-mass spectrometry must be used for monitoring of bromate for purposes of demonstrating eligibility of reduced monitoring, as prescribed in Section 611.382(b)(3)(B). For inductively coupled plasma-mass spectrometry, samples must be preserved at the time of sampling with 50 mg ethylenediamine (EDA) per liter of sample, and the samples must be analyzed within 28 days.

BOARD NOTE: USEPA added USEPA OGWDW Methods, Methods 302.0 and 557 and ASTM Methods D6581-08 A and B as approved alternative methods for bromate in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908).

D) Chlorite:

i) By amperometric titration for daily monitoring pursuant to Section 611.382(b)(2)(A)(i): Standard Methods, 19th, 21st, or 22nd ed., Method 4500-ClO₂ E.

ii) By amperometric sensor for daily monitoring pursuant to Section 611.382(b)(2)(A)(i): ChlordioX Plus Test.

iii) By spectrophotometry: USEPA OGWDW Methods, Method 327.0 (rev. 1.1).

iv) By ion chromatography: USEPA Environmental Inorganic Methods, Method 300.0 (rev. 2.1); USEPA Organic and Inorganic Methods, Method 300.1 (rev. 1.0); USEPA OGWDW Methods, Method 317.0 (rev. 2.0), or 326.0 (rev. 1.0); or ASTM Method D6581-00.

v) By chemically suppressed chromatography: ASTM Method D6581-08 A.

vi) By electrolytically suppressed chromatography: ASTM Method D6581-08 B.

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BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 4500-ClO₂ E as an approved alternative method for daily chlorite in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods D6581-08 A and B as approved alternative methods for chlorite in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods, 22nd ed., Method 4500-ClO₂ E as an approved alternative method for chlorite in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA added ChlordioX Plus Test as an approved alternative method for chlorite in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081).

BOARD NOTE: Amperometric titration or spectrophotometry may be used for routine daily monitoring of chlorite at the entrance to the distribution system, as prescribed in Section 611.382(b)(2)(A)(i). Ion chromatography must be used for routine monthly monitoring of chlorite and additional monitoring of chlorite in the distribution system, as prescribed in Section 611.382(b)(2)(A)(ii) and (b)(2)(B).

- 2) Analyses under this Section for DBPs must be conducted by a certified laboratory in one of the categories listed in Section 611.490(a) except as specified under subsection (b)(3) of this Section. To receive certification to conduct analyses for the DBP contaminants listed in Sections 611.312 and 611.381 and Subparts W and Y of this Part, the laboratory must fulfill the requirements of subsections (b)(2)(A), (b)(2)(C), and (b)(2)(D) of this Section.
 - A) The laboratory must analyze performance evaluation (PE) samples that are acceptable to USEPA or the Agency at least once during each consecutive 12-month period by each method for which the laboratory desires certification.
 - B) This subsection corresponds with 40 CFR 141.131(b)(2)(ii), which has expired by its own terms. This statement maintains structural consistency with the corresponding federal rule.
 - C) The laboratory must achieve quantitative results on the PE sample analyses that are within the acceptance limits set forth in subsections (b)(2)(C)(i) through (b)(2)(B)(xi) of this Section,

- 10786 subject to the conditions of subsections (b)(2)(C)(xii) and
 10787 (b)(2)(C)(xiii) ~~of this Section~~;
- 10788
- 10789 i) Chloroform (a THM): $\pm 20\%$ of true value;
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- 10791 ii) Bromodichloromethane (a THM): $\pm 20\%$ of true value;
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- 10793 iii) Dibromochloromethane (a THM): $\pm 20\%$ of true value;
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- 10795 iv) Bromoform (a THM): $\pm 20\%$ of true value;
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- 10797 v) Monochloroacetic Acid (an HAA5): $\pm 40\%$ of true value;
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- 10799 vi) Dichloroacetic Acid (an HAA5): $\pm 40\%$ of true value;
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- 10801 vii) Trichloroacetic Acid (an HAA5): $\pm 40\%$ of true value;
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- 10803 viii) Monobromoacetic Acid (an HAA5): $\pm 40\%$ of true value;
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- 10805 ix) Dibromoacetic Acid (an HAA5): $\pm 40\%$ of true value;
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- 10807 x) Chlorite: $\pm 30\%$ of true value; and
- 10808
- 10809 xi) Bromate: $\pm 30\%$ of true value.
- 10810
- 10811 xii) The laboratory must meet all four of the individual THM
- 10812 acceptance limits set forth in subsections (b)(2)(B)(i)
- 10813 through (b)(2)(B)(iv) ~~of this Section~~ in order to
- 10814 successfully pass a PE sample for TTHM.
- 10815
- 10816 xiii) The laboratory must meet the acceptance limits for four out
- 10817 of the five HAA5 compounds set forth in subsections
- 10818 (b)(2)(B)(v) through (b)(2)(B)(ix) ~~of this Section~~ in order to
- 10819 successfully pass a PE sample for HAA5.
- 10820
- 10821 D) The laboratory must report quantitative data for concentrations at
- 10822 least as low as the minimum reporting levels (MRLs) listed in
- 10823 subsections (b)(2)(D)(i) through (b)(2)(D)(xi) ~~of this Section~~,
- 10824 subject to the limitations of subsections (b)(2)(D)(xii) and
- 10825 (b)(2)(D)(xiii) ~~of this Section~~, for all DBP samples analyzed for
- 10826 compliance with Sections 611.312 and 611.385 and Subparts W
- 10827 and Y of this Part:
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- i) Chloroform (a THM): 0.0010 mg/ℓ;
 - ii) Bromodichloromethane (a THM): 0.0010 mg/ℓ;
 - iii) Dibromochloromethane (a THM): 0.0010 mg/ℓ;
 - iv) Bromoform (a THM): 0.0010 mg/ℓ;
 - v) Monochloroacetic Acid (an HAA5): 0.0020 mg/ℓ;
 - vi) Dichloroacetic Acid (an HAA5): 0.0010 mg/ℓ;
 - vii) Trichloroacetic Acid (an HAA5): 0.0010 mg/ℓ;
 - viii) Monobromoacetic Acid (an HAA5): 0.0010 mg/ℓ;
 - ix) Dibromoacetic Acid (an HAA5): 0.0010 mg/ℓ;
 - x) Chlorite: 0.020 mg/ℓ, applicable to monitoring as required by Section 611.382(b)(2)(A)(ii) and (b)(2)(B); and
 - xi) Bromate: 0.0050, or 0.0010 mg/ℓ if the laboratory uses USEPA OGWDW Methods, Method 317.0 or 326.0 or USEPA Organic and Inorganic Methods, Method 321.8.
 - xii) The calibration curve must encompass the regulatory MRL concentration. Data may be reported for concentrations lower than the regulatory MRL as long as the precision and accuracy criteria are met by analyzing an MRL check standard at the lowest reporting limit chosen by the laboratory. The laboratory must verify the accuracy of the calibration curve at the MRL concentration by analyzing an MRL check standard with a concentration less than or equal to 110% of the MRL with each batch of samples. The measured concentration for the MRL check standard must be ±50% of the expected value, if any field sample in the batch has a concentration less than five times the regulatory MRL. Method requirements to analyze higher concentration check standards and meet tighter acceptance criteria for them must be met in addition to the MRL check standard requirement.

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- xiii) When adding the individual trihalomethane or haloacetic acid concentrations, for the compounds listed in subsections (b)(2)(D)(v) through (b)(2)(D)(ix) ~~of this Section~~, to calculate the TTHM or HAA5 concentrations, respectively, a zero is used for any analytical result that is less than the MRL concentration for that DBP, unless otherwise specified by the Agency.
- 3) A party approved by USEPA or the Agency must measure daily chlorite samples at the entrance to the distribution system.
- c) Disinfectant residuals.
 - 1) A supplier must measure residual disinfectant concentrations for free chlorine, combined chlorine (chloramines), and chlorine dioxide by the appropriate of the methods listed in subsections (c)(1)(A) through (c)(1)(D) ~~of this Section~~, subject to the provisions of subsection (c)(1)(E) ~~of this Section~~:
 - A) Free Chlorine:
 - i) Amperometric titration: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl D, or ASTM Method D1253-86, D1253-96, D1253-03, ~~or~~ D1253-08, or D1253-14;
 - ii) DPD ferrous titration: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl F;
 - iii) DPD colorimetric: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl G or Hach Method 10260;
 - iv) Syringaldazine (FACTS): Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl H;
 - v) Test strips: ITS Method D99-003 if approved by the Agency pursuant to subsection (c)(2) ~~of this Section~~;
 - vi) Amperometric sensor: Palintest ChloroSense; ~~or~~
 - vii) On-line chlorine analyzer: USEPA OGWDW Methods, Method 334.0; ~~or~~;
 - viii) Indenophenol colorimetric: Hach Method 10241.

10915 BOARD NOTE: USEPA added Standard Methods, 21st ed.,
 10916 Methods 4500-Cl D, F, G, and H as approved alternative methods
 10917 for free chlorine in appendix A to subpart C of 40 CFR 141 on
 10918 June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM
 10919 Method D1253-08, USEPA OGWDW Methods, Method 334.0,
 10920 and Palintest ChloroSense as approved alternative methods for free
 10921 chlorine in appendix A to subpart C of 40 CFR 141 on November
 10922 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard
 10923 Methods, 22nd ed., Methods 4500-Cl D, F, G, and H as approved
 10924 alternative methods for free chlorine in appendix A to subpart C of
 10925 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA
 10926 added Hach Method 10260 as an approved alternative method for
 10927 free chlorine in appendix A to subpart C of 40 CFR 141 on June
 10928 19, 2014 (at 79 Fed. Reg. 35081). USEPA added ASTM Method
 10929 D1253-14 and Hach Method 10241 as approved alternative
 10930 methods on July 19, 2016 (at 81 Fed. Reg. 46839).

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 10932 B) Combined Chlorine:

- 10933
 10934 i) Amperometric titration: Standard Methods, 19th, 20th, 21st,
 10935 or 22nd ed., Method 4500-Cl D, or ASTM Method D1253-
 10936 86, D1253-96, D1253-03, or D1253-08, or D1253-14;
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 10938 ii) DPD ferrous titration: Standard Methods, 19th, 20th, 21st, or
 10939 22nd ed., Method 4500-Cl F; or
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 10941 iii) DPD colorimetric: Standard Methods, 19th, 20th, 21st, or
 10942 22nd ed., Method 4500-Cl G or Hach Method 10260.

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 10944 BOARD NOTE: USEPA added Standard Methods, Methods
 10945 4500-Cl D, F, and G as approved alternative methods for free
 10946 chlorine in appendix A to subpart C of 40 CFR 141 on June 3,
 10947 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Method
 10948 D1253-08 as an approved alternative method for combined
 10949 chlorine in appendix A to subpart C of 40 CFR 141 on November
 10950 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard
 10951 Methods, 22nd ed., Methods 4500-Cl D, F, and G as approved
 10952 alternative methods for combined chlorine in appendix A to
 10953 subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg.
 10954 37463). USEPA added Hach Method 10260 as an approved
 10955 alternative method for combined chlorine in appendix A to subpart
 10956 C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081).

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USEPA added ASTM Method D1253-14 as an approved alternative method on July 19, 2016 (at 81 Fed. Reg. 46839).

C) Total Chlorine:

- i) Amperometric titration: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 4500-CI D, or ASTM Method D1253-86, D1253-96, D1253-03, ~~or~~ D1253-08, or D1253-14;
- ii) Low-level amperometric titration: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 4500-CI E;
- iii) DPD ferrous titration: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 4500-CI F;
- iv) DPD colorimetric: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 4500-CI G or Hach Method 10260;
- v) Iodometric electrode: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 4500-CI I;
- vi) Amperometric sensor: Palintest ChloroSense; or
- vii) On-line chlorine analyzer: USEPA OGWDW Methods, Method 334.0.

BOARD NOTE: USEPA added Standard Methods, Methods 4500-CI D, E, F, G, and I as approved alternative methods ~~for free chlorine in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).~~ USEPA added ASTM Method D1253-08, USEPA OGWDW Methods, Method 334.0, and Palintest ChloroSense as approved alternative methods ~~for total chlorine in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908).~~ USEPA added Standard Methods, 22nd ed., Methods 4500-CI D, E, F, G, and I as approved alternative methods ~~for total chlorine in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463).~~ USEPA added Hach Method 10260 as an approved alternative method ~~for total chlorine in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081).~~ USEPA added ASTM Method D1253-14 as an approved alternative method on July 19, 2016 (at 81 Fed. Reg. 46839).

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- D) Chlorine Dioxide:
 - i) DPD: Standard Methods, 19th, 20th, or 21st ed., Method 4500-ClO₂ D;
 - ii) Amperometric Method II: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 4500-ClO₂ E;
 - iii) Amperometric sensor: ChlordioX Plus Test; or
 - iv) Lissamine Green spectrophotometric: USEPA OGWDW Method 327.0 (rev. 1.1).

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 4500-ClO₂ D and E as approved alternative methods for chlorine dioxide in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods, 22nd ed., Method 4500-ClO₂ E as an approved alternative method for chlorine dioxide in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA added ChlordioX Plus Test as an approved alternative method for chlorine dioxide in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081).

- E) The methods listed are approved for measuring the specified disinfectant residual. The supplier may measure free chlorine or total chlorine for demonstrating compliance with the chlorine MRDL and combined chlorine, or total chlorine may be measured for demonstrating compliance with the chloramine MRDL.

2) Alternative methods available only upon specific approval by the Agency.

- A) Test strips: ITS Method D99-003.

BOARD NOTE: USEPA added ITS Method D99-003 as an approved alternative method for free chlorine in appendix A to subpart C of 40 CFR 141, added on June 3, 2008 (at 73 Fed. Reg. 31616), contingent upon specific state approval. The Board has opted to provide that the Agency can grant such approvals on a case-by-case basis using the SEP mechanism.

- B) If approved by the Agency, by an SEP issued pursuant to Section 611.110, a supplier may also measure residual disinfectant

- 11043 concentrations for chlorine, chloramines, and chlorine dioxide by
 11044 using DPD colorimetric test kits.
 11045
- 11046 3) A party approved by USEPA or the Agency must measure residual
 11047 disinfectant concentration.
 11048
- 11049 d) A supplier required to analyze parameters not included in subsections (b) and (c) of
 11050 ~~this Section~~ must use the methods listed in this subsection (d) below. A party
 11051 approved by USEPA or the Agency must measure the following parameters:
 11052
- 11053 1) Alkalinity. All methods allowed in Section 611.611(a)(21) for measuring
 11054 alkalinity.
 11055
- 11056 2) Bromide:
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- 11058 A) USEPA Inorganic Methods, Method 300.0 (rev. 2.1);
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- 11060 B) USEPA Organic and Inorganic Methods, Method 300.1 (rev. 1.0);
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- 11062 C) USEPA OGWDW Methods, Method 317.0 (rev. 2.0) or Method
 11063 326.0 (rev. 1.0); or
 11064
- 11065 D) ASTM Method D6581-00.
 11066
- 11067 3) Total Organic Carbon (TOC), by any of the methods listed in subsection
 11068 (d)(3)(A)(i), (d)(3)(A)(ii), (d)(3)(A)(iii), or (d)(3)(B) of ~~this Section~~, subject
 11069 to the limitations of subsection (d)(3)(C) of ~~this Section~~:
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- 11071 A) High-temperature combustion:
 11072
- 11073 i) Standard Methods, 19th (Supplement), 20th, 21st, or 22nd ed.,
 11074 Method 5310 B; or
 11075
- 11076 ii) USEPA NERL Method 415.3 (rev. 1.1) or USEPA NERL
 11077 Method 415.3 (rev. 1.2).
 11078
- 11079 B) Persulfate-ultraviolet or heated-persulfate oxidation:
 11080
- 11081 i) Standard Methods, 19th (Supplement), 20th, 21st, or 22nd ed.,
 11082 Method 5310 C; or
 11083
- 11084 ii) USEPA NERL Method 415.3 (rev. 1.1) or USEPA NERL
 11085 Method 415.3 (rev. 1.2); or
 11086

- 11087 iii) Hach Method 10267.
 11088
 11089 C) Wet oxidation method:
 11090
 11091 i) Standard Methods, 19th (Supplement), 20th, 21st, or 22nd ed.,
 11092 Method 5310 D; or
 11093
 11094 ii) USEPA NERL Method 415.3 (rev. 1.1) or USEPA NERL
 11095 Method 415.3 (rev. 1.2).
 11096
 11097 D) Ozone oxidation: Hach Method 10261, Specific UV₂₅₄ absorbance:
 11098 USEPA NERL Method 415.3 (rev. 1.1) or 415.3 (rev. 1.2).
 11099
 11100 E) Inorganic carbon must be removed from the samples prior to
 11101 analysis. TOC samples may not be filtered prior to analysis. TOC
 11102 samples must be acidified at the time of sample collection to
 11103 achieve pH less than or equal to 2 with minimal addition of the
 11104 acid specified in the method or by the instrument manufacturer.
 11105 Acidified TOC samples must be analyzed within 28 days.
 11106

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 5310 B, C, and D as approved alternative methods for total organic carbon in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added USEPA NERL Method 415.3 (rev. 1.2) as an approved alternative method for total organic carbon in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods, 22nd ed., Methods 5310 B, C, and D as approved alternative methods for total organic carbon in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA added Hach Method 10267 as an approved alternative method on July 19, 2016 (at 81 Fed. Reg. 46839).

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 11119 4) Specific Ultraviolet Absorbance (SUVA). SUVA is equal to the UV
 11120 absorption at 254 nm (UV₂₅₄) (measured in m⁻¹) divided by the dissolved
 11121 organic carbon (DOC) concentration (measured as mg/ℓ). In order to
 11122 determine SUVA, it is necessary to separately measure UV₂₅₄ and DOC.
 11123 When determining SUVA, a supplier must use the methods stipulated in
 11124 subsection (d)(4)(A) of this Section to measure DOC and the method
 11125 stipulated in subsection (d)(4)(B) of this Section to measure UV₂₅₄. SUVA
 11126 must be determined on water prior to the addition of disinfectants/oxidants
 11127 by the supplier. DOC and UV₂₅₄ samples used to determine a SUVA value
 11128 must be taken at the same time and at the same location.
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- A) Dissolved Organic Carbon (DOC). Prior to analysis, DOC samples must be filtered through the 0.45 µm pore-diameter filter as soon as practical after sampling, not to exceed 48 hours. After filtration, DOC samples must be acidified to achieve pH less than or equal to 2 with minimal addition of the acid specified in the method or by the instrument manufacturer. Acidified DOC samples must be analyzed within 28 days after sample collection. Inorganic carbon must be removed from the samples prior to analysis. Water passed through the filter prior to filtration of the sample must serve as the filtered blank. This filtered blank must be analyzed using procedures identical to those used for analysis of the samples and must meet the following standards: DOC less than 0.5 mg/ℓ.
- i) High-Temperature Combustion Method: Standard Methods, 19th (Supplement), 20th, 21st, or 22nd ed., Method 5310 B or USEPA NERL Methods 415.3 (rev. 1.1) or 415.3 (rev. 1.2).
 - ii) Persulfate-Ultraviolet or Heated-Persulfate Oxidation Method, Standard Methods, 19th (Supplement), 20th, 21st, or 22nd ed., Method 5310 C or USEPA NERL Methods 415.3 (rev. 1.1) or 415.3 (rev. 1.2).
 - iii) Wet-Oxidation Method: Standard Methods, 19th (Supplement), 20th, 21st, or 22nd ed., Method 5310 D or USEPA NERL Methods 415.3 (rev. 1.1) or 415.3 (rev. 1.2).
- BOARD NOTE: USEPA added Standard Methods, Methods 5310 B, C, and D as approved alternative methods for dissolved organic carbon in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added USEPA NERL Method 415.3 (rev. 1.2) as an approved alternative method for dissolved organic carbon in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods, 22nd ed., Methods 5310 B, C, and D as approved alternative methods for dissolved organic carbon in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463).
- B) Ultraviolet Absorption at 254 nm (UV₂₅₄) by spectrometry: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 5910 B or USEPA NERL Method 415.3 (rev. 1.1) or 415.3 (rev. 1.2). UV absorption must be measured at 253.7 nm (may be rounded off to

11173 254 nm). Prior to analysis, UV₂₅₄ samples must be filtered through
11174 a 0.45 µm pore-diameter filter. The pH of UV₂₅₄ samples may not
11175 be adjusted. Samples must be analyzed as soon as practical after
11176 sampling, not to exceed 48 hours; and
11177

11178 BOARD NOTE: USEPA added Standard Methods, 21st ed.,
11179 Method 5910 B as an approved alternative method for ultraviolet
11180 absorption at 254 nm in appendix A to subpart C of 40 CFR 141 on
11181 June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added USEPA
11182 NERL Method 415.3 (rev. 1.2) as an approved alternative method
11183 for ultraviolet absorbance in appendix A to subpart C of 40 CFR
11184 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA
11185 added Standard Methods, 22nd ed., Method 5910 B as an approved
11186 alternative method for ultraviolet absorption at 254 nm in appendix
11187 A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg.
11188 37463). USEPA added Standard Methods Online, Method 5910
11189 B-11 as an approved alternative method for ultraviolet absorption
11190 at 254 nm in appendix A to subpart C of 40 CFR 141 on June 19,
11191 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd
11192 ed., Methods 5910 B is the same version as Standard Methods
11193 Online, Method 5910 B-11, the Board has not listed the Standard
11194 Methods Online versions separately.
11195

11196 5) pH. All methods allowed in Section 611.611(a)(17) for measuring pH.
11197

11198 6) Magnesium. All methods allowed in Section 611.611(a) for measuring
11199 magnesium.
11200

11201 BOARD NOTE: Derived from 40 CFR 141.131 and appendix A to 40 CFR 141
11202 (2016)(2014).

11203
11204 (Source: Amended at 41 Ill. Reg. _____, effective _____)
11205

11206 **Section 611.382 Monitoring Requirements**
11207

11208 a) General requirements.
11209

11210 1) A supplier must take all samples during normal operating conditions.
11211

11212 2) A supplier may consider multiple wells drawing water from a single
11213 aquifer as one treatment plant for determining the minimum number of
11214 TTHM and HAA5 samples required with Agency approval.
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11216 3) Failure to monitor in accordance with the monitoring plan required under

11217 subsection (f) of this Section is a monitoring violation.
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11219 4) Where compliance is based on a running annual average of monthly or
11220 quarterly samples or averages and the supplier's failure to monitor makes
11221 it impossible to determine compliance with MCLs or MRDLs, this failure
11222 to monitor will be treated as a violation for the entire period covered by
11223 the annual average.
11224

11225 5) A supplier must use only data collected under the provisions of this
11226 Subpart I to qualify for reduced monitoring.
11227

11228 b) Monitoring requirements for disinfection byproducts (DBPs).
11229

11230 1) TTHMs and HAA5.
11231

11232 A) Routine monitoring. A supplier must monitor at the following
11233 frequency:
11234

11235 i) A Subpart B system supplier that serves 10,000 or more
11236 persons must collect four water samples per quarter per
11237 treatment plant. At least 25 percent of all samples collected
11238 each quarter must be collected at locations representing
11239 maximum residence time. The remaining samples may be
11240 taken at locations representative of at least average
11241 residence time in the distribution system and representing
11242 the entire distribution system, taking into account the
11243 number of persons served, the different sources of water,
11244 and the different treatment methods.
11245

11246 ii) A Subpart B system supplier that serves from 500 to 9,999
11247 persons must collect one water sample per quarter per
11248 treatment plant. The samples must be collected from
11249 locations representing maximum residence time.
11250

11251 iii) A Subpart B system supplier that serves fewer than 500
11252 persons must collect one sample per year per treatment
11253 plant during month of warmest water temperature. The
11254 samples must be collected from locations representing
11255 maximum residence time. If the sample (or average of
11256 annual samples, if more than one sample is taken) exceeds
11257 the MCL, the supplier must increase the monitoring
11258 frequency to one sample per treatment plant per quarter,
11259 taken at a point reflecting the maximum residence time in

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the distribution system, until the supplier meets the standards in subsection (b)(1)(D) ~~of this Section.~~

- iv) A supplier that uses only groundwater not under direct influence of surface water, which uses chemical disinfectant, and which serves 10,000 or more persons must collect one water sample per quarter per treatment plant. The samples must be collected from locations representing maximum residence time.

- v) A supplier that uses only groundwater not under direct influence of surface water, which uses chemical disinfectant, and which serves fewer than 10,000 persons must collect one sample per year per treatment plant during month of warmest water temperature. The samples must be collected from locations representing maximum residence time. If the sample (or average of annual samples, if more than one sample is taken) exceeds MCL, the supplier must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until the supplier meets standards in subsection (b)(1)(D) ~~of this Section.~~

BOARD NOTE: If a supplier elects to sample more frequently than the minimum required, at least 25 percent of all samples collected each quarter (including those taken in excess of the required frequency) must be taken at locations that represent the maximum residence time of the water in the distribution system. The remaining samples must be taken at locations representative of at least average residence time in the distribution system. For a supplier using groundwater not under the direct influence of surface water, multiple wells drawing water from a single aquifer may be considered one treatment plant for determining the minimum number of samples required, with Agency approval.

- B) A supplier may reduce monitoring, except as otherwise provided, in accordance with the following:
 - i) A Subpart B system supplier that serves 10,000 or more persons and which has a source water annual average TOC level, before any treatment, of less than or equal to 4.0 mg/l may reduce monitoring if it has monitored for at least one year and its TTHM annual average is less than or equal

- 11303 to 0.040 mg/ℓ and HAA5 annual average is less than or
11304 equal to 0.030 mg/ℓ. The reduced monitoring allowed is a
11305 minimum of one sample per treatment plant per quarter at a
11306 distribution system location reflecting maximum residence
11307 time.
11308
- 11309 ii) A Subpart B system supplier that serves from 500 to 9,999
11310 persons and which has a source water annual average TOC
11311 level, before any treatment, of less than or equal to 4.0
11312 mg/ℓ may reduce monitoring if it has monitored at least one
11313 year and its TTHM annual average is less than or equal to
11314 0.040 mg/ℓ and HAA5 annual average is less than or equal
11315 to 0.030 mg/ℓ. The reduced monitoring allowed is a
11316 minimum of one sample per treatment plant per year at a
11317 distribution system location reflecting maximum residence
11318 time during month of warmest water temperature.
11319
- 11320 BOARD NOTE: Any Subpart B system supplier that
11321 serves fewer than 500 persons may not reduce its
11322 monitoring to less than one sample per treatment plant per
11323 year.
11324
- 11325 iii) A supplier using only groundwater not under direct
11326 influence of surface water using chemical disinfectant and
11327 that serves 10,000 or more persons may reduce monitoring
11328 if it has monitored at least one year and its TTHM annual
11329 average is less than or equal to 0.040 mg/ℓ and HAA5
11330 annual average is less than or equal to 0.030 mg/ℓ. The
11331 reduced monitoring allowed is a minimum of one sample
11332 per treatment plant per year at a distribution system
11333 location reflecting maximum residence time during month
11334 of warmest water temperature.
11335
- 11336 iv) A supplier using only groundwater not under direct
11337 influence of surface water that uses chemical disinfectant
11338 and which serves fewer than 10,000 persons may reduce
11339 monitoring if it has monitored at least one year and its
11340 TTHM annual average is less than or equal to 0.040 mg/ℓ
11341 and HAA5 annual average is less than or equal to 0.030
11342 mg/ℓ for two consecutive years or TTHM annual average is
11343 less than or equal to 0.020 mg/ℓ and HAA5 annual average
11344 is less than or equal to 0.015 mg/ℓ for one year. The
11345 reduced monitoring allowed is a minimum of one sample

- 11346 per treatment plant per three year monitoring cycle at a
 11347 distribution system location reflecting maximum residence
 11348 time during month of warmest water temperature, with the
 11349 three-year cycle beginning on January 1 following the
 11350 quarter in which the supplier qualifies for reduced
 11351 monitoring.
 11352
- 11353 C) Monitoring requirements for source water TOC. In order to
 11354 qualify for reduced monitoring for TTHM and HAA5 under
 11355 subsection (b)(1)(B) ~~of this Section~~, a Subpart B system supplier
 11356 not monitoring under the provisions of subsection (d) ~~of this~~
 11357 ~~Section~~ must take monthly TOC samples every 30 days at a
 11358 location prior to any treatment. In addition to meeting other
 11359 criteria for reduced monitoring in subsection (b)(1)(B) ~~of this~~
 11360 ~~Section~~, the source water TOC running annual average must be \leq
 11361 4.0 mg/l (based on the most recent four quarters of monitoring) on
 11362 a continuing basis at each treatment plant to reduce or remain on
 11363 reduced monitoring for TTHM and HAA5. Once qualified for
 11364 reduced monitoring for TTHM and HAA5 under subsection
 11365 (b)(1)(B) ~~of this Section~~, a system may reduce source water TOC
 11366 monitoring to quarterly TOC samples taken every 90 days at a
 11367 location prior to any treatment.
 11368
- 11369 D) A Subpart B system supplier on a reduced monitoring schedule
 11370 may remain on that reduced schedule as long as the average of all
 11371 samples taken in the year (for a supplier that must monitor
 11372 quarterly) or the result of the sample (for a supplier that must
 11373 monitor no more frequently than annually) is no more than 0.060
 11374 mg/l and 0.045 mg/l for TTHMs and HAA5, respectively. A
 11375 supplier that does not meet these levels must resume monitoring at
 11376 the frequency identified in subsection (b)(1)(A) ~~of this Section~~ in
 11377 the quarter immediately following the monitoring period in which
 11378 the supplier exceeds 0.060 mg/l for TTHMs or 0.045 mg/l for
 11379 HAA5. For a supplier that uses only groundwater not under the
 11380 direct influence of surface water and which serves fewer than
 11381 10,000 persons, if either the TTHM annual average is greater than
 11382 0.080 mg/l or the HAA5 annual average is greater than 0.060
 11383 mg/l, the supplier must go to increased monitoring identified in
 11384 subsection (b)(1)(A) ~~of this Section~~ in the quarter immediately
 11385 following the monitoring period in which the supplier exceeds
 11386 0.080 mg/l for TTHMs or 0.060 mg/l for HAA5.
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- 11388 E) The Agency may return a supplier to routine monitoring.

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- 2) Chlorite. A CWS or NTNCWS supplier using chlorine dioxide, for disinfection or oxidation, must conduct monitoring for chlorite.
 - A) Routine monitoring.
 - i) Daily monitoring. A supplier must take daily samples at the entrance to the distribution system. For any daily sample that exceeds the chlorite MCL, the supplier must take additional samples in the distribution system the following day at the locations required by subsection (b)(2)(B) ~~of this Section~~, in addition to the sample required at the entrance to the distribution system.
 - ii) Monthly monitoring. A supplier must take a three-sample set each month in the distribution system. The supplier must take one sample at each of the following locations: near the first customer, at a location representative of average residence time, and at a location reflecting maximum residence time in the distribution system. Any additional routine sampling must be conducted in the same manner (as three-sample sets, at the specified locations). The supplier may use the results of additional monitoring conducted under subsection (b)(2)(B) ~~of this Section~~ to meet the requirement for monitoring in this subsection (b)(2)(A)(ii).
 - B) Additional monitoring. On each day following a routine sample monitoring result that exceeds the chlorite MCL at the entrance to the distribution system, the supplier must take three chlorite distribution system samples at the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).
 - C) Reduced monitoring.
 - i) Chlorite monitoring at the entrance to the distribution system required by subsection (b)(2)(A)(i) ~~of this Section~~ may not be reduced.
 - ii) Chlorite monitoring in the distribution system required by

11432 subsection (b)(2)(A)(ii) ~~of this Section~~ may be reduced to
 11433 one three-sample set per quarter after one year of
 11434 monitoring where no individual chlorite sample taken in the
 11435 distribution system under subsection (b)(2)(A)(ii) ~~of this~~
 11436 ~~Section~~ has exceeded the chlorite MCL and the supplier has
 11437 not been required to conduct monitoring under subsection
 11438 (b)(2)(B) ~~of this Section~~. The supplier may remain on the
 11439 reduced monitoring schedule until either any of the three
 11440 individual chlorite samples taken quarterly in the
 11441 distribution system under subsection (b)(2)(A)(ii) ~~of this~~
 11442 ~~Section~~ exceeds the chlorite MCL or the supplier is
 11443 required to conduct monitoring under subsection (b)(2)(B)
 11444 ~~of this Section~~, at which time the supplier must revert to
 11445 routine monitoring.
 11446

11447 3) Bromate.

- 11449 A) Routine monitoring. A CWS or NTNCWS supplier using ozone,
 11450 for disinfection or oxidation, must take one sample per month for
 11451 each treatment plant in the system using ozone. A supplier must
 11452 take samples monthly at the entrance to the distribution system
 11453 while the ozonation system is operating under normal conditions.
 11454
- 11455 B) Reduced monitoring. A supplier required to analyze for bromate
 11456 may reduce monitoring from monthly to quarterly if the supplier's
 11457 running annual average bromate concentration is not greater than
 11458 0.0025 mg/l based on monthly bromate measurements under
 11459 subsection (b)(3)(A) ~~of this Section~~ for the most recent four
 11460 quarters, with samples analyzed using USEPA OGWDW Methods,
 11461 Method 302.0, Method 317.0 (rev. 2.0), Method 326.0 (rev. 1.0),
 11462 or Method 557 or USEPA Organic and Inorganic Methods,
 11463 Method 321.8, each incorporated by reference in Section 611.102.
 11464 If a supplier has qualified for reduced bromate monitoring under
 11465 subsection (b)(3)(B)(i) ~~of this Section~~, that supplier may remain on
 11466 reduced monitoring as long as the running annual average of
 11467 quarterly bromate samples not greater than 0.0025 mg/l based on
 11468 samples analyzed using USEPA OGWDW Methods, Method
 11469 302.0, Method 317.0, Method 326.0, or Method 557 or USEPA
 11470 Organic and Inorganic Methods, Method 321.8. If the running
 11471 annual average bromate concentration is greater than 0.0025 mg/l,
 11472 the supplier must resume routine monitoring required by
 11473 subsection (b)(3)(A) ~~of this Section~~.
 11474

- 11475 c) Monitoring requirements for disinfectant residuals.
 11476
 11477 1) Chlorine and chloramines.
 11478
 11479 A) Routine monitoring. ~~Until March 31, 2016, a CWS or NTNCWS~~
 11480 ~~supplier that uses chlorine or chloramines must measure the~~
 11481 ~~residual disinfectant level in the distribution system at the same~~
 11482 ~~point in the distribution system and at the same time as total~~
 11483 ~~coliforms are sampled, as specified in Section 611.521. Beginning~~
 11484 ~~April 1, 2016, a CWS or NTNCWS supplier that uses chlorine or~~
 11485 ~~chloramines must measure the residual disinfectant level in the~~
 11486 ~~distribution system at the same point in the distribution system and~~
 11487 ~~at the same time as total coliforms are sampled, as specified in~~
 11488 ~~Sections 611.1054 through 611.1058. A Subpart B system supplier~~
 11489 ~~may use the results of residual disinfectant concentration sampling~~
 11490 ~~conducted under Section 611.532 for unfiltered systems or Section~~
 11491 ~~611.533 for systems that filter, in lieu of taking separate samples.~~
 11492
 11493 B) Reduced monitoring. Monitoring may not be reduced.
 11494
 11495 2) Chlorine dioxide.
 11496
 11497 A) Routine monitoring. A CWS, an NTNCWS, or a transient non-
 11498 CWS supplier that uses chlorine dioxide for disinfection or
 11499 oxidation must take daily samples at the entrance to the
 11500 distribution system. For any daily sample that exceeds the MRDL,
 11501 the supplier must take samples in the distribution system the
 11502 following day at the locations required by subsection (c)(2)(B) ~~of~~
 11503 ~~this Section~~, in addition to the sample required at the entrance to
 11504 the distribution system.
 11505
 11506 B) Additional monitoring. On each day following a routine sample
 11507 monitoring result that exceeds the MRDL, the supplier must take
 11508 three chlorine dioxide distribution system samples. If chlorine
 11509 dioxide or chloramines are used to maintain a disinfectant residual
 11510 in the distribution system, or if chlorine is used to maintain a
 11511 disinfectant residual in the distribution system and there are no
 11512 disinfection addition points after the entrance to the distribution
 11513 system (i.e., no booster chlorination), the supplier must take three
 11514 samples as close to the first customer as possible, at intervals of at
 11515 least six hours. If chlorine is used to maintain a disinfectant
 11516 residual in the distribution system and there are one or more
 11517 disinfection addition points after the entrance to the distribution

- 11518 system (i.e., booster chlorination), the supplier must take one
 11519 sample at each of the following locations: as close to the first
 11520 customer as possible, in a location representative of average
 11521 residence time, and as close to the end of the distribution system as
 11522 possible (reflecting maximum residence time in the distribution
 11523 system).
 11524
- 11525 C) Reduced monitoring. Monitoring may not be reduced.
 11526
- 11527 d) Monitoring requirements for disinfection byproduct (DBP) precursors.
 11528
- 11529 1) Routine monitoring. A Subpart B system supplier that uses conventional
 11530 filtration treatment (as defined in Section 611.101) must monitor each
 11531 treatment plant for TOC not past the point of combined filter effluent
 11532 turbidity monitoring and representative of the treated water. A supplier
 11533 required to monitor under this subsection (d)(1) must also monitor for
 11534 TOC in the source water prior to any treatment at the same time as
 11535 monitoring for TOC in the treated water. These samples (source water
 11536 and treated water) are referred to as paired samples. At the same time as
 11537 the source water sample is taken, a system must monitor for alkalinity in
 11538 the source water prior to any treatment. A supplier must take one paired
 11539 sample and one source water alkalinity sample per month per plant at a
 11540 time representative of normal operating conditions and influent water
 11541 quality.
 11542
- 11543 2) Reduced monitoring. A Subpart B system supplier with an average treated
 11544 water TOC of less than 2.0 mg/l for two consecutive years, or less than
 11545 1.0 mg/l for one year, may reduce monitoring for both TOC and alkalinity
 11546 to one paired sample and one source water alkalinity sample per plant per
 11547 quarter. The supplier must revert to routine monitoring in the month
 11548 following the quarter when the annual average treated water TOC greater
 11549 than or equal to 2.0 mg/l.
 11550
- 11551 e) Bromide. A supplier required to analyze for bromate may reduce bromate
 11552 monitoring from monthly to once per quarter, if the supplier demonstrates that the
 11553 average source water bromide concentration is less than 0.05 mg/l based upon
 11554 representative monthly measurements for one year. The supplier must continue
 11555 bromide monitoring to remain on reduced bromate monitoring.
 11556
- 11557 f) Monitoring plans. Each supplier required to monitor under this Subpart I must
 11558 develop and implement a monitoring plan. The supplier must maintain the plan
 11559 and make it available for inspection by the Agency and the general public no later
 11560 than 30 days following the applicable compliance dates in Section 611.380(b). A

11561 Subpart B system supplier that serves more than 3,300 persons must submit a
11562 copy of the monitoring plan to the Agency no later than the date of the first report
11563 required under Section 611.384. After review, the Agency may require changes
11564 in any plan elements. The plan must include at least the following elements:

- 11565
- 11566 1) Specific locations and schedules for collecting samples for any parameters
11567 included in this Subpart I;
- 11568
- 11569 2) How the supplier will calculate compliance with MCLs, MRDLs, and
11570 treatment techniques; and
- 11571
- 11572 3) If approved for monitoring as a consecutive system, or if providing water
11573 to a consecutive system, under the provisions of Section 611.500, the
11574 sampling plan must reflect the entire distribution system.
- 11575

11576 BOARD NOTE: Derived from 40 CFR 141.132 (2016)(2013).

11577 (Source: Amended at 41 Ill. Reg. _____, effective _____)

11578

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11580 **Section 611.384 Reporting and Recordkeeping Requirements**

- 11581
- 11582 a) A supplier required to sample quarterly or more frequently must report to the
11583 Agency within ten days after the end of each quarter in which samples were
11584 collected, notwithstanding the provisions of Section 611.840. A supplier required
11585 to sample less frequently than quarterly must report to the Agency within ten days
11586 after the end of each monitoring period in which samples were collected.
- 11587
- 11588 b) Disinfection byproducts (DBPs). A supplier must report the following specified
11589 information:
- 11590
- 11591 1) A supplier that monitors for TTHMs and HAA5 under the requirements of
11592 Section 611.382(b) on a quarterly or more frequently basis must report the
11593 following:
- 11594
- 11595 A) The number of samples taken during the last quarter;
- 11596
- 11597 B) The location, date, and result of each sample taken during the last
11598 quarter;
- 11599
- 11600 C) The arithmetic average of all samples taken over the last quarter;
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- 11602 D) The annual arithmetic average of the quarterly arithmetic averages
11603 of this Section for the last four quarters; and

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- E) Whether, based on Section 611.383(b)(1), the MCL was violated.
 - 2) A supplier that monitors for TTHMs and HAA5 under the requirements of Section 611.382(b) less frequently than quarterly (but at least annually) must report the following:
 - A) The number of samples taken during the last year;
 - B) The location, date, and result of each sample taken during the last monitoring period;
 - C) The arithmetic average of all samples taken over the last year; and
 - D) Whether, based on Section 611.383(b)(1), the MCL was violated.
 - 3) A supplier that monitors for TTHMs and HAA5 under the requirements of Section 611.382(b) less frequently than annually must report the following:
 - A) The location, date, and result of the last sample taken; and
 - B) Whether, based on Section 611.383(b)(1), the MCL was violated.
 - 4) A supplier that monitors for chlorite under the requirements of Section 611.382(b) must report the following:
 - A) The number of entry point samples taken each month for the last three months;
 - B) The location, date, and result of each sample (both entry point and distribution system) taken during the last quarter;
 - C) For each month in the reporting period, the arithmetic average of each three-sample set for all sample sets taken in the distribution system; and
 - D) Whether, based on Section 611.383(b)(3), the MCL was violated, in which month it was violated, and how many times it was violated in each month.
 - 5) A supplier that monitors for bromate under the requirements of Section 611.382(b) must report the following:

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- A) The number of samples taken during the last quarter;
 - B) The location, date, and result of each sample taken during the last quarter;
 - C) The arithmetic average of the monthly arithmetic averages of all samples taken in the last year; and
 - D) Whether, based on Section 611.383(b)(2), the MCL was violated.

BOARD NOTE: The Agency may choose to perform calculations and determine whether the MCL was exceeded, in lieu of having the supplier report the required information.

- c) Disinfectants. A supplier must report the following specified information:
 - 1) A supplier that monitors for chlorine or chloramines under the requirements of Section 611.382(c) must report the following:
 - A) The number of samples taken during each month of the last quarter.
 - B) The monthly arithmetic average of all samples taken in each month for the last 12 months.
 - C) The arithmetic average of all monthly averages for the last 12 months.
 - D) Whether, based on Section 611.383(c)(1), the MRDL was violated.
 - 2) A supplier that monitors for chlorine dioxide under the requirements of Section 611.382(c) must report the following:
 - A) The dates, results, and locations of samples taken during the last quarter;
 - B) Whether, based on Section 611.383(c)(2), the MRDL was violated; and
 - C) Whether the MRDL was exceeded in any two consecutive daily samples and whether the resulting violation was acute or nonacute.

11690 BOARD NOTE: The Agency may choose to perform calculations and determine
11691 whether the MRDL was exceeded, in lieu of having the supplier report the
11692 required information.
11693

11694 d) Disinfection byproduct (DBP) precursors and enhanced coagulation or enhanced
11695 softening. A supplier must report the following specified information:
11696

11697 1) A supplier that monitors monthly or quarterly for TOC under the
11698 requirements of Section 611.382(d) and required to meet the enhanced
11699 coagulation or enhanced softening requirements in Section 611.385(b)(2)
11700 or (b)(3) must report the following:
11701

11702 A) The number of paired (source water and treated water) samples
11703 taken during the last quarter;
11704

11705 B) The location, date, and result of each paired sample and associated
11706 alkalinity taken during the last quarter;
11707

11708 C) For each month in the reporting period that paired samples were
11709 taken, the arithmetic average of the percent reduction of TOC for
11710 each paired sample and the required TOC percent removal;
11711

11712 D) Calculations for determining compliance with the TOC percent
11713 removal requirements, as provided in Section 611.385(c)(1); and
11714

11715 E) Whether the supplier is in compliance with the enhanced
11716 coagulation or enhanced softening percent removal requirements in
11717 Section 611.385(b) for the last four quarters.
11718

11719 2) A supplier that monitors monthly or quarterly for TOC under the
11720 requirements of Section 611.382(d) and meeting one or more of the
11721 alternative compliance standards in Section 611.385(a)(2) or (a)(3) must
11722 report the following:
11723

11724 A) The alternative compliance criterion that the supplier is using;
11725

11726 B) The number of paired samples taken during the last quarter;
11727

11728 C) The location, date, and result of each paired sample and associated
11729 alkalinity taken during the last quarter;
11730

11731 D) The running annual arithmetic average based on monthly averages
11732 (or quarterly samples) of source water TOC for a supplier meeting

- 11733 a criterion in Section 611.385(a)(2)(A) or (a)(2)(C) or of treated
11734 water TOC for a supplier meeting the criterion in Section
11735 611.385(a)(2)(B);
11736
11737 E) The running annual arithmetic average based on monthly averages
11738 (or quarterly samples) of source water SUVA for a supplier
11739 meeting the criterion in Section 611.385(a)(2)(E) or of treated
11740 water SUVA for a supplier meeting the criterion in Section
11741 611.385(a)(2)(F);
11742
11743 F) The running annual average of source water alkalinity for a
11744 supplier meeting the criterion in Section 611.385(a)(2)(C) and of
11745 treated water alkalinity for a supplier meeting the criterion in
11746 Section 611.385(a)(3)(A);
11747
11748 G) The running annual average for both TTHM and HAA5 for a
11749 supplier meeting the criterion in Section 611.385(a)(2)(C) or (D);
11750
11751 H) The running annual average of the amount of magnesium hardness
11752 removal (as CaCO₃ in mg/l) for a supplier meeting the criterion in
11753 Section 611.385(a)(3)(B); and
11754
11755 I) Whether the supplier is in compliance with the particular
11756 alternative compliance criterion in Section 611.385(a)(2) or (a)(3).
11757

11758 BOARD NOTE: The Agency may choose to perform calculations and determine
11759 whether the treatment technique was met, in lieu of having the supplier report the
11760 required information.
11761

11762 BOARD NOTE: Derived from 40 CFR 141.134 (2016)~~(2002)~~.

11763
11764 (Source: Amended at 41 Ill. Reg. _____, effective _____)
11765

11766 **Section 611.385 Treatment Technique for Control of Disinfection Byproduct (DBP)**

11767 **Precursors**

11768
11769 a) Applicability.

- 11770
11771 1) A Subpart B system supplier using conventional filtration treatment (as
11772 defined in Section 611.101) must operate with enhanced coagulation or
11773 enhanced softening to achieve the TOC percent removal levels specified in
11774 subsection (b) ~~of this Section~~ unless the supplier meets at least one of the
11775 alternative compliance standards listed in subsection (a)(2) or (a)(3) ~~of this~~

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Section.

- 2) Alternative compliance standards for enhanced coagulation and enhanced softening systems. A Subpart B system supplier using conventional filtration treatment may use the alternative compliance standards in subsections (a)(2)(A) through (a)(2)(F) of this Section to comply with this Section in lieu of complying with subsection (b). A supplier must comply with monitoring requirements in Section 611.382(d) of this Part.
- A) The supplier's source water TOC level, measured according to Section 611.381(d)(3), is less than 2.0 mg/l, calculated quarterly as a running annual average.
 - B) The supplier's treated water TOC level, measured according to Section 611.381(d)(3), is less than 2.0 mg/l, calculated quarterly as a running annual average.
 - C) The supplier's source water TOC level, measured according to Section 611.381(d)(3), is less than 4.0 mg/l, calculated quarterly as a running annual average; the source water alkalinity, measured according to Section 611.381(d)(1), is greater than 60 mg/l (as CaCO₃), calculated quarterly as a running annual average; and either the TTHM and HAA5 running annual averages are no greater than 0.040 mg/l and 0.030 mg/l, respectively; or prior to the effective date for compliance in Section 611.380(b), the system has made a clear and irrevocable financial commitment, not later than the effective date for compliance in Section 611.380(b), to use technologies that will limit the levels of TTHMs and HAA5 to no more than 0.040 mg/l and 0.030 mg/l, respectively. A supplier must submit evidence of a clear and irrevocable financial commitment, in addition to a schedule containing milestones and periodic progress reports for installation and operation of appropriate technologies, to the Agency for approval not later than the effective date for compliance in Section 611.380(b). These technologies must be installed and operating not later than June 30, 2005. Failure to install and operate these technologies by the date in the approved schedule will constitute a violation of an NPDWR.
 - D) The TTHM and HAA5 running annual averages are no greater than 0.040 mg/l and 0.030 mg/l, respectively, and the supplier uses only chlorine for primary disinfection and maintenance of a residual in the distribution system.

- 11819 E) The supplier's source water SUVA, prior to any treatment and
 11820 measured monthly according to Section 611.381(d)(4), is less than
 11821 or equal to 2.0 ℓ /mg-m, calculated quarterly as a running annual
 11822 average.
 11823
- 11824 F) The supplier's finished water SUVA, measured monthly according
 11825 to Section 611.381(d)(4), is less than or equal to 2.0 ℓ /mg-m,
 11826 calculated quarterly as a running annual average.
 11827
- 11828 3) Additional alternative compliance standards for softening systems. A
 11829 supplier practicing enhanced softening that cannot achieve the TOC
 11830 removals required by subsection (b)(2) of this Section may use the
 11831 alternative compliance standards in subsections (a)(3)(A) and (a)(3)(B) of
 11832 this Section in lieu of complying with subsection (b) of this Section. A
 11833 supplier must comply with monitoring requirements in Section
 11834 611.382(d). The alternative compliance standards are as follows:
 11835
- 11836 A) The supplier may undertake softening that results in lowering the
 11837 treated water alkalinity to less than 60 mg/ ℓ (as CaCO₃), measured
 11838 monthly according to Section 611.381(d)(1) and calculated
 11839 quarterly as a running annual average; and
 11840
- 11841 B) The supplier may undertake softening that results in removing at
 11842 least 10 mg/ ℓ of magnesium hardness (as CaCO₃), measured
 11843 monthly according to Section 611.381(d)(6) and calculated
 11844 quarterly as a running annual average.
 11845
- 11846 b) Enhanced coagulation and enhanced softening performance requirements.
 11847
- 11848 1) A supplier must achieve the percent reduction of TOC specified in
 11849 subsection (b)(2) of this Section between the source water and the
 11850 combined filter effluent, unless the Agency approves a supplier's request
 11851 for alternate minimum TOC removal (Step 2) requirements under
 11852 subsection (b)(3) of this Section.
 11853
- 11854 2) Required Step 1 TOC reductions, indicated in the following table, are
 11855 based upon specified source water parameters measured in accordance
 11856 with Section 611.381(d). A supplier practicing softening must meet the
 11857 Step 1 TOC reductions in the far-right column (source water alkalinity
 11858 greater than 120 mg/ ℓ) for the following specified source water TOC:
 11859
- 11860 Step 1 Required Removal of TOC by Enhanced Coagulation and Enhanced
 11861 Softening for a Subpart B System Supplier Using Conventional

11862

Treatment^{1,2}

Source-water TOC, mg/ℓ	Source-water alkalinity, mg/ℓ as CaCO ₃		
	0-60	> 60-120	> 120 ³
> 2.0-4.0	35.0%	25.0%	15.0%
> 4.0-8.0	45.0%	35.0%	25.0%
> 8.0	50.0%	40.0%	30.0%

¹ A supplier meeting at least one of the conditions in subsections (a)(2)(A) through (a)(2)(F) of this Section are not required to operate with enhanced coagulation.

² A softening system that meets one of the alternative compliance standards in subsection (a)(3) of this Section is not required to operate with enhanced softening.

³ A supplier that practices softening must meet the TOC removal requirements in this column.

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- 3) A Subpart B conventional treatment system supplier that cannot achieve the Step 1 TOC removals required by subsection (b)(2) of this Section due to water quality parameters or operational constraints must apply to the Agency, within three months after failure to achieve the TOC removals required by subsection (b)(2) of this Section, for approval of alternative minimum TOC (Step 2) removal requirements submitted by the supplier. If the PWS cannot achieve the Step 1 TOC removal requirement due to water quality parameters or operational constraints, the Agency must approve the use of the Step 2 TOC removal requirement. If the Agency approves the alternative minimum TOC removal (Step 2) requirements, the Agency may make those requirements retroactive for the purposes of determining compliance. Until the Agency approves the alternative minimum TOC removal (Step 2) requirements, the supplier must meet the Step 1 TOC removals contained in subsection (b)(2) of this Section.
- 4) Alternative minimum TOC removal (Step 2) requirements. An application made to the Agency by an enhanced coagulation system supplier for approval of alternative minimum TOC removal (Step 2) requirements under subsection (b)(3) of this Section must include, at a minimum, results of bench- or pilot-scale testing conducted under subsection (b)(4)(B) of this Section. The submitted bench- or pilot-scale testing must be used to determine the alternative enhanced coagulation level.
 - A) For the purposes of this Subpart I, "alternative enhanced

11888 coagulation level" is defined as coagulation at a coagulant dose
 11889 and pH, as determined by the method described in subsections
 11890 (b)(4)(A) through (b)(4)(E) of this Section, such that an
 11891 incremental addition of 10 mg/l of alum (or equivalent amount of
 11892 ferric salt) results in a TOC removal of less than or equal to 0.3
 11893 mg/l. The percent removal of TOC at this point on the "TOC
 11894 removal versus coagulant dose" curve is then defined as the
 11895 minimum TOC removal required for the supplier. Once approved
 11896 by the Agency, this minimum requirement supersedes the
 11897 minimum TOC removal required by the table in subsection (b)(2)
 11898 of this Section. This requirement will be effective until such time
 11899 as the Agency approves a new value based on the results of a new
 11900 bench- and pilot-scale test. Failure to achieve alternative minimum
 11901 TOC removal levels is a violation of National Primary Drinking
 11902 Water Regulations.

- B) Bench- or pilot-scale testing of enhanced coagulation must be conducted by using representative water samples and adding 10 mg/l increments of alum (or equivalent amounts of ferric salt) until the pH is reduced to a level less than or equal to the enhanced coagulation Step 2 target pH shown in the following table:

Enhanced Coagulation Step 2 Target pH

Alkalinity (mg/l as CaCO ₃)	Target pH
0-60	5.5
> 60-120	6.3
> 120-240	7.0
> 240	7.5

11910
 11911 C) For waters with alkalinities of less than 60 mg/l for which addition
 11912 of small amounts of alum or equivalent addition of iron coagulant
 11913 drives the pH below 5.5 before significant TOC removal occurs,
 11914 the supplier must add necessary chemicals to maintain the pH
 11915 between 5.3 and 5.7 in samples until the TOC removal of 0.3 mg/l
 11916 per 10 mg/l alum added (or equivalent addition of iron coagulant)
 11917 is reached.

- D) The supplier may operate at any coagulant dose or pH necessary (consistent with other NPDWRs) to achieve the minimum TOC percent removal approved under subsection (b)(3) of this Section.

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 11921
 11922

11923 E) If the TOC removal is consistently less than 0.3 mg/ℓ of TOC per
 11924 10 mg/ℓ of incremental alum dose at all dosages of alum (or
 11925 equivalent addition of iron coagulant), the water is deemed to
 11926 contain TOC not amenable to enhanced coagulation. The supplier
 11927 may then apply to the Agency for a waiver of enhanced
 11928 coagulation requirements. If the TOC removal is consistently less
 11929 than 0.3 mg/ℓ of TOC per 10 mg/ℓ of incremental alum dose at all
 11930 dosages of alum (or equivalent addition of iron coagulant), the
 11931 Agency must grant the waiver of enhanced coagulation
 11932 requirements.
 11933

11934 c) Compliance calculations.
 11935

11936 1) A Subpart B system supplier other than those identified in subsection
 11937 (a)(2) or (a)(3) of this Section must comply with requirements contained
 11938 in subsection (b)(2) or (b)(3) of this Section. A supplier must calculate
 11939 compliance quarterly, beginning after the supplier has collected 12 months
 11940 of data, by determining an annual average using the following method:
 11941

11942 A) Determine actual monthly TOC percent removal, equal to the
 11943 following:
 11944

11945
$$\left(1 - \left(\frac{\text{treatedwaterTOC}}{\text{sourcewaterTOC}} \right) \right) \times 100$$

11946 B) Determine the required monthly TOC percent removal.
 11947

11948 C) Divide the value in subsection (c)(1)(A) of this Section by the
 11949 value in subsection (c)(1)(B) of this Section.
 11950

11951 D) Add together the results of subsection (c)(1)(C) of this Section for
 11952 the last 12 months and divide by 12.
 11953

11954 E) If the value calculated in subsection (c)(1)(D) of this Section is less
 11955 than 1.00, the supplier is not in compliance with the TOC percent
 11956 removal requirements.
 11957

11958 2) A supplier may use the provisions in subsections (c)(2)(A) through
 11959 (c)(2)(E) of this Section in lieu of the calculations in subsection (c)(1)(A)
 11960 through (c)(1)(E) of this Section to determine compliance with TOC
 11961 percent removal requirements.
 11962

11963 A) In any month that the supplier's treated or source water TOC level,
 11964

- 11965 measured according to Section 611.381(d)(3), is less than 2.0
 11966 mg/l, the supplier may assign a monthly value of 1.0 (in lieu of the
 11967 value calculated in subsection (c)(1)(C) ~~of this Section~~) when
 11968 calculating compliance under the provisions of subsection (c)(1) ~~of~~
 11969 ~~this Section~~.
- 11970
- 11971 B) In any month that a system practicing softening removes at least 10
 11972 mg/l of magnesium hardness (as CaCO₃), the supplier may assign
 11973 a monthly value of 1.0 (in lieu of the value calculated in subsection
 11974 (c)(1)(C) ~~of this Section~~) when calculating compliance under the
 11975 provisions of subsection (c)(1) ~~of this Section~~.
- 11976
- 11977 C) In any month that the system's source water SUVA, prior to any
 11978 treatment and measured according to Section 611.381(d)(4), is less
 11979 than or equal to 2.0 l/mg-m, the supplier may assign a monthly
 11980 value of 1.0 (in lieu of the value calculated in subsection (c)(1)(C)
 11981 ~~of this Section~~) when calculating compliance under the provisions
 11982 of subsection (c)(1) ~~of this Section~~.
- 11983
- 11984 D) In any month that the system's finished water SUVA, measured
 11985 according to Section 611.381(d)(4), is less than or equal to 2.0
 11986 l/mg-m, the supplier may assign a monthly value of 1.0 (in lieu of
 11987 the value calculated in subsection (c)(1)(C) ~~of this Section~~) when
 11988 calculating compliance under the provisions of subsection (c)(1) ~~of~~
 11989 ~~this Section~~.
- 11990
- 11991 E) In any month that a system practicing enhanced softening lowers
 11992 alkalinity below 60 mg/l (as CaCO₃), the supplier may assign a
 11993 monthly value of 1.0 (in lieu of the value calculated in subsection
 11994 (c)(1)(C) ~~of this Section~~) when calculating compliance under the
 11995 provisions of subsection (c)(1) ~~of this Section~~.
- 11996
- 11997 3) A Subpart B system supplier using conventional treatment may also
 11998 comply with the requirements of this Section by meeting the standards in
 11999 subsection (a)(2) or (a)(3) ~~of this Section~~.
- 12000
- 12001 d) Treatment technique requirements for disinfection byproduct (DBP) precursors.
 12002 Treatment techniques to control the level of disinfection byproduct (DBP)
 12003 precursors in drinking water treatment and distribution systems, for a Subpart B
 12004 system supplier using conventional treatment, are enhanced coagulation or
 12005 enhanced softening.
- 12006
- 12007 BOARD NOTE: Derived from 40 CFR 141.135 (2016)(2006).

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(Source: Amended at 41 Ill. Reg. _____, effective _____)

SUBPART K: GENERAL MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.490 Certified Laboratories

- a) For the purpose of determining compliance with Subparts G, K through O, Q and S of this Part, samples will be considered only if they have been analyzed by one of the following:
 - 1) A laboratory certified pursuant to Section 4(o) of the Act [415 ILCS 5/4(o)];
 - 2) A laboratory certified by USEPA;
 - 3) When no laboratory has been certified pursuant to subsection (a)(1) of this Section to analyze a particular contaminant, a laboratory certified, registered, accredited, licensed, or otherwise approved by another state with primary enforcement responsibility, or an agency of the federal government, unless the Agency has, by written notice, informed the supplier that a particular laboratory or laboratories may not be used; or
 - 4) For measurements of alkalinity, calcium, conductivity, disinfectant residual, orthophosphate, silica, turbidity, free chlorine residual, temperature, and pH, a person under the supervision of a certified operator (35 Ill. Adm. Code 603.103).
- b) Nothing in this Part must be construed to preclude the Agency or any duly designated representative of the Agency from taking samples or from using the results from such samples to determine compliance by a supplier of water with the applicable requirements of this Part.
- c) The CWS supplier must have required analyses performed either at an Agency laboratory or a certified laboratory. The Agency may require that some or all of the required samples be submitted to its laboratories.

BOARD NOTE: Subsections (a)(1), (a)(2), (a)(4), and (b) of this Section are derived from 40 CFR 141.28 (2016)(2013). Subsections (a)(3) and (c) are additional State requirements.

(Source: Amended at 41 Ill. Reg. _____, effective _____)

SUBPART L: MICROBIOLOGICAL MONITORING
AND ANALYTICAL REQUIREMENTS

Section 611.521 Routine Coliform Monitoring (Repealed)

- a) Suppliers must collect total coliform samples at sites that are representative of water throughout the distribution system according to a written sample siting plan, which must be approved by a SEP issued pursuant to Section 611.110.
- b) The monitoring frequency for total coliforms for CWSs is based on the population served by the CWS, as set forth in Table A of this Part.
- e) The monitoring frequency for total coliforms for non-CWSs is as follows:
 - 1) A non-CWS using only groundwater (except groundwater under the direct influence of surface water, as determined in Section 611.212) and serving 1,000 persons or fewer must monitor each calendar quarter that the system provides water to the public, except that the Agency must reduce this monitoring frequency if a sanitary survey shows that the system is free of sanitary defects. The Agency cannot reduce the monitoring frequency for a non-CWS using only groundwater (except groundwater under the direct influence of surface water) and serving 1,000 persons or fewer to less than once per year.
 - 2) A non-CWS using only groundwater (except groundwater under the direct influence of surface water) and serving more than 1,000 persons during any month must monitor at the same frequency as a like-sized CWS, as specified in subsection (b) of this Section, except the Agency must reduce this monitoring frequency for any month the system serves 1,000 persons or fewer. The Agency cannot reduce the monitoring to less than once per year. For systems using groundwater under the direct influence of surface water, subsection (c)(4) of this Section applies.
 - 3) A non-CWS using surface water, in total or in part, must monitor at the same frequency as a like-sized CWS, as specified in subsection (b) of this Section, regardless of the number of persons it serves.
 - 4) A non-CWS using groundwater under the direct influence of surface water must monitor at the same frequency as a like-sized CWS, as specified in subsection (b) of this Section. The supplier must begin monitoring at this frequency beginning six months after Public Health determines that the groundwater is under the direct influence of surface water.

- 12094 d) The supplier must collect samples at regular time intervals throughout the month,
 12095 except that a supplier that uses only groundwater (except groundwater under the
 12096 direct influence of surface water) and serves 4,900 persons or fewer, may collect
 12097 all required samples on a single day if they are taken from different sites.
 12098
- 12099 e) A PWS that uses surface water or groundwater under the direct influence of
 12100 surface water, and does not practice filtration in compliance with Subpart B of
 12101 this Part, must collect at least one sample near the first service connection each
 12102 day the turbidity level of the source water, measured as specified in Section
 12103 611.532(b), exceeds 1 NTU. This sample must be analyzed for the presence of
 12104 total coliforms. When one or more turbidity measurements in any day exceed 1
 12105 NTU, the supplier must collect this coliform sample within 24 hours of the first
 12106 exceedence, unless the Agency has determined, by a SEP issued pursuant to
 12107 Section 611.110, that the supplier, for logistical reasons outside the supplier's
 12108 control, cannot have the sample analyzed within 30 hours of collection. Sample
 12109 results from this coliform monitoring must be included in determining compliance
 12110 with the MCL for total coliforms in Section 611.325.
 12111
- 12112 f) Special purpose samples, such as those taken to determine whether disinfection
 12113 practices are sufficient following pipe placement, replacement or repair, must not
 12114 be used to determine compliance with the MCL for total coliforms in Section
 12115 611.325.
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12117 BOARD NOTE: Derived from 40 CFR 141.21(a) (2002).

12118 (Source: Repealed at 41 Ill. Reg. _____, effective _____)
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12120
 12121 **Section 611.522 Repeat Coliform Monitoring (Repealed)**
 12122

- 12123 a) If a routine sample is total coliform positive, the supplier must collect a set of
 12124 repeat samples within 24 hours of being notified of the positive result. A supplier
 12125 that collects more than one routine sample per month must collect no fewer than
 12126 three repeat samples for each total coliform positive sample found. A supplier
 12127 that collects one routine sample per month or fewer must collect no fewer than
 12128 four repeat samples for each total coliform positive sample found. The Agency
 12129 must extend the 24-hour limit on a case-by-case basis if it determines that the
 12130 supplier has a logistical problem in collecting the repeat samples within 24 hours
 12131 that is beyond its control. In the case of an extension, the Agency must specify
 12132 how much time the supplier has to collect the repeat samples.
 12133
- 12134 b) The supplier must collect at least one repeat sample from the sampling tap where
 12135 the original total coliform positive sample was taken, and at least one repeat
 12136 sample at a tap within five service connections upstream and at least one repeat

sample at a tap within five service connections downstream of the original sampling site. If a total coliform positive sample is at the end of the distribution system, or one away from the end of the distribution system, the Agency may waive the requirement to collect at least one repeat sample upstream or downstream of the original sampling site.

- e) The supplier must collect all repeat samples on the same day, except that the Agency must allow a supplier with a single service connection to collect the required set of repeat samples over a four-day period or to collect a larger volume repeat samples in one or more sample containers of any size, as long as the total volume collected is at least 400 ml (300 ml for PWSs that collect more than one routine sample per month).
- d) If one or more repeat samples in the set is total coliform positive, the supplier must collect an additional set of repeat samples in the manner specified in subsections (a) through (c) of this Section. The additional samples must be collected within 24 hours of being notified of the positive result, unless the Agency extends the limit as provided in subsection (a) of this Section. The supplier must repeat this process until either total coliforms are not detected in one complete set of repeat samples or the supplier determines that the MCL for total coliforms in Section 611.325 has been exceeded and notifies the Agency.
- e) If a supplier collecting fewer than five routine samples/month has one or more total coliform positive samples and the Agency does not invalidate the samples under Section 611.523, the supplier must collect at least five routine samples during the next month the supplier provides water to the public, unless the Agency determines that the conditions of subsection (e)(1) or (e)(2) of this Section are met. This does not apply to the requirement to collect repeat samples in subsections (a) through (d) of this Section. The supplier does not have to collect the samples if the following occurs:
 - 1) The Agency performs a site visit before the end of the next month the supplier provides water to the public. Although a sanitary survey need not be performed, the site visit must be sufficiently detailed to allow the Agency to determine whether additional monitoring or any corrective action is needed.
 - 2) The Agency has determined why the sample was total coliform positive and establishes that the supplier has corrected the problem or will correct the problem before the end of the next month the supplier serves water to the public.
 - A) The Agency must document this decision in writing, and make the

12180 document available to USEPA and the public. The written
12181 documentation must describe the specific cause of the total
12182 coliform-positive sample and what action the supplier has taken or
12183 will take to correct the problem.
12184

12185 B) The Agency cannot waive the requirement to collect five routine
12186 samples the next month the supplier provides water to the public
12187 solely on the grounds that all repeat samples are total coliform-
12188 negative.
12189

12190 C) Under this subsection, a supplier must still take at least one routine
12191 sample before the end of the next month it serves water to the
12192 public and use it to determine compliance with the MCL for total
12193 coliforms in Section 611.325, unless the Agency has determined
12194 that the supplier has corrected the contamination problem before
12195 the supplier took the set of repeat samples required in subsections
12196 (a) through (d) of this Section, and all repeat samples were total
12197 coliform-negative.
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12199 f) After a supplier collects a routine sample and before it learns the results of the
12200 analysis of that sample, if it collects another routine samples from within five
12201 adjacent service connections of the initial sample, and the initial sample, after
12202 analysis, is found to contain total coliforms, then the supplier may count the
12203 subsequent samples as a repeat sample instead of as a routine sample.
12204

12205 g) Results of all routine and repeat samples not invalidated pursuant to Section
12206 611.523 must be included in determining compliance with the MCL for total
12207 coliforms in Section 611.325.
12208

12209 BOARD NOTE: ~~Derived from 40 CFR 141.21(b) (2002).~~

12210 (Source: Repealed at 41 Ill. Reg. _____, effective _____)

12211
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12213 **Section 611.523 Invalidation of Total Coliform Samples (Repealed)**
12214

12215 A total coliform-positive sample invalidated under this Section does not count towards meeting
12216 the minimum monitoring requirements.
12217

12218 a) The Agency must invalidate a total coliform-positive sample only if the
12219 conditions of subsection (a)(1), (a)(2), or (a)(3) of this Section are met.
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12221 1) The laboratory establishes that improper sample analysis caused the total
12222 coliform-positive result.

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- 2) The Agency, on the basis of the results of repeat samples collected as required by Section 611.522(a) through (d) determines that the total coliform positive sample resulted from a domestic or other non-distribution system plumbing problem. The Agency cannot invalidate a sample on the basis of repeat sample results unless all repeat samples collected at the same tap as the original total coliform positive sample are also total coliform positive, and all repeat samples collected within five service connections of the original tap are total coliform negative (e.g., Agency cannot invalidate a total coliform positive sample on the basis of repeat samples if all the repeat samples are total coliform negative, or if the supplier has only one service connection).
 - 3) The Agency determines that there are substantial grounds to believe that a total coliform positive result is due to a circumstance or condition that does not reflect water quality in the distribution system. In this case, the supplier must still collect all repeat samples required under Section 611.522(a) through (d) and use them to determine compliance with the MCL for total coliforms in Section 611.325. To invalidate a total coliform positive sample under this subsection, the decision with the rationale for the decision must be documented in writing. The Agency must make this document available to USEPA and the public. The written documentation must state the specific cause of the total coliform positive sample, and what action the supplier has taken, or will take, to correct this problem. The Agency must not invalidate a total coliform positive sample solely on the grounds that all repeat samples are total coliform negative.
 - b) A laboratory must invalidate a total coliform sample (unless total coliforms are detected) if the sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined (e.g., the Multiple-Tube Fermentation Technique), produces a turbid culture in the absence of an acid reaction in the P-A Coliform Test, or exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter (e.g., Membrane Filter Technique). If a laboratory invalidates a sample because of such interference, the supplier must collect another sample from the same location as the original sample within 24 hours of being notified of the interference problem, and have it analyzed for the presence of total coliforms. The supplier must continue to re-sample within 24 hours and have the samples analyzed until it obtains a valid result. The Agency must waive the 24-hour time limit on a case-by-case basis, if it is not possible to collect the sample within that time.

BOARD NOTE: Derived from 40 CFR 141.21(e) (2002).

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(Source: Repealed at 41 Ill. Reg. _____, effective _____)

Section 611.524 Sanitary Surveys (Repealed)

- a) Requirement to conduct a sanitary survey.
 - 1) Suppliers that do not collect five or more routine samples per month must undergo a sanitary survey at least once every five years, except that non-CWS suppliers using only disinfected groundwater, from a source that is not under the direct influence of surface water, must undergo a sanitary survey at least once every ten years. The Agency or, for a non-CWS, Public Health must review the results of each sanitary survey to determine whether the existing monitoring frequency is adequate and what additional measures, if any, the supplier needs to undertake to improve drinking water quality.
 - 2) In conducting a sanitary survey of a PWS using groundwater, information on sources of contamination within the delineated wellhead protection area that was collected in the course of developing and implementing the wellhead protection program should be considered instead of collecting new information, if the information was collected since the last time the PWS was subject to a sanitary survey.
- b) Sanitary surveys must be performed by the Agency. The PWS is responsible for ensuring that the survey takes place.
- e) A sanitary survey conducted by the Agency for the purposes of Subpart S of this Part may be used to meet the sanitary survey requirements of this Section.

BOARD NOTE: Derived from 40 CFR 141.21(d) (2006), as amended at 71 Fed. Reg. 65574 (Nov. 8, 2006).

(Source: Repealed at 41 Ill. Reg. _____, effective _____)

Section 611.525 Fecal Coliform and E. Coli Testing (Repealed)

- a) If any routine or repeat sample is total coliform positive, the supplier must analyze that total coliform positive culture medium to determine if fecal coliforms are present, except that the supplier may test for E. coli in lieu of fecal coliforms. If fecal coliforms or E. coli are present, the supplier shall notify the Agency by the end of the day when the supplier is notified of the test result, unless the supplier is notified of the result after the Agency office is closed, in which case

12309 the supplier must notify the Agency before the end of the next business day. The
12310 supplier need not notify the Agency if the original sample was analyzed in an
12311 Agency laboratory.
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- 12313 b) The Agency may allow a supplier, on a case-by-case basis, to forgo fecal coliform
12314 or E. coli testing on a total coliform positive sample if that supplier assumes that
12315 the total coliform positive sample is fecal coliform positive or E. coli positive.
12316 Accordingly, the supplier must notify the Agency as specified in subsection (a) of
12317 this Section and the provisions of Section 611.325(b) apply.
12318

12319 BOARD NOTE: ~~Derived from 40 CFR 141.21(e) (2002).~~
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12321 (Source: Repealed at 41 Ill. Reg. _____, effective _____)
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12323 **Section 611.526 Analytical Methodology (Repealed)**
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- 12325 a) The standard sample volume required for total coliform analysis, regardless of
12326 analytical method used, is 100 mL.
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- 12328 b) Suppliers need only determine the presence or absence of total coliforms; a
12329 determination of total coliform density is not required.
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- 12331 e) Suppliers must conduct total coliform analyses in accordance with one of the
12332 following analytical methods, incorporated by reference in Section 611.102, or in
12333 accordance with an alternative method approved by the Agency pursuant to
12334 Section 611.480 (the time from sample collection to initiation of analysis may not
12335 exceed 30 hours, and the supplier is encouraged but not required to hold samples
12336 below 10° C during transit):
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- 12338 1) Total Coliform Fermentation Technique, as set forth in Standard Methods,
12339 18th, 19th, 20th, 21st, or 22nd ed., Methods 9221 A and B, as follows:
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- 12341 A) Lactose broth, as commercially available, may be used in lieu of
12342 lauryl tryptose broth if the supplier conducts at least 25 parallel
12343 tests between this medium and lauryl tryptose broth using the
12344 water normally tested and this comparison demonstrates that the
12345 false-positive rate and false-negative rate for total coliforms, using
12346 lactose broth, is less than 10 percent;
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- 12348 B) If inverted tubes are used to detect gas production, the media
12349 should cover these tubes at least one-half to two-thirds after the
12350 sample is added; and
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- 12352 ~~C) No requirement exists to run the completed phase on 10 percent of~~
12353 ~~all total coliform positive confirmed tubes.~~
- 12354
- 12355 2) ~~Total Coliform Membrane Filter Technique, as set forth in Standard~~
12356 ~~Methods, 18th, 19th, 20th, 21st, or 22nd ed., Methods 9222 A, B, and C.~~
- 12357
- 12358 3) ~~Presence Absence (P-A) Coliform Test, as set forth in: Standard Methods,~~
12359 ~~18th, 19th, 20th, 21st, or 22nd ed., Method 9221 D, as follows:~~
- 12360
- 12361 A) ~~No requirement exists to run the completed phase on 10 percent of~~
12362 ~~all total coliform positive confirmed tubes; and~~
- 12363
- 12364 B) ~~Six times formulation strength may be used if the medium is filter-~~
12365 ~~sterilized rather than autoclaved.~~
- 12366
- 12367 4) ~~ONPG-MUG test: Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed.,~~
12368 ~~Method 9223. (The ONPG-MUG test is also known as the Colilert® Test.)~~
- 12369
- 12370 5) ~~Colisure™ Test (Colilert® Test). (The Colisure™ Test may be read after~~
12371 ~~an incubation time of 24 hours.)~~
- 12372
- 12373 ~~BOARD NOTE: USEPA included the P-A Coliform and Colisure™ Tests for~~
12374 ~~testing finished water under the coliform rule, but did not include them for~~
12375 ~~the purposes of the surface water treatment rule, under Section 611.531,~~
12376 ~~for which quantitation of total coliforms is necessary. For these reasons,~~
12377 ~~USEPA included Standard Methods, Method 9221 C for the surface water~~
12378 ~~treatment rule, but did not include it for the purposes of the total coliform~~
12379 ~~rule, under this Section.~~
- 12380
- 12381 6) ~~E*Colite® Test (Charm Sciences, Inc.).~~
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- 12383 7) ~~m-ColiBlue24® Test (Hatch Company).~~
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- 12385 8) ~~Readycult® 2000.~~
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- 12387 9) ~~Chromocult® Method.~~
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- 12389 10) ~~Colitag® Test.~~
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- 12391 11) ~~Modified Colitag™ Method.~~
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- 12393 12) ~~Tecta EC/TC P-A Test.~~
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BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 9221 A, B, and D; 9222 A, B, and C; and 9223 as approved alternative methods in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Modified Colitag™ Method as an approved alternative method in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods, 22nd ed., Methods 9221 A and B and 9223 B as approved alternative methods for total coliforms in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Methods 9221 A and B-06 and 9223 B-04 as approved alternative methods for total coliforms in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Methods 9221 A and B and 9223 B are the same version as Standard Methods Online, Methods 9221 A and B-06 and 9223 B-04, the Board has not listed the Standard Methods Online versions separately. USEPA added Teeta EC/TC P-A Test as an approved alternative method for total coliforms in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081).

- d) This subsection corresponds with 40 CFR 141.21(f)(4), which USEPA has marked "reserved." This statement maintains structural consistency with the federal regulations.
- e) Suppliers must conduct fecal coliform analysis in accordance with the following procedure:
 - 1) When the MTF Technique or P-A Coliform Test is used to test for total coliforms, shake the lactose positive presumptive tube or P-A vigorously and transfer the growth with a sterile 3-mm loop or sterile applicator stick into brilliant green lactose bile broth and EC medium, defined below, to determine the presence of total and fecal coliforms, respectively.
 - 2) For approved methods that use a membrane filter, transfer the total coliform positive culture by one of the following methods: remove the membrane containing the total coliform colonies from the substrate with sterile forceps and carefully curl and insert the membrane into a tube of EC medium; (the laboratory may first remove a small portion of selected colonies for verification); swab the entire membrane filter surface with a sterile cotton swab and transfer the inoculum to EC medium (do not leave the cotton swab in the EC medium); or inoculate individual total coliform-positive colonies into EC medium. Gently shake the inoculated tubes of EC medium to insure adequate mixing and incubate in a waterbath at 44.5 ±0.2° C for 24 ±2 hours. Gas production of any amount in the inner fermentation tube of the EC medium indicates a positive fecal coliform

- 12438 test.
- 12439
- 12440 3) EC medium is described in Standard Methods, 18th ed., 19th ed., 20th, or
- 12441 22nd ed., Method 9221E.
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- 12443 4) Suppliers need only determine the presence or absence of fecal coliforms;
- 12444 a determination of fecal coliform density is not required.
- 12445

12446 BOARD NOTE: USEPA added Standard Methods, 22nd ed., Method 9221 E as

12447 an approved alternative method for fecal coliforms in appendix A to subpart C of

12448 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard

12449 Methods Online, Method 9221 E-06 as an approved alternative method for fecal

12450 coliforms in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed.

12451 Reg. 35081). Because Standard Methods, 22nd ed., Method 9221 E is the same

12452 version as Standard Methods Online, Method 9221 E-06, the Board has not listed

12453 the Standard Methods Online version separately.

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- 12455 f) Suppliers must conduct analysis of E. coli in accordance with one of the
- 12456 following analytical methods, incorporated by reference in Section
- 12457 611.102:
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- 12459 1) EC medium supplemented with 50 µg/l of MUG (final
- 12460 concentration). EC medium is as described in subsection (e) of
- 12461 this Section. MUG may be added to EC medium before
- 12462 autoclaving. EC medium supplemented with 50 µg/l MUG is
- 12463 commercially available. At least 10 ml of EC medium
- 12464 supplemented with MUG must be used. The inner inverted
- 12465 fermentation tube may be omitted. The procedure for transferring
- 12466 a total coliform positive culture to EC medium supplemented with
- 12467 MUG is as in subsection (e) of this Section for transferring a total
- 12468 coliform positive culture to EC medium. Observe fluorescence
- 12469 with an ultraviolet light (366 nm) in the dark after incubating tube
- 12470 at 44.5 ±2° C for 24 ±2 hours; or
- 12471
- 12472 2) Nutrient agar supplemented with 100 µg/l MUG (final
- 12473 concentration), as described in Standard Methods, 19th, 20th, or
- 12474 22nd ed., Method 9222 G. This test is used to determine if a total
- 12475 coliform positive sample, as determined by the MF technique,
- 12476 contains E. coli. Alternatively, Standard Methods, 18th ed.,
- 12477 Method 9221 B may be used if the membrane filter containing a
- 12478 total coliform positive colony or colonies is transferred to nutrient
- 12479 agar, as described in Method 9221 B (paragraph 3), supplemented
- 12480 with 100 µg/l MUG. If Method 9221 B is used, incubate the agar

12481 plate at 35° Celsius for four hours, then observe the colony or
 12482 colonies under ultraviolet light (366-nm) in the dark for
 12483 fluorescence. If fluorescence is visible, E. coli are present.
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3) Minimal Medium ONPG-MUG (MMO-MUG) Test, as set forth in
 Appendix D of this Part. (The Colilert® Test (Colisure™ Test) is
 a MMO-MUG test.) If the MMO-MUG test is total coliform
 positive after a 24-hour incubation, test the medium for
 fluorescence with a 366-nm ultraviolet light (preferably with a six-
 watt lamp) in the dark. If fluorescence is observed, the sample is
 E. coli positive. If fluorescence is questionable (cannot be
 definitively read) after 24 hours incubation, incubate the culture for
 an additional four hours (but not to exceed 28 hours total), and
 again test the medium for fluorescence. The MMO-MUG test with
 hepes buffer is the only approved formulation for the detection of
 E. coli.

4) The Colisure™ Test (Colilert® Test).

5) The membrane filter method with MI agar.

6) The E*Colite® Test.

7) The m-ColiBlue24® Test.

8) ReadyCult® 2000.

9) Chromocult® Method.

10) Colitag® Test.

11) ONPG-MUG Test: Standard Methods, 20th, 21st, or 22nd
 ed., Method 9223-B.

12) Modified Colitag™ Method.

13) Tecta EC/TC P-A Test.

BOARD NOTE: USEPA added Standard Methods, 20th or 21st ed., Method 9223
 B and Standard Methods Online, Method 9223-B-97 as approved alternative
 methods for E. coli in appendix A to subpart C of 40 CFR 141 on November 10,
 2009 (at 74 Fed. Reg. 57908). Because Standard Methods, 21st ed., Method 9223
 B is the same version as Standard Methods Online, Method 9223-B-97, the Board

has not listed the Standard Methods Online version separately. USEPA added Standard Methods, 22nd ed., Method 9223 B as an approved alternative method for E. coli in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Method 9223 B-04 as an approved alternative method for E. coli in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 9223 B is the same version as Standard Methods Online, Method 9223 B-04, the Board has not listed the Standard Methods Online versions separately. USEPA added Teeta EC/TC P-A Test as an approved alternative method for total coliforms in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081).

g) As an option to the method set forth in subsection (f)(3) of this Section, a supplier with a total coliform positive, MUG negative MMO-MUG test may further analyze the culture for the presence of E. coli by transferring a 0.1 ml, 28-hour MMO-MUG culture to EC medium + MUG with a pipet. The formulation and incubation conditions of the EC medium + MUG, and observation of the results, are described in subsection (f)(1) of this Section.

h) This subsection corresponds with 40 CFR 141.21(f)(8), a central listing of all documents incorporated by reference into the federal microbiological analytical methods. The corresponding Illinois incorporations by reference are located at Section 611.102. This statement maintains structural parity with USEPA regulations.

BOARD NOTE: Derived from 40 CFR 141.21(f) and appendix A to 40 CFR 141 (2014).

(Source: Repealed at 41 Ill. Reg. _____, effective _____)

Section 611.527 Response to Violation (Repealed)

a) A supplier that has exceeded the MCL for total coliforms in Section 611.325 must report the violation to the Agency no later than the end of the next business day after it learns of the violation, and notify the public in accordance with Subpart V.

b) A supplier that has failed to comply with a coliform monitoring requirement, including the sanitary survey requirement, must report the monitoring violation to the Agency within ten days after the supplier discovers the violation, and notify the public in accordance with Subpart V of this Part.

BOARD NOTE: Derived from 40 CFR 141.21(g) (2002).

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(Source: Repealed at 41 Ill. Reg. _____, effective _____)

Section 611.528 Transition from Subpart L to Subpart AA Requirements (Repealed)

~~The provisions of Sections 611.521 and 611.524 apply until March 31, 2016. The provisions of Sections 611.522, 611.523, 611.525, 611.526 and 611.527 apply until all required repeat monitoring under Section 611.522 and fecal coliform or E. coli testing under Section 611.525 that was initiated by a total coliform positive sample taken before April 1, 2016 is completed, as well as analytical method, reporting, recordkeeping, public notification, and consumer confidence report requirements associated with that monitoring and testing. Beginning April 1, 2016, the provisions of Subpart AA of this Part apply, with suppliers required to begin regular monitoring at the same frequency as the system specific frequency required on March 31, 2016.~~

~~BOARD NOTE: Derived from 40 CFR 141.21(h) (2013).~~

(Source: Repealed at 41 Ill. Reg. _____, effective _____)

Section 611.531 Analytical Requirements

The analytical methods specified in this Section, or alternative methods approved by the Agency pursuant to Section 611.480, must be used to demonstrate compliance with the requirements of only 611.Subpart B; they do not apply to analyses performed for the purposes of Sections 611.521 through 611.527 of this Subpart L. Measurements for pH, temperature, turbidity, and RDCs must be conducted under the supervision of a certified operator. Measurements for total coliforms, fecal coliforms and HPC must be conducted by a certified laboratory in one of the categories listed in Section 611.490(a). The following procedures must be performed by the following methods, incorporated by reference in Section 611.102:

- a) A supplier must conduct analyses as follows:
 - 1) The supplier must conduct analyses for pH and temperatures in accordance with one of the methods listed at Section 611.611; and
 - 2) The supplier must conduct analyses for total coliforms, fecal coliforms, heterotrophic bacteria, and turbidity in accordance with one of the following methods, and by using analytical test procedures contained in USEPA Technical Notes, incorporated by reference in Section 611.102, as follows:
 - A) Total Coliforms.

BOARD NOTE: The time from sample collection to initiation of

analysis for source (raw) water samples required by ~~Section~~ Sections 611.521 and 611.532 and Subpart B of this Part only must not exceed eight hours. The supplier is encouraged but not required to hold samples below 10° C during transit.

- i) Total coliform fermentation technique: Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 9221 A, B, and C.

BOARD NOTE: Lactose broth, as commercially available, may be used in lieu of lauryl tryptose broth if the supplier conducts at least 25 parallel tests between this medium and lauryl tryptose broth using the water normally tested and this comparison demonstrates that the false-positive rate and false-negative rate for total coliforms, using lactose broth, is less than 10 percent. If inverted tubes are used to detect gas production, the media should cover these tubes at least one-half to two-thirds after the sample is added. No requirement exists to run the completed phase on 10 percent of all total coliform-positive confirmed tubes.

- ii) Total coliform membrane filter technique: Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 9222 A, B, and C.

- iii) ONPG-MUG test (also known as the Colilert® Test): Standard Methods, 18th, 19th, 20th, ~~or 21st, or 22nd ed.~~, Method 9223 ~~or Standard Methods, 21st or 22nd ed., Method 9223B.~~

~~BOARD NOTE: USEPA included the P-A Coliform and Colisure™ Tests for testing finished water under the coliform rule, under Section 611.526, but did not include them for the purposes of the surface water treatment rule, under this Section, for which quantitation of total coliforms is necessary. For these reasons, USEPA included Standard Methods, Method 9221 C for the surface water treatment rule, but did not include it for the purposes of the total coliform rule, under Section 611.526.~~

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 9221 A, B, and C; 9222 A, B, and C; and 9223 as approved alternative methods for total coliform in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).

12652 USEPA added Standard Methods, 22nd ed., Methods 9221 A, B,
 12653 and C and 9223 B as approved alternative methods for total
 12654 coliform in appendix A to subpart C of 40 CFR 141 on June 21,
 12655 2013 (at 78 Fed. Reg. 37463). USEPA added Standard Methods
 12656 Online, Methods 9221 A, B, and C-06 and 9223 B-04 as approved
 12657 alternative methods for total coliform in appendix A to subpart C
 12658 of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). USEPA
 12659 listed Standard Methods Online, Method 9223 B-97 in note 1 to
 12660 the table in 40 CFR 141.25(a). This is identical to Standard
 12661 Methods 21st ed., Method 9223 B. The Board lists both Standard
 12662 Methods, Methods 9223 and 9223 B. Because Standard Methods,
 12663 22nd ed., Methods 9221 A, B, and C and 9223 B are the same
 12664 versions as Standard Methods Online, Methods 9221 A, B, and C-
 12665 06 and 9223 B-04, the Board has not listed the Standard Methods
 12666 Online versions separately.

B) Fecal Coliforms.

12670 BOARD NOTE: The time from sample collection to initiation of
 12671 analysis for source (raw) water samples required by
 12672 Section Sections 611.521 and 611.532 and Subpart B of this Part
 12673 only must not exceed eight hours. The supplier is encouraged but
 12674 not required to hold samples below 10° C during transit.

12676 i) Fecal coliform procedure: Standard Methods, 18th, 19th,
 12677 20th, 21st, or 22nd ed., Method 9221 E.

12679 BOARD NOTE: A-1 broth may be held up to seven days in
 12680 a tightly closed screwcap tube at 4° C (39° F).

12682 ii) Fecal Coliform Membrane Filter Procedure: Standard
 12683 Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 9222 D.

12684 BOARD NOTE: USEPA added Standard Methods, 21st ed.,
 12685 Methods 9221 E and 9222 D as approved alternative methods for
 12686 fecal coliforms in appendix A to subpart C of 40 CFR 141 on June
 12687 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard
 12688 Methods, 22nd ed., Methods 9221 E and 9222 D as approved
 12689 alternative methods for fecal coliforms in appendix A to subpart C
 12690 of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA
 12691 added Standard Methods Online, Methods 9221 E-06 and 9222
 12692 D-06 as approved alternative methods for fecal coliforms in
 12693 appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79
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Fed. Reg. 35081). Because Standard Methods, 22nd ed., Methods 9221 E and 9222 D are the same versions as Standard Methods Online, Methods 9221 E-06 and 9222 D-06, the Board has not listed the Standard Methods Online versions separately.

C) Heterotrophic bacteria.

- i) Pour plate method: Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 9215 B.

BOARD NOTE: The time from sample collection to initiation of analysis must not exceed eight hours. The supplier is encouraged but not required to hold samples below 10° C during transit.

- ii) SimPlate method.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 9215 B as an approved alternative method for heterotrophic bacteria in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods, 22nd ed., Method 9215 B as an approved alternative method for heterotrophic bacteria in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA added Standard Methods Online, Method 9215 B-04 as an approved alternative method for heterotrophic bacteria in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 9215 B is the same version as Standard Methods Online, Method 9215 B-04, the Board has not listed the Standard Methods Online versions separately.

D) Turbidity.

BOARD NOTE: Styrene divinyl benzene beads (e.g., AMCO-AEPA-1 or equivalent) and stabilized formazin (e.g., Hach StablCal™ or equivalent) are acceptable substitutes for formazin.

- i) Nephelometric method: Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 2130 B.

- ii) Nephelometric method: USEPA Environmental Inorganic Methods, Method 180.1 (rev.2.0).

- 12738 iii) GLI Method 2.
- 12739
- 12740 iv) Hach FilterTrak Method 10133.
- 12741
- 12742 v) Laser nephelometry (on-line): Mitchell Method M5271
- 12743 and Mitchell Method M5331 (rev. 1.2).
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- 12745 vi) LED nephelometry (on-line): Mitchell Method M5331
- 12746 (rev. 1.1) and Mitchell Method M5331 (rev. 1.2).
- 12747
- 12748 vii) LED nephelometry (on-line): AMI Turbiwell Method.
- 12749
- 12750 viii) LED nephelometry (portable): Orion Method AQ4500.
- 12751
- 12752 ix) 360° Nephelometry: Hach Method 10258.
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BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 9130 B as an approved alternative method for turbidity in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Mitchell Method M5271 and Orion Method AQ4500 as approved alternative methods for turbidity in appendix A to subpart C of 40 CFR 141 on August 3, 2009 (at 74 Fed. Reg. 38348). USEPA added AMI Turbiwell Method as an approved alternative method for turbidity in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods, 22nd ed., Method 2130 B as an approved alternative method for turbidity in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA added Hach Method 10258 and Mitchell Method M5331, rev. 1.2 as approved alternative methods on July 19, 2016 (at 81 Fed. Reg. 46839).

E) ~~Temperature: Standard Methods, 18th, 19th, 20th, or 21st ed., Method 2550.~~

b) A supplier must measure residual disinfectant concentrations with one of the following analytical methods:

1) Free chlorine.

A) Amperometric Titration.

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- i) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl D.
 - ii) ASTM Method D1253-03, ~~or~~ D1253-08, or D1253-14.
- B) DPD Ferrous Titrimetric: Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl F.
- C) DPD Colimetric:
- i) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl G; or
 - ii) Hach Method 10260.
- D) Syringaldazine (FACTS): Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl H.
- E) On-line chlorine analyzer: USEPA OGWDW Methods, Method 334.0.
- F) Amperometric sensor: Palintest ChloroSense.
- G) Indophenol colorimetric: Hach Method 10241.
- BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 4500-Cl D, F, G, and H; Method 4500-ClO₂ C and E as approved alternative methods for free chlorine in appendix A to subpart C of 40 CFR 141, added on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D1253-08, USEPA OGWDW Methods, Method 334.0, and Palintest ChloroSense as approved alternative methods for free chlorine in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods, 22nd ed., Methods 4500-Cl B, F, G, and H as approved alternative methods for free chlorine in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA added Hach Method 10260 as an approved alternative method for total chlorine in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). USEPA added ASTM Method D1253-14 and Hach Method 10241 as approved alternative methods on July 19, 2016 (at 81 Fed. Reg. 46839).
- 2) Total chlorine.

- 12823 A) Amperometric Titration:.
- 12824
- 12825 i) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method
- 12826 4500-CI D.
- 12827
- 12828 ii) ASTM Method D1253-03, ~~or~~ D1253-08, or D1253-14.
- 12829
- 12830 B) Amperometric Titration (low level measurement): Standard
- 12831 Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-CI E.
- 12832
- 12833 C) DPD Ferrous Titrimetric: Standard Methods, 18th, 19th, 20th, 21st,
- 12834 or 22nd ed., Method 4500-CI F.
- 12835
- 12836 D) DPD Colimetric:
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- 12838 i) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed.,
- 12839 Method 4500-CI G; or
- 12840
- 12841 ii) Hach Method 10260.
- 12842
- 12843 E) Iodometric Electrode: Standard Methods, 18th, 19th, 20th, 21st, or
- 12844 22nd ed., Method 4500-CI I.
- 12845
- 12846 F) On-line chlorine analyzer: USEPA OGWDW Methods, Method
- 12847 334.0.
- 12848
- 12849 G) Amperometric sensor: Palintest ChloroSense.
- 12850

12851 BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods
 12852 4500-CI D, E, F, G, and I as approved alternative methods for total
 12853 chlorine in appendix A to subpart C of 40 CFR 141, added on June 3,
 12854 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D1253-08,
 12855 USEPA OGWDW Methods, Method 334.0, and Palintest ChloroSense as
 12856 approved alternative methods for total chlorine in appendix A to subpart C
 12857 of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA
 12858 added Standard Methods, 22nd ed., Methods 4500-CI D, E, F, G, and I as
 12859 approved alternative methods for total chlorine in appendix A to subpart C
 12860 of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA added
 12861 Hach Method 10260 as an approved alternative method for total chlorine
 12862 in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed.
 12863 Reg. 35081). USEPA added ASTM Method D1253-14 as an approved
 12864 alternative method on July 19, 2016 (at 81 Fed. Reg. 46839).
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- 12866 3) Chlorine dioxide.
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 12868 A) Amperometric Titration:
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 12870 i) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method
 12871 4500-ClO₂ C or E; or
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 12873 ii) ChlordioX Plus Test.
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 12875 B) DPD Method: Standard Methods, 18th, 19th, or 20th ed., Method
 12876 4500-ClO₂ D.
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 12878 C) Spectrophotometric: USEPA OGWDW Methods, Method 327.0
 12879 (rev. 1.1).
 12880

12881 BOARD NOTE: USEPA added Standard Methods, 21st ed., Method
 12882 4500-ClO₂ C, D, and E and Method 4500-O₃ B as approved alternative
 12883 methods for chlorine dioxide in appendix A to subpart C of 40 CFR 141,
 12884 added on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard
 12885 Methods, 22nd ed., Methods 4500-ClO₂ C and E as approved alternative
 12886 methods for chlorine dioxide in appendix A to subpart C of 40 CFR 141
 12887 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Haach Method
 12888 10260 as an approved alternative method for free chlorine and total
 12889 chlorine and ChlordioX Plus Test as an approved alternative method for
 12890 chlorine dioxide in appendix A to subpart C of 40 CFR 141 on June 19,
 12891 2014 (at 79 Fed. Reg. 35081).
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- 12893 4) Ozone: Indigo Method: Standard Methods, 18th, 19th, 20th, 21st, or 22nd
 12894 ed., Method 4500-O₃ B.
 12895

12896 BOARD NOTE: USEPA added Standard Methods, 21st ed., Method
 12897 4500-O₃ B as an approved alternative method for ozone in appendix A to
 12898 subpart C of 40 CFR 141, added on June 3, 2008 (at 73 Fed. Reg. 31616).
 12899 USEPA added Standard Methods, 22nd ed., Method 4500-O₃ B as an
 12900 approved alternative method for ozone in appendix A to subpart C of 40
 12901 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558).
 12902

- 12903 5) Alternative test methods: The Agency may grant a SEP pursuant to
 12904 Section 611.110 that allows a supplier to use alternative chlorine test
 12905 methods as follows:
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- 12907 A) DPD colorimetric test kits: Residual disinfectant concentrations
 12908 for free chlorine and combined chlorine may also be measured by
 12909 using DPD colorimetric test kits.

- B) Continuous monitoring for free and total chlorine: Free and total chlorine residuals may be measured continuously by adapting a specified chlorine residual method for use with a continuous monitoring instrument, provided the chemistry, accuracy, and precision remain the same. Instruments used for continuous monitoring must be calibrated with a grab sample measurement at least every five days or as otherwise provided by the Agency.

BOARD NOTE: Suppliers may use a five-tube test or a 10-tube test.

BOARD NOTE: Derived from 40 CFR 141.74(a) and appendix A to subpart C of 40 CFR 141 (2016)(2014).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.532 Unfiltered PWSs

A supplier that uses a surface water source and does not provide filtration treatment must monitor, unless the Agency has determined, pursuant to Section 611.211, that filtration is required. If the Agency determines that filtration is required, it must specify alternative monitoring requirements, as appropriate, until filtration is in place. A supplier that uses a groundwater source under the direct influence of surface water and which does not provide filtration treatment must monitor within six months after the Agency has determined, pursuant to Section 611.212, that the groundwater source is under the direct influence of surface water unless the Agency has determined that filtration is required, in which case the Agency must specify alternative monitoring requirements, as appropriate, until filtration is in place.

- a) Fecal coliform or total coliform density measurements as required by Section 611.231(a) must be performed on representative source water samples immediately prior to the first or only point of disinfectant application. The supplier must sample for fecal or total coliforms at the minimum frequency specified in Table B of this Part each week the supplier serves water to the public. Also, one fecal or total coliform density measurement must be made every day the supplier serves water to the public and the turbidity of the source water exceeds 1 NTU (these samples count towards the weekly coliform sampling requirement) unless the Agency determines that the supplier, for logistical reasons outside the supplier's control cannot have the sample analyzed within 30 hours ~~after~~ collection.
- b) Turbidity measurements as required by Section 611.231(b) must be performed on representative grab samples of source water immediately prior to the first or only

12953 point of disinfectant application every four hours (or more frequently) that the
 12954 supplier serves water to the public. A supplier may substitute continuous
 12955 turbidity monitoring for grab sample monitoring if it validates the continuous
 12956 measurement for accuracy on a regular basis using a protocol approved by a SEP
 12957 issued pursuant to Section 611.110.
 12958

12959 c) The total inactivation ratio for each day that the supplier is in operation must be
 12960 determined based on the $CT_{99.9}$ values in Appendix B of this Part, as appropriate.
 12961 The parameters necessary to determine the total inactivation ratio must be
 12962 monitored as follows:

- 12963 1) The temperature of the disinfected water must be measured at least once
 12964 per day at each RDC sampling point.
- 12965 2) If the supplier uses chlorine, the pH of the disinfected water must be
 12966 measured at least once per day at each chlorine RDC sampling point.
- 12967 3) The disinfectant contact times ("T") must be determined for each day
 12968 during peak hourly flow.
- 12969 4) The RDCs ("C") of the water before or at the first customer must be
 12970 measured each day during peak hourly flow.
- 12971 5) If a supplier uses a disinfectant other than chlorine, the supplier may
 12972 monitor by other methods approved pursuant to Section 611.241(a)(1) and
 12973 (a)(2).
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12980 d) The total inactivation ratio must be calculated as follows:

- 12981 1) If the supplier uses only one point of disinfectant application, the supplier
 12982 may determine the total inactivation ratio based on either of the following
 12983 two methods:
 12984
 12985 A) One inactivation ratio ($A_i = CT_{calc} / CT_{99.9}$) is determined before or at
 12986 the first customer during peak hourly flow and, if the A_i is greater
 12987 than 1.0, the 99.9 percent Giardia lamblia inactivation requirement
 12988 has been achieved; or
 12989
 12990 B) Successive A_i values, representing sequential inactivation ratios,
 12991 are determined between the point of disinfectant application and a
 12992 point before or at the first customer during peak hourly flow.
 12993 Under this alternative, the following method must be used to
 12994 calculate the total inactivation ratio:
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i) Determine the following, for each sequence:

$$A_i = CT_{\text{calc}}/CT_{99.9}$$

ii) Add the A_i values together, as follows:

$$B = \sum(A_i)$$

iii) If B is greater than 1.0, the 99.9 percent *Giardia lamblia* inactivation requirement has been achieved.

2) If the supplier uses more than one point of disinfectant application before or at the first customer, the supplier must determine the CT value of each disinfection sequence immediately prior to the next point of disinfectant application during peak hourly flow. The A_i value of each sequence and B must be calculated using the method in subsection (d)(1)(B) of this Section to determine if the supplier is in compliance with Section 611.241.

3) Although not required, the total percent inactivation (PI) for a supplier with one or more points of RDC monitoring may be calculated as follows:

$$PI = 100 - \frac{100}{10^{3B}}$$

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e) The RDC of the water entering the distribution system must be monitored continuously, and the lowest value must be recorded each day, except that if there is a failure in the continuous monitoring equipment, grab sampling every four hours may be conducted in lieu of continuous monitoring, but for no more than five working days following the failure of the equipment, and suppliers serving 3,300 or fewer persons may take grab samples in lieu of providing continuous monitoring on an ongoing basis at the frequencies prescribed in Table C of this Part. If at any time the RDC falls below 0.2 mg/l in a system using grab sampling in lieu of continuous monitoring, the supplier must take a grab sample every four hours until the RDC is equal to or greater than 0.2 mg/l.

f) Points of measurement.

1) ~~The~~ Until March 31, 2016, RDC must be measured at least at the same points in the distribution system and at the same time as total coliforms are sampled, as specified in Subpart L of this Section. Beginning April 1, 2016, the RDC must be measured at least at the same points in the distribution system and at the same time as total coliforms are sampled, as

13037 specified in Sections 611.1054 through 611.1058. The Agency must
 13038 allow a supplier that uses both a surface water source or a groundwater
 13039 source under direct influence of surface water, and a groundwater source
 13040 to take disinfectant residual samples at points other than the total coliform
 13041 sampling points if the Agency determines, by a SEP issued pursuant to
 13042 Section 611.110, that such points are more representative of treated
 13043 (disinfected) water quality within the distribution system. HPC may be
 13044 measured in lieu of RDC.

- 13045
- 13046 2) If the Agency determines, pursuant to Section 611.213, that a supplier has
 13047 no means for having a sample analyzed for HPC, measured as specified in
 13048 subsection (a) of this Section, the requirements of subsection (f)(1) of this
 13049 Section do not apply to that supplier.

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13051 BOARD NOTE: Derived from 40 CFR 141.74(b) (2016)(2013).

13052 (Source: Amended at 41 Ill. Reg. _____, effective _____)

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13055 **Section 611.533 Filtered PWSs**

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13057 A supplier that uses a surface water source or a groundwater source under the influence of
 13058 surface water and provides filtration treatment must monitor in accordance with this Section.

- 13059
- 13060 a) Turbidity measurements as required by Section 611.250 must be performed on
 13061 representative samples of the PWS's filtered water every four hours (or more
 13062 frequently) that the supplier serves water to the public. A supplier may substitute
 13063 continuous turbidity monitoring for grab sample monitoring if it validates the
 13064 continuous measurement for accuracy on a regular basis using a protocol
 13065 approved by a SEP issued pursuant to Section 611.110. For any suppliers using
 13066 slow sand filtration or filtration treatment other than conventional treatment,
 13067 direct filtration, or diatomaceous earth filtration, the Agency shall, by special
 13068 exception permit condition, reduce the sampling frequency to once per day if it
 13069 determines that less frequent monitoring is sufficient to indicate effective
 13070 filtration performance. For suppliers serving 500 or fewer persons, the Agency
 13071 shall, by a SEP issued pursuant to Section 611.110, reduce the turbidity sampling
 13072 frequency to once per day, regardless of the type of filtration treatment used, if the
 13073 Agency determines that less frequent monitoring is sufficient to indicate effective
 13074 filtration performance.
- 13075
- 13076 b) RDC entering distribution system.
- 13077
- 13078 1) Suppliers serving more than 3300 persons. The RDC of the water entering
 13079 the distribution system must be monitored continuously, and the lowest

13080 value must be recorded each day, except that, if there is a failure in the
13081 continuous monitoring equipment, grab sampling every four hours may be
13082 conducted in lieu of continuous monitoring, but for no more than five
13083 working days following the failure of the equipment.
13084

13085 2) Suppliers serving 3,300 or fewer persons may take grab samples in lieu of
13086 providing continuous monitoring on an ongoing basis at the frequencies
13087 each day prescribed in Table C. If at any time the RDC falls below 0.2
13088 mg/l in a system using grab sampling in lieu of continuous monitoring,
13089 the supplier must take a grab sample every four hours until RDC is equal
13090 to or greater than 0.2 mg/l.
13091

13092 c) Points of measurement.
13093

13094 1) ~~The~~Until March 31, 2016, the RDC must be measured at least at the same
13095 ~~points in the distribution system and at the same time as total coliforms are~~
13096 ~~sampled, as specified in Sections 611.521 through 611.527. Beginning~~
13097 ~~April 1, 2016, the RDC must be measured at least at the same points in the~~
13098 ~~distribution system and at the same time as total coliforms are sampled, as~~
13099 ~~specified in Sections 611.1054 through 611.1058. The Agency must allow~~
13100 ~~a supplier that uses both a surface water source, or a groundwater source~~
13101 ~~under direct influence of surface water, and a groundwater source to take~~
13102 ~~RDC samples at points other than the total coliform sampling points if the~~
13103 ~~Agency determines that such points are more representative of treated~~
13104 ~~(disinfected) water quality within the distribution system. HPC, measured~~
13105 ~~as specified in Section 611.531(a), may be measured in lieu of RDC.~~
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13107 2) Subsection (c)(1) of this Section does not apply if the Agency determines,
13108 pursuant to Section 611.213(c), that a system has no means for having a
13109 sample analyzed for HPC by a certified laboratory under the requisite time
13110 and temperature conditions specified by Section 611.531(a) and that the
13111 supplier is providing adequate disinfection in the distribution system.
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13113 BOARD NOTE: Derived from 40 CFR 141.74(c) (2016)(2014).
13114

13115 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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13117 SUBPART N: INORGANIC MONITORING AND ANALYTICAL REQUIREMENTS
13118

13119 **Section 611.600 Applicability**
13120

13121 The following types of suppliers must conduct monitoring to determine compliance with the old
13122 MCLs in Section 611.300 and the revised MCLs in 611.301, as appropriate, in accordance with

13123 this Subpart N:

- 13124
- 13125 a) CWS suppliers.
- 13126
- 13127 b) NTNCWS suppliers.
- 13128
- 13129 c) Transient non-CWS suppliers to determine compliance with the nitrate and nitrite
- 13130 MCLs.
- 13131
- 13132 d) Detection limits. The following are detection limits for purposes of this Subpart
- 13133 N (MCLs from Section 611.301 are set forth for information purposes only):
- 13134

Contaminant	MCL (mg/ℓ, except asbestos)	Method	Detection Limit (mg/ℓ)
Antimony	0.006	Atomic absorption – furnace technique	0.003
		Atomic absorption – furnace technique (stabilized temperature)	0.0008 ⁵
		Inductively coupled plasma- mass spectrometry	0.0004
		Atomic absorption – gaseous hydride technique	0.001
Arsenic	0.010	Atomic absorption – furnace technique	0.001
		Atomic absorption – furnace technique (stabilized temperature)	0.00005 ⁶
		Atomic absorption – gaseous hydride technique	0.001
		Inductively coupled plasma- mass spectrometry	0.0014 ⁷
Asbestos	7 MFL ¹	Transmission electron microscopy	0.01 MFL

Barium	2	Atomic absorption – furnace technique	0.002
		Atomic absorption – direct aspiration technique	0.1
		Inductively coupled plasma arc furnace	0.002
		Inductively coupled plasma	0.001
Beryllium	0.004	Atomic absorption – furnace technique	0.0002
		Atomic absorption – furnace technique (stabilized temperature)	0.00002 ⁵
		Inductively coupled plasma ²	0.0003
		Inductively coupled plasma-mass spectrometry	0.0003
Cadmium	0.005	Atomic absorption – furnace technique	0.0001
		Inductively coupled plasma	0.001
Chromium	0.1	Atomic absorption – furnace technique	0.001
		Inductively coupled plasma	0.007
		Inductively coupled plasma	0.001
Cyanide	0.2	Distillation, spectrophotometric ³	0.02
		Automated distillation, spectrophotometric ³	0.005
		Distillation, selective electrode ³	0.05

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		Distillation, amenable, spectrophotometric ⁴	0.02
		UV, distillation, spectrophotometric ⁸	0.0005
		Micro distillation, flow injection, spectrophotometric ³	0.0006
		Ligand exchange with amperometry ⁴	0.0005
Mercury	0.002	Manual cold vapor technique	0.0002
		Automated cold vapor technique	0.0002
Nickel	No MCL	Atomic absorption – furnace technique	0.001
		Atomic absorption – furnace technique (stabilized temperature)	0.0006 ⁵
		Inductively coupled plasma ²	0.005
		Inductively coupled plasma-mass spectrometry	0.0005
Nitrate (as N)	10	Manual cadmium reduction	0.01
		Automated hydrazine reduction	0.01
		Automated cadmium reduction	0.05
		Ion-selective electrode	1
		Ion chromatography	0.01
		Capillary ion electrophoresis	0.076

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Nitrite (as N)	1	Spectrophotometric	0.01
		Automated cadmium reduction	0.05
		Manual cadmium reduction	0.01
		Ion chromatography	0.004
		Capillary ion electrophoresis	0.103
Selenium	0.05	Atomic absorption – furnace technique	0.002
		Atomic absorption – gaseous hydride technique	0.002
Thallium	0.002	Atomic absorption – furnace technique	0.001
		Atomic absorption – furnace technique (stabilized temperature)	0.0007 ⁵
		Inductively coupled plasma-mass spectrometry	0.0003

Footnotes.

- ¹ "MFL" means millions of fibers per liter less than 10 µm.
- ² Using a 2x preconcentration step as noted in Method 200.7. Lower MDLs may be achieved when using a 4x preconcentration.
- ³ Screening method for total cyanides.
- ⁴ Measures "free" cyanides when distillation, digestion, or ligand exchange is omitted.
- ⁵ Lower MDLs are reported using stabilized temperature graphite furnace atomic absorption.
- ⁶ The MDL reported for USEPA Method 200.9 (atomic absorption-platform furnace (stabilized temperature)) was determined using a 2x concentration step during sample digestion. The MDL determined for samples analyzed using direct analyses (i.e., no sample digestion) will be higher. Using multiple depositions, USEPA Method 200.9 is capable of obtaining an MDL of 0.0001 mg/l.
- ⁷ Using selective ion monitoring, USEPA Method 200.8 (ICP-MS) is capable

- of obtaining an MDL of 0.0001 mg/ℓ.
- 8 Measures total cyanides when UV-digester is used, and "free" cyanides when UV-digester is bypassed.

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13136 BOARD NOTE: Subsections (a) through (c) of this Section are derived from 40 CFR 141.23
13137 preamble (2016)(2014), and subsection (d) of this Section is derived from 40 CFR 141.23
13138 (a)(4)(i) and appendix A to subpart C of 40 CFR 141 (2016)(2014). See the Board Note at
13139 Section 611.301(b) relating to the MCL for nickel.

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13141 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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13143 **Section 611.601 Monitoring Frequency**

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13145 Monitoring must be conducted as follows:

- 13146
13147 a) Required sampling.
- 13148
13149 1) Each supplier must take a minimum of one sample at each sampling point
13150 at the times required by Section 611.610 beginning in the initial
13151 compliance period.
- 13152
13153 2) Each sampling point must produce samples that are representative of the
13154 water from each source after treatment or from each treatment plant, as
13155 required by subsection (b) of this Section. The total number of sampling
13156 points must be representative of the water delivered to users throughout
13157 the PWS.
- 13158
13159 3) The supplier must take each sample at the same sampling point unless
13160 conditions make another sampling point more representative of each
13161 source or treatment plant and the Agency has granted a SEP pursuant to
13162 subsection (b)(5) of this Section.
- 13163
13164 b) Sampling points.
- 13165
13166 1) Sampling points for GWSs. Unless otherwise provided by SEP, a GWS
13167 supplier must take at least one sample from each of the following points:
13168 each entry point that is representative of each well after treatment.
- 13169
13170 2) Sampling points for an SWS or a mixed system supplier. Unless
13171 otherwise provided by SEP, an SWS or mixed system supplier must take
13172 at least one sample from each of the following points:
- 13173 A) Each entry point after the application of treatment; or
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B) A point in the distribution system that is representative of each source after treatment.

3) If a supplier draws water from more than one source, and the sources are combined before distribution, the supplier must sample at an entry point during periods of normal operating conditions when water is representative of all sources being used.

4) Additional sampling points. The Agency must, by SEP, designate additional sampling points in the distribution system or at the consumer's tap if it determines that such samples are necessary to more accurately determine consumer exposure.

5) Alternative sampling points. The Agency must, by SEP, approve alternate sampling points if the supplier demonstrates that the points are more representative than the generally required point.

c) This subsection corresponds with 40 CFR 141.23(a)(4), an optional provision relating to compositing of samples that USEPA does not require for state programs. This statement maintains structural consistency with USEPA rules.

d) The frequency of monitoring for the following contaminants must be in accordance with the following Sections:

1) Asbestos: Section 611.602;

2) Antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, and thallium: Section 611.603;

3) Nitrate: Section 611.604; and

4) Nitrite: Section 611.605.

BOARD NOTE: Derived from 40 CFR 141.23(a) and (c) ~~(2016)~~(2003).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.602 Asbestos Monitoring Frequency

The frequency of monitoring conducted to determine compliance with the MCL for asbestos in Section 611.301 is as follows:

- 13218 a) Unless the Agency has determined under subsection (c) ~~of this Section~~ that the
13219 PWS is not vulnerable, each CWS and NTNCWS supplier must monitor for
13220 asbestos during the first compliance period of each compliance cycle, ~~beginning~~
13221 ~~January 1, 1993~~.
- 13222 b) CWS suppliers may apply to the Agency, by way of an application for a SEP
13223 under Section 611.110, for a determination that the CWS is not vulnerable based
13224 on consideration of the criteria listed in subsection (c) ~~of this Section~~.
- 13225 c) The Agency must determine that the CWS is "not vulnerable" if the CWS is not
13226 vulnerable to contamination either from asbestos in its source water, from
13227 corrosion of asbestos-cement pipe, or from both, based on a consideration of the
13228 following factors:
13229
13230 1) Potential asbestos contamination of the water source; and
13231
13232 2) The use of asbestos-cement pipe for finished water distribution and the
13233 corrosive nature of the water.
- 13234 d) A SEP based on a determination that a CWS is not vulnerable to asbestos
13235 contamination expires at the end of the compliance cycle for which it was issued.
- 13236 e) A supplier of a PWS vulnerable to asbestos contamination due solely to corrosion
13237 of asbestos-cement pipe must take one sample at a tap served by asbestos-cement
13238 pipe and under conditions where asbestos contamination is most likely to occur.
- 13239 f) A supplier of a PWS vulnerable to asbestos contamination due solely to source
13240 water must monitor in accordance with Section 611.601.
- 13241 g) A supplier of a PWS vulnerable to asbestos contamination due both to its source
13242 water supply and corrosion of asbestos-cement pipe must take one sample at a tap
13243 served by asbestos-cement pipe and under conditions where asbestos
13244 contamination is most likely to occur.
- 13245 h) A supplier that exceeds the MCL, as determined in Section 611.609, must monitor
13246 quarterly beginning in the next quarter after the violation occurred.
- 13247 i) Reduction of quarterly monitoring.
- 13248 1) The Agency must issue a SEP pursuant to Section 611.110 that reduces
13249 the monitoring frequency to that specified by subsection (a) ~~of this Section~~
13250 if it determines that the sampling point is reliably and consistently below
13251 the MCL.
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- 13261
 13262 2) The request must, at a minimum, include the following information:
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 13264 A) For a GWS: two quarterly samples.
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 13266 B) For an SWS or mixed system: four quarterly samples.
 13267
 13268 3) In issuing a SEP, the Agency must specify the level of the contaminant
 13269 upon which the "reliably and consistently" determination was based. All
 13270 SEPs that allow less frequent monitoring based on an Agency "reliably
 13271 and consistently" determination must include a condition requiring the
 13272 supplier to resume quarterly monitoring pursuant to subsection (h) ~~of this~~
 13273 ~~Section~~ if it violates the MCL specified by Section 611.609.
 13274
 13275 j) This subsection (j) corresponds with 40 CFR 141.23(b)(10), which pertains to a
 13276 compliance period long since expired. This statement maintains structural
 13277 consistency with the federal regulations.
 13278

13279 BOARD NOTE: Derived from 40 CFR 141.23(b) (2016)~~(2002)~~.

13280 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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13283 **Section 611.603 Inorganic Monitoring Frequency**
 13284

13285 The frequency of monitoring conducted to determine compliance with the revised MCLs in
 13286 Section 611.301 for antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide,
 13287 fluoride, mercury, nickel, selenium, and thallium is as follows:
 13288

- 13289 a) Suppliers must take samples at each sampling point, beginning in the initial
 13290 compliance period, as follows:
 13291
 13292 1) For a GWS supplier: at least one sample during each compliance period;
 13293
 13294 2) For an SWS or a mixed system supplier: at least one sample each year.
 13295

13296 BOARD NOTE: Derived from 40 CFR 141.23(c)(1) (2016)~~(2012)~~.
 13297

- 13298 b) SEP Application.
 13299
 13300 1) The supplier may apply to the Agency for a SEP that allows reduction
 13301 from the monitoring frequencies specified in subsection (a) ~~of this Section~~
 13302 pursuant to subsections (d) through (f) ~~of this Section~~ and Section
 13303 611.110.

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- 2) The supplier may apply to the Agency for a SEP that relieves it of the requirement for monitoring cyanide pursuant to subsections (d) through (f) of this Section and Section 611.110 if it can demonstrate that its system is not vulnerable due to a lack of any industrial source of cyanide.

BOARD NOTE: ~~Derived~~Drawn from 40 CFR 141.23(c)(2) and (c)(6) (2016)(2012).

- c) SEP Procedures. The Agency must review the request pursuant to the SEP procedures of Section 611.110 based on consideration of the factors in subsection (e) of this Section.

BOARD NOTE: ~~Derived~~Drawn from 40 CFR 141.23(c)(6) (2016)(2012).

- d) Standard for SEP reduction in monitoring. The Agency must grant a SEP that allows a reduction in the monitoring frequency if the supplier demonstrates that all previous analytical results were less than the MCL, provided the supplier meets the following minimum data requirements:

- 1) For GWS suppliers: a minimum of three rounds of monitoring.
- 2) For an SWS or mixed system supplier: annual monitoring for at least three years.
- 3) ~~At least one sample must have been taken since January 1, 1990.~~
- 3) A supplier that uses a new water source is not eligible for a SEP until it completes three rounds of monitoring from the new source.

BOARD NOTE: ~~Derived~~Drawn from 40 CFR 141.23(c)(4) (2016)(2012).

- e) Standard for SEP monitoring conditions. As a condition of any SEP, the Agency must require that the supplier take a minimum of one sample during the term of the SEP. In determining the appropriate reduced monitoring frequency, the Agency must consider the following:

- 1) Reported concentrations from all previous monitoring;
- 2) The degree of variation in reported concentrations; and
- 3) Other factors that may affect contaminant concentrations, such as changes in groundwater pumping rates, changes in the CWS's configuration, the

CWS's operating procedures, or changes in stream flows or characteristics.

BOARD NOTE: ~~Derived~~Drawn from 40 CFR 141.23(c)(3) and (c)(5) (2016)(2012).

f) SEP Conditions and Revision.

- 1) A SEP will expire at the end of the compliance cycle for which it was issued.

BOARD NOTE: ~~Derived~~Drawn from 40 CFR 141.23(c)(3) (2016)(2012).

- 2) In issuing a SEP, the Agency must specify the level of the contaminant upon which the "reliably and consistently" determination was based. A SEP must provide that the Agency will review and, where appropriate, revise its determination of the appropriate monitoring frequency when the supplier submits new monitoring data or when other data relevant to the supplier's appropriate monitoring frequency become available.

BOARD NOTE: ~~Derived~~Drawn from 40 CFR 141.23(c)(6) (2016)(2012).

g) A supplier that exceeds the MCL as determined in Section 611.609, must monitor quarterly for that contaminant, beginning in the next quarter after the violation occurred.

BOARD NOTE: Derived from 40 CFR 141.23(c)(7) (2016)(2012).

h) Reduction of quarterly monitoring.

- 1) The Agency must grant a SEP pursuant to Section 611.110 that reduces the monitoring frequency to that specified by subsection (a) of this Section if it determines that the sampling point is reliably and consistently below the MCL.

- 2) A request for a SEP must include the following minimal information:

A) For a GWS: two quarterly samples.

B) For an SWS or mixed system supplier: four quarterly samples.

- 3) In issuing the SEP, the Agency must specify the level of the contaminant upon which the "reliably and consistently" determination was based. Any SEP that allows less frequent monitoring based on an Agency "reliably

13390 and consistently" determination must include a condition requiring the
13391 supplier to resume quarterly monitoring for any contaminant pursuant to
13392 subsection (g) of this Section if it violates the MCL specified by Section
13393 611.609 for that contaminant.
13394

13395 BOARD NOTE: Derived from 40 CFR 141.23(c)(8) (2016)~~(2012)~~.
13396

- 13397 i) A new system supplier or a supplier whose system uses a new source of water
13398 must demonstrate compliance with the MCL within a period of time specified by
13399 a permit issued the Agency. The supplier must also comply with the initial
13400 sampling frequencies specified by the Agency to ensure a system can demonstrate
13401 compliance with the MCL. Routine and increased monitoring frequencies must
13402 be conducted in accordance with the requirements in this Section.
13403

13404 BOARD NOTE: Derived from 40 CFR 141.23(c)(9) (2016)~~(2012)~~.
13405

13406 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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13408 **Section 611.604 Nitrate Monitoring**
13409

13410 Each supplier must monitor to determine compliance with the MCL for nitrate in Section
13411 611.301.
13412

- 13413 a) Suppliers must monitor at the following frequencies:
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13415 1) CWSs and NTNCWSs.
13416

13417 A) GWSs: annually;
13418

13419 B) SWSs and mixed systems: quarterly.
13420

13421 BOARD NOTE: ~~Derived~~Drawn from 40 CFR 141.23(d)(1)
13422 (2016)~~(2002)~~.
13423

13424 2) Transient non-CWSs: annually.
13425

13426 BOARD NOTE: ~~Derived~~Drawn from 40 CFR 141.23(d)(4) (2016)~~(2002)~~.
13427

- 13428 b) Quarterly monitoring for GWSs.
13429

13430 1) A CWS or NTNCWS supplier that is a GWS must initiate quarterly
13431 monitoring in the quarter following any one sample that has a nitrate
13432 concentration equal to or greater than 50 percent of the MCL.

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- 2) The Agency must grant a SEP pursuant to Section 611.110 that reduces the monitoring frequency to annual after the supplier has completed quarterly sampling for at least four quarters if it determines that the sampling point is reliably and consistently below the MCL.
 - A) The request must include the following minimal information: the results from four consecutive quarterly samples.
 - B) In issuing the SEP, the Agency must specify the level of the contaminant upon which the "reliably and consistently" determination was based. All SEPs that allow less frequent monitoring based on an Agency "reliably and consistently" determination must include a condition requiring the supplier to resume quarterly monitoring pursuant to subsection (b)(1) of this Section if it violates the MCL specified by Section 611.301 for nitrate.

BOARD NOTE: Derived from 40 CFR 141.23(d)(2) ~~(2016)~~(2002).

- c) Reduction of monitoring frequency for SWSs and mixed systems.
 - 1) The Agency must grant a SEP pursuant to Section 611.110 that allows a CWS or NTNCWS supplier that is a SWS or mixed system to reduce its monitoring frequency to annually if it determines that all analytical results from four consecutive quarters are less than 50 percent of the MCL.
 - 2) As a condition of the SEP, the Agency must require the supplier to initiate quarterly monitoring, beginning the next quarter, if any one sample is greater than or equal to 50 percent of the MCL.

BOARD NOTE: Derived from 40 CFR 141.23(d)(3) ~~(2016)~~(2002).

- d) This subsection corresponds with 40 CFR 141.23(d)(4), which the Board has codified at subsection (a)(2). This statement maintains structural consistency with USEPA rules.
- e) After completion of four consecutive quarters of monitoring, each CWS or NTNCWS supplier monitoring annually must take samples during the quarters that resulted in the highest analytical result.

BOARD NOTE: Derived from 40 CFR 141.23(d)(5) ~~(2016)~~(2002).

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(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.605 Nitrite Monitoring

Each supplier must monitor to determine compliance with the MCL for nitrite in Section 611.301.

- a) This subsection (a) corresponds with 40 CFR 141.23(e)(1), which was applicable only until a date now past. This statement maintains consistency with USEPA rules.
- b) This subsection corresponds with 40 CFR 141.23(e)(2), a provision by which USEPA refers to state requirements that do not exist in Illinois. This statement maintains structural consistency with USEPA rules.
- c) Monitoring frequency.
 - 1) Quarterly monitoring.
 - A) A supplier that has any one sample in which the concentration is equal to or greater than 50 percent of the MCL must initiate quarterly monitoring during the next quarter.
 - B) A supplier required to begin quarterly monitoring pursuant to subsection (c)(1)(A) of this Section must continue on a quarterly basis for a minimum of one year following any one sample exceeding the 50 percent of the MCL, after which the supplier may discontinue quarterly monitoring pursuant to subsection (c)(2) of this Section.
 - 2) The Agency must grant a SEP pursuant to Section 611.110 that allows a supplier to reduce its monitoring frequency to annually if it determines that the sampling point is reliably and consistently below the MCL.
 - A) A request for a SEP must include the following minimal information: the results from four quarterly samples.
 - B) In issuing the SEP, the Agency must specify the level of the contaminant upon which the "reliably and consistently" determination was based. All SEPs that allow less frequent monitoring based on an Agency "reliably and consistently" determination must include a condition

13519 requiring the supplier to resume quarterly monitoring for nitrite
13520 pursuant to subsection (c)(1) of this Section if it equals or exceeds
13521 50 percent of the MCL specified by Section 611.301 for nitrite.
13522

- 13523 d) A supplier that is monitoring annually must take samples during the quarters that
13524 previously resulted in the highest analytical result.
13525

13526 BOARD NOTE: Derived from 40 CFR 141.23(e) (2016)(2002).

13527 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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13530 **Section 611.611 Inorganic Analysis**
13531

13532 Analytical methods are from documents incorporated by reference in Section 611.102. These are
13533 mostly referenced by a short name defined by Section 611.102(a). Other abbreviations are
13534 defined in Section 611.101.
13535

- 13536 a) Analysis for the following contaminants must be conducted using the following
13537 methods or an alternative method approved pursuant to Section 611.480. Criteria
13538 for analyzing arsenic, chromium, copper, lead, nickel, selenium, sodium, and
13539 thallium with digestion or directly without digestion, and other analytical
13540 procedures, are contained in USEPA Technical Notes, incorporated by reference
13541 in Section 611.102.
13542

13543 BOARD NOTE: Because MDLs reported in USEPA Environmental Metals
13544 Methods 200.7 and 200.9 were determined using a 2× preconcentration step
13545 during sample digestion, MDLs determined when samples are analyzed by direct
13546 analysis (i.e., no sample digestion) will be higher. For direct analysis of cadmium
13547 and arsenic by USEPA Environmental Metals Method 200.7, and arsenic by
13548 Standard Methods, Method 3120 B, sample preconcentration using pneumatic
13549 nebulization may be required to achieve lower detection limits. Preconcentration
13550 may also be required for direct analysis of antimony, lead, and thallium by
13551 USEPA Environmental Metals Method 200.9; antimony and lead by Standard
13552 Methods, 18th, 19th, or 21st ed., Method 3113 B; and lead by ASTM Method
13553 D3559-96 D or D3559-03 D unless multiple in-furnace depositions are made.
13554

- 13555 1) Alkalinity.

13556 A) Titrimetric.

- 13557 i) ASTM Method D1067-92 B, D1067-02 B, D1067-06 B, or
13558 D1067-11 B; or
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13562 ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method
13563 2320 B.

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13565 B) Electrometric titration: USGS Methods, Method I-1030-85.
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13567 BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 2320
13568 B as an approved alternative method for alkalinity in appendix A to
13569 ~~subpart C of 40 CFR 141~~ on June 3, 2008 (at 73 Fed. Reg. 31616).
13570 USEPA added Standard Methods, 22nd ed., Method 2320 B and ASTM
13571 Method D1067-11 B as approved alternative methods for alkalinity in
13572 ~~appendix A to subpart C of 40 CFR 141~~ on May 31, 2013 (at 78 Fed. Reg.
13573 32558).
13574

13575 2) Antimony.
13576

13577 A) Inductively coupled plasma-mass spectrometry: USEPA
13578 Environmental Metals Methods, Method 200.8 (rev. 5.3).
13579

13580 B) Atomic absorption, hydride technique: ASTM Method D3697-92,
13581 D3697-02, ~~or D3697-07, or D3697-12.~~
13582

13583 C) Atomic absorption, platform furnace technique: USEPA
13584 Environmental Metals Methods, Method 200.9 (rev. 2.2).
13585

13586 D) Atomic absorption, furnace technique:
13587

13588 i) Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3113
13589 B; or
13590

13591 ii) Standard Methods Online, Method 3113 B-04.
13592

13593 E) Axially viewed inductively coupled plasma-atomic emission
13594 spectrometry (AVICP-AES): USEPA NERL Method 200.5.
13595

13596 BOARD NOTE: USEPA added Standard Methods, 21st ed., Method
13597 3113B and USEPA NERL Method 200.5 as approved alternative methods
13598 for antimony in appendix A to ~~subpart C of 40 CFR 141~~ on June 3, 2008
13599 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D3697-07 as an
13600 approved alternative method for antimony in appendix A to ~~subpart C of~~
13601 ~~40 CFR 141~~ on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA
13602 added Standard Methods Online, Method 3113 B-04 as an approved
13603 alternative method for antimony in appendix A to ~~subpart C of 40 CFR~~
13604 ~~141~~ on June 24, 2011 (at 76 Fed. Reg. 37014). USEPA added Standard
13605 Methods, 22nd ed., Method 3113 B as an approved alternative method for

13606 antimony in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at
 13607 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Method
 13608 3113 B-10 as an approved alternative method for antimony in appendix A
 13609 to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081).
 13610 Because Standard Methods, 22nd ed., Method 3113 B is the same version
 13611 as Standard Methods Online, Method 3113 B-10, the Board has not listed
 13612 the Standard Methods Online versions separately. USEPA added ASTM
 13613 Method D3697-12 as an approved alternative method on July 19, 2016 (at
 13614 81 Fed. Reg. 46839).

3) Arsenic.

13618 BOARD NOTE: If ultrasonic nebulization is used in the determination of
 13619 arsenic by Method 200.8, the arsenic must be in the pentavalent state to
 13620 provide uniform signal response. For direct analysis of arsenic with
 13621 Method 200.8 using ultrasonic nebulization, samples and standards must
 13622 contain one mg/ℓ of sodium hypochlorite.

- 13624 A) Inductively coupled plasma-mass spectrometry: USEPA
 13625 Environmental Metals Methods, Method 200.8 (rev. 5.3).
- 13626 B) Atomic absorption, platform furnace technique: USEPA
 13627 Environmental Metals Methods, Method 200.9 (rev. 2.2).
- 13628 C) Atomic absorption, furnace technique.
 - 13629 i) ASTM Method D2972-97 C, D2972-03 C, or D2972-08 C;
 - 13630 ii) Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3113
 13631 B; or
 - 13632 iii) Standard Methods Online, Method 3113 B-04.
- 13633 D) Atomic absorption, hydride technique.
 - 13634 i) ASTM Method D2972-97 B, D2972-03 C, or D2972-08 B;
 - 13635 ii) Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3114
 13636 B; or
 - 13637 iii) Standard Methods Online, Method 3114 B-04.
- 13638 E) Axially viewed inductively coupled plasma-atomic emission
 13639 spectrometry (AVICP-AES): USEPA NERL Method 200.5.
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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 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). USEPA added Standard Methods Online, Method 3113 B-04 and Method 3114 B-09 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). USEPA added Standard Methods, 22nd ed., Methods 3113 B and 3114 B as approved alternative methods for arsenic in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). Because Standard Methods, 22nd ed., Method 3114 B is the same version as Standard Methods Online 3114 B-09, the Board has not listed the Standard Methods Online version separately. USEPA added Standard Methods Online, Method 3113 B-10 as an approved alternative method for arsenic in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 3113 B is the same version as Standard Methods Online, Method 3113 B-10, the Board has not listed the Standard Methods Online versions separately.

- 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, 21st, or 22nd 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, 21st, or 22nd ed., Method 3111 D.
 - D) Atomic absorption, furnace technique:

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- i) Standard Methods, 18th, 19th, 21st, or 22nd 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). USEPA added Standard Methods, 22nd ed., Methods 3111 D, 3113 B, and 3120 B as approved alternative methods for barium in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Method 3113 B-10 as an approved alternative method for barium in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 3113 B is the same version as Standard Methods Online, Method 3113 B-10, the Board has not listed the Standard Methods Online versions separately.
- 6) Beryllium.
- A) Inductively coupled plasma.
 - i) USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4); or
 - ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd 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, D3645-03 B, or D3645-08 B;

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- ii) Standard Methods, 18th, 19th, 21st, or 22nd 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). USEPA added Standard Methods, 22nd ed., Methods 3113 B and 3120 B as approved alternative methods for beryllium in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Method 3113 B-10 as an approved alternative method for beryllium in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 3113 B is the same version as Standard Methods Online, Method 3113 B-10, the Board has not listed the Standard Methods Online versions separately.
- 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:
 - i) Standard Methods, 18th, 19th, 21st, or 22nd 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, 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). USEPA added Standard Methods, 22nd ed., Method 3113 B as an approved alternative method for cadmium in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Method 3113 B-10 as an approved alternative method for cadmium in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 3113 B is the same version as Standard Methods Online, Method 3113 B-10, the Board has not listed the Standard Methods Online versions separately.

8) Calcium.

- A) EDTA titrimetric.
 - i) ASTM Method D511-93 A, D511-03 A, ~~or~~ D511-09 A, or D511-14A; or
 - ii) Standard Methods, 18th or 19th ed., Method 3500-Ca D or Standard Methods, 20th, 21st, or 22nd ed., Method 3500-Ca B.
- B) Atomic absorption, direct aspiration.
 - i) ASTM Method D511-93 B, D511-03 B, ~~or~~ D511-09 B, or D511-14B; or
 - ii) Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3111 B.
- C) Inductively coupled plasma.

- 13821 i) USEPA Environmental Metals Methods, Method 200.7
- 13822 (rev. 4.4); or
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- 13824 ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method
- 13825 3120 B.
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- 13827 D) Ion chromatography: ASTM Method D6919-03 or D6919-09.
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- 13829 E) Axially viewed inductively coupled plasma-atomic emission
- 13830 spectrometry (AVICP-AES): USEPA NERL Method 200.5.
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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). USEPA added Standard Methods, 22nd ed., Methods 3111 B, 3120 B, and 3500-Ca B as approved alternative methods for calcium in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added ASTM Method D511-14 A and B as approved alternative methods on July 19, 2016 (at 81 Fed. Reg. 46839).

9) Chromium.

- 13847 A) Inductively coupled plasma.
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- 13851 i) USEPA Environmental Metals Methods, Method 200.7
- 13852 (rev. 4.4); or
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- 13854 ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method
- 13855 3120 B.
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- 13857 B) Inductively coupled plasma-mass spectrometry: USEPA
- 13858 Environmental Metals Methods, Method 200.8 (rev. 5.3).
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- 13860 C) Atomic absorption, platform furnace technique: USEPA
- 13861 Environmental Metals Methods, Method 200.9 (rev. 2.2).
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- 13863 D) Atomic absorption, furnace technique:

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- i) Standard Methods, 18th, 19th, 21st, or 22nd 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 approved alternative 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). USEPA added Standard Methods, 22nd ed., Methods 3113 B and 3120 B as approved alternative methods for chromium in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Method 3113 B-10 as an approved alternative method for chromium in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 3113 B is the same version as Standard Methods Online, Method 3113 B-10, the Board has not listed the Standard Methods Online versions separately.

10) Copper.

- A) Atomic absorption, furnace technique.
- i) ASTM Method D1688-95 C, D1688-02 C, ~~or~~ D1688-07 C, or D1688-12 C;
 - ii) Standard Methods, 18th, 19th, 21st, or 22nd 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 D1688-12 A; or

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- ii) Standard Methods, 18th, 19th, 21st, or 22nd 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, 21st, or 22nd 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.
 - G) Colorimetric: Hach Method 8026 or 10272.
- 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). USEPA added Standard Methods, 22nd ed., Methods 3111 B, 3113 B, and 3120 B as approved alternative methods for copper in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Method 3113 B-10 as an approved alternative method for copper in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 3113 B is the same version as Standard Methods Online, Method 3113 B-10, the Board has not listed the Standard Methods Online versions separately. USEPA added ASTM Method D1688-12 A and C and Hach Methods 8026 and 10272 as approved alternative methods on July 19, 2016 (at 81 Fed. Reg. 46839).

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- 11) Conductivity; Conductance.
- A) ASTM Method D1125-95(1999) A or D1125-14 A; or
- B) Standard Methods, 18th, 19th, 20th, 21st, or 22nd 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). USEPA added Standard Methods, 22nd ed., Method 2510 B as an approved alternative method for conductivity in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added ASTM Method D1125-14 A as an approved alternative method on July 19, 2016 (at 81 Fed. Reg. 46839).
- 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 D2036-06 B; or
- ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd 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, 21st, or 22nd 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, 21st, or 22nd ed., Method 4500-CN⁻ F.

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- E) UV/Distillation/Spectrophotometric: Kelada 01.
 - F) Microdistillation/Flow Injection/Spectrophotometric: QuikChem 10-204-00-1-X.
 - G) Ligand exchange and amperometry.
 - i) ASTM Method D6888-04.
 - 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). USEPA added Standard Methods, 22nd 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 May 31, 2013 (at 78 Fed. Reg. 32558).

- 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, D4327-03, or D4327-11;
 - iii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4110 B; or
 - iv) Hach SPADNS 2 Method 10225.
 - B) Manual distillation, colorimetric SPADNS: Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-F B and D.

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- C) Manual electrode.
 - i) ASTM Method D1179-93 B, D1179-99 B, D1179-04 B, or D1179-10B; or
 - ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-F⁻ C.
 - D) Automated electrode: Technicon Methods, Method 380-75WE.
 - E) Automated alizarin.
 - i) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-F⁻ E; or
 - ii) Technicon Methods, Method 129-71 W.
 - 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, 21st ed., Methods 4110 B and 4500-F⁻ 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). USEPA added ASTM Method D1179-10 B as an approved alternative method for fluoride in appendix A to subpart C of 40 CFR 141 on June 28, 2012 (at 77 Fed. Reg. 38523). USEPA added Standard Methods, 22nd ed., Methods 4110 B and 4500-F⁻ B, C, D, and E as approved alternative methods for fluoride in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added ASTM Method D4327-11 as an approved alternative method for fluoride in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081).

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- 14) Lead.
- A) Atomic absorption, furnace technique.
 - i) ASTM Method D3559-96 D, D3559-03 D, or D3559-08 D;
 - ii) Standard Methods, 18th, 19th, 21st, or 22nd 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). USEPA added Standard Methods, 22nd ed., Method 3113 B as an approved alternative method for lead in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Method 3113 B-10 as an approved alternative method for lead in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 3113 B is the same version as Standard Methods Online, Method 3113 B-10, the Board has not listed the Standard Methods Online versions separately.

- 15) Magnesium.

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- A) Atomic absorption.
 - i) ASTM Method D511-93 B, D511-03 B, ~~or~~ D511-09 B, or D511-14 B; or
 - ii) Standard Methods, 18th, 19th, 21st, or 22nd 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, 21st, or 22nd ed., Method 3120 B.
- C) Complexation titrimetric.
 - i) ASTM Method D511-93 A, D511-03 A, ~~or~~ D511-09 A, or D511-14 A; or
 - ii) Standard Methods, 18th or 19th ed., Method 3500-Mg E or Standard Methods, 20th, 21st, or 22nd 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). USEPA added Standard Methods, 22nd ed., Methods 3111 B, 3120 B, and 3500-Mg B as approved alternative methods for magnesium in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558).

USEPA added ASTM Method D511-14 A and B as approved alternative methods on July 19, 2016 (at 81 Fed. Reg. 46839).

16) Mercury.

A) Manual cold vapor technique.

i) USEPA Environmental Metals Methods, Method 245.1 (rev. 3.0);

ii) ASTM Method D3223-97, D3223-02, or D3223-12; or

iii) Standard Methods, 18th, 19th, 21st, or 22nd 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). USEPA added Standard Methods Online, Method 3112 B-09 as an approved alternative method for mercury in appendix A to subpart C of 40 CFR 141 on June 28, 2012 (at 77 Fed. Reg. 38523). USEPA added Standard Methods, 22nd ed., Method 3112 B as an approved alternative method for mercury in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). Because Standard Methods, 22nd ed., Method 3112 B is the same version as Standard Methods Online 3112 B-09, the Board has not listed the Standard Methods Online version separately. USEPA added ASTM D3223 B-12 as an approved alternative method for mercury in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081).

17) Nickel.

A) Inductively coupled plasma.

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

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- ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd 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, 21st, or 22nd ed., Method 3111 B.
 - E) Atomic absorption, furnace technique:
 - i) Standard Methods, 18th, 19th, 21st, or 22nd 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). USEPA added Standard Methods, 22nd ed., Methods 3111 B, 3113 B, and 3120 B as approved alternative methods for nickel in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Method 3113 B-10 as an approved alternative method for nickel in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 3113 B is the same version as Standard Methods Online, Method 3113 B-10, the Board has not listed the Standard Methods Online versions separately.
- 18) Nitrate.
 - A) Ion chromatography.

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- 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, D4327-03, or D4327-11;
 - iii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd 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, 21st, or 22nd ed., Method 4500-NO₃⁻ F.
- C) Ion selective electrode.
- i) Standard Methods, 18th, 19th, 20th, 21st, or 22nd 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, 21st, or 22nd ed., Method 4500-NO₃⁻ E.
- E) Capillary ion electrophoresis: ASTM Method D6508-00(2005).
- F) Reduction-colorimetric: Systema Easy (1-Reagent) or NECi Nitrate-Reductase Method.
- G) Direct colorimetric: Hach TNTplus 835/836 Method 10206.

14291 BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods
 14292 4110 B and 4500-NO₃⁻ D, E, and F as approved alternative methods for
 14293 nitrate in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73
 14294 Fed. Reg. 31616). USEPA added Syssta Easy (1-Reagent) as an approved
 14295 alternative method for nitrate in appendix A to subpart C of 40 CFR 141
 14296 on August 3, 2009 (at 73 Fed. Reg. 38348). USEPA added Hach TNTplus
 14297 835/836 Method 10206 as an approved alternative method for nitrate in
 14298 appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg.
 14299 37014). USEPA added Standard Methods, 22nd ed., Methods 4110 B and
 14300 4500-NO₃⁻ D, E, and F as approved alternative methods for nitrate in
 14301 appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg.
 14302 32558). USEPA added ASTM D4327-11 as an approved alternative
 14303 method for nitrate in appendix A to subpart C of 40 CFR 141 on June 19,
 14304 2014 (at 79 Fed. Reg. 35081). USEPA added NECi Nitrate-Reductase
 14305 Method as an approved alternative method on July 19, 2016 (at 81 Fed.
 14306 Reg. 46839).

19) Nitrite.

- 14307
- 14308
- 14309
- 14310 A) Ion chromatography.
- 14311
- 14312 i) USEPA Environmental Inorganic Methods, Method 300.0
- 14313 (rev. 2.1) or USEPA Organic and Inorganic Methods,
- 14314 Method 300.1 (rev. 1.0);
- 14315
- 14316 ii) ASTM Method D4327-97, D4327-03, or D4327-11;
- 14317
- 14318 iii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method
- 14319 4110 B; or
- 14320
- 14321 iv) Waters Test Method B-1011, available from Millipore
- 14322 Corporation.
- 14323
- 14324 B) Automated cadmium reduction.
- 14325
- 14326 i) USEPA Environmental Inorganic Methods, Method 353.2
- 14327 (rev. 2.0);
- 14328
- 14329 ii) ASTM Method D3867-90 A; or
- 14330
- 14331 iii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method
- 14332 4500-NO₃⁻ F.
- 14333

- 14334 C) Manual cadmium reduction.
- 14335
- 14336 i) ASTM Method D3867-90 B; or
- 14337
- 14338 ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method
- 14339 4500-NO₃⁻ E.
- 14340
- 14341 D) Spectrophotometric: Standard Methods, 18th, 19th, 20th, 21st, or
- 14342 22nd ed., Method 4500-NO₂⁻ B.
- 14343
- 14344 E) Capillary ion electrophoresis: ASTM Method D6508-00(2005).
- 14345
- 14346 F) Reduction-colorimetric: Systea Easy (1-Reagent) or NECi Nitrate-
- 14347 Reductase Method.
- 14348

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 4110 B, 4500-NO₃⁻ E and F; and 4500-NO₂⁻ 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 Systea 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). USEPA added Standard Methods, 22nd ed., Methods 4110 B, 4500-NO₃⁻ E and F, and 4500-NO₂⁻ B as approved alternative methods for nitrite in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added ASTM D4327-11 as an approved alternative method for nitrite in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). USEPA added NECi Nitrate-Reductase Method as an approved alternative method on July 19, 2016 (at 81 Fed. Reg. 46839).

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- 14363 20) Orthophosphate (unfiltered, without digestion or hydrolysis).
- 14364
- 14365 A) Automated colorimetric, ascorbic acid.
- 14366
- 14367 i) USEPA Environmental Inorganic Methods, Method 365.1
- 14368 (rev. 2.0); or
- 14369
- 14370 ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method
- 14371 4500-P F; or-
- 14372
- 14373 iii) Thermo-Fisher Discrete Analyzer.
- 14374
- 14375 B) Single reagent colorimetric, ascorbic acid.
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- 14377 i) ASTM Method D515-88 A; or

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- ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd 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, D4327-03, or D4327-11; or
 - iii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4110 B.
 - G) Capillary ion electrophoresis: ASTM Method D6508-00(2005).
- BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 4110 B and 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). Because Standard Methods, 21st ed., Methods 4500-P E and F are the same versions as Standard Methods Online 4500-P E-99 and F-99, the Board has not listed the Standard Methods Online versions separately. USEPA added Standard Methods, 22nd ed., Methods 4500-P E and F and 4110 B as approved alternative methods for orthophosphate in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added ASTM D4327-11 as an approved alternative method for orthophosphate in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). USEPA added Thermo-Fisher Discrete Analyzer as an approved alternative method on July 19, 2016 (at 81 Fed. Reg. 46839).
- 21) pH: electrometric.

- 14421 A) USEPA Inorganic Methods, Method 150.1 or Method 150.2;
- 14422
- 14423 B) ASTM Method D1293-95, D1293-99, or D1293-12; or
- 14424
- 14425 C) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-
- 14426 H⁺ B.
- 14427

14428 BOARD NOTE: USEPA added Standard Methods, 21st ed., Method
 14429 4500-H⁺ B as an approved alternative method for pH in appendix A to
 14430 subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).
 14431 USEPA added Standard Methods, 22nd ed., Method 4500-H⁺ B and ASTM
 14432 Method D1293-12 as approved alternative methods for pH in appendix A
 14433 to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558).

14434
 14435 22) Selenium.

- 14436 A) Atomic absorption, hydride.
- 14437
- 14438
- 14439 i) ASTM Method D3859-98 A, D3859-03 A, or D3859-08 A;
- 14440 or
- 14441
- 14442 ii) Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3114
- 14443 B.
- 14444
- 14445 B) Inductively coupled plasma-mass spectrometry: USEPA
- 14446 Environmental Metals Methods, Method 200.8 (rev. 5.3).
- 14447
- 14448 C) Atomic absorption, platform furnace technique: USEPA
- 14449 Environmental Metals Methods, Method 200.9 (rev. 2.2).
- 14450
- 14451 D) Atomic absorption, furnace technique.
- 14452
- 14453 i) ASTM Method D3859-98 B, D3859-03 B, or D3859-08 B;
- 14454
- 14455 ii) Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3113
- 14456 B; or
- 14457
- 14458 iii) Standard Methods Online, Method 3113 B-04.
- 14459
- 14460 E) Axially viewed inductively coupled plasma-atomic emission
- 14461 spectrometry (AVICP-AES): USEPA NERL Method 200.5.
- 14462

14463 BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods
 14464 3113 B and 3114 B and USEPA NERL Method 200.5 as approved
 14465 alternative methods for selenium in appendix A to subpart C of 40 CFR
 14466 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM
 14467 Methods D3859-08 A and B as approved alternative methods for selenium
 14468 in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74
 14469 Fed. Reg. 57908). USEPA added Standard Methods Online, Method 3113
 14470 B-04 and Method 3114 B-09 as approved alternative methods for selenium
 14471 in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed.
 14472 Reg. 37014). USEPA added Standard Methods, 22nd ed., Methods 3113 B
 14473 and 3114 B as approved alternative methods for selenium in appendix A to
 14474 subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558).
 14475 Because Standard Methods, 22nd ed., Method 3114 B is the same version
 14476 as Standard Methods Online 3114 B-09, the Board has not listed the
 14477 Standard Methods Online version separately. USEPA added Standard
 14478 Methods Online, Method 3113 B-10 as an approved alternative method for
 14479 selenium in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at
 14480 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 3113
 14481 B is the same version as Standard Methods Online, Method 3113 B-10, the
 14482 Board has not listed the Standard Methods Online versions separately.
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23) Silica.

- 14484
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- 14486 A) Colorimetric, molybdate blue: USGS Methods, Method I-1700-85.
- 14487
- 14488 B) Colorimetric, molybdate blue, automated-segmented flow: USGS
- 14489 Methods, Method I-2700-85.
- 14490
- 14491 C) Colorimetric: ASTM Method D859-94, D859-00, D859-05, or
- 14492 D859-10.
- 14493
- 14494 D) Molybdosilicate: Standard Methods, 18th or 19th ed., Method
- 14495 4500-Si D or Standard Methods, 20th, 21st, or 22nd ed., Method
- 14496 4500-SiO₂ C.
- 14497
- 14498 E) Heteropoly blue: Standard Methods, 18th or 19th ed., Method
- 14499 4500-Si E or Standard Methods, 20th, 21st, or 22nd ed., Method
- 14500 4500-SiO₂ D.
- 14501
- 14502 F) Automated method for molybdate-reactive silica: Standard
- 14503 Methods, 18th or 19th ed., Method 4500-Si F or Standard Methods,
- 14504 20th, 21st, or 22nd ed., Method 4500-SiO₂ E.
- 14505

- 14506 G) Inductively coupled plasma.
- 14507
- 14508 i) USEPA Environmental Metals Methods, Method 200.7
- 14509 (rev. 4.4); or
- 14510
- 14511 ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method
- 14512 3120 B.
- 14513
- 14514 H) Axially viewed inductively coupled plasma-atomic emission
- 14515 spectrometry (AVICP-AES): USEPA NERL Method 200.5.
- 14516

BOARD NOTE: USEPA added ASTM Method D859-05, Standard Methods, 21st ed.; Methods 3120 B and 4500-SiO₂ 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). USEPA added ASTM Method D859-10 as an approved alternative method for silica in appendix A to subpart C of 40 CFR 141 on June 28, 2012 (at 77 Fed. Reg. 38523). USEPA added Standard Methods, 22nd ed., Methods 3120 B and 4500-SiO₂ C, D, and E as approved alternative methods for silica in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558).

24) Sodium.

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- 14530 A) Inductively coupled plasma: USEPA Environmental Metals
- 14531 Methods, Method 200.7 (rev. 4.4).
- 14532
- 14533 B) Atomic absorption, direct aspiration: Standard Methods, 18th, 19th,
- 14534 21st, or 22nd ed., Method 3111 B.
- 14535
- 14536 C) Ion chromatography: ASTM Method D6919-03 or D6919-09.
- 14537
- 14538 D) Axially viewed inductively coupled plasma-atomic emission
- 14539 spectrometry (AVICP-AES): USEPA NERL Method 200.5.
- 14540

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 3113 B and 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). USEPA added Standard Methods, 22nd ed., Method 3111 B as an approved alternative

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14548 ~~method for sodium in appendix A to subpart C of 40 CFR 141 on May 31,~~
 14549 ~~2013 (at 78 Fed. Reg. 32558).~~

14550
 14551 25) Temperature; thermometric: Standard Methods, 18th, 19th, 20th, 21st, or
 14552 22nd ed., Method 2550.

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 14554 BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 2550
 14555 as an approved alternative method for temperature in appendix A to
 14556 subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).
 14557 USEPA added Standard Methods, 22nd ed., Method 2550 as an approved
 14558 alternative method for temperature in appendix A to subpart C of 40 CFR
 14559 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard
 14560 Methods Online, Method 2550-10 as an approved alternative method for
 14561 temperature in appendix A to subpart C of 40 CFR 141 on June 19, 2014
 14562 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method
 14563 2550 is the same version as Standard Methods Online, Method 2550-10,
 14564 the Board has not listed the Standard Methods Online versions separately.

14565
 14566 26) Thallium.

14567
 14568 A) Inductively coupled plasma-mass spectrometry: USEPA
 14569 Environmental Metals Methods, Method 200.8 (rev. 5.3).

14570
 14571 B) Atomic absorption, platform furnace technique: USEPA
 14572 Environmental Metals Methods, Method 200.9 (rev. 2.2).

14573
 14574 b) Sample collection for antimony, arsenic, asbestos, barium, beryllium, cadmium,
 14575 chromium, cyanide, fluoride, mercury, nickel, nitrate, nitrite, selenium, and
 14576 thallium pursuant to Sections 611.600 through 611.604 must be conducted using
 14577 the following sample preservation, container, and maximum holding time
 14578 procedures:

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 14580 BOARD NOTE: For cyanide determinations samples must be adjusted with
 14581 sodium hydroxide to pH 12 at the time of collection. When chilling is indicated
 14582 the sample must be shipped and stored at 4° C or less. Acidification of nitrate or
 14583 metals samples may be with a concentrated acid or a dilute (50% by volume)
 14584 solution of the applicable concentrated acid. Acidification of samples for metals
 14585 analysis is encouraged and allowed at the laboratory rather than at the time of
 14586 sampling provided the shipping time and other instructions in Section 8.3 of
 14587 USEPA Environmental Metals Method 200.7, 200.8, or 200.9 are followed.

14588 1) Antimony.
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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.
- 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.

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- 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).

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- 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.

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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 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 a certified laboratory in one of the categories listed in Section 611.490(a). The Agency must certify laboratories to conduct analyses for antimony, arsenic, 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.

- 14763
- 14764 I) Fluoride: $\pm 10\%$ at 1 to 10 mg/l.
- 14765
- 14766 J) Mercury: $\pm 30\%$ at greater than or equal to 0.0005 mg/l.
- 14767
- 14768 K) Nickel: $\pm 15\%$ at greater than or equal to 0.01 mg/l.
- 14769
- 14770 L) Nitrate: $\pm 10\%$ at greater than or equal to 0.4 mg/l.
- 14771
- 14772 M) Nitrite: $\pm 15\%$ at greater than or equal to 0.4 mg/l.
- 14773
- 14774 N) Selenium: $\pm 20\%$ at greater than or equal to 0.01 mg/l.
- 14775
- 14776 O) Thallium: $\pm 30\%$ at greater than or equal to 0.002 mg/l.
- 14777

14778 BOARD NOTE: Derived from 40 CFR 141.23(k) and appendix A to subpart C of 40 CFR 141
14779 (2016)(2014).

14780
14781 (Source: Amended at 41 Ill. Reg. _____, effective _____)

14782

14783 **Section 611.612 Monitoring Requirements for Old Inorganic MCLs**

14784

14785 a) Analyses for the purpose of determining compliance with the old inorganic MCLs
14786 of Section 611.300 are required as follows:

14787

14788 1) Analyses for all CWSs utilizing surface water sources must be repeated at
14789 yearly intervals.

14790

14791 2) Analyses for all CWSs utilizing only groundwater sources must be
14792 repeated at three-year intervals.

14793

14794 3) This subsection (a)(3) corresponds with 40 CFR 141.23(1)(3), which
14795 requires monitoring for the repealed old MCL for nitrate at a frequency
14796 specified by the state. The Board has followed the USEPA lead and
14797 repealed that old MCL. This statement maintains structural consistency
14798 with USEPA rules.

14799

14800 4) This subsection (a)(4) corresponds with 40 CFR 141.23(1)(4), which
14801 authorizes the state to determine compliance and initiate enforcement
14802 action. This statement maintains structural consistency with USEPA
14803 rules.

14804

14805 b) If the result of an analysis made under subsection (a) ~~of this Section~~ indicates that

- 14806 the level of any contaminant listed in Section 611.300 exceeds the old MCL, the
 14807 supplier must report to the Agency within seven days and initiate three additional
 14808 analyses at the same sampling point within one month.
 14809
- 14810 c) When the average of four analyses made pursuant to subsection (b) of this
 14811 Section, rounded to the same number of significant figures as the old MCL for the
 14812 substance in question, exceeds the old MCL, the supplier must notify the Agency
 14813 and give notice to the public pursuant to Subpart V of this Part. Monitoring after
 14814 public notification must be at a frequency designated by the Agency by a SEP
 14815 issued pursuant to Section 611.110 and must continue until the old MCL has not
 14816 been exceeded in two successive samples or until a different monitoring schedule
 14817 becomes effective as a condition to a variance, an adjusted standard, a site
 14818 specific rule, an enforcement action, or another SEP issued pursuant to Section
 14819 611.110.
 14820
- 14821 d) This subsection (d) corresponds with 40 CFR 141.23(o), which pertains to
 14822 monitoring for the repealed old MCL for nitrate. This statement maintains
 14823 structural consistency with USEPA rules.
 14824
- 14825 e) This subsection (e) corresponds with 40 CFR 141.23(p), which pertains to the use
 14826 of existing data up until a date long since expired. This statement maintains
 14827 structural consistency with USEPA rules.
 14828
- 14829 f) Analyses conducted to determine compliance with the old MCLs of Section
 14830 611.300 must be made in accordance with the following methods, incorporated by
 14831 reference in Section 611.102, or alternative methods approved by the Agency
 14832 pursuant to Section 611.480.
 14833
- 14834 1) Fluoride: The methods specified in Section 611.611(c) must apply for the
 14835 purposes of this Section.
 14836
- 14837 2) Iron.
 14838
- 14839 A) Standard Methods.
 14840
- 14841 i) Method 3111 B, 18th, 19th, 21st, or 22nd ed.;
- 14842 ii) Method 3113 B, 18th, 19th, 21st, or 22nd ed.; or
- 14843 iii) Method 3120 B, 18th, 19th, 20th, 21st, or 22nd ed.
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- 14845 B) Standard Methods Online, Method 3113 B-04.
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- C) USEPA Environmental Metals Methods.
 - i) Method 200.7 (rev. 4.4); or
 - ii) Method 200.9 (rev. 2.2).
- D) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added USEPA NERL Method 200.5 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, 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). 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). USEPA added Standard Methods, 22nd ed., Methods 3111 D, 3113 B, and 3120 B as approved alternative methods for iron in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA added Standard Methods Online, Method 3113 B-10 as an approved alternative method for iron in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 3113 B is the same version as Standard Methods Online, Method 3113 B-10, the Board has not listed the Standard Methods Online versions separately.

- 3) Manganese.
 - A) Standard Methods.
 - i) Method 3111 B, 18th, 19th, 21st, or 22nd ed.;
 - ii) Method 3113 B, 18th, 19th, 21st, or 22nd ed.; or
 - iii) Method 3120 B, 18th, 19th, 20th, 21st, or 22nd ed.
 - B) Standard Methods Online, Method 3113 B-04.
 - C) USEPA Environmental Metals Methods.
 - i) Method 200.7 (rev. 4.4);

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

D) 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). USEPA added Standard Methods, 22nd ed., Methods 3111 D, 3113 B, and 3120 B as approved alternative methods for manganese in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA added Standard Methods Online, Method 3113 B-10 as an approved alternative method for manganese in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 3113 B is the same version as Standard Methods Online, Method 3113 B-10, the Board has not listed the Standard Methods Online versions separately.

4) Zinc.

A) Standard Methods.

- i) Method 3111 B, 18th, 19th, 21st, or 22nd ed.; or
- ii) Method 3120 B, 18th, 19th, 20th, 21st, or 22nd 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

14935 alternative methods for zinc in appendix A to subpart C of 40 CFR 141 on
 14936 June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods,
 14937 22nd ed., Methods 3111 B and 3120 B as approved alternative methods for
 14938 zinc in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78
 14939 Fed. Reg. 37463).

14940
 14941 BOARD NOTE: The provisions of subsections (a) through (e) of this Section derive
 14942 from 40 CFR 141.23(l) through (p) (2016)(2014). Subsections (f)(2) through (f)(4) of
 14943 this Section relate exclusively to additional State requirements. The Board retained
 14944 subsection (f) of this Section to set forth methods for the inorganic contaminants for
 14945 which there is a State-only MCL. The methods specified are those set forth in 40 CFR
 14946 143.4(b) and appendix A to subpart C of 40 CFR 141 (2016)(2014), for secondary MCLs.

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 14948 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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14950 **Section 611.630 Special Monitoring for Sodium**

- 14951
- 14952 a) CWS suppliers must collect and analyze one sample per plant at the entry point of
 14953 the distribution system for the determination of sodium concentration levels;
 14954 samples must be collected and analyzed annually for CWSs utilizing surface
 14955 water sources in whole or in part, and at least every three years for CWSs utilizing
 14956 solely groundwater sources. The minimum number of samples required to be
 14957 taken by the supplier is based on the number of treatment plants used by the
 14958 supplier, except that multiple wells drawing raw water from a single aquifer may,
 14959 with the Agency approval, be considered one treatment plant for determining the
 14960 minimum number of samples. The Agency must require the supplier to collect
 14961 and analyze water samples for sodium more frequently in locations where the
 14962 sodium content is variable.
 14963
 - 14964 b) The CWS supplier must report to the Agency the results of the analyses for
 14965 sodium within the first 10 days of the month following the month in which the
 14966 sample results were received or within the first 10 days following the end of the
 14967 required monitoring period as specified by SEP, whichever of these is first. If
 14968 more than annual sampling is required, the supplier must report the average
 14969 sodium concentration within 10 days of the month following the month in which
 14970 the analytical results of the last sample used for the annual average was received.
 14971
 - 14972 c) The CWS supplier must notify the Agency and appropriate local public health
 14973 officials of the sodium levels by written notice by direct mail within three months.
 14974 A copy of each notice required to be provided by this subsection must be sent to
 14975 the Agency within 10 days ~~after~~ of its issuance.
 14976
 - 14977 d) Analyses for sodium must be conducted as directed in Section 611.611(a).

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BOARD NOTE: Derived from 40 CFR 141.41 (2016)(2002).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

SUBPART O: ORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.640 Definitions

The following terms are defined for use in this Subpart O only. Additional definitions are located in Section 611.102.

"Old MCL" means an MCL in Section 611.310. These include the MCLs identified as "additional state requirements." "Old MCLs" include the Section 611.310 MCLs for the following contaminants:

Aldrin

2,4-D

DDT

Dieldrin

Heptachlor

Heptachlor epoxide

BOARD NOTE: 2,4-D, heptachlor, and heptachlor epoxide are also "Phase II SOCs." The additional state requirements of Section 611.310 impose a more stringent "old MCL" for each of these compounds than that imposed on them as Phase II SOCs by Section 611.311. However, the requirements for sampling and monitoring for these compounds as Phase II SOCs and the consequences of their detection and violation of their revised MCLs is more stringent as Phase II SOCs.

"Phase II SOCs" means the following:

Alachlor

Atrazine

Carbofuran

15021	
15022	Chlordane
15023	
15024	Dibromochloropropane
15025	
15026	Ethylene dibromide
15027	
15028	Heptachlor
15029	
15030	Heptachlor epoxide
15031	
15032	Lindane
15033	
15034	Methoxychlor
15035	
15036	Polychlorinated biphenyls
15037	
15038	Toxaphene
15039	
15040	2,4-D
15041	
15042	2,4,5-TP
15043	
15044	BOARD NOTE: These are organic contaminants regulated at 40 CFR
15045	141.61(c)(1) through (c)(18) (2016) (2003). The MCLs for these
15046	contaminants are located at Section 611.311. More stringent MCLs for
15047	heptachlor, heptachlor epoxide, and 2,4-D are found as "additional state
15048	requirements" in Section 611.310.

"Phase IIB SOCs" means the following:

15051	
15052	Aldicarb
15053	
15054	Aldicarb Sulfone
15055	
15056	Aldicarb Sulfoxide
15057	
15058	Pentachlorophenol
15059	

15060	BOARD NOTE: These are organic contaminants regulated at 40 CFR
15061	141.61(c)(1) through (c)(18) (2016) (2003). The MCLs for these
15062	contaminants are located at Section 611.311. See the Board note
15063	appended to Section 611.311(c) for information relating to implementation

15064 of requirements relating to aldicarb, aldicarb sulfone, and aldicarb
15065 sulfoxide.

15066
15067 "Phase V SOCs" means the following:

- 15068 Benzo(a) pyrene
- 15069
- 15070 Dalapon
- 15071
- 15072 Di(2-ethylhexyl)adipate
- 15073
- 15074 Di(2-ethylhexyl)phthalate
- 15075
- 15076 Dinoseb
- 15077
- 15078 Diquat
- 15079
- 15080 Endothall
- 15081
- 15082 Endrin
- 15083
- 15084 Glyphosate
- 15085
- 15086 Hexachlorobenzene
- 15087
- 15088 Hexachlorocyclopentadiene
- 15089
- 15090 Oxamyl
- 15091
- 15092 Picloram
- 15093
- 15094 Simazine
- 15095
- 15096 2,3,7,8-TCDD
- 15097

15098
15099 BOARD NOTE: These are organic contaminants regulated at 40 CFR
15100 141.61(c)(19) through (c)(33) (2016)(2003). The MCLs for these
15101 contaminants are located at Section 611.311.

15102
15103 "Phase I VOCs" means the following:

- 15104 Benzene
- 15105
- 15106

15107 Carbon tetrachloride

15108

15109 p-Dichlorobenzene-

15110

15111 1,2-Dichloroethane

15112

15113 1,1-Dichloroethylene

15114

15115 1,1,1-Trichloroethane

15116

15117 Trichloroethylene

15118

15119 Vinyl chloride

15120

15121 BOARD NOTE: These are the organic contaminants regulated at 40 CFR
15122 141.61(a)(1) through (a)(8) ~~(2016)~~(2003). The MCLs for these
15123 contaminants are located at Section 611.311(a).

15124

15125 "Phase II VOCs" means the following:

15126

15127 o-Dichlorobenzene

15128

15129 cis-1,2-Dichloroethylene

15130

15131 trans-1,2-Dichloroethylene

15132

15133 1,2-Dichloropropane

15134

15135 Ethylbenzene

15136

15137 Monochlorobenzene

15138

15139 Styrene

15140

15141 Tetrachloroethylene

15142

15143 Toluene

15144

15145 Xylenes (total)

15146

15147 BOARD NOTE: These are organic contaminants regulated at 40 CFR
15148 141.61(a)(9) through (a)(18) ~~(2016)~~(2003). The MCLs for these
15149 contaminants are in Section 611.311(a).

15150
15151 "Phase V VOCs" means the following:
15152

15153 Dichloromethane
15154

15155 1,2,4-Trichlorobenzene
15156

15157 1,1,2-Trichloroethane
15158

15159 BOARD NOTE: These are the organic contaminants regulated at 40 CFR
15160 141.61(a)(19) through (a)(21) (2016)(2003). The MCLs for these
15161 contaminants are located at Section 611.311(a).
15162

15163 "Revised MCL" means an MCL in Section 611.311. This term includes MCLs
15164 for Phase I VOCs, Phase II VOCs, Phase V VOCs, Phase II SOCs, Phase IIB
15165 SOCs, and Phase V SOCs.
15166

15167 (Source: Amended at 41 Ill. Reg. _____, effective _____)
15168

15169 **Section 611.645 Analytical Methods for Organic Chemical Contaminants**
15170

15171 Analysis for the Section 611.311(a) VOCs under Section 611.646; the Section 611.311(c) SOCs
15172 under Section 611.648; the Section 611.310 old MCLs under Section 611.641; and the Section
15173 611.312 MCL for THMs, TTHMs under Section 611.381 and TTHM potential must be conducted
15174 using the methods listed in this Section. All methods are incorporated by reference in Section
15175 611.102. Other required analytical test procedures germane to the conduct of these analyses are
15176 contained in the USEPA document, "Technical Notes of Drinking Water Methods,"
15177 incorporated by reference in Section 611.102.
15178

15179 a) Volatile Organic Chemical Contaminants (VOCs).
15180

Contaminant	Analytical Methods
Benzene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, <u>Methods Method 524.3 (rev. 1.0) and 524.4</u>
Carbon tetrachloride	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0), 524.4, and 551.1 (rev. 1.0)

Chlorobenzene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
1,2-Dichlorobenzene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
1,4-Dichlorobenzene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
1,2-Dichloroethane	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
1,1-Dichloroethylene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
cis-Dichloroethylene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
trans-Dichloroethylene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
Dichloromethane	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
1,2-Dichloropropane	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
Ethylbenzene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
Styrene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1);

Tetrachloroethylene	USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4 USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0), 524.4, 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, Methods 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, Methods 524.3 (rev. 1.0) and 524.4
1,1,2-Trichloroethane	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
1,1,1-Trichloroethane	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0), 524.4, and 551.1 (rev. 1.0)
<u>1,1,2-Trichloroethane</u>	<u>USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0), 524.4, and 551.1 (rev. 1.0)</u>
Trichloroethylene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0), 524.4, and 551.1 (rev. 1.0)
Vinyl chloride	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
Xylenes (total)	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4

15182 BOARD NOTE: USEPA added USEPA OGWDW Method 524.3 (rev. 1.0) as an
 15183 alternative method for all of the VOCs in appendix A to subpart C of 40 CFR 141
 15184 on August 3, 2009 (at 74 Fed. Reg. 38348). USEPA added USEPA OGWDW
 15185 Method 524.4 as an approved alternative method for all of the VOCs in appendix
 15186 A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558).

15187
 15188 b) Synthetic Organic Chemical Contaminants (SOCs).
 15189

Contaminant	Analytical Methods
2,3,7,8-Tetrachlorodibenzodioxin (2,3,7,8-TCDD or dioxin) 2,4-D	Dioxin and Furan Method 1613 (rev. B) 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 (2003); Standard Methods, 21 st or 22 nd 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 (2003); Standard Methods, 21 st or 22 nd ed., Method 6640 B
Alachlor	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); NERL Method 525.3 (ver. 1.0)
Atrazine	USEPA Organic Methods, Methods 505 (rev. 2.1) ¹ , 507 (rev. 2.1), 508.1 (rev. 2.1), 523 (rev. 1.0), 525.2 (rev. 2.0), 536 (rev. 1.0), and 551.1 (rev. 1.0); NERL Method 525.3 (ver. 1.0); Syngenta AG-625 ²
Benzo(a)pyrene	USEPA Organic Methods, Methods 525.2 (rev. 2.0), 550, and 550.1; NERL Method 525.3 (ver. 1.0)

Carbofuran	USEPA Organic Methods, Methods 531.1 (rev. 3.1); USEPA OGWDW Methods, Method 531.2 (rev. 1.0); Standard Methods, 18 th ed. Supplement, 19 th ed., or 20 th ed., Method 6610; Standard Methods, 21 st or 22 nd ed., Method 6610 B
Chlordane	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.1), and 525.2 (rev. 2.0); NERL Method 525.3 (rev. 1.0)
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; Standard Methods, 21 st or 22 nd ed., Method 6640 B
<u>Dibromochloropropane (DBCP)</u>	<u>USEPA Organic Methods, Methods 504.1 (rev. 1.1), USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 551.1 (rev. 1.0)</u>
Di(2-ethylhexyl)adipate	USEPA Organic Methods, Methods 506 (rev. 1.1), 525.2 (rev. 2.0), and 525.3 (ver. 1.0)
Di(2-ethylhexyl)phthalate	USEPA Organic Methods, Methods 506 (rev. 1.1) and 525.2 (rev. 2.0); NERL Method 525.3 (ver. 1.0)
Dibromochloropropane (DBCP)	USEPA Organic Methods, Methods 504.1 (rev. 1.1), USEPA OGWDW Methods, Methods 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); USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0); USEPA OGWDW Methods, Methods 515.4 (rev. 1.0) and 555 (rev. 1.0); Standard Methods, 21 st or 22 nd ed., Method 6640 B

Diquat	USEPA NERL Method 549.2 (rev. 1.0)
Endothall	USEPA Organic Methods, Method 548.1 (rev. 1.0)
Endrin	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); NERL Method 525.3 (rev. 1.0)
Ethylene dibromide (EDB)	USEPA Organic Methods, Method 504.1 (rev. 1.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 551.1 (rev.1.0)
Glyphosate	USEPA Organic Methods, Method 547; Standard Methods, 18 th ed., 19 th ed., 20 th , 21 st , or 22 nd 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) ; NERL Method 525.3 (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) ; NERL Method 525.3 (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) ; NERL Method 525.3 (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) ; NERL Method 525.3 (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) ; NERL Method 525.3 (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), 525.3 (rev. 1.0), and 551.1 (rev. 1.0); NERL Method 525.3 (rev. 1.0)
Oxamyl	USEPA Organic Methods, Method 531.1 (rev. 3.1); USEPA OGWDW Methods, Method 531.2 (rev. 1.0); Standard Methods, 18 th ed. Supplement, 19 th ed., or 20 th ed., Method 6610; Standard Methods, 21 st or 22 nd ed., Method 6610 B
PCBs (measured for compliance purposes as decachlorobiphenyl)	USEPA Organic Methods, Method 508A (rev. 1.0)
PCBs (qualitatively identified asalachlors)	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), and 525.2 (rev. 2.0) 525.3; NERL Method (ver. 1.0)
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); 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); Standard Methods, 21 st or 22 nd ed., Method 6640 B; NERL Method 525.3 (rev. 1.0)
Picloram	USEPA Organic Methods, Methods 515.1 (rev. 4.0), 515.2 (rev. 1.1), and 555 (rev. 1.0); 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 (2003); Standard Methods, 21 st or 22 nd ed., Method 6640 B

Simazine

USEPA Organic Methods, Methods 505 (rev. 2.1)¹, 507 (rev. 2.1), 508.1 (rev. 2.0), 523 (ver. 1.0), 525.2 (rev. 2.0), 536 (ver. 1.0), and 551.1 (rev. 1.0) ; NERL Method 525.3 (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) ; NERL Method 525.3 (rev. 1.0) 525.3 (ver. 1.0)

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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. USEPA approved USEPA OGWDW Methods, Method 523 (ver. 1.0) and Method 536 (ver. 1.0) as approved alternative methods for atrazine and simazine and USEPA NERL Methods, Method 525.3 as an approved alternative ~~methods~~method for alachlor, atrazine, benzo(a)pyrene, chlordane, di(2-ethylhexyl)adipate, di(2-ethylhexyl)phthalate, endrin, heptachlor, heptachlor epoxide, hexachlorobenzene, hexachlorocyclopentadiene, lindane, methoxychlor, PCBs (as

15223 alachlor), pentachlorophenol, simazine, and toxaphene in appendix A to subpart C
 15224 of 40 CFR 141 on June 8, 2012 (at 77 Fed. Reg. 38523). USEPA added Standard
 15225 Methods, 22nd ed., Method 6610 B, Method 6640 B, and Method 6651 B and
 15226 Standard Methods Online, Method 6610 B-04 as an approved alternative method
 15227 for carbofuran and oxamyl; Standard Methods, 22nd ed., Method 6640 B and
 15228 Standard Methods Online, Method 6640 B-01 as an approved alternative
 15229 method for 2,4-D, 2,4,5-TP (silvex), dalapon, dinoseb,
 15230 pentachlorophenol, and picloram; and Standard Methods, 22nd ed., Method 6651
 15231 B for glyphosate in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at
 15232 78 Fed. Reg. 32558). Because Standard Methods, 22nd ed., Methods 6610 B and
 15233 6640 B-01 are the same versions as Standard Methods Online 6610 B-04 and
 15234 6640 B-01, the Board has not listed the Standard Methods Online versions
 15235 separately. USEPA added Standard Methods Online, Method 6640 B-06 and
 15236 Method 6651B-05 as an approved alternative method for 2,4-D, 2,4,5-TP
 15237 (silvex), dalapon, dinoseb, pentachlorophenol, and picloram and Method 6651 B-
 15238 05 for glyphosate in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at
 15239 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Methods 6640 B and
 15240 6651 B are the same versions as Standard Methods Online, Methods 6640 B-06
 15241 and 6651 B-05, the Board has not listed the Standard Methods Online versions
 15242 separately.

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, Methods 524.3 (rev. 1.0), 524.4, and 551.1 (rev. 1.0)

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 15247 BOARD NOTE: USEPA added USEPA OGWDW Method 524.3 (rev. 1.0) as an
 15248 alternative method for total trihalomethane in appendix A to subpart C of 40 CFR
 15249 141 on August 3, 2009 (at 74 Fed. Reg. 38348). USEPA added USEPA
 15250 OGWDW Method 524.4 as an approved alternative method for total
 15251 trihalomethanes in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at
 15252 78 Fed. Reg. 32558).

d) State-Only MCLs (for which a method is not listed in subsections (a) through (c) of this Section).

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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)

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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 0.0015 mg/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 (2016)(2014).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.646 Phase I, Phase II, and Phase V Volatile Organic Contaminants

Monitoring of the Phase I, Phase II, and Phase V VOCs for the purpose of determining compliance with the MCL must be conducted as follows:

a) Definitions. As used in this Section the following have the given meanings:

"Detect" and "detection" mean that the contaminant of interest is present at

a level greater than or equal to the "detection limit:".

"Detection limit" means 0.0005 mg/ℓ.

BOARD NOTE: Derived from 40 CFR 141.24(f)(7), (f)(11), (f)(14)(i), and (f)(20) (2016)(2013). This is a "trigger level" for Phase I, Phase II, and Phase V VOCs inasmuch as it prompts further action. The use of the term "detect" in this Section is not intended to include any analytical capability of quantifying lower levels of any contaminant, or the "method detection limit:".

Note, however, that certain language at the end of federal paragraph (f)(20) is capable of meaning that the "method detection limit" is used to derive the "detection limit:". The Board has chosen to disregard that language at the end of paragraph (f)(20) in favor of the more direct language of paragraphs (f)(7) and (f)(11).

"Method detection limit;" as used in subsections (q) and (t) of this Section means the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte.

BOARD NOTE: Derived from appendix B to 40 CFR 136 (2016)(2013). The method detection limit is determined by the procedure set forth in appendix B to 40 CFR 136, incorporated by reference in Section 611.102(c). See subsection (t) of this Section.

b) Required sampling. Each supplier must take a minimum of one sample at each sampling point at the times required in subsection (u) of this Section.

c) Sampling points.

1) Sampling points for a GWS. Unless otherwise provided by a SEP granted by the Agency pursuant to Section 611.110, a GWS supplier must take at least one sample from each of the following points: each entry point that is representative of each well after treatment.

2) Sampling points for an SWS or mixed system supplier. Unless otherwise provided by a SEP granted by the Agency pursuant to Section 611.110, an SWS or mixed system supplier must sample from each of the following points:

A) Each entry point after treatment; or

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 15377 BOARD NOTE: Derived from 40 CFR 141.24(f)(7) and (f)(10) (2016)(2013),
 15378 and the discussion at 57 Fed. Reg. 31825 (July 17, 1992). Provisions concerning
 15379 the term of the waiver appear in subsections (i) and (j) of this Section. The
 15380 definition of "detect," parenthetically added to the federal counterpart paragraph,
 15381 is in subsection (a) of this Section.
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15383 h) Vulnerability assessment. The Agency must consider the factors of Section
 15384 611.110(e) in granting a SEP from the requirements of subsection (d), (e), or (f)
 15385 of this Section sought pursuant to subsection (g) of this Section.
 15386

15387 i) A SEP issued to a GWS pursuant to subsection (g) of this Section is for a
 15388 maximum of six years, except that a SEP as to the subsection (d) of this Section
 15389 monitoring for 1,2,4-trichlorobenzene must apply only to the initial round of
 15390 monitoring. As a condition of a SEP, except as to a SEP from the initial round
 15391 of subsection (d) of this Section monitoring for 1,2,4-trichlorobenzene, the
 15392 supplier shall, within 30 months after the beginning of the period for which the
 15393 waiver was issued, reconfirm its vulnerability assessment required by subsection
 15394 (h) of this Section and submitted pursuant to subsection (g) of this Section, by
 15395 taking one sample at each sampling point and reapplying for a SEP pursuant to
 15396 subsection (g) of this Section. Based on this application, the Agency must do
 15397 either of the following:
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15399 1) If it determines that the PWS meets the standard of Section 611.610(e),
 15400 issue a SEP that reconfirms the prior SEP for the remaining three-year
 15401 compliance period of the six-year maximum term; or
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15403 2) Issue a new SEP requiring the supplier to sample annually.
 15404

15405 BOARD NOTE: Subsection (i) of this Section does not apply to an SWS or
 15406 mixed system supplier.
 15407

15408 j) Special considerations for a SEP for an SWS or mixed-system supplier.
 15409

15410 1) The Agency must determine that an SWS is not vulnerable before issuing
 15411 a SEP pursuant to Section 611.110 to an SWS supplier. A SEP issued to
 15412 an SWS or mixed system supplier pursuant to subsection (g) of this
 15413 Section is for a maximum of one compliance period; and
 15414

15415 2) The Agency may require, as a condition to a SEP issued to an SWS or
 15416 mixed supplier, that the supplier take such samples for Phase I, Phase II,
 15417 and Phase V VOCs at such a frequency as the Agency determines are
 15418 necessary, based on the vulnerability assessment.

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BOARD NOTE: There is a great degree of similarity between 40 CFR 141.24(f)(7) (2016)(2012), the provision applicable to GWSs, and 40 CFR 141.24(f)(10) (2016)(2013), the provision for SWSs. The Board has consolidated the common requirements of both paragraphs into subsection (g) of this Section. Subsection (j) of this Section represents the elements unique to an SWSs or mixed system, and subsection (i) of this Section relates to a GWS supplier. Although 40 CFR 141.24(f)(7) and (f)(10) are silent as to a mixed system supplier, the Board has included a mixed system supplier with an SWS supplier because this best follows the federal scheme for all other contaminants.

- k) If one of the Phase I VOCs, excluding vinyl chloride; a Phase II VOC; or a Phase V VOC is detected in any sample, then the following must occur:
 - 1) The supplier must monitor quarterly for that contaminant at each sampling point that resulted in a detection.
 - 2) Annual monitoring.
 - A) The Agency must grant a SEP pursuant to Section 611.110 that allows a supplier to reduce the monitoring frequency to annual at a sampling point if it determines that the sampling point is reliably and consistently below the MCL.
 - B) A request for a SEP must include the following minimal information:
 - i) For a GWS, two quarterly samples.
 - ii) For an SWS or mixed system supplier, four quarterly samples.
 - C) In issuing a SEP, the Agency must specify the level of the contaminant upon which the "reliably and consistently" determination was based. Any SEP that allows less frequent monitoring based on an Agency "reliably and consistently" determination must include a condition requiring the supplier to resume quarterly monitoring pursuant to subsection (k)(1) of this Section if it violates the MCL specified by Section 611.311.
 - 3) Suppliers that monitor annually must monitor during the quarters that previously yielded the highest analytical result.

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- 4) Suppliers that do not detect a contaminant at a sampling point in three consecutive annual samples may apply to the Agency for a SEP pursuant to Section 611.110 that allows it to discontinue monitoring for that contaminant at that point, as specified in subsection (g) ~~of this Section.~~

 - 5) A GWS supplier that has detected one or more of the two-carbon contaminants listed in subsection (k)(5)(A) ~~of this Section~~ must monitor quarterly for vinyl chloride as described in subsection (k)(5)(B) ~~of this Section~~, subject to the limitation of subsection (k)(5)(C) ~~of this Section.~~
 - A) "Two-carbon contaminants" (Phase I or II VOC) are the following:
 - 1,2-Dichloroethane (Phase I)
 - 1,1-Dichloroethylene (Phase I)
 - cis-1,2-Dichloroethylene (Phase II)
 - trans-1,2-Dichloroethylene (Phase II)
 - Tetrachloroethylene (Phase II)
 - 1,1,1-Trichloroethylene (Phase I)
 - Trichloroethylene (Phase I)
 - B) The supplier must sample quarterly for vinyl chloride at each sampling point at which it detected one or more of the two-carbon contaminants listed in subsection (k)(5)(A) ~~of this Section.~~
 - C) The Agency must grant a SEP pursuant to Section 611.110 that allows the supplier to reduce the monitoring frequency for vinyl chloride at any sampling point to once in each three-year compliance period if it determines that the supplier has not detected vinyl chloride in the first sample required by subsection (k)(5)(B) ~~of this Section.~~

 - 1) Quarterly monitoring following MCL violations.
 - 1) Suppliers that violate an MCL for one of the Phase I VOCs, including vinyl chloride; Phase II VOCs; or Phase V VOCs, as determined by subsection (o) ~~of this Section~~, must monitor quarterly for that contaminant, at the sampling point where the violation occurred, beginning the next

- 15505 quarter after the violation.
 15506
 15507 2) Annual monitoring.
 15508
 15509 A) The Agency must grant a SEP pursuant to Section 611.110 that
 15510 allows a supplier to reduce the monitoring frequency to annually if
 15511 it determines that the sampling point is reliably and consistently
 15512 below the MCL.
 15513
 15514 B) A request for a SEP must include the following minimal
 15515 information: four quarterly samples.
 15516
 15517 C) In issuing a SEP, the Agency must specify the level of the
 15518 contaminant upon which the "reliably and consistently"
 15519 determination was based. Any SEP that allows less frequent
 15520 monitoring based on an Agency "reliably and consistently"
 15521 determination must include a condition requiring the supplier to
 15522 resume quarterly monitoring pursuant to subsection (l)(1)-of this
 15523 Section if it violates the MCL specified by Section 611.311.
 15524
 15525 D) The supplier must monitor during the quarters that previously
 15526 yielded the highest analytical result.
 15527
 15528 m) Confirmation samples. The Agency may issue a SEP pursuant to Section 610.110
 15529 to require a supplier to use a confirmation sample for results that it finds dubious
 15530 for whatever reason. The Agency must state its reasons for issuing the SEP if the
 15531 SEP is Agency-initiated.
 15532
 15533 1) If a supplier detects any of the Phase I, Phase II, or Phase V VOCs in a
 15534 sample, the supplier must take a confirmation sample as soon as possible,
 15535 but no later than 14 days after the supplier receives notice of the detection.
 15536
 15537 2) Averaging is as specified in subsection (o)-of this Section.
 15538
 15539 3) The Agency must delete the original or confirmation sample if it
 15540 determines that a sampling error occurred, in which case the confirmation
 15541 sample will replace the original or confirmation sample.
 15542
 15543 n) This subsection (n) corresponds with 40 CFR 141.24(f)(14), an optional USEPA
 15544 provision relating to compositing of samples that USEPA does not require for
 15545 state programs. This statement maintains structural consistency with USEPA
 15546 rules.
 15547

- 15548 o) Compliance with the MCLs for the Phase I, Phase II, and Phase V VOCs must be
 15549 determined based on the analytical results obtained at each sampling point. If one
 15550 sampling point is in violation of an MCL, the system is in violation of the MCL.
 15551
- 15552 1) For a supplier that monitors more than once per year, compliance with the
 15553 MCL is determined by a running annual average at each sampling point.
 15554
- 15555 2) A supplier that monitors annually or less frequently whose sample result
 15556 exceeds the MCL must begin quarterly sampling. The system will not be
 15557 considered in violation of the MCL until it has completed one year of
 15558 quarterly sampling.
 15559 3) If any sample result will cause the running annual average to exceed the
 15560 MCL at any sampling point, the supplier is out of compliance with the
 15561 MCL immediately.
 15562
- 15563 4) If a supplier fails to collect the required number of samples, compliance
 15564 will be based on the total number of samples collected.
 15565
- 15566 5) If a sample result is less than the detection limit, zero will be used to
 15567 calculate the annual average.
 15568
- 15569 p) This subsection (p) corresponds with 40 CFR 141.24(f)(16), which USEPA
 15570 removed and reserved. This statement maintains structural consistency with the
 15571 federal regulations.
 15572
- 15573 q) Analysis under this Section must only be conducted by a laboratory in one of the
 15574 categories listed in Section 611.490(a) that has been certified according to the
 15575 following conditions:
 15576
- 15577 1) To receive certification to conduct analyses for the Phase I VOCs,
 15578 excluding vinyl chloride; Phase II VOCs; and Phase V VOCs, the
 15579 laboratory must do the following:
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- 15581 A) It must analyze performance evaluation (PE) samples that include
 15582 these substances provided by the Agency pursuant to 35 Ill. Adm.
 15583 Code 186.170;
 15584
- 15585 B) It must achieve the quantitative acceptance limits under
 15586 subsections (q)(1)(C) and (q)(1)(D) ~~of this Section~~ for at least 80
 15587 percent of the regulated organic contaminants in the PE sample;
 15588
- 15589 C) It must achieve quantitative results on the analyses performed
 15590 under subsection (q)(1)(A) ~~of this Section~~ that are within ± 20

- 15591 percent of the actual amount of the substances in the PE sample
 15592 when the actual amount is greater than or equal to 0.010 mg/ℓ;
 15593
 15594 D) It must achieve quantitative results on the analyses performed
 15595 under subsection (q)(1)(A) ~~of this Section~~ that are within ± 40
 15596 percent of the actual amount of the substances in the PE sample
 15597 when the actual amount is less than 0.010 mg/ℓ; and
 15598
 15599 E) It must achieve a method detection limit of 0.0005 mg/ℓ, according
 15600 to the procedures in appendix B to 40 CFR 136, incorporated by
 15601 reference in Section 611.102.
 15602
 15603 2) To receive certification to conduct analyses for vinyl chloride the
 15604 laboratory must do the following:
 15605
 15606 A) It must analyze PE samples provided by the Agency pursuant to 35
 15607 Ill. Adm. Code 186.170;
 15608
 15609 B) It must achieve quantitative results on the analyses performed
 15610 under subsection (q)(2)(A) ~~of this Section~~ that are within ± 40
 15611 percent of the actual amount of vinyl chloride in the PE sample;
 15612
 15613 C) It must achieve a method detection limit of 0.0005 mg/ℓ, according
 15614 to the procedures in appendix B to 40 CFR 136, incorporated by
 15615 reference in Section 611.102; and
 15616
 15617 D) It must obtain certification pursuant to subsection (q)(1) ~~of this~~
 15618 ~~Section~~ for Phase I VOCs, excluding vinyl chloride; Phase II
 15619 VOCs; and Phase V VOCs.
 15620
 15621 r) This subsection (r) corresponds with 40 CFR 141.24(f)(18), an obsolete provision
 15622 that relates to the initial compliance period from 1993 through 1995. This
 15623 statement maintains consistency with the federal regulations.
 15624
 15625 s) The Agency shall, by a SEP issued pursuant to Section 611.110, increase the
 15626 number of sampling points or the frequency of monitoring if it determines that it
 15627 is necessary to detect variations within the PWS.
 15628
 15629 t) Each laboratory certified for the analysis of Phase I, Phase II, or Phase V VOCs
 15630 pursuant to subsection (q)(1) or (q)(2) ~~of this Section~~ shall do the following:
 15631
 15632 1) Determine the method detection limit (MDL), as defined in appendix B to
 15633 40 CFR 136, incorporated by reference in Section 611.102, at which it is

- 15634 capable of detecting the Phase I, Phase II, and Phase V VOCs; and,
 15635
 15636 2) Achieve an MDL for each Phase I, Phase II, and Phase V VOC that is less
 15637 than or equal to 0.0005 mg/l.
 15638
 15639 u) Each supplier must monitor, within each compliance period, at the time
 15640 designated by the Agency by SEP pursuant to Section 611.110.
 15641
 15642 v) A new system supplier or a supplier that uses a new source of water must
 15643 demonstrate compliance with the MCL within a period of time specified by a
 15644 permit issued by the Agency. The supplier must also comply with the initial
 15645 sampling frequencies specified by the Agency to ensure the supplier can
 15646 demonstrate compliance with the MCL. Routine and increased monitoring
 15647 frequencies must be conducted in accordance with the requirements in this
 15648 Section.

15649
 15650 BOARD NOTE: Derived from 40 CFR 141.24(f) (2016)(2013).

15651 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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 15653

15654 **Section 611.648 Phase II, Phase IIB, and Phase V Synthetic Organic Contaminants**
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15656 Analysis of the Phase II, Phase IIB, and Phase V SOCs for the purposes of determining
 15657 compliance with the MCL must be conducted as follows:
 15658

- 15659 a) Definitions. As used in this Section, the following terms will have the following
 15660 meanings:
 15661

15662 "Detect" or "detection" means that the contaminant of interest is present at
 15663 a level greater than or equal to the "detection limit".
 15664

15665 "Detection limit" means the level of the contaminant of interest that is
 15666 specified in subsection (r) of this Section.
 15667

15668 BOARD NOTE: This is a "trigger level" for Phase II, Phase IIB, and
 15669 Phase V SOCs inasmuch as it prompts further action. The use of the term
 15670 "detect" or "detection" in this Section is not intended to include any
 15671 analytical capability of quantifying lower levels of any contaminant, or the
 15672 "method detection limit".
 15673

- 15674 b) Required sampling. Each supplier must take a minimum of one sample at each
 15675 sampling point at the times required in subsection (q) of this Section.
 15676

15677 BOARD NOTE: See the Board note appended to Section 611.311(c) for
15678 information relating to implementation of requirements relating to aldicarb,
15679 aldicarb sulfone, and aldicarb sulfoxide.

15680
15681 c) Sampling points.

- 15682
15683 1) Sampling points for GWSs. Unless otherwise provided by SEP, a GWS
15684 supplier must take at least one sample from each of the following points:
15685 each entry point that is representative of each well after treatment.
15686
15687 2) Sampling points for an SWS or mixed system supplier. Unless otherwise
15688 provided by SEP, an SWS or mixed system supplier must sample from
15689 each of the following points:
15690
15691 A) Each entry point after treatment; or
15692
15693 B) Points in the distribution system that are representative of each
15694 source.
15695
15696 3) The supplier must take each sample at the same sampling point unless the
15697 Agency has granted a SEP that designates another location as more
15698 representative of each source, treatment plant, or within the distribution
15699 system.
15700
15701 4) If a system draws water from more than one source, and the sources are
15702 combined before distribution, the supplier must sample at an entry point
15703 during periods of normal operating conditions when water is
15704 representative of all sources being used.
15705

15706 BOARD NOTE: Subsections (b) and (c) of this Section derived from 40 CFR
15707 141.24(h)(1) through (h)(3) (2013).

15708
15709 d) Monitoring frequency.

- 15710
15711 1) Each CWS and NTNCWS supplier must take four consecutive quarterly
15712 samples for each of the Phase II, Phase IIB, and Phase V SOCs during
15713 each compliance period, beginning in the three-year compliance period
15714 starting in the initial compliance period.
15715
15716 2) Suppliers serving more than 3,300 persons that do not detect a
15717 contaminant in the initial compliance period must take a minimum of two
15718 quarterly samples in one year of each subsequent three-year compliance
15719 period.

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- 3) Suppliers serving fewer than or equal to 3,300 persons that do not detect a contaminant in the initial compliance period must take a minimum of one sample during each subsequent three-year compliance period.
 - e) Reduction to annual monitoring frequency. A CWS or NTNCWS supplier may apply to the Agency for a SEP that releases it from the requirements of subsection (d) of this Section. A SEP from the requirement of subsection (d) of this Section must last for only a single three-year compliance period.
 - f) Vulnerability assessment. The Agency must grant a SEP from the requirements of subsection (d) of this Section based on consideration of the factors set forth at Section 611.110(e).
 - g) If one of the Phase II, Phase IIB, or Phase V SOCs is detected in any sample, then the following must occur:
 - 1) The supplier must monitor quarterly for the contaminant at each sampling point that resulted in a detection.
 - 2) Annual monitoring.
 - A) A supplier may request that the Agency grant a SEP pursuant to Section 610.110 that reduces the monitoring frequency to annual.
 - B) A request for a SEP must include the following minimal information:
 - i) For a GWS, two quarterly samples.
 - ii) For an SWS or mixed system supplier, four quarterly samples.
 - C) The Agency must grant a SEP that allows annual monitoring at a sampling point if it determines that the sampling point is reliably and consistently below the MCL.
 - D) In issuing the SEP, the Agency must specify the level of the contaminant upon which the "reliably and consistently" determination was based. Any SEP that allows less frequent monitoring based on an Agency "reliably and consistently" determination must include a condition requiring the supplier to resume quarterly monitoring pursuant to subsection (g)(1) of this

Section if it detects any Phase II SOC.

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- 3) Suppliers that monitor annually must monitor during the quarters that previously yielded the highest analytical result.
- 4) Suppliers that have three consecutive annual samples with no detection of a contaminant at a sampling point may apply to the Agency for a SEP with respect to that point, as specified in subsections (e) and (f) of this Section.
- 5) Monitoring for related contaminants.
- A) If monitoring results in detection of one or more of the related contaminants listed in subsection (g)(5)(B) of this Section, subsequent monitoring must analyze for all the related compounds in the respective group.
 - B) Related contaminants.
 - i) First group.
 - aldicarb
 - aldicarb sulfone
 - aldicarb sulfoxide

BOARD NOTE: See the Board note appended to Section 611.311(c) for information relating to implementation of requirements relating to aldicarb, aldicarb sulfone, and aldicarb sulfoxide.
 - ii) Second group.
 - heptachlor
 - heptachlor epoxide.
- h) Quarterly monitoring following MCL violations.
- 1) Suppliers that violate an MCL for one of the Phase II, Phase IIB, or Phase V SOCs, as determined by subsection (k) of this Section, must monitor quarterly for that contaminant at the sampling point where the violation occurred, beginning the next quarter after the violation.

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- 2) Annual monitoring.
 - A) A supplier may request that the Agency grant a SEP pursuant to Section 611.110 that reduces the monitoring frequency to annual.
 - B) A request for a SEP must include, at a minimum, the results from four quarterly samples.
 - C) The Agency must grant a SEP that allows annual monitoring at a sampling point if it determines that the sampling point is reliably and consistently below the MCL.
 - D) In issuing the SEP, the Agency must specify the level of the contaminant upon which the "reliably and consistently" determination was based. Any SEP that allows less frequent monitoring based on an Agency "reliably and consistently" determination must include a condition requiring the supplier to resume quarterly monitoring pursuant to subsection (h)(1) ~~of this Section~~ if it detects any Phase II SOC.
 - E) The supplier must monitor during the quarters that previously yielded the highest analytical result.
 - i) Confirmation samples.
 - 1) If any of the Phase II, Phase IIB, or Phase V SOCs are detected in a sample, the supplier must take a confirmation sample as soon as possible, but no later than 14 days after the supplier receives notice of the detection.
 - 2) Averaging is as specified in subsection (k) ~~of this Section~~.
 - 3) The Agency must delete the original or confirmation sample if it determines that a sampling error occurred, in which case the confirmation sample will replace the original or confirmation sample.
 - j) This subsection (j) corresponds with 40 CFR 141.24(h)(10), an optional USEPA provision relating to compositing of samples that USEPA does not require for state programs. This statement maintains structural consistency with USEPA rules.
 - k) Compliance with the MCLs for the Phase II, Phase IIB, and Phase V SOCs must be determined based on the analytical results obtained at each sampling point. If

- 15849 one sampling point is in violation of an MCL, the supplier is in violation of the
 15850 MCL.
 15851
 15852 1) For a supplier that monitors more than once per year, compliance with the
 15853 MCL is determined by a running annual average at each sampling point.
 15854
 15855 2) A supplier that monitors annually or less frequently whose sample result
 15856 exceeds the regulatory detection level as defined by subsection (r) of this
 15857 Section must begin quarterly sampling. The system will not be considered
 15858 in violation of the MCL until it has completed one year of quarterly
 15859 sampling.
 15860
 15861 3) If any sample result will cause the running annual average to exceed the
 15862 MCL at any sampling point, the supplier is out of compliance with the
 15863 MCL immediately.
 15864
 15865 4) If a supplier fails to collect the required number of samples, compliance
 15866 will be based on the total number of samples collected.
 15867
 15868 5) If a sample result is less than the detection limit, zero will be used to
 15869 calculate the annual average.
 15870
 15871 l) This subsection (1) corresponds with 40 CFR 141.24(h)(12), which USEPA
 15872 removed and reserved. This statement maintains structural consistency with the
 15873 federal regulations.
 15874
 15875 m) Analysis for PCBs must be conducted as follows using the methods in Section
 15876 611.645:
 15877
 15878 1) Each supplier that monitors for PCBs must analyze each sample using
 15879 either USEPA Organic Methods, Method 505 or Method 508.
 15880
 15881 2) If PCBs are detected in any sample analyzed using USEPA Organic
 15882 Methods, Method 505 or 508, the supplier must reanalyze the sample
 15883 using Method 508A to quantitate the individual Aroclors (as
 15884 decachlorobiphenyl).
 15885
 15886 3) Compliance with the PCB MCL must be determined based upon the
 15887 quantitative results of analyses using USEPA Organic Methods, Method
 15888 508A.
 15889
 15890 n) This subsection (n) corresponds with 40 CFR 141.24(h)(14), an obsolete
 15891 provision that relates to the initial compliance period from 1993 through 1995.

15892 This statement maintains consistency with the federal regulations.

15893
 15894 o) The Agency must issue a SEP that increases the number of sampling points or the
 15895 frequency of monitoring if it determines that this is necessary to detect variations
 15896 within the PWS due to such factors as fluctuations in contaminant concentration
 15897 due to seasonal use or changes in the water source.

15898
 15899 BOARD NOTE: At 40 CFR 141.24(h)(15), USEPA uses the stated factors as
 15900 non-limiting examples of circumstances that make additional monitoring
 15901 necessary.

15902
 15903 p) This subsection (p) corresponds with 40 CFR 141.24(h)(16), a USEPA provision
 15904 relating to reserving enforcement authority to the State that would serve no useful
 15905 function as part of the State's rules. This statement maintains structural
 15906 consistency with USEPA rules.

15907
 15908 q) Each supplier must monitor, within each compliance period, at the time
 15909 designated by the Agency by SEP pursuant to Section 611.110.

15910
 15911 r) "Detection" means greater than or equal to the following concentrations for each
 15912 contaminant:

15913
 15914 1) for PCBs (Aroclors), the following:

Aroclor	Detection Limit (mg/ℓ)
1016	0.00008
1221	0.02
1232	0.0005
1242	0.0003
1248	0.0001
1254	0.0001
1260	0.0002

15916
 15917 2) for other Phase II, Phase IIB, and Phase V SOCs, the following:

Contaminant	Detection Limit (mg/ℓ)
Alachlor	0.0002
Aldicarb	0.0005
Aldicarb sulfoxide	0.0005
Aldicarb sulfone	0.0008

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Atrazine	0.0001
Benzo(a)pyrene	0.00002
Carbofuran	0.0009
Chlordane	0.0002
2,4-D	0.0001
Dalapon	0.001
1,2-Dibromo-3-chloropropane (DBCP)	0.00002
Di(2-ethylhexyl)adipate	0.0006
Di(2-ethylhexyl)phthalate	0.0006
Dinoseb	0.0002
Diquat	0.0004
Endothall	0.009
Endrin	0.00001
Ethylene dibromide (EDB)	0.00001
Glyphosate	0.006
Heptachlor	0.00004
Heptachlor epoxide	0.00002
Hexachlorobenzene	0.0001
Hexachlorocyclopentadiene	0.0001
Lindane	0.00002
Methoxychlor	0.0001
Oxamyl	0.002
Picloram	0.0001
Polychlorinated biphenyls (PCBs) (as decachlorobiphenyl)	0.0001
Pentachlorophenol	0.00004
Simazine	0.00007
Toxaphene	0.001
2,3,7,8-TCDD (dioxin)	0.000000005
2,4,5-TP (silvex)	0.0002

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BOARD NOTE: See the Board note appended to Section 611.311(c) for information relating to implementation of requirements relating to aldicarb, aldicarb sulfone, and aldicarb sulfoxide.

- s) Laboratory certification.
 - 1) Analyses under this Section must only be conducted by a laboratory in one of the categories listed in Section 611.490(a) that has been certified according to the conditions of subsection (s)(2) of this Section.
 - 2) To receive certification to conduct analyses for the Phase II, Phase IIB, and Phase V SOCs, the laboratory must do the following:

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- A) Analyze PE samples provided by the Agency pursuant to 35 Ill. Adm. Code 183.125(c) that include these substances; and
- B) Achieve quantitative results on the analyses performed under subsection (s)(2)(A) of this Section that are within the following acceptance limits:

SOC	Acceptance Limits
Alachlor	± 45%
Aldicarb	2 standard deviations
Aldicarb sulfone	2 standard deviations
Aldicarb sulfoxide	2 standard deviations
Atrazine	± 45%
Benzo(a)pyrene	2 standard deviations
Carbofuran	± 45%
Chlordane	± 45%
Dalapon	2 standard deviations
Di(2-ethylhexyl)adipate	2 standard deviations
Di(2-ethylhexyl)phthalate	2 standard deviations
Dinoseb	2 standard deviations
Diquat	2 standard deviations
Endothall	2 standard deviations
Endrin	± 30%
Glyphosate	2 standard deviations
Dibromochloropropane (DBCP)	± 40%
Ethylene dibromide (EDB)	± 40%
Heptachlor	± 45%
Heptachlor epoxide	± 45%
Hexachlorobenzene	2 standard deviations
Hexachlorocyclopentadiene	2 standard deviations
Lindane	± 45%
Methoxychlor	± 45%
Oxamyl	2 standard deviations
PCBs (as decachlorobiphenyl)	0-200%
Pentachlorophenol	± 50%
Picloram	2 standard deviations
Simazine	2 standard deviations
Toxaphene	± 45%
2,4-D	± 50%
2,3,7,8-TCDD (dioxin)	2 standard deviations
2,4,5-TP (silvex)	± 50%

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15941 BOARD NOTE: See the Board note appended to Section
15942 611.311(c) for information relating to implementation of
15943 requirements relating to aldicarb, aldicarb sulfone, and aldicarb
15944 sulfoxide.
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- 15946 t) A new system supplier or a supplier that uses a new source of water must
15947 demonstrate compliance with the MCL within a period of time specified by a
15948 permit issued by the Agency. The supplier must also comply with the initial
15949 sampling frequencies specified by the Agency to ensure the supplier can
15950 demonstrate compliance with the MCL. Routine and increased monitoring
15951 frequencies must be conducted in accordance with the requirements in this
15952 Section.
15953

15954 BOARD NOTE: Derived from 40 CFR 141.24(h) (2016)(2013).

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15956 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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15958 SUBPART Q: RADIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS
15959

15960 **Section 611.720 Analytical Methods**
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- 15962 a) The methods specified below, or alternative methods approved by the Agency
15963 pursuant to Section 611.480, incorporated by reference in Section 611.102, are to
15964 be used to determine compliance with Section 611.330, except in cases where
15965 alternative methods have been approved in accordance with Section 611.480.
15966

15967 1) Gross Alpha and Beta.

15968 A) Standard Methods.

15969 i) Method 302, 13th ed.; or
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15971 ii) Method 7110 B, 17th, 18th, 19th, 20th, 21st, or 22nd ed.;
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15973 B) USEPA Interim Radiochemical Methods: pages 1-3;
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15975 C) USEPA Radioactivity Methods, Method 900.0;
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15977 D) USEPA Radiochemical Analyses: pages 1-5;
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15979 E) USEPA Radiochemistry Procedures, Method 00-01; or
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- 15983 F) USGS Methods, Method R-1120-76.
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 15985 BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 7110
 15986 B as an approved alternative method for gross alpha and beta in appendix
 15987 A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).
 15988 USEPA added Standard Methods, 22nd ed., Method 7110 B as an approved
 15989 alternative method for gross alpha and beta in appendix A to subpart C of
 15990 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463).
 15991
 15992 2) Gross Alpha.
 15993
 15994 A) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 7110
 15995 C; or
 15996
 15997 B) USEPA Radiochemistry Procedures, Method 00-02.
 15998
 15999 BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 7110
 16000 C as an approved alternative method for gross alpha in appendix A to
 16001 subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). See the
 16002 comment appended to 611.611(a)(2)(D)(ii) re Standard Methods Online,
 16003 Method 3113 B-04 for antimony. USEPA added Standard Methods, 22nd
 16004 ed., Method 7110 C as an approved alternative method for gross alpha in
 16005 appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg.
 16006 37463).
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 16008 3) Radium-226.
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 16010 A) ASTM Methods.
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 16012 i) Method D2460-97 or D2460-07; or
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 16014 ii) Method D3454-97 or D3454-05;
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 16016 B) New York Radium Method;
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 16018 C) Standard Methods.
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 16020 i) Method 304, 13th ed.;
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 16022 ii) Method 305, 13th ed.;
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 16024 iii) Method 7500-Ra B, 17th, 18th, 19th, 20th, 21st, or 22nd ed.; or
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- 16026 iv) Method 7500-Ra C, 17th, 18th, 19th, 20th, 21st, or 22nd ed.;
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- 16028 D) EML Procedures Manual (27th or 28th ed.), Method Ra-04;
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- 16030 E) USEPA Interim Radiochemical Methods: pages 13-15 or 16-23;
- 16031
- 16032 F) USEPA Radioactivity Methods, Methods 903.0, 903.1;
- 16033
- 16034 G) USEPA Radiochemical Analyses, pages 19-32;
- 16035
- 16036 H) USEPA Radiochemistry Procedures, Method Ra-03 or Ra-04; or
- 16037
- 16038 I) USGS Methods.
- 16039
- 16040 i) USGS Method R-1140-76; or
- 16041
- 16042 ii) USGS Method R-1141-76.
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- 16044 J) Georgia Radium Method.
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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). USEPA added Standard Methods, 22nd 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 21, 2013 (at 78 Fed. Reg. 37463).

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- 16056 4) Radium-228.
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- 16058 A) Standard Methods, 17th, 18th, 19th, 20th, 21st, or 22nd ed., Method
- 16059 7500-Ra D;
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- 16061 B) New York Radium Method;
- 16062
- 16063 C) USEPA Interim Radiochemical Methods, pages 24-28;
- 16064
- 16065 D) USEPA Radioactivity Methods, Method 904.0;
- 16066
- 16067 E) USEPA Radiochemical Analyses, pages 19-32;
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- 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). USEPA added Standard Methods, 22nd 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 21, 2013 (at 78 Fed. Reg. 37463).

5) Uranium.

- A) Standard Methods, 17th, 18th, 19th, 20th, 21st, or 22nd ed., Method 7500-U B or 7500-U C;
- B) Standard Methods, 20th or 21st ed., Method 3125;
- C) ASTM Methods.
 - i) Method D2907-97;
 - ii) Method D3972-97, D3972-02, or D3972-09;
 - iii) Method D5174-97, D5174-02, or D5174-07;
 - iv) Method D5673-03, Method D5673-05, or Method D5673-10; or
 - v) Method D6239-09;
- 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;

- 16112 H) EML Procedures Manual (27th or 28th ed.), Method U-02 or U-04;
- 16113 or
- 16114
- 16115 I) USGS Methods.
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- 16117 i) USGS Method R-1180-76;
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- 16119 ii) USGS Method R-1181-76; or
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- 16121 iii) USGS Method R-1182-76.
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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 ²³⁴U and ²³⁸U that is characteristic of naturally occurring uranium.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 7500-U B and Method 7500-U C and ASTM Method 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). USEPA added Standard Methods, 21st ed., Method 3125 and ASTM Methods D5673-10 and D6329-09 as approved alternative methods for uranium in appendix A to subpart C of 40 CFR 141 on June 3, 2012 (at 77 Fed. Reg. 38523). USEPA added Standard Methods, 22nd ed., Methods 7500-U B and C as approved alternative methods for uranium in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463).

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- 16144 6) Radioactive Cesium.
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- 16146 A) ASTM Methods.
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- 16148 i) Method D2459-72; or
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- 16150 ii) Method D3649-91, D3649-98a, or D3649-06;
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- 16152 B) Standard Methods.
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- 16154 i) Method 7120, 19th, 20th, 21st, or 22nd ed.; or

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- ii) Method 7500-Cs B, 17th, 18th, 19th, 20th, 21st, or 22nd ed.;
 - C) EML Procedures Manual (27th or 28th ed.), Method Ga-01-R4.5.2.3;
 - 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) USGS Method R-1110-76; or
 - ii) USGS 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). USEPA added Standard Methods, 22nd 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 21, 2013 (at 78 Fed. Reg. 37463).

7) Radioactive Iodine.

- A) ASTM Methods.
 - i) D3649-91, D3649-98a, or D3649-06; or
 - ii) D4785-93, D4785-00a~~D4785-98~~, or D4785-08;
- B) Standard Methods.
 - i) Method 7120, 19th, 20th, 21st, or 22nd ed.;
 - ii) Method 7500-I B, 17th, 18th, 19th, 20th, 21st, or 22nd ed.;
 - iii) Method 7500-I C, 17th, 18th, 19th, 20th, 21st, or 22nd ed.; or

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- iv) Method 7500-I D, 17th, 18th, 19th, 20th, 21st, or 22nd ed.;
 - C) EML Procedures Manual (27th or 28th ed.), Method Ga-01-R4.5.2.3;
 - 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). USEPA added Standard Methods, 22nd 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 21, 2013 (at 78 Fed. Reg. 37463).
- 8) Radioactive Strontium-89 & 90.
 - A) Standard Methods.
 - i) Method 303, 13th ed.; or
 - ii) Method 7500-Sr B, 17th, 18th, 19th, 20th, 21st, or 22nd 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.

16241 BOARD NOTE: USEPA added Standard Methods, 21st ed., Method
 16242 7500-Sr B as an approved alternative method for radioactive strontium in
 16243 appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg.
 16244 31616). USEPA added Standard Methods, 22nd ed., Method 7500-Sr B as
 16245 an approved alternative method for radioactive strontium 89 and 90 in
 16246 appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg.
 16247 37463).

9) Tritium.

- 16250 A) ASTM Methods: Method D4107-91, D4107-98, or D4107-08;
- 16251 B) Standard Methods.
- 16252 i) Method 306, 13th ed.; or
- 16253 ii) Method 7500-³H B, 17th, 18th, 19th, 20th, 21st, or 22nd ed.;
- 16254 C) USEPA Interim Radiochemical Methods, pages 34-37;
- 16255 D) USEPA Radioactivity Methods, Method 906.0;
- 16256 E) USEPA Radiochemical Analyses, pages 87-91;
- 16257 F) USEPA Radiochemistry Procedures, Method H-02; or
- 16258 G) USGS Methods, Method R-1171-76.

16268 BOARD NOTE: USEPA added Standard Methods, 21st ed., Method
 16269 7500-³H B as an approved alternative method for tritium in appendix A to
 16270 subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).
 16271 USEPA added ASTM Method D4107-08 as an approved alternative
 16272 method for tritium in appendix A to subpart C of 40 CFR 141 on June 8,
 16273 2010 (at 75 Fed. Reg. 32295). USEPA added Standard Methods, 22nd ed.,
 16274 Method 7500-³H B as an approved alternative method for tritium in
 16275 appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg.
 16276 37463).

10) Gamma Emitters.

- 16277 A) ASTM Methods.
- 16278 i) Method D3649-91, D3649-98a, or D3649-06; or
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- 16284 ii) Method D4785-93, D4785-00a, or D4785-08;
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- 16286 B) Standard Methods.
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- 16288 i) Method 7120, 19th, 20th, 21st, or 22nd ed.;
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- 16290 ii) Method 7500-Cs B, 17th, 18th, 19th, 20th, 21st, or 22nd ed.; or
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- 16292 iii) Method 7500-I B, 17th, 18th, 19th, 20th, 21st, or 22nd ed.;
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- 16294 C) EML Procedures Manual (27th or 28th ed.), Method Ga-01-R;
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- 16296 D) USEPA Radioactivity Methods, Methods 901.0, 901.1, or 902.0;
- 16297
- 16298 E) USEPA Radiochemical Analyses, pages 92-95; or
- 16299
- 16300 F) USGS Methods, Method R-1110-76.
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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). USEPA added Standard Methods, 22nd 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 21, 2013 (at 78 Fed. Reg. 37463).

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- 16312 b) When the identification and measurement of radionuclides other than those listed
- 16313 in subsection (a) of this Section are required, the following methods, incorporated
- 16314 by reference in Section 611.102, are to be used, except in cases where alternative
- 16315 methods have been approved in accordance with Section 611.480:
- 16316
- 16317 1) Aqueous Radiochemical Procedures"~~Procedures for Radiochemical~~
- 16318 ~~Analysis of Nuclear Reactor Aqueous Solutions,~~" available from NTIS.
- 16319
- 16320 2) EML Procedures Manual (27th or 28th ed.), ~~available from USDOE, EML.~~
- 16321
- 16322 c) For the purpose of monitoring radioactivity concentrations in drinking water, the
- 16323 required sensitivity of the radioanalysis is defined in terms of a detection limit.
- 16324 The detection limit must be that concentration which can be counted with a
- 16325 precision of plus or minus 100 percent at the 95 percent confidence level (1.96σ,
- 16326 where σ is the standard deviation of the net counting rate of the sample).

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- 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

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BOARD NOTE: Derived from 40 CFR 141.25(c) Table B (2013).

- 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

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BOARD NOTE: Derived from 40 CFR 141.25(c) Table C (2013).

- 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.

16343 BOARD NOTE: Derived from 40 CFR 141.25 and appendix A to subpart C of 40 CFR 141
16344 ~~(2016)~~(2013)).

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16346 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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16348 **Section 611.731 Gross Alpha**
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16350 Monitoring requirements for gross alpha particle activity, radium-226, radium-228, and uranium
16351 are as follows:

16352
16353 a) A community water system (CWS) supplier must conduct ~~initial~~ monitoring to
16354 determine compliance with Section 611.330(b), (c), and (e). For the purposes of
16355 monitoring for gross alpha particle activity, radium-226, radium-228, uranium,
16356 and beta particle and photon radioactivity in drinking water, "detection limit" is
16357 defined as in Section 611.720(c).

16358
16359 1) Applicability and sampling location for an existing CWS supplier. An
16360 existing CWS supplier using groundwater, surface water, or both
16361 groundwater and surface water (for the purpose of this Section hereafter
16362 referred to as a supplier) must sample at every entry point to the
16363 distribution system that is representative of all sources being used
16364 (hereafter called a sampling point) under normal operating conditions.
16365 The supplier must take each sample at the same sampling point, unless
16366 conditions make another sampling point more representative of each
16367 source or the Agency has designated a distribution system location, in
16368 accordance with subsection (b)(2)(C) ~~of this Section~~.

16369
16370 2) Applicability and sampling location for a new CWS supplier. A new CWS
16371 supplier or a CWS supplier that uses a new source of water must begin to
16372 conduct initial monitoring for the new source within the first quarter after
16373 initiating use of the source. A CWS supplier must conduct more frequent
16374 monitoring when ordered by the Agency in the event of possible
16375 contamination or when changes in the distribution system or treatment
16376 processes occur that may increase the concentration of radioactivity in
16377 finished water.

16378
16379 b) If the average of recent monitoring results for a sampling point is above the MCL,
16380 the supplier must collect and analyze quarterly samples at that sampling point
16381 until the system has results from four consecutive quarters that are at or below the
16382 MCL, unless the supplier enters into another schedule as part of a formal
16383 compliance agreement with the Agency. ~~Initial monitoring: A CWS supplier must~~
16384 ~~conduct initial monitoring for gross alpha particle activity, radium-226, radium-~~
16385 ~~228, and uranium as follows:~~

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- 1) A CWS supplier without acceptable historical data, as defined in subsection (b)(2) of this Section, is required to have collected four consecutive quarterly samples at all sampling points before December 31, 2007.
 - 2) Grandfathering of data: A CWS supplier may use historical monitoring data collected at a sampling point to satisfy the initial monitoring requirements for that sampling point, under the following situations.
 - A) To satisfy initial monitoring requirements, a CWS supplier having only one entry point to the distribution system may use the monitoring data from the last compliance monitoring period that began between June 2000 and December 8, 2003.
 - B) To satisfy initial monitoring requirements, a CWS supplier with multiple entry points and having appropriate historical monitoring data for each entry point to the distribution system may use the monitoring data from the last compliance monitoring period that began between June 2000 and December 8, 2003.
 - C) To satisfy initial monitoring requirements, a CWS supplier with appropriate historical data for a representative point in the distribution system may use the monitoring data from the last compliance monitoring period that began between June 2000 and December 8, 2003, provided that the Agency finds that the historical data satisfactorily demonstrate that each entry point to the distribution system is expected to be in compliance based upon the historical data and reasonable assumptions about the variability of contaminant levels between entry points. The Agency must make its finding in writing, by a SEP issued pursuant to Section 611.110, indicating how the data conforms to the requirements of this subsection (b)(2).
 - 3) For gross alpha particle activity, uranium, radium-226, and radium-228 monitoring, the Agency may, by a SEP issued pursuant to Section 611.110, waive the final two quarters of initial monitoring for a sampling point if the results of the samples from the previous two quarters are below the detection limit.
 - 4) If the average of the initial monitoring results for a sampling point is above the MCL, the supplier must collect and analyze quarterly samples at that sampling point until the system has results from four consecutive

16429 quarters that are at or below the MCL, unless the supplier enters into
16430 another schedule as part of a formal compliance agreement with the
16431 Agency.
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16433 c) Reduced monitoring: The Agency may allow a CWS supplier to reduce the future
16434 frequency of monitoring from once every three years to once every six or nine
16435 years at each sampling point, based on the following criteria:
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16437 1) If the average of the initial monitoring results for each contaminant (i.e.,
16438 gross alpha particle activity, uranium, radium-226, or radium-228) is
16439 below the detection limit specified in the table at Section 611.720(c)(1),
16440 the supplier must collect and analyze for that contaminant using at least
16441 one sample at that sampling point every nine years.
16442

16443 2) For gross alpha particle activity and uranium, if the average of the initial
16444 monitoring results for each contaminant is at or above the detection limit
16445 but at or below one-half the MCL, the supplier must collect and analyze
16446 for that contaminant using at least one sample at that sampling point every
16447 six years. For combined radium-226 and radium-228, the analytical
16448 results must be combined. If the average of the combined initial
16449 monitoring results for radium-226 and radium-228 is at or above the
16450 detection limit but at or below one-half the MCL, the supplier must collect
16451 and analyze for that contaminant using at least one sample at that sampling
16452 point every six years.
16453

16454 3) For gross alpha particle activity and uranium, if the average of the initial
16455 monitoring results for each contaminant is above one-half the MCL but at
16456 or below the MCL, the supplier must collect and analyze at least one
16457 sample at that sampling point every three years. For combined radium-
16458 226 and radium-228, the analytical results must be combined. If the
16459 average of the combined initial monitoring results for radium-226 and
16460 radium-228 is above one-half the MCL but at or below the MCL, the
16461 supplier must collect and analyze at least one sample at that sampling
16462 point every three years.
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16464 4) A supplier must use the samples collected during the reduced monitoring
16465 period to determine the monitoring frequency for subsequent monitoring
16466 periods (e.g., if a supplier's sampling point is on a nine year monitoring
16467 period, and the sample result is above one-half the MCL, then the next
16468 monitoring period for that sampling point is three years).
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16470 5) If a supplier has a monitoring result that exceeds the MCL while on
16471 reduced monitoring, the supplier must collect and analyze quarterly

16472 samples at that sampling point until the supplier has results from four
 16473 consecutive quarters that are below the MCL, unless the supplier enters
 16474 into another schedule as part of a formal compliance agreement with the
 16475 Agency.
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- 16477 d) Compositing: To fulfill quarterly monitoring requirements for gross alpha
 16478 particle activity, radium-226, radium-228, or uranium, a supplier may composite
 16479 up to four consecutive quarterly samples from a single entry point if analysis is
 16480 done within a year after the first sample. The analytical results from the
 16481 composited sample must be treated as the average analytical result to determine
 16482 compliance with the MCLs and the future monitoring frequency. If the analytical
 16483 result from the composited sample is greater than one-half the MCL, the Agency
 16484 may, by a SEP issued pursuant to Section 611.110, direct the supplier to take
 16485 additional quarterly samples before allowing the supplier to sample under a
 16486 reduced monitoring schedule.
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- 16488 e) A gross alpha particle activity measurement may be substituted for the required
 16489 radium-226 measurement, provided that the measured gross alpha particle activity
 16490 does not exceed 5 pCi/l. A gross alpha particle activity measurement may be
 16491 substituted for the required uranium measurement provided that the measured
 16492 gross alpha particle activity does not exceed 15 pCi/l.
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- 16494 1) The gross alpha measurement must have a confidence interval of 95%
 16495 (1.65σ, where σ is the standard deviation of the net counting rate of the
 16496 sample) for radium-226 and uranium.
 16497
 - 16498 2) When a supplier uses a gross alpha particle activity measurement in lieu of
 16499 a radium-226 or uranium measurement, the gross alpha particle activity
 16500 analytical result will be used to determine the future monitoring frequency
 16501 for radium-226 or uranium.
 16502
 - 16503 3) If the gross alpha particle activity result is less than detection, one-half the
 16504 detection limit will be used to determine compliance and the future
 16505 monitoring frequency.
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16507 BOARD NOTE: Subsections (a) through (e) derive from 40 CFR 141.26(a) (2016)(2012).

16508 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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16510 **Section 611.732 Beta Particle and Photon Radioactivity**
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16512 Monitoring and compliance requirements for manmade radioactivity. To determine compliance
 16513 with the maximum contaminant levels in Section 611.330(d) for beta particle and photon
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16515 radioactivity, a supplier must monitor at a frequency as follows:

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- a) A CWS supplier (either a surface water or groundwater supplier) designated by the Agency, by a SEP issued pursuant to Section 611.110, as vulnerable must sample for beta particle and photon radioactivity. A supplier must collect quarterly samples for beta emitters and annual samples for tritium and strontium-90 at each entry point to the distribution system (hereafter called a sampling point), beginning within one quarter after being notified by the Agency. A supplier already designated by the Agency must continue to sample until the Agency reviews and either reaffirms or removes the designation, by a SEP issued pursuant to Section 611.110.
 - 1) If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity at a sampling point has a running annual average (computed quarterly) less than or equal to 50 pCi/l (screening level), the Agency may reduce the frequency of monitoring at that sampling point to once every three years. A supplier must collect all samples required in subsection (a) ~~of this Section~~ during the reduced monitoring period.
 - 2) For a supplier in the vicinity of a nuclear facility, the Agency may allow the CWS supplier to utilize environmental surveillance data collected by the nuclear facility in lieu of monitoring at the supplier's entry points, where the Agency determines if such data is applicable to a particular water system, by a SEP issued pursuant to Section 611.110. In the event that there is a release from a nuclear facility, a supplier that is using surveillance data must begin monitoring at the community water supplier's entry points in accordance with subsection (b)(1) ~~of this Section~~.

- b) A CWS supplier (either a surface water or groundwater supplier) designated by the Agency, by a SEP issued pursuant to Section 611.110, as utilizing waters contaminated by effluents from nuclear facilities must sample for beta particle and photon radioactivity. A supplier must collect quarterly samples for beta emitters and iodine-131 and annual samples for tritium and strontium-90 at each entry point to the distribution system (hereafter called a sampling point), beginning within one quarter after being notified by the Agency. A supplier already designated by the Agency as a supplier using waters contaminated by effluents from nuclear facilities must continue to sample until the Agency reviews and either reaffirms or removes the designation, by a SEP issued pursuant to Section 611.110.
 - 1) Quarterly monitoring for gross beta particle activity must be based on the analysis of monthly samples or the analysis of a composite of three monthly samples.

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BOARD NOTE: In corresponding 40 CFR 141.26(b)(2)(i), USEPA recommends the use of a composite of three monthly samples.

2) For iodine-131, a composite of five consecutive daily samples must be analyzed once each quarter. The Agency must require, by a SEP issued pursuant to Section 611.110, more frequent monitoring for iodine-131 where iodine-131 is identified in the finished water.

3) Annual monitoring for strontium-90 and tritium must be conducted by means of the analysis of a composite of four consecutive quarterly samples or analysis of four quarterly samples.

BOARD NOTE: In corresponding 40 CFR 141.26(b)(2)(iii), USEPA recommends the analysis of four consecutive quarterly samples.

4) If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity at a sampling point has a running annual average (computed quarterly) less than or equal to 15 pCi/l, the Agency may, by a SEP issued pursuant to Section 611.110, reduce the frequency of monitoring at that sampling point to once every three years. The supplier must collect the same type of samples required in subsection (b) of this Section during the reduced monitoring period.

5) For a supplier in the vicinity of a nuclear facility, the Agency may allow the CWS to utilize environmental surveillance data collected by the nuclear facility in lieu of monitoring at the system's entry points, where the Agency determines, by a SEP issued pursuant to Section 611.110, that such data is applicable to the particular water system. In the event that there is a release from a nuclear facility, a supplier that uses such surveillance data must begin monitoring at the CWS's entry points in accordance with subsection (b) of this Section.

c) A CWS supplier designated by the Agency to monitor for beta particle and photon radioactivity can not apply to the Agency for a waiver from the monitoring frequencies specified in subsection (a) or (b) of this Section.

d) A CWS supplier may analyze for naturally occurring potassium-40 beta particle activity from the same or equivalent sample used for the gross beta particle activity analysis. A supplier is allowed to subtract the potassium-40 beta particle activity value from the total gross beta particle activity value to determine if the screening level is exceeded. The potassium-40 beta particle activity must be calculated by multiplying elemental potassium concentrations (in mg/l) by a

16601 factor of 0.82.
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- 16603 e) If the gross beta particle activity minus the naturally occurring potassium-40 beta
 16604 particle activity exceeds the appropriate screening level, an analysis of the sample
 16605 must be performed to identify the major radioactive constituents present in the
 16606 sample and the appropriate doses must be calculated and summed to determine
 16607 compliance with Section 611.330(d)(1), using the formula in Section
 16608 611.330(d)(2). Doses must also be calculated and combined for measured levels
 16609 of tritium and strontium to determine compliance.
 16610
- 16611 f) A supplier must monitor monthly at the sampling points that exceeds the
 16612 maximum contaminant level in Section 611.330(d) beginning the month after the
 16613 exceedance occurs. A supplier must continue monthly monitoring until the
 16614 supplier has established, by a rolling average of three monthly samples, that the
 16615 MCL is being met. A supplier that establishes that the MCL is being met must
 16616 return to quarterly monitoring until it meets the requirements set forth in
 16617 subsection (a)(1) or (b)(4) of this Section.
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16619 BOARD NOTE: Derived from 40 CFR 141.26(b) (2016)(2014).
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16621 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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16623 **Section 611.733 General Monitoring and Compliance Requirements**
 16624

16625 ~~The following requirements apply effective December 8, 2003:~~
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- 16627 a) The Agency may, by a SEP issued pursuant to Section 611.110, require more
 16628 frequent monitoring than specified in Sections 611.731 and 611.732 or may
 16629 require confirmation samples. The results of the initial and confirmation samples
 16630 will be averaged for use in a compliance determination.
 16631
- 16632 b) Each PWS supplier must monitor at the time designated by the Agency during
 16633 each compliance period.
 16634
- 16635 c) Compliance: compliance with Section 611.330(b) through (e) must be
 16636 determined based on the analytical results obtained at each sampling point. If one
 16637 sampling point is in violation of an MCL, the supplier is in violation of the MCL.
 16638
- 16639 1) For a supplier monitoring more than once per year, compliance with the
 16640 MCL is determined by a running annual average at each sampling point.
 16641 If the average of any sampling point is greater than the MCL, then the
 16642 supplier is out of compliance with the MCL.
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- 2) For a supplier monitoring more than once per year, if any sample result would cause the running average to exceed the MCL at any single sampling point, the supplier is immediately out of compliance with the MCL.
 - 3) a supplier must include all samples taken and analyzed under the provisions of this Section and Sections 611.731 and 611.732 in determining compliance, even if that number is greater than the minimum required.
 - 4) If a supplier does not collect all required samples when compliance is based on a running annual average of quarterly samples, compliance will be based on the running average of the samples collected.
 - 5) If a sample result is less than the detection limit, zero will be used to calculate the annual average, unless a gross alpha particle activity is being used in lieu of radium-226 or uranium. If the gross alpha particle activity result is less than detection, one-half the detection limit will be used to calculate the annual average.
- d) The Agency may, by a SEP issued pursuant to Section 611.110, allow the supplier to delete results of obvious sampling or analytic errors.
- e) If the MCL for radioactivity set forth in Section 611.330(b) through (e) is exceeded, the operator of a CWS must give notice to the Agency pursuant to Section 611.840 and to the public, as required by Subpart V of this Part.

16671 BOARD NOTE: Derived from 40 CFR 141.26(c) (2016)(2002).

16672 (Source: Amended at 41 Ill. Reg. _____, effective _____)

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16675 **SUBPART R: ENHANCED FILTRATION AND DISINFECTION:**
16676 **SYSTEMS THAT SERVE 10,000 OR MORE PEOPLE**
16677

16678 **Section 611.740 General Requirements**
16679

- 16680 a) The requirements of this Subpart R are National Primary Drinking Water
16681 Regulations. These regulations establish requirements for filtration and
16682 disinfection that are in addition to standards under which filtration and
16683 disinfection are required under Subpart B of this Part. The requirements of this
16684 Subpart R are applicable to a Subpart B system supplier serving 10,000 or more
16685 persons, unless otherwise specified in this Subpart R. The regulations in this
16686 Subpart R establish or extend treatment technique requirements in lieu of

16687 maximum contaminant levels (MCLs) for the following contaminants: Giardia
16688 lamblia, viruses, heterotrophic plate count bacteria, Legionella, Cryptosporidium,
16689 and turbidity. Each Subpart B system supplier serving 10,000 or more persons
16690 must provide treatment of its source water that complies with these treatment
16691 technique requirements and are in addition to those identified in Section 611.220.
16692 The treatment technique requirements consist of installing and properly operating
16693 water treatment processes that reliably achieve the following:
16694

- 16695 1) At least 99 percent (2-log) removal of Cryptosporidium between a point
16696 where the raw water is not subject to recontamination by surface water
16697 runoff and a point downstream before or at the first customer for filtered
16698 systems, or Cryptosporidium control under the watershed control plan for
16699 unfiltered systems; and
16700
- 16701 2) Compliance with the profiling and benchmark requirements under the
16702 provisions of Section 611.742.
16703

16704 b) A PWS supplier subject to the requirements of this Subpart R is considered to be
16705 in compliance with the requirements of subsection (a) of this Section if the
16706 following is true:
16707

- 16708 1) It meets the requirements for avoiding filtration in Sections 611.232 and
16709 611.741, and the disinfection requirements in Sections 611.240 and
16710 611.742; or
16711
- 16712 2) It meets the applicable filtration requirements in either Section 611.250 or
16713 Section 611.743, and the disinfection requirements in Sections 611.240
16714 and 611.742.
16715

16716 c) A supplier must not begin construction of uncovered finished water storage
16717 facilities after February 16, 1999. ~~d) A Subpart B system supplier that did not~~
16718 ~~conduct optional monitoring under Section 611.742 because it served fewer than~~
16719 ~~10,000 persons when such monitoring was required, but which serves more than~~
16720 ~~10,000 persons prior to January 1, 2005 must comply with Sections 611.740,~~
16721 ~~611.741, 611.743, 611.744, and 611.745. Such a supplier must also obtain the~~
16722 ~~approval of the Agency to establish a disinfection benchmark. A supplier that~~
16723 ~~decides to make a significant change to its disinfection practice, as described in~~
16724 ~~Section 611.742 (c)(1)(A) through (c)(1)(D) must obtain the approval of the~~
16725 ~~Agency prior to making such a change.~~
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16727 BOARD NOTE: Derived from 40 CFR 141.170 (2016)(2002).

16728 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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Section 611.741 Standards for Avoiding Filtration

In addition to the requirements of Section 611.232, a PWS supplier subject to the requirements of this Subpart R that does not provide filtration must meet all of the conditions of subsections (a) and (b) of this Section.

a) Site-specific conditions. In addition to site-specific conditions in Section 611.232, a supplier must maintain the watershed control program under Section 611.232(b) to minimize the potential for contamination by *Cryptosporidium* oocysts in the source water. The watershed control program must, for *Cryptosporidium*, do the following:

- 1) Identify watershed characteristics and activities that may have an adverse effect on source water quality; and
- 2) Monitor the occurrence of activities that may have an adverse effect on source water quality.

b) During the onsite inspection conducted under the provisions of Section 611.232(c), the Agency must determine whether the watershed control program established under Section 611.232(b) is adequate to limit potential contamination by *Cryptosporidium* oocysts. The adequacy of the program must be based on the comprehensiveness of the watershed review; the effectiveness of the supplier's program to monitor and control detrimental activities occurring in the watershed; and the extent to which the water supplier has maximized land ownership or controlled land use within the watershed.

BOARD NOTE: Derived from 40 CFR 141.171 (2016)(2002).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.742 Disinfection Profiling and Benchmarking

a) Determination of a supplier required to profile. A PWS supplier subject to the requirements of this Subpart R must determine its TTHM annual average using the procedure in subsection (a)(1) of this Section and its HAA5 annual average using the procedure in subsection (a)(2) of this Section. The annual average is the arithmetic average of the quarterly averages of four consecutive quarters of monitoring.

- 1) The TTHM annual average that is used must be the annual average during the same period as the HAA5 annual average.

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- A) A supplier that collected data under the provisions of 40 CFR 141 Subpart M (Information Collection Rule) must use the results of the samples collected during the last four quarters of required monitoring under former 40 CFR 141.42 (1995).
 - B) A supplier that uses "grandfathered" HAA5 occurrence data that meet the provisions of subsection (a)(2)(B) of this Section must use TTHM data collected at the same time under the provisions of former Section 611.680.
 - C) A supplier that uses HAA5 occurrence data that meet the provisions of subsection (a)(2)(C)(i) of this Section must use TTHM data collected at the same time under the provisions of Section 611.310 and former Section 611.680.
- 2) The HAA5 annual average that is used must be the annual average during the same period as the TTHM annual average.
- A) A supplier that collected data under the provisions of 40 CFR 141 Subpart M (Information Collection Rule) must use the results of the samples collected during the last four quarters of required monitoring under former 40 CFR 141.42 (1995).
 - B) A supplier that has collected four quarters of HAA5 occurrence data that meets the routine monitoring sample number and location requirements for TTHM in former Section 611.680 and handling and analytical method requirements of former Section 611.685 may use that data to determine whether the requirements of this Section apply.
 - C) A supplier that had not collected four quarters of HAA5 occurrence data that meets the provisions of either subsection (a)(2)(A) or (a)(2)(B) of this Section by March 31, 1999 must do either of the following:
 - i) Conduct monitoring for HAA5 that meets the routine monitoring sample number and location requirements for TTHM in former Section 611.680 and handling and analytical method requirements of former Section 611.685 to determine the HAA5 annual average and whether the requirements of subsection (b) of this Section apply; or

16859 Section as if the HAA5 monitoring had been conducted and the
16860 results required compliance with this Section, as allowed under
16861 subsection (a)(2)(C)(ii) of this Section, must have notified the
16862 Agency in writing of its election not later than December 31, 1999.
16863

16864 E) If the supplier elected to request that the Agency approve a more
16865 representative data set than the data set determined under
16866 subsection (a)(2)(A) of this Section, the supplier must have
16867 submitted this request in writing not later than December 31, 1999.
16868

- 16869 6) Any supplier that had either a TTHM annual average \geq (greater than or
16870 equal to) 0.064 mg/l or an HAA5 annual average \geq 0.048 mg/l during the
16871 period identified in subsections (a)(1) and (a)(2) of this Section must
16872 comply with subsection (b) of this Section.
16873

16874 BOARD NOTE: Former Sections 611.680 and 611.685 originally derived from
16875 40 CFR 141.30(a), (b), and (e). USEPA removed 40 CFR 141.30 in its entirety in
16876 2006. The Board repealed former Section 611.685 in 2007 and Section 611.680
16877 in 2012. The references to former Sections 611.680 and 611.685 in this
16878 subsection (a) relate to use of existing monitoring data collected under those
16879 provisions as they existed before their repeal.
16880

16881 b) Disinfection profiling.
16882

- 16883 1) Any supplier that meets the standards in subsection (a)(6) of this Section
16884 must have developed a disinfection profile of its disinfection practice for a
16885 period of up to three years. The Agency must have determined the period
16886 of the disinfection profile, with a minimum period of one year.
16887
- 16888 2) The supplier must ~~monitormust have monitored~~ daily for a period of 12
16889 consecutive calendar months to determine the total logs of inactivation for
16890 each day of operation, based on the CT_{99.9} values in Appendix B of this
16891 Part, as appropriate, through the entire treatment plant. ~~The supplier must~~
16892 ~~have begun this monitoring not later than April 1, 2000.~~ As a minimum,
16893 the supplier with a single point of disinfectant application prior to entrance
16894 to the distribution system must have conducted the monitoring in
16895 subsections (b)(2)(A) through (b)(2)(D) of this Section. A supplier with
16896 more than one point of disinfectant application must have conducted the
16897 monitoring in subsections (b)(2)(A) through (b)(2)(D) of this Section for
16898 each disinfection segment. The supplier must have monitored the
16899 parameters necessary to determine the total inactivation ratio, using
16900 analytical methods in Section 611.531, as follows:
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16944
- A) The temperature of the disinfected water must have been measured once per day at each residual disinfectant concentration sampling point during peak hourly flow.
 - B) If the supplier uses chlorine, the pH of the disinfected water must have been measured once per day at each chlorine residual disinfectant concentration sampling point during peak hourly flow.
 - C) The disinfectant contact times ("T") must have been determined for each day during peak hourly flow.
 - D) The residual disinfectant concentrations ("C") of the water before or at the first customer and prior to each additional point of disinfection must have been measured each day during peak hourly flow.
- 3) This subsection (b)(3) corresponds with 40 CFR 141.172(b)(2)(A), a provision relating to implementation of the interim enhanced Surface Water Rule. This statement maintains structural consistency with the corresponding federal rule. In lieu of the monitoring conducted under the provisions of subsection (b)(2) of this Section to develop the disinfection profile, the supplier may have elected to meet the requirements of subsection (b)(3)(A) of this Section. In addition to the monitoring conducted under the provisions of subsection (b)(2) of this Section to develop the disinfection profile, the supplier may have elected to meet the requirements of subsection (b)(3)(B) of this Section.
- A) ~~A PWS supplier that had three years of existing operational data may have submitted that data, a profile generated using that data, and a request that the Agency approve use of that data in lieu of monitoring under the provisions of subsection (b)(2) of this Section not later than March 31, 2000. The Agency must have determined whether the operational data is substantially equivalent to data collected under the provisions of subsection (b)(2) of this Section. The data must also have been representative of Giardia lamblia inactivation through the entire treatment plant and not just of certain treatment segments. If the Agency determined that the operational data was substantially equivalent, the Agency must have approved the request. Until the Agency approved this request, the system was required to conduct monitoring under the provisions of subsection (b)(2) of this Section.~~
 - B) In addition to the disinfection profile generated under subsection

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~~(b)(2) of this Section, a PWS supplier that had existing operational data may have used that data to develop a disinfection profile for additional years. The Agency must have determined whether the operational data was substantially equivalent to data collected under the provisions of subsection (b)(2) of this Section. The data must also have been representative of inactivation through the entire treatment plant and not just of certain treatment segments. If the Agency determined that the operational data was substantially equivalent, the systems may have used these additional yearly disinfection profiles to develop a benchmark under the provisions of subsection (c) of this Section.~~

- 4) The supplier must calculate the total inactivation ratio as follows:
 - A) If the supplier uses only one point of disinfectant application, the system may determine the total inactivation ratio for the disinfection segment based on either of the methods in subsection (b)(4)(A)(i) or (b)(4)(A)(ii) ~~of this Section.~~
 - i) Determine one inactivation ratio ($CT_{calc}/CT_{99.9}$) before or at the first customer during peak hourly flow.
 - ii) Determine successive $CT_{calc}/CT_{99.9}$ values, representing sequential inactivation ratios, between the point of disinfectant application and a point before or at the first customer during peak hourly flow. Under this alternative, the supplier must calculate the total inactivation ratio ($\sum (CT_{calc}/CT_{99.9})$) by determining $CT_{calc}/CT_{99.9}$ for each sequence and then adding the $CT_{calc}/CT_{99.9}$ values together to determine $\sum (CT_{calc}/CT_{99.9})$.
 - B) If the supplier uses more than one point of disinfectant application before the first customer, the system must determine the CT value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow. The ($CT_{calc}/CT_{99.9}$) value of each segment and ($\sum (CT_{calc}/CT_{99.9})$) must be calculated using the method in subsection (b)(4)(A) ~~of this Section.~~
 - C) The supplier must determine the total logs of inactivation by multiplying the value calculated in subsection (b)(4)(A) or (b)(4)(B) ~~of this Section~~ by 3.0.

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- 5) A supplier that uses either chloramines or ozone for primary disinfection must also calculate the logs of inactivation for viruses using a method approved by the Agency.
 - 6) The supplier must retain disinfection profile data in graphic form, as a spreadsheet, or in some other format acceptable to the Agency for review as part of sanitary surveys conducted by the Agency.
 - c) Disinfection benchmarking.
 - 1) Any supplier required to develop a disinfection profile under the provisions of subsections (a) and (b) ~~of this Section~~ and that decides to make a significant change to its disinfection practice must consult with the Agency prior to making such change. Significant changes to disinfection practice are the following:
 - A) Changes to the point of disinfection;
 - B) Changes to the disinfectants used in the treatment plant;
 - C) Changes to the disinfection process; and
 - D) Any other modification identified by the Agency.
 - 2) Any supplier that is modifying its disinfection practice must calculate its disinfection benchmark using the procedure specified in subsections (c)(2)(A) and (c)(2)(B) ~~of this Section~~.
 - A) For each year of profiling data collected and calculated under subsection (b) ~~of this Section~~, the supplier must determine the lowest average monthly Giardia lamblia inactivation in each year of profiling data. The supplier must determine the average Giardia lamblia inactivation for each calendar month for each year of profiling data by dividing the sum of daily Giardia lamblia of inactivation by the number of values calculated for that month.
 - B) The disinfection benchmark is the lowest monthly average value (for systems with one year of profiling data) or average of lowest monthly average values (for systems with more than one year of profiling data) of the monthly logs of Giardia lamblia inactivation in each year of profiling data.
 - 3) A supplier that uses either chloramines or ozone for primary disinfection

17031 must also calculate the disinfection benchmark for viruses using a method
17032 approved by the Agency.

17033
17034 4) The supplier must submit information in subsections (c)(4)(A) through
17035 (c)(4)(C) of this Section to the Agency as part of its consultation process.

17036
17037 A) A description of the proposed change;

17038
17039 B) The disinfection profile for *Giardia lamblia* (and, if necessary,
17040 viruses) under subsection (b) of this Section and benchmark as
17041 required by subsection (c)(2) of this Section; and

17042
17043 C) An analysis of how the proposed change will affect the current
17044 levels of disinfection.

17045
17046 BOARD NOTE: Derived from 40 CFR 141.172 (2016)(2014).

17047
17048 (Source: Amended at 41 Ill. Reg. _____, effective _____)

17049
17050 **Section 611.743 Filtration**

17051
17052 A PWS supplier subject to the requirements of this Subpart R that did not meet all of the
17053 standards in this Subpart R and Subpart B of this Part for avoiding filtration must provide have
17054 provided treatment consisting of both disinfection, as specified in Section 611.242, and filtration
17055 treatment that complies with the requirements of subsection (a) or (b) of this Section or Section
17056 611.250(b) or (c) by December 31, 2001.

17057
17058 a) Conventional filtration treatment or direct filtration.

17059
17060 1) For a supplier using conventional filtration or direct filtration, the turbidity
17061 level of representative samples of a system's filtered water must be less
17062 than or equal to 0.3 NTU in at least 95 percent of the measurements taken
17063 each month, measured as specified in Sections 611.531 and 611.533.

17064
17065 2) The turbidity level of representative samples of a supplier's filtered water
17066 must at no time exceed 1 NTU, measured as specified in Sections 611.531
17067 and 611.533.

17068
17069 3) A supplier that uses lime softening may acidify representative samples
17070 prior to analysis using a protocol approved by the Agency.

17071
17072 b) Filtration technologies other than conventional filtration treatment, direct
17073 filtration, slow sand filtration, or diatomaceous earth filtration. A PWS supplier

17074 may use a filtration technology not listed in subsection (a) ~~of this Section~~ or in
 17075 Section 611.250(b) or (c) if it demonstrates to the Agency, using pilot plant
 17076 studies or other means, that the alternative filtration technology, in combination
 17077 with disinfection treatment that meets the requirements of Section 611.242(b),
 17078 consistently achieves 99.9 percent removal or inactivation of Giardia lamblia
 17079 cysts and 99.99 percent removal or inactivation of viruses, and 99 percent
 17080 removal of Cryptosporidium oocysts, and the Agency approves the use of the
 17081 filtration technology. For each approval, the Agency must set turbidity
 17082 performance requirements that the supplier must meet at least 95 percent of the
 17083 time and that the supplier must not exceed at any time at a level that consistently
 17084 achieves 99.9 percent removal or inactivation of Giardia lamblia cysts, 99.99
 17085 percent removal or inactivation of viruses, and 99 percent removal of
 17086 Cryptosporidium oocysts.

17087
 17088 BOARD NOTE: Derived from 40 CFR 141.173 (2016)(2002).

17089
 17090 (Source: Amended at 41 Ill. Reg. _____, effective _____)
 17091

17092 **Section 611.745 Reporting and Recordkeeping Requirements**
 17093

17094 In addition to the reporting and recordkeeping requirements in Sections 611.261 and 611.262, a
 17095 PWS supplier subject to the requirements of this Subpart R that provides conventional filtration
 17096 treatment or direct filtration must report monthly to the Agency the information specified in
 17097 subsections (a) and (b) ~~of this Section~~. In addition to the reporting and recordkeeping
 17098 requirements in Sections 611.261 and 611.262, a PWS supplier subject to the requirements of
 17099 this Subpart R that provides filtration approved under Section 611.743(b) must report monthly to
 17100 the Agency the information specified in subsection (a) ~~of this Section~~. The reporting in
 17101 subsection (a) ~~of this Section~~ is in lieu of the reporting specified in Section 611.262(a).
 17102

- 17103 a) Turbidity measurements, as required by Section 611.743, must be reported within
 17104 ten days after the end of each month the system serves water to the public.
 17105 Information that must be reported is the following:
 17106
 17107 1) The total number of filtered water turbidity measurements taken during the
 17108 month.
 17109
 17110 2) The number and percentage of filtered water turbidity measurements taken
 17111 during the month that are less than or equal to the turbidity limits specified
 17112 in Section 611.743(a) or (b).
 17113
 17114 3) The date and value of any turbidity measurements taken during the month
 17115 that exceed 1 NTU for a supplier using conventional filtration treatment or
 17116 direct filtration, or that exceed the maximum level under Section

611.743(b).

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- b) A supplier must maintain the results of individual filter monitoring taken under Section 611.744 for at least three years. A supplier must report that it has conducted individual filter turbidity monitoring under Section 611.744 within ten days after the end of each month the system serves water to the public. A supplier must report individual filter turbidity measurement results taken under Section 611.744 within ten days after the end of each month the supplier serves water to the public only if measurements demonstrate one or more of the conditions in subsections (b)(1) through (b)(4) of this Section. A supplier that uses lime softening may apply to the Agency for alternative exceedance levels for the levels specified in subsections (b)(1) through (b)(4) of this Section if they can demonstrate that higher turbidity levels in individual filters are due to lime carryover only and not due to degraded filter performance.
- 1) For any individual filter that has a measured turbidity level of greater than 1.0 NTU in two consecutive measurements taken 15 minutes apart, the supplier must report the filter number, the turbidity measurement, and the dates on which the exceedance occurred. In addition, the supplier must either produce a filter profile for the filter within seven days after the exceedance (if the supplier is not able to identify an obvious reason for the abnormal filter performance) and report that the profile has been produced or report the obvious reason for the exceedance.
 - 2) For any individual filter that has a measured turbidity level of greater than 0.5 NTU in two consecutive measurements taken 15 minutes apart at the end of the first four hours of continuous filter operation after the filter has been backwashed or otherwise taken offline, the supplier must report the filter number, the turbidity, and the dates on which the exceedance occurred. In addition, the supplier must either produce a filter profile for the filter within seven days after the exceedance (if the supplier is not able to identify an obvious reason for the abnormal filter performance) and report that the profile has been produced or report the obvious reason for the exceedance.
 - 3) For any individual filter that has a measured turbidity level of greater than 1.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each of three consecutive months, the supplier must report the filter number, the turbidity measurement, and the dates on which the exceedance occurred. In addition, the supplier must conduct a self-assessment of the filter within 14 days after the exceedance and report that the self-assessment was conducted. The self-assessment must consist of at least the following components: assessment of filter performance;

17160 development of a filter profile; identification and prioritization of factors
17161 limiting filter performance; assessment of the applicability of corrections;
17162 and preparation of a filter self-assessment report.

17163
17164 4) For any individual filter that has a measured turbidity level of greater than
17165 2.0 NTU in two consecutive measurements taken 15 minutes apart at any
17166 time in each of two consecutive months, the supplier must report the filter
17167 number, the turbidity measurement, and the dates on which the
17168 exceedance occurred. In addition, the supplier must arrange for the
17169 conduct of a comprehensive performance evaluation by the Agency or a
17170 third party approved by the Agency no later than 30 days following the
17171 exceedance and have the evaluation completed and submitted to the
17172 Agency no later than 90 days following the exceedance.

17173
17174 c) Additional reporting requirements.

17175
17176 1) If at any time the turbidity exceeds 1 NTU in representative samples of
17177 filtered water in a system using conventional filtration treatment or direct
17178 filtration, the supplier must consult with the Agency as soon as possible,
17179 but no later than the end of the next business day.

17180
17181 2) If at any time the turbidity in representative samples of filtered water
17182 exceeds the maximum level set by the Agency under Section 611.743(b)
17183 for filtration technologies other than conventional filtration treatment,
17184 direct filtration, slow sand filtration, or diatomaceous earth filtration, the
17185 supplier must inform the Agency as soon as possible, but no later than the
17186 end of the next business day.

17187
17188 BOARD NOTE: Derived from 40 CFR 141.175 (2016)(2014).

17189 (Source: Amended at 41 Ill. Reg. _____, effective _____)

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17191
17192 **SUBPART S: GROUNDWATER RULE**

17193
17194 **Section 611.800 General Requirements and Applicability**

17195
17196 a) Scope of this Subpart S. The requirements of this Subpart S constitute NPDWRs.

17197
17198 b) Applicability. This Subpart S applies to all PWS suppliers that use groundwater,
17199 except that it does not apply to public water systems that combine all of their
17200 groundwater with surface water or with groundwater under the direct influence of
17201 surface water prior to treatment pursuant to Subpart B. For the purposes of this

17202 Subpart S, "GWS" is defined as any PWS that meets this applicability statement,
17203 including a consecutive system receiving finished groundwater.

17204
17205 c) General requirements. A supplier subject to this Subpart S must comply with the
17206 following requirements:

17207
17208 1) Sanitary survey information requirements for all GWS suppliers, as
17209 described in Section 611.801.

17210
17211 2) Microbial source water monitoring requirements for GWS suppliers that
17212 do not treat all of their groundwater to at least 99.99 percent (4-log)
17213 treatment of viruses (using inactivation, removal, or an Agency-approved
17214 combination of 4-log virus inactivation and removal) before or at the first
17215 customer, as described in Section 611.802.

17216
17217 3) Treatment technique requirements, described in Section 611.803, that
17218 apply to GWS suppliers that have fecally contaminated source waters, as
17219 determined by source water monitoring conducted pursuant to Section
17220 611.802, or which have significant deficiencies that are identified by the
17221 Agency, by a SEP issued pursuant to Section 611.110, or which are
17222 identified by USEPA pursuant to SDWA section 1445 (42 USC 300j-4).
17223 A GWS supplier with fecally contaminated source water or with
17224 significant deficiencies subject to the treatment technique requirements of
17225 this Subpart S must implement one or more of the following corrective
17226 action options: correct all significant deficiencies; provide an alternate
17227 source of water; eliminate the source of contamination; or provide
17228 treatment that reliably achieves at least 4-log treatment of viruses (using
17229 inactivation, removal, or an Agency-approved combination of 4-log virus
17230 inactivation and removal) before or at the first customer.

17231
17232 4) A GWS supplier that provides at least 4-log treatment of viruses (using
17233 inactivation, removal, or an Agency-approved combination of 4-log virus
17234 inactivation and removal) before or at the first customer is required to
17235 conduct compliance monitoring to demonstrate treatment effectiveness, as
17236 described in Section 611.803(b).

17237
17238 5) If requested by the Agency, a GWS supplier must provide the Agency
17239 with any existing information that will enable the Agency to perform a
17240 hydrogeologic sensitivity assessment.

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17242 BOARD NOTE: The Board moved the definition of "hydrogeologic
17243 sensitivity assessment" to the definitions provision of this Part: Section
17244 611.101.

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- d) This subsection (d) corresponds with 40 CFR 141.400(d), which recites past effective dates. This statement maintains structural consistency with the corresponding federal provision. ~~Compliance date. A GWS supplier must comply, unless otherwise noted, with the requirements of this Subpart S beginning December 1, 2009.~~

BOARD NOTE: Derived from 40 CFR 141.400 (2016), as added at 71 Fed. Reg. 65574 (Nov. 8, 2006).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.801 Sanitary Surveys for GWS Suppliers

- a) A GWS supplier must provide the Agency, at the Agency's request, any existing information that will enable the Agency to conduct a sanitary survey.
- b) For the purposes of this Subpart S, a "sanitary survey," as conducted by the Agency, includes but is not limited to, an onsite review of the delineated WHPAs (identifying sources of contamination within the WHPAs and evaluations of the hydrogeologic sensitivity of the delineated WHPAs conducted under source water assessments or utilizing other relevant information where available), facilities, equipment, operation, maintenance, and monitoring compliance of a public water system to evaluate the adequacy of the system, its sources and operations and the distribution of safe drinking water.
- c) The sanitary survey must include an evaluation of the applicable components listed in subsections (c)(1) through (c)(8) ~~of this Section:~~
 - 1) Source,
 - 2) Treatment,
 - 3) Distribution system,
 - 4) Finished water storage,
 - 5) Pumps, pump facilities, and controls,
 - 6) Monitoring, reporting, and data verification,
 - 7) System management and operation, and

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- 8) Operator compliance with Agency requirements.
 - d) The Agency must repeat the sanitary survey as follows:
 - 1) The Agency must conduct a sanitary survey that addresses the eight sanitary survey components listed in subsection (c) of this Section no less frequently than every three years for a CWS supplier, except as provided in subsection (d)(3) of this Section, and every five years for a non-CWS supplier. The Agency may conduct more frequent sanitary surveys for any supplier. The initial sanitary survey for each community water system must be conducted before December 31, 2012, unless the supplier meets the requirements of subsection (d)(3) of this Section. The initial sanitary survey for each CWS supplier that meets the requirements of subsection (d)(3) of this Section and for each non-CWS supplier must be conducted before December 31, 2014. The sanitary survey must include an evaluation of each of the elements set forth in subsection (c) of this Section, as applicable.
 - 2) The Agency may use a phased review process to meet the requirements of subsection (d)(1) of this Section if all the applicable elements of subsection (c) of this Section are evaluated within the required interval.
 - 3) The Agency may conduct sanitary surveys once every five years for community water systems under any of the following circumstances:
 - A) If the system either provides at least 4-log treatment of viruses (using inactivation, removal, or an Agency-approved combination of 4-log inactivation and removal) before or at the first customer for all its groundwater sources; or
 - B) If the supplier has an outstanding performance record, as determined by the Agency and documented in previous sanitary surveys, and the supplier has no history of total coliform MCL or monitoring violations under Sections 611.521 through 611.527 since the last sanitary survey.
 - 4) This subsection (d)(4) corresponds with 40 CFR 142.16(o)(2)(iv), which imposes requirements for describing the elements of the State's regulatory system. This statement maintains structural consistency with the corresponding federal provision.
 - 5) The Agency must provide a GWS supplier with written notice by a SEP issued pursuant to Section 611.110 that describes any significant

deficiency which it has found no later than 30 days after the Agency has identified the significant deficiency. The notice may specify corrective actions and deadlines for completion of corrective actions. The Agency may provide the written notice at the time of the sanitary survey.

BOARD NOTE: Subsections (a) through (c) are derived from 40 CFR 141.401 (2016)(2007). Subsection (d) is derived from 40 CFR 142.16(o)(2) (2016)(2007).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.802 Groundwater Source Microbial Monitoring and Analytical Methods

- a) Triggered source water monitoring.
 - 1) General requirements. A GWS supplier must conduct triggered source water monitoring if the following conditions in either subsections (a)(1)(A) and (a)(1)(B) or (a)(1)(A) and (a)(1)(C) of this Section exist.
 - A) The supplier does not provide at least 4-log treatment of viruses (using inactivation, removal, or an Agency-approved combination of 4-log virus inactivation and removal) before or at the first customer for each groundwater source.
 - B) This subsection (a)(1)(B) corresponds with 40 CFR 141.802(a)(1)(ii), which has no operative effect after a past implementation date. This statement maintains structural consistency with the federal regulations. Until March 31, 2016, the supplier is notified that a sample collected pursuant to Section 611.521 is total coliform-positive, and the sample is not invalidated by the Agency pursuant to Section 611.523.
 - C) The Beginning April 1, 2016, the system is notified that a sample collected under Sections 611.1054 through 611.1057 is total coliform-positive and the sample is not invalidated under Section 611.1053(c).
 - 2) Sampling requirements. A GWS supplier must collect, within 24 hours after notification of the total coliform-positive sample, at least one groundwater source sample from each groundwater source in use at the time the total coliform-positive sample was collected pursuant to Section 611.521 until March 31, 2016, or collected pursuant to Sections 611.1054 through 611.1057 beginning April 1, 2016, except as provided in subsection (a)(2)(B) of this Section.

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- A) The Agency may, by a SEP issued pursuant to Section 611.110, extend the 24-hour time limit on a case-by-case basis if it determines that the supplier cannot collect the groundwater source water sample within 24 hours due to circumstances beyond the supplier's control. In the case of an extension, the Agency must specify how much time the supplier has to collect the sample.
- B) If approved by the Agency, a supplier with more than one groundwater source may meet the requirements of this subsection (a)(2) by sampling a representative groundwater source or sources. If directed by the Agency by a SEP issued pursuant to Section 611.110, the supplier must submit for Agency approval a triggered source water monitoring plan that identifies one or more groundwater sources that are representative of each monitoring site in the system's sample siting plan pursuant to Section 611.521 and that the system intends to use for representative sampling pursuant to this subsection (a).
- C) This subsection (a)(2)(C) corresponds with 40 CFR 141.802(a)(1)(ii), a now-obsolete implementing provision. This statement maintains structural consistency with the federal regulations.~~Until March 31, 2016, a GWS supplier that serves 1,000 or fewer people may use a repeat sample collected from a groundwater source to meet both the requirements of Section 611.522 and to satisfy the monitoring requirements of subsection (a)(2) of this Section for that groundwater source only if the Agency approves the use of E. coli as a fecal indicator for source water monitoring pursuant to this subsection (a) by a SEP issued pursuant to Section 611.110. If the repeat sample collected from the groundwater source is E.coli positive, the system must comply with subsection (a)(3) of this Section.~~
- D) ~~A~~Beginning April 1, 2016, a GWS supplier that serves 1,000 or fewer people may use a repeat sample collected from a groundwater source to meet both the requirements of Subpart AA of this Part and to satisfy the monitoring requirements of subsection (a)(2) ~~of this Section~~ for that groundwater source only if the Agency, by a SEP issued pursuant to Section 611.110, approves the use of E. coli as a fecal indicator for source water monitoring pursuant to this subsection (a) and approves the use of a single sample for meeting both the triggered source water monitoring requirements in this subsection (a) and the repeat monitoring requirements in Section 611.1058. If the repeat sample

collected from the groundwater source is E. coli-positive, the system must comply with subsection (a)(3) of this Section.

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- 3) Additional requirements. If the Agency does not require corrective action pursuant to Section 611.803(a)(2) for a fecal indicator-positive source water sample collected pursuant to subsection (a)(2) of this Section that is not invalidated pursuant to subsection (d) of this Section, the system must collect five additional source water samples from the same source within 24 hours after being notified of the fecal indicator-positive sample.
- 4) Consecutive and wholesale systems.
 - A) In addition to the other requirements of this subsection (a), a consecutive GWS supplier that has a total coliform-positive sample collected pursuant to Section 611.521 until March 31, 2016, or pursuant to Sections 611.1054 through 611.1057 beginning April 1, 2016, must notify the wholesale systems within 24 hours after being notified of the total coliform-positive sample.
 - B) In addition to the other requirements of this subsection (a), a wholesale GWS supplier must comply with the following requirements:
 - i) A wholesale GWS supplier that receives notice from a consecutive system it serves that a sample collected pursuant to Section 611.521 until March 31, 2016, or collected pursuant to Sections 611.1054 through 611.1057 beginning April 1, 2016, is total coliform-positive must, within 24 hours after being notified, collect a sample from its groundwater sources pursuant to subsection (a)(2) of this Section and analyze it for a fecal indicator pursuant to subsection (c) of this Section.
 - ii) If the sample collected pursuant to subsection (a)(4)(B)(i) of this section is fecal indicator-positive, the wholesale GWS supplier must notify all consecutive systems served by that groundwater source of the fecal indicator source water positive within 24 hours after being notified of the groundwater source sample monitoring result and must meet the requirements of subsection (a)(3) of this Section.
- 5) Exceptions to the triggered source water monitoring requirements. A GWS supplier is not required to comply with the source water monitoring

17461 requirements of subsection (a) of this Section if either of the following
 17462 conditions exists:

- 17463
- 17464 A) The Agency determines, and documents in writing, by a SEP
 17465 issued pursuant to Section 611.110, that the total coliform-positive
 17466 sample collected pursuant to Section 611.521 until March 31,
 17467 2016, or collected pursuant to Sections 611.1054 through 611.1057
 17468 beginning April 1, 2016, is caused by a distribution system
 17469 deficiency; or
- 17470
- 17471 B) The total coliform-positive sample collected pursuant to Section
 17472 611.521 until March 31, 2016, or collected pursuant to Sections
 17473 611.1054 through 611.1057 beginning April 1, 2016, is collected at
 17474 a location that meets Agency criteria for distribution system
 17475 conditions that will cause total coliform-positive samples.
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17477 b) Assessment source water monitoring. If directed by the Agency by a SEP issued
 17478 pursuant to Section 611.110, a GWS supplier must conduct assessment source
 17479 water monitoring that meets Agency-determined requirements for such
 17480 monitoring. A GWS supplier conducting assessment source water monitoring
 17481 may use a triggered source water sample collected pursuant to subsection (a)(2) of
 17482 this Section to meet the requirements of subsection (b) of this Section. Agency-
 17483 determined assessment source water monitoring requirements may include the
 17484 following:

- 17485
- 17486 1) Collection of a total of 12 groundwater source samples that represent each
 17487 month the system provides groundwater to the public;
- 17488
- 17489 2) Collection of samples from each well, unless the system obtains written
 17490 Agency approval to conduct monitoring at one or more wells within the
 17491 GWS that are representative of multiple wells used by that system and
 17492 which draw water from the same hydrogeologic setting;
- 17493
- 17494 3) Collection of a standard sample volume of at least 100 mL for fecal
 17495 indicator analysis, regardless of the fecal indicator or analytical method
 17496 used;
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- 17498 4) Analysis of all groundwater source samples using one of the analytical
 17499 methods listed in subsection (c)(2) of this Section for the presence of E.
 17500 coli, enterococci, or coliphage;
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- 5) Collection of groundwater source samples at a location prior to any treatment of the groundwater source unless the Agency approves a sampling location after treatment; and
 - 6) Collection of groundwater source samples at the well itself, unless the system's configuration does not allow for sampling at the well itself and the Agency approves an alternate sampling location by a SEP issued pursuant to Section 611.110 that is representative of the water quality of that well.
- c) Analytical methods.
- 1) A GWS supplier subject to the source water monitoring requirements of subsection (a) ~~of this Section~~ must collect a standard sample volume of at least 100 ml for fecal indicator analysis, regardless of the fecal indicator or analytical method used.
 - 2) A GWS supplier must analyze all groundwater source samples collected pursuant to subsection (a) ~~of this Section~~ using one of the analytical methods listed in subsections (c)(2)(A) through (c)(2)(C) ~~of this Section~~, each incorporated by reference in Section 611.102, or alternative methods approved by the Agency pursuant to Section 611.480, subject to the limitations of subsection (c)(2)(D) ~~of this Section~~, for the presence of E. coli, enterococci, or coliphage:
 - A) E. coli:
 - i) Colilert[®] Test, Standard Methods, 20th, 21st, or 22nd ed., Method 9223 B.
 - ii) Colisure[™] Test, Standard Methods, 20th, 21st, or 22nd ed., Method 9223 B.
 - iii) Membrane Filter Method with MI Agar, USEPA Method 1604.
 - iv) m-ColiBlue24 Test.
 - v) E*Colite Test.
 - vi) EC-MUG, Standard Methods, 20th or 22nd ed., Method 9221 F.

- 17545 vii) NA-MUG, Standard Methods, 20th ed., Method 9222 G.
- 17546
- 17547 viii) Colilert-18[®] Test, Standard Methods, 20th, 21st, or 22nd ed.,
- 17548 Method 9223 B.
- 17549
- 17550 ix) Readycult[®] 2007.
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- 17552 x) Modified Colitag[™] TestMethod.
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- 17554 xi) Chromocult[®]Chromomeult[®] Method.
- 17555
- 17556 xii) Tecta EC/TC P-A Test.
- 17557

BOARD NOTE: EC-MUG (Standard Methods, Method 9221 F~~9221F~~) or NA-MUG (Standard Methods, Method 9222 G~~9222G~~) can be used for E. coli testing step, as described in Section 611.526(f)(1) or (f)(2) after use of Standard Methods, ~~18th, 19th, 20th, or 21st~~ ed., Method 9221 B, 9221 D, 9222 B, or 9222 C. USEPA added Standard Methods, 21st ed., Method 9223 B as an approved alternative method for E. coli on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Readycult[®] 2007, Modified Colitag[™] TestMethod, and Chromocult[®] Method as approved alternative methods for E. coli on June 8, 2010 (at 75 Fed. Reg. 32295). USEPA added Standard Methods, 22nd ed., Methods 9221 F and 9223 B as approved alternative methods for E. coli in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Method 9221 F-06 and 9223 B-04 and Tecta EC/TC P-A Test as approved alternative methods for E. coli in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Methods 9223 B and 9221 F are the same versions as Standard Methods Online, Methods 9223 B-04 and 9221 F-06, the Board has not listed the Standard Methods Online versions separately.

B) Enterococci:

- 17581
- 17582 i) Multiple-Tube Technique, Standard Methods, 20th ed.,
- 17583 Method 9230 B or Standard Methods Online, Method 9230
- 17584 B-04.
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- 17586 ii) Membrane Filter Technique, Standard Methods, 20th ed.,
- 17587 Method 9230 C, and USEPA Method 1600.

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BOARD NOTE: The holding time and temperature for groundwater samples are specified in subsection (c)(2)(D) of this Section, rather than as specified in Section 8 of USEPA Method 1600.

iii) Enterolert.

BOARD NOTE: Medium is available through IDEXX Laboratories, Inc., at the address set forth in Section 611.102(b). Preparation and use of the medium must be as set forth in the article that embodies the method as incorporated by reference in Section 611.102(b).

BOARD NOTE: USEPA added Standard Methods Online, Method 9230 B-04 as an approved alternative method for enterococci on June 3, 2008 (at 73 Fed. Reg. 31616).

C) Coliphage:

i) Two-Step Enrichment Presence-Absence Procedure, USEPA Method 1601 or Charm Fast Phage.

ii) Single Agar Layer Procedure, USEPA Method 1602.

D) Limitation on methods use. The time from sample collection to initiation of analysis may not exceed 30 hours. The GWS supplier is encouraged but is not required to hold samples below 10°C during transit.

d) Invalidation of a fecal indicator-positive groundwater source sample.

1) A GWS supplier may obtain Agency invalidation of a fecal indicator-positive groundwater source sample collected pursuant to subsection (a) of this Section only under either of the following conditions:

A) The supplier provides the Agency with written notice from the laboratory that improper sample analysis occurred; or

B) The Agency determines and documents in writing by a SEP issued pursuant to Section 611.110 that there is substantial evidence that a fecal indicator-positive groundwater source sample is not related to source water quality.

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- 2) If the Agency invalidates a fecal indicator-positive groundwater source sample, the GWS supplier must collect another source water sample pursuant to subsection (a) ~~of this Section~~ within 24 hours after being notified by the Agency of its invalidation decision, and the supplier must have it analyzed for the same fecal indicator using the analytical methods in subsection (c) ~~of this Section~~. The Agency may extend the 24-hour time limit on a case-by-case basis if the supplier cannot collect the source water sample within 24 hours due to circumstances beyond its control. In the case of an extension, the Agency must specify how much time the system has to collect the sample.

- e) Sampling location.
 - 1) Any groundwater source sample required pursuant to subsection (a) ~~of this Section~~ must be collected at a location prior to any treatment of the groundwater source unless the Agency approves a sampling location after treatment.
 - 2) If the supplier's system configuration does not allow for sampling at the well itself, it may collect a sample at an Agency-approved location to meet the requirements of subsection (a) ~~of this Section~~ if the sample is representative of the water quality of that well.

- f) New sources. If directed by the Agency by a SEP issued pursuant to Section 611.110, a GWS supplier that places a new groundwater source into service after ~~November 30, 2009~~ must conduct assessment source water monitoring pursuant to subsection (b) ~~of this Section~~. If directed by the SEP, the system must begin monitoring before the groundwater source is used to provide water to the public.

- g) Public Notification. A GWS supplier with a groundwater source sample collected pursuant to subsection (a) or (b) ~~of this Section~~ that is fecal indicator-positive and which is not invalidated pursuant to subsection (d) ~~of this Section~~, including a consecutive system supplier served by the groundwater source, must conduct public notification pursuant to Section 611.902.

- h) Monitoring Violations. A failure to meet the requirements of subsections (a) through (f) ~~of this Section~~ is a monitoring violation that requires the GWS supplier to provide public notification pursuant to Section 611.904.

BOARD NOTE: Derived from 40 CFR 141.402 and appendix A to subpart C of 40 CFR 141 ~~(2016)~~(2014).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.803 Treatment Technique Requirements for GWS Suppliers

- a) GWS suppliers with significant deficiencies or source water fecal contamination.
 - 1) The treatment technique requirements of this Section must be met by GWS suppliers when a significant deficiency is identified or when a groundwater source sample collected pursuant to Section 611.802(a)(3) is fecal indicator-positive.
 - 2) If directed by the Agency by a SEP issued pursuant to Section 611.110, a GWS supplier with a groundwater source sample collected pursuant to Section 611.802(a)(2), (a)(4), or (b) that is fecal indicator-positive must comply with the treatment technique requirements of this Section.
 - 3) When a significant deficiency is identified at a Subpart B PWS that uses both groundwater and surface water or groundwater under the direct influence of surface water, the system must comply with provisions of this subsection (a)(b) except in cases where the Agency determines that the significant deficiency is in a portion of the distribution system that is served solely by surface water or groundwater under the direct influence of surface water.
 - 4) Unless the Agency, by a SEP issued pursuant to Section 611.110, directs the GWS supplier to implement a specific corrective action, the GWS supplier must consult with the Agency regarding the appropriate corrective action within 30 days after receiving written notice from the Agency of a significant deficiency, written notice from a laboratory that a groundwater source sample collected pursuant to Section 611.802(a)(3) was found to be fecal indicator-positive, or direction from the Agency that a fecal indicator-positive collected pursuant to Section 611.802(a)(2), (a)(4), or (b) requires corrective action. For the purposes of this Subpart S, significant deficiencies include, but are not limited to, defects in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that the Agency determines to be causing, or have potential for causing, the introduction of contamination into the water delivered to consumers.
 - 5) Within 120 days (or earlier if directed by the Agency) after receiving written notification from the Agency of a significant deficiency, written notice from a laboratory that a groundwater source sample collected pursuant to Section 611.802(a)(3) was found to be fecal indicator-positive,

17717 or written notice from the Agency that a fecal indicator-positive sample
 17718 collected pursuant to Section 611.802(a)(2), (a)(4), or (b) requires
 17719 corrective action, the GWS supplier must do either of the following:
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17721 A) It must have completed corrective action in accordance with any
 17722 applicable plan review processes adopted by the Agency or with
 17723 any SEP issued by the Agency, if any, including Agency-specified
 17724 interim measures; or
 17725

17726 B) It must be in compliance with an Agency-approved corrective
 17727 action plan and schedule, subject to the following conditions:
 17728

17729 i) Any subsequent modifications to an Agency-approved
 17730 corrective action plan and schedule must also be approved
 17731 by the Agency; and
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17733 ii) If the Agency specifies interim measures for protection of
 17734 the public health pending Agency approval of the
 17735 corrective action plan and schedule or pending completion
 17736 of the corrective action plan, the supplier must comply with
 17737 those interim measures, as well as with any schedule
 17738 specified by the Agency.
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17740 6) Corrective action alternatives. A GWS supplier that meets the conditions
 17741 of subsection (a)(1) or (a)(2) of this Section must implement one or more
 17742 of the following corrective action alternatives:
 17743

17744 A) It must correct all significant deficiencies;

17745 B) It must provide an alternate source of water;

17746 C) It must eliminate the source of contamination; or

17747 D) It must provide treatment that reliably achieves at least 4-log
 17748 treatment of viruses (using inactivation, removal, or an Agency-
 17749 approved combination of 4-log virus inactivation and removal)
 17750 before or at the first customer for the groundwater source.
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17752 7) Special notice to the public of significant deficiencies or source water
 17753 fecal contamination.
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17755 A) In addition to the applicable public notification requirements of
 17756 Section 611.902, a community GWS supplier that receives notice
 17757 from the Agency of a significant deficiency or notification of a
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fecal indicator-positive groundwater source sample that is not invalidated by the Agency pursuant to Section 611.802(d) must inform the public served by the water system pursuant to Section 611.883(h)(6) of the fecal indicator-positive source sample or of any significant deficiency that has not been corrected. The supplier must continue to inform the public annually until the significant deficiency is corrected or the fecal contamination in the groundwater source is determined by the Agency to be corrected pursuant to subsection (a)(5) of this Section.

- B) In addition to the applicable public notification requirements of Section 611.902, a non-community GWS supplier that receives notice from the Agency of a significant deficiency must inform the public served by the water system in a manner approved by the Agency of any significant deficiency that has not been corrected within 12 months after being notified by the Agency, or earlier if directed by the Agency. The supplier must continue to inform the public annually until the significant deficiency is corrected. The information must include the following information:
 - i) The nature of the significant deficiency and the date the significant deficiency was identified by the Agency;
 - ii) The Agency-approved plan and schedule for correction of the significant deficiency, including interim measures, progress to date, and any interim measures completed; and
 - iii) For a supplier with a large proportion of non-English speaking consumers, as determined by the Agency, information in the appropriate languages regarding the importance of the notice or a telephone number or address where consumers may contact the system to obtain a translated copy of the notice or assistance in the appropriate language.
- C) If directed by the Agency, a non-CWS supplier with significant deficiencies that have been corrected must inform its customers of the significant deficiencies, how the deficiencies were corrected, and the dates of correction pursuant to subsection (a)(7)(B) of this Section.

- b) Compliance monitoring.

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17846
- 1) Existing groundwater sources. A GWS supplier that is not required by Section 611.802(a)(1) to meet the source water monitoring requirements of this Subpart S for any groundwater source because it provides at least 4-log treatment of viruses (using inactivation, removal, or an Agency-approved combination of 4-log virus inactivation and removal) before or at the first customer for any groundwater source before December 1, 2009 must notify the Agency in writing that it provides at least 4-log treatment of viruses (using inactivation, removal, or an Agency-approved combination of 4-log virus inactivation and removal) before or at the first customer for the specified groundwater source and begin compliance monitoring in accordance with subsection (b)(3) of this Section before December 1, 2009. Notification to the Agency must include engineering, operational, or other information that the Agency requests to evaluate the submission. If the supplier subsequently discontinues 4-log treatment of viruses (using inactivation, removal, or an Agency-approved combination of 4-log virus inactivation and removal) before or at the first customer for a groundwater source, the supplier must conduct groundwater source monitoring, as required pursuant to Section 611.802.
 - 2) New groundwater sources. A GWS supplier that places a groundwater source in service after November 30, 2009, which is not required by Section 611.802(a)(1) to meet the source water monitoring requirements of this Subpart S because the supplier provides at least 4-log treatment of viruses (using inactivation, removal, or an Agency-approved combination of 4-log virus inactivation and removal) before or at the first customer for the groundwater source must comply with the requirements of subsections (b)(2)(A), (b)(2)(B) and (b)(2)(C) of this Section.
 - A) The supplier must notify the Agency in writing that it provides at least 4-log treatment of viruses (using inactivation, removal, or an Agency-approved combination of 4-log virus inactivation and removal) before or at the first customer for the groundwater source. Notification to the Agency must include engineering, operational, or other information that the Agency requests by a SEP issued pursuant to Section 611.110 to evaluate the submission.
 - B) The supplier must conduct compliance monitoring, as required pursuant to Section 611.803(b)(3), within 30 days after placing the source in service.
 - C) The supplier must conduct groundwater source monitoring pursuant to Section 611.802 if it subsequently discontinues 4-log

17847 treatment of viruses (using inactivation, removal, or an Agency-
17848 approved combination of 4-log virus inactivation and removal)
17849 before or at the first customer for the groundwater source.
17850

- 17851 3) Monitoring requirements. A GWS supplier subject to the requirements of
17852 subsection (a), (b)(1) or (b)(2) of this Section must monitor the
17853 effectiveness and reliability of treatment for that groundwater source
17854 before or at the first customer as follows:
17855

17856 A) Chemical disinfection.

- 17857
- 17858 i) GWS suppliers serving more than 3,300 people. A GWS
17859 supplier that serves more than 3,300 people must
17860 continuously monitor the residual disinfectant
17861 concentration using analytical methods specified in Section
17862 611.531(b) at a location approved by the Agency and must
17863 record the lowest residual disinfectant concentration each
17864 day that water from the groundwater source is served to the
17865 public. The GWS supplier must maintain the Agency-
17866 approved residual disinfectant concentration every day that
17867 it serves water from the groundwater source to the public.
17868 If there is a failure in the continuous monitoring equipment,
17869 the GWS supplier must conduct grab sampling every four
17870 hours until the continuous monitoring equipment is
17871 returned to service. The supplier must resume continuous
17872 residual disinfectant monitoring within 14 days.
17873
- 17874 ii) GWS suppliers serving 3,300 or fewer people. A GWS
17875 supplier that serves 3,300 or fewer people must monitor the
17876 residual disinfectant concentration using analytical methods
17877 specified in Section 611.531(b) at a location approved by
17878 the Agency and record the residual disinfection
17879 concentration each day that water from the groundwater
17880 source is served to the public. The GWS supplier must
17881 determine and maintain the Agency-approved residual
17882 disinfectant concentration every day that it serves water
17883 from the groundwater source to the public. The GWS
17884 supplier must take a daily grab sample during the hour of
17885 peak flow or at another time specified by the Agency. If
17886 any daily grab sample measurement falls below the
17887 Agency-approved residual disinfectant concentration, the
17888 GWS supplier must take follow-up samples every four
17889 hours until the residual disinfectant concentration is

17890 restored to the Agency-approved level. Alternatively, a
 17891 GWS supplier that serves 3,300 or fewer people may
 17892 monitor continuously and meet the requirements of
 17893 subsection (b)(3)(A)(i) ~~of this Section~~.
 17894

17895 B) Membrane filtration. A GWS supplier that uses membrane
 17896 filtration to meet the requirements of this Subpart S must monitor
 17897 the membrane filtration process in accordance with all Agency-
 17898 specified monitoring requirements and must operate the membrane
 17899 filtration in accordance with all Agency-specified compliance
 17900 requirements. A GWS supplier that uses membrane filtration is in
 17901 compliance with the requirement to achieve at least 4-log removal
 17902 of viruses when it fulfills the following conditions:
 17903

- 17904 i) The membrane has an absolute molecular weight cut-off, or
 17905 an alternative parameter that describes the exclusion
 17906 characteristics of the membrane, that can reliably achieve at
 17907 least 4-log removal of viruses;
- 17908 ii) The membrane process is operated in accordance with
 17909 Agency-specified compliance requirements; and
 17910
- 17911 iii) The integrity of the membrane is intact.
 17912

17913 C) Alternative treatment. A GWS supplier that uses an Agency-
 17914 approved alternative treatment to meet the requirements of this
 17915 Subpart S by providing at least 4-log treatment of viruses (using
 17916 inactivation, removal, or an Agency-approved combination of 4-
 17917 log virus inactivation and removal) before or at the first customer
 17918 must do both of the following:
 17919

- 17920 i) It must monitor the alternative treatment in accordance with
 17921 all Agency-specified monitoring requirements; and
 17922
- 17923 ii) It must operate the alternative treatment in accordance with
 17924 all operational requirements determined by the supplier that
 17925 the Agency has approved as necessary to achieve at least 4-
 17926 log treatment of viruses.
 17927

17928 c) Discontinuing treatment. A GWS supplier may discontinue 4-log treatment of
 17929 viruses (using inactivation, removal, or an Agency-approved combination of 4-log
 17930 virus inactivation and removal) before or at the first customer for a groundwater
 17931 source if the supplier determines and documents and the Agency approves in
 17932

17933 writing that 4-log treatment of viruses is no longer necessary for that groundwater
17934 source. A system that discontinues 4-log treatment of viruses is subject to the
17935 source water monitoring and analytical methods requirements of Section 611.802
17936 of this Subpart S.

- 17937
17938 d) A failure to meet the monitoring requirements of subsection (b) of this Section is
17939 a monitoring violation and requires the GWS supplier to provide public
17940 notification pursuant to Section 611.904.

17941
17942 BOARD NOTE: Derived from 40 CFR 141.403 (2016), as added at 71 Fed. Reg. 65574
17943 (Nov. 8, 2006).

17944
17945 (Source: Amended at 41 Ill. Reg. _____, effective _____)
17946

17947 **Section 611.804 Treatment Technique Violations for GWS Suppliers**

- 17948
17949 a) A GWS supplier with a significant deficiency is in violation of the treatment
17950 technique requirement if, within 120 days (or earlier if directed by the Agency by
17951 a SEP issued pursuant to Section 611.110) ~~after~~ receiving written notice from
17952 the Agency of the significant deficiency, the system does not do either of the
17953 following:
17954
17955 1) It does not complete corrective action in accordance with any applicable
17956 Agency plan review processes or other Agency guidance and direction,
17957 including Agency specified interim actions and measures, or
17958
17959 2) It is not in compliance with an Agency-approved corrective action plan
17960 and schedule.
17961
17962 b) Unless the Agency invalidates a fecal indicator-positive groundwater source
17963 sample pursuant to Section 611.802(d), a GWS supplier is in violation of the
17964 treatment technique requirement if, within 120 days (or earlier if directed by the
17965 Agency) after meeting the conditions of Section 611.803(a)(1) or (a)(2), the
17966 supplier does not do either of the following:
17967
17968 1) It does not complete corrective action in accordance with any applicable
17969 Agency plan review processes or other Agency guidance and direction,
17970 including Agency-specified interim measures, or
17971
17972 2) It is not in compliance with an Agency-approved corrective action plan
17973 and schedule.
17974

17975 c) A GWS supplier subject to the requirements of Section 611.803(b)(3) that fails to
17976 maintain at least 4-log treatment of viruses (using inactivation, removal, or an
17977 Agency-approved combination of 4-log virus inactivation and removal) before or
17978 at the first customer for a groundwater source is in violation of the treatment
17979 technique requirement if the failure is not corrected within four hours after
17980 determining the supplier is not maintaining at least 4-log treatment of viruses
17981 before or at the first customer.

17982
17983 d) A GWS supplier must give public notification pursuant to Section 611.903 for the
17984 treatment technique violations specified in subsections (a), (b), and (c) of this
17985 Section.
17986

17987 BOARD NOTE: Derived from 40 CFR 141.404 (2016), as added at 71 Fed. Reg. 65574
17988 (Nov. 8, 2006).

17989
17990 (Source: Amended at 41 Ill. Reg. _____, effective _____)
17991

17992 **Section 611.805 Reporting and Recordkeeping for GWS Suppliers**
17993

17994 a) Reporting. In addition to the requirements of Section 611.840, a GWS supplier
17995 regulated pursuant to this Subpart S must provide the following information to the
17996 Agency:
17997

17998 1) A GWS supplier conducting compliance monitoring pursuant to Section
17999 611.803(b) must notify the Agency any time the supplier fails to meet any
18000 Agency-specified requirements including, but not limited to, minimum
18001 residual disinfectant concentration, membrane operating criteria or
18002 membrane integrity, and alternative treatment operating criteria, if
18003 operation in accordance with the criteria or requirements is not restored
18004 within four hours. The GWS supplier must notify the Agency as soon as
18005 possible, but in no case later than the end of the next business day.
18006

18007 2) After completing any corrective action pursuant to Section 611.803(a), a
18008 GWS supplier must notify the Agency within 30 days after completion of
18009 the corrective action.
18010

18011 3) If a GWS supplier subject to the requirements of Section 611.802(a) does
18012 not conduct source water monitoring pursuant to Section
18013 611.802(a)(5)(B), the supplier must provide documentation to the Agency
18014 within 30 days after of the total coliform-positive sample that it met the
18015 Agency criteria.
18016

- 18017 b) Recordkeeping. In addition to the requirements of Section 611.860, a GWS
 18018 supplier regulated pursuant to this Subpart S must maintain the following
 18019 information in its records:
 18020
- 18021 1) Documentation of corrective actions. Documentation must be kept for a
 18022 period of not less than ten years.
 - 18023
 - 18024 2) Documentation of notice to the public as required pursuant to Section
 18025 611.803(a)(7). Documentation must be kept for a period of not less than
 18026 three years.
 - 18027
 - 18028 3) Records of decisions pursuant to Section 611.802(a)(5)(B) and records of
 18029 invalidation of fecal indicator-positive groundwater source samples
 18030 pursuant to Section 611.802(d). Documentation must be kept for a period
 18031 of not less than five years.
 - 18032
 - 18033 4) For a consecutive system supplier, documentation of notification to the
 18034 wholesale systems of total coliform-positive samples that are not
 18035 invalidated pursuant to Section 611.523 until March 31, 2016, or pursuant
 18036 to Section 611.1053 beginning April 1, 2016. Documentation must be
 18037 kept for a period of not less than five years.
 - 18038
 - 18039 5) For a supplier, including a wholesale system supplier, that is required to
 18040 perform compliance monitoring pursuant to Section 611.803(b), the
 18041 following information:
 18042
 - 18043 A) Records of the supplier-specified, Agency-approved minimum
 18044 disinfectant residual. Documentation must be kept for a period of
 18045 not less than ten years;
 - 18046
 - 18047 B) Records of the lowest daily residual disinfectant concentration and
 18048 records of the date and duration of any failure to maintain the
 18049 Agency-prescribed minimum residual disinfectant concentration
 18050 for a period of more than four hours. Documentation must be kept
 18051 for a period of not less than five years; and
 - 18052
 - 18053 C) Records of supplier-specified, Agency-approved compliance
 18054 requirements for membrane filtration and of parameters specified
 18055 by the supplier for Agency-approved alternative treatment and
 18056 records of the date and duration of any failure to meet the
 18057 membrane operating, membrane integrity, or alternative treatment
 18058 operating requirements for more than four hours. Documentation
 18059 must be kept for a period of not less than five years.
 - 18060

18061 BOARD NOTE: Derived from 40 CFR 141.405 (2016)(2013).

18062
18063 (Source: Amended at 41 Ill. Reg. _____, effective _____)
18064

18065 SUBPART T: REPORTING AND RECORDKEEPING
18066

18067 **Section 611.860 Record Maintenance**
18068

18069 A supplier must retain on its premises or at a convenient location near its premises the following
18070 records:

- 18071
- 18072 a) Records of bacteriological analyses and turbidity analyses made pursuant to this
18073 Part must be kept for not less than five years. Records of chemical analyses made
18074 pursuant to this Part must be kept for not less than ten years. Actual laboratory
18075 reports may be kept, or data may be transferred to tabular summaries, provided
18076 that the following information is included:
18077
- 18078 1) The date, place, and time of sampling, and the name of the person who
18079 collected the sample;
 - 18080 2) Identification of the sample as to whether it was a routine distribution
18081 system sample, check sample, raw or process water sample, or other
18082 special purpose sample;
 - 18083 3) The date of analysis;
 - 18084 4) The laboratory and person responsible for performing analysis;
 - 18085 5) The analytical technique or method used; and
18086
 - 18087 6) The results of the analysis.
18088
- 18089
- 18090 b) Records of action taken by the supplier to correct violations of this Part must be
18091 kept for a period not less than three years after the last action taken with respect to
18092 the particular violation involved.
18093
- 18094 c) Copies of any written reports, summaries, or communications relating to sanitary
18095 surveys of the system conducted by the supplier itself, by a private consultant, by
18096 USEPA, the Agency, or a unit of local government delegated pursuant to Section
18097 611.108, must be kept for a period not less than ten years after completion of the
18098 sanitary survey involved.
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- 18100 d) Records concerning a variance or adjusted standard granted to the supplier must
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18104 be kept for a period ending not less than five years following the expiration of
18105 such variance or adjusted standard.

18106
18107 e) Copies of public notices issued pursuant to Subpart V of this Part and
18108 certifications made to the Agency pursuant to Section 611.840 must be kept for
18109 three years after issuance.

18110
18111 f) Copies of monitoring plans developed pursuant to this Part must be kept for the
18112 same period of not less than five years that applies to the records of analyses
18113 taken under the plan pursuant to subsection (a) of this Section, except as specified
18114 otherwise elsewhere in this Part.

18115
18116 BOARD NOTE: Derived from 40 CFR 141.33 (2016)(2006).

18117
18118 (Source: Amended at 41 Ill. Reg. _____, effective _____)

18119
18120 SUBPART U: CONSUMER CONFIDENCE REPORTS

18121
18122 **Section 611.882 Compliance Dates**

18123
18124 a) Each existing CWS must ~~deliver~~have delivered its first report by October 19,
18125 1999, its second report by July 1, 2000, and it must deliver subsequent reports by
18126 July 1 annually thereafter. ~~The first report must have contained data collected~~
18127 ~~during or prior to calendar year 1998, as prescribed in Section 611.883(d)(3).~~
18128 Each report thereafter must contain data collected during, or prior to, the previous
18129 calendar year.

18130
18131 b) A new CWS must deliver its first report by July 1 of the year after its first full
18132 calendar year in operation and annually thereafter.

18133
18134 c) A community water system that sells water to another community water system
18135 must deliver the applicable information required in Section 611.883 to the buyer
18136 system as follows:

18137
18138 1) By no later than April 1 annually; or

18139
18140 2) On a date mutually agreed upon by the seller and the purchaser, and
18141 specifically included in a contract between the parties.

18142
18143 BOARD NOTE: Derived from 40 CFR 141.152 (2016)(2003).

18144
18145 (Source: Amended at 41 Ill. Reg. _____, effective _____)

18146

Section 611.883 Content of the Reports

- a) Each CWS must provide to its customers an annual report that contains the information specified in this Section and Section 611.884.
- b) Information on the source of the water delivered.
 - 1) Each report must identify the sources of the water delivered by the CWS by providing information on the following:
 - A) The type of the water (e.g., surface water, groundwater); and
 - B) The commonly used name (if any) and location of the body (or bodies) of water.
 - 2) If a source water assessment has been completed, the report must notify consumers of the availability of this information and the means to obtain it. In addition, systems are encouraged to highlight in the report significant sources of contamination in the source water area if they have readily available information. Where a system has received a source water assessment from the Agency, the report must include a brief summary of the system's susceptibility to potential sources of contamination, using language provided by the Agency or written by the supplier .
- c) Definitions.
 - 1) Each report must include the following definitions:
 - A) Maximum Contaminant Level Goal or MCLG: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

BOARD NOTE: Although an MCLG is not an NPDWR that the Board must include in the Illinois SDWA regulations, the use of this definition is mandatory where the term "MCLG" is defined.
 - B) Maximum Contaminant Level or MCL: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
 - 2) A report for a CWS operating under relief from an NPDWR issued under Section 611.111, 611.112, 611.130, or 611.131 must include the following definition: "Variances, Adjusted Standards, and Site-specific Rules: State

18190 permission not to meet an MCL or a treatment technique under certain
18191 conditions."

18192
18193 3) A report that contains data on contaminants that USEPA regulates using
18194 any of the following terms must include the applicable definitions:

18195
18196 A) Treatment technique: A required process intended to reduce the
18197 level of a contaminant in drinking water.

18198
18199 B) Action level: The concentration of a contaminant that, if exceeded,
18200 triggers treatment or other requirements that a water system must
18201 follow.

18202
18203 C) Maximum residual disinfectant level goal or MRDLG: The level
18204 of a drinking water disinfectant below which there is no known or
18205 expected risk to health. MRDLGs do not reflect the benefits of the
18206 use of disinfectants to control microbial contaminants.

18207
18208 BOARD NOTE: Although an MRDLG is not an NPDWR that the
18209 Board must include in the Illinois SDWA regulations, the use of
18210 this definition is mandatory where the term "MRDLG" is defined.

18211
18212 D) Maximum residual disinfectant level or MRDL: The highest level
18213 of a disinfectant allowed in drinking water. There is convincing
18214 evidence that addition of a disinfectant is necessary for control of
18215 microbial contaminants.

18216
18217 4) A report that contains information regarding a Level 1 or Level 2
18218 assessment required under Subpart AA of this Part must include the
18219 applicable of the following definitions:

18220
18221 A) "Level 1 assessment: A Level 1 assessment is a study of the water
18222 system to identify potential problems and determine (if possible)
18223 why total coliform bacteria have been found in our water system."

18224
18225 B) "Level 2 assessment: A Level 2 assessment is a very detailed
18226 study of the water system to identify potential problems and
18227 determine (if possible) why an E. coli MCL violation has occurred
18228 or why total coliform bacteria have been found in our water system
18229 on multiple occasions."

18230
18231 d) Information on detected contaminants.

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- 1) This subsection (d) specifies the requirements for information to be included in each report for contaminants subject to mandatory monitoring (except *Cryptosporidium*). It applies to the following:
 - A) Contaminants subject to an MCL, action level, MRDL, or treatment technique (regulated contaminants);
 - B) Contaminants for which monitoring is required by USEPA pursuant to 40 CFR 141.40 (unregulated contaminants); and
 - C) Disinfection byproducts or microbial contaminants for which monitoring is required by Section 611.382 and Subpart L of this Part, except as provided under subsection (e)(1) of this Section, and which are detected in the finished water.
 - 2) The data relating to these contaminants must be displayed in one table or in several adjacent tables. Any additional monitoring results that a CWS chooses to include in its report must be displayed separately.
 - 3) The data must have been derived from data collected to comply with monitoring and analytical requirements during calendar year 1998 for the first report and must be derived from the data collected in subsequent calendar years , except that the following requirements also apply:
 - A) Where a system is allowed to monitor for regulated contaminants less often than once a year, the tables must include the date and results of the most recent sampling, and the report must include a brief statement indicating that the data presented in the report is from the most recent testing done in accordance with the regulations. No data older than five years need be included.
 - B) Results of monitoring in compliance with Section 611.382 and Subpart L need only be included for five years from the date of last sample or until any of the detected contaminants becomes regulated and subject to routine monitoring requirements, whichever comes first.
 - 4) For detected regulated contaminants (listed in Appendix A of this Part), the tables must contain the following:
 - A) The MCL for that contaminant expressed as a number equal to or greater than 1.0 (as provided in Appendix A of this Part);

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- B) The federal Maximum Contaminant Level Goal (MCLG) for that contaminant expressed in the same units as the MCL;
 - C) If there is no MCL for a detected contaminant, the table must indicate that there is a treatment technique, or specify the action level, applicable to that contaminant, and the report must include the definitions for treatment technique or action level, as appropriate, specified in subsection (c)(3) of this Section;
 - D) For contaminants subject to an MCL, except turbidity, total coliforms, fecal coliforms, and E. coli, the highest contaminant level used to determine compliance with an NPDWR, and the range of detected levels, as follows:
 - i) When compliance with the MCL is determined annually or less frequently: the highest detected level at any sampling point and the range of detected levels expressed in the same units as the MCL.
 - ii) When compliance with the MCL is determined by calculating a running annual average of all samples taken at a monitoring location: the highest average of any of the monitoring locations and the range of all monitoring locations expressed in the same units as the MCL. For the MCLs for TTHM and HAA5 in Section 611.312(b)(2), the supplier must include the highest locational running annual average for TTHM and HAA5 and the range of individual sample results for all monitoring locations expressed in the same units as the MCL. If results from more than one location exceed the TTHM or HAA5 MCL, the supplier must include the locational running annual average for each location whose results exceed the MCL.
 - iii) When compliance with the MCL is determined on a system-wide basis by calculating a running annual average of all samples at all monitoring locations: the average and range of detection expressed in the same units as the MCL. The supplier is required to include individual sample results for the IDSE conducted under Subpart W of this Part when determining the range of TTHM and HAA5 results to be reported in the annual consumer confidence report for the calendar year that the IDSE samples were taken;

18319 BOARD NOTE to subsection (d)(4)(D): When rounding of results
18320 to determine compliance with the MCL is allowed by the
18321 regulations, rounding should be done prior to multiplying the
18322 results by the factor listed in Appendix A of this Part; derived from
18323 40 CFR 153 (2016)(2014).
18324

18325 E) For turbidity the following:
18326

- 18327 i) When it is reported pursuant to Section 611.560: the
18328 highest average monthly value.
18329
18330 ii) When it is reported pursuant to the requirements of Section
18331 611.211(b): the highest monthly value. The report must
18332 include an explanation of the reasons for measuring
18333 turbidity.
18334
18335 iii) When it is reported pursuant to Section 611.250, 611.743,
18336 or 611.955(b): the highest single measurement and the
18337 lowest monthly percentage of samples meeting the turbidity
18338 limits specified in Section 611.250, 611.743, or 611.955(b)
18339 for the filtration technology being used. The report must
18340 include an explanation of the reasons for measuring
18341 turbidity;
18342

18343 F) For lead and copper the following: the 90th percentile value of the
18344 most recent round of sampling and the number of sampling sites
18345 exceeding the action level;
18346

18347 G) This subsection (d)(4)(G) corresponds with 40 CFR
18348 141.153(d)(4)(vii), which has no operative effect after a past
18349 implementation date. This statement maintains structural
18350 consistency with the federal regulations; For total coliform
18351 analytical results until March 31, 2016, the following:
18352

- 18353 i) ~~The highest monthly number of positive samples for~~
18354 ~~systems collecting fewer than 40 samples per month; or~~
18355
18356 ii) ~~The highest monthly percentage of positive samples for~~
18357 ~~systems collecting at least 40 samples per month;~~
18358

18359 H) This subsection (d)(4)(H) corresponds with 40 CFR
18360 141.153(d)(4)(viii), a now-obsolete implementing provision. This
18361 statement maintains structural consistency with the federal

- 18362 ~~regulations; For fecal coliform and E. coli until March 31, 2016, the~~
 18363 ~~following: the total number of positive samples;~~
 18364
 18365 I) The likely sources of detected contaminants to the best of the
 18366 supplier's knowledge. Specific information regarding
 18367 contaminants may be available in sanitary surveys and source
 18368 water assessments, and must be used when available to the
 18369 supplier. If the supplier lacks specific information on the likely
 18370 source, the report must include one or more of the typical sources
 18371 for that contaminant listed in Appendix G of this Part that are most
 18372 applicable to the CWS; and
 18373
 18374 J) For E. coli analytical results under Subpart AA of this Part, the
 18375 total number of positive samples.
 18376
 18377 5) If a CWS distributes water to its customers from multiple hydraulically
 18378 independent distribution systems that are fed by different raw water
 18379 sources, the table must contain a separate column for each service area and
 18380 the report must identify each separate distribution system. Alternatively, a
 18381 CWS may produce separate reports tailored to include data for each
 18382 service area.
 18383
 18384 6) The tables must clearly identify any data indicating violations of MCLs,
 18385 MRDLs, or treatment techniques, and the report must contain a clear and
 18386 readily understandable explanation of the violation including the
 18387 following: the length of the violation, the potential adverse health effects,
 18388 and actions taken by the CWS to address the violation. To describe the
 18389 potential health effects, the CWS must use the relevant language of
 18390 Appendix A of this Part.
 18391
 18392 7) For detected unregulated contaminants for which monitoring is required
 18393 by USEPA pursuant to 40 CFR 141.40 (except Cryptosporidium), the
 18394 tables must contain the average and range at which the contaminant was
 18395 detected. The report may include a brief explanation of the reasons for
 18396 monitoring for unregulated contaminants.
 18397
 18398 e) Information on Cryptosporidium, radon, and other contaminants as follows:
 18399
 18400 1) If the CWS has performed any monitoring for Cryptosporidium, including
 18401 monitoring performed to satisfy the requirements of Subpart L of this Part,
 18402 that indicates that Cryptosporidium may be present in the source water or
 18403 the finished water, the report must include the following:
 18404

- 18405 A) A summary of the results of the monitoring; and
18406
18407 B) An explanation of the significance of the results.
18408
18409 2) If the CWS has performed any monitoring for radon that indicates that
18410 radon may be present in the finished water, the report must include the
18411 following:
18412
18413 A) The results of the monitoring; and
18414
18415 B) An explanation of the significance of the results.
18416
18417 3) If the CWS has performed additional monitoring that indicates the
18418 presence of other contaminants in the finished water, the report must
18419 include the following:
18420
18421 A) The results of the monitoring; and
18422
18423 B) An explanation of the significance of the results noting the
18424 existence of any health advisory or proposed regulation.
18425
18426 f) Compliance with an NPDWR. In addition to the requirements of subsection
18427 (d)(6) of this Section, the report must note any violation that occurred during the
18428 year covered by the report of a requirement listed below, and include a clear and
18429 readily understandable explanation of the violation, any potential adverse health
18430 effects, and the steps the CWS has taken to correct the violation.
18431
18432 1) Monitoring and reporting of compliance data.
18433
18434 2) Filtration and disinfection prescribed by Subpart B of this Part. For CWSs
18435 that have failed to install adequate filtration or disinfection equipment or
18436 processes, or have had a failure of such equipment or processes that
18437 constitutes a violation, the report must include the following language as
18438 part of the explanation of potential adverse health effects: Inadequately
18439 treated water may contain disease-causing organisms. These organisms
18440 include bacteria, viruses, and parasites that can cause symptoms such as
18441 nausea, cramps, diarrhea, and associated headaches.
18442
18443 3) Lead and copper control requirements prescribed by Subpart G of this
18444 Part. For systems that fail to take one or more actions prescribed by
18445 Section 611.350(d), 611.351, 611.352, 611.353, or 611.354, the report
18446 must include the applicable language of Appendix A of this Part for lead,
18447 copper, or both.

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- 4) Treatment techniques for acrylamide and epichlorohydrin prescribed by Section 611.296. For systems that violate the requirements of Section 611.296, the report must include the relevant language from Appendix A of this Part.
 - 5) Recordkeeping of compliance data.
 - 6) Special monitoring requirements prescribed by ~~Section~~Sections 611.510 and 611.630.
 - 7) Violation of the terms of a variance, adjusted standard, site-specific rule, or administrative or judicial order.
- g) Variances, adjusted standards, and site-specific rules. If a system is operating under the terms of a variance, adjusted standard, or site-specific rule issued under Section 611.111, 611.112, or 611.131, the report must contain the following:
- 1) An explanation of the reasons for the variance, adjusted standard, or site-specific rule;
 - 2) The date on which the variance, adjusted standard, or site-specific rule was issued;
 - 3) A brief status report on the steps the CWS is taking to install treatment, find alternative sources of water, or otherwise comply with the terms and schedules of the variance, adjusted standard, or site-specific rule; and
 - 4) A notice of any opportunity for public input in the review, or renewal, of the variance, adjusted standard, or site-specific rule.
- h) Additional information.
- 1) The report must contain a brief explanation regarding contaminants that may reasonably be expected to be found in drinking water, including bottled water. This explanation may include the language of subsections (h)(1)(A) through (h)(1)(C) ~~of this Section~~ or CWSs may use their own comparable language. The report also must include the language of subsection (h)(1)(D) ~~of this Section~~.
 - A) The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground,

18491 it dissolves naturally-occurring minerals and, in some cases,
18492 radioactive material, and can pick up substances resulting from the
18493 presence of animals or from human activity.
18494

18495 B) Contaminants that may be present in source water include the
18496 following:

- 18497
- 18498 i) Microbial contaminants, such as viruses and bacteria,
18499 which may come from sewage treatment plants, septic
18500 systems, agricultural livestock operations, and wildlife;
18501
 - 18502 ii) Inorganic contaminants, such as salts and metals, which can
18503 be naturally-occurring or result from urban stormwater
18504 runoff, industrial or domestic wastewater discharges, oil
18505 and gas production, mining, or farming;
18506
 - 18507 iii) Pesticides and herbicides, which may come from a variety
18508 of sources such as agriculture, urban stormwater runoff,
18509 and residential uses;
18510
 - 18511 iv) Organic chemical contaminants, including synthetic and
18512 volatile organic chemicals, which are byproducts of
18513 industrial processes and petroleum production, and can also
18514 come from gas stations, urban stormwater runoff, and
18515 septic systems; and
18516
 - 18517 v) Radioactive contaminants, which can be naturally-
18518 occurring or be the result of oil and gas production and
18519 mining activities.
18520

18521 C) In order to ensure that tap water is safe to drink, USEPA prescribes
18522 regulations that limit the amount of certain contaminants in water
18523 provided by public water systems. United States Food and Drug
18524 Administration (USFDA) regulations establish limits for
18525 contaminants in bottled water that must provide the same
18526 protection for public health.
18527

18528 D) Drinking water, including bottled water, may reasonably be
18529 expected to contain at least small amounts of some contaminants.
18530 The presence of contaminants does not necessarily indicate that
18531 water poses a health risk. More information about contaminants
18532 and potential health effects can be obtained by calling the USEPA
18533 Safe Drinking Water Hotline (800-426-4791).

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- 2) The report must include the telephone number of the owner, operator, or designee of the CWS as a source of additional information concerning the report.
 - 3) In communities with a large proportion of non-English speaking residents, as determined by the Agency, the report must contain information in the appropriate languages regarding the importance of the report or contain a telephone number or address where such residents may contact the system to obtain a translated copy of the report or assistance in the appropriate language.
 - 4) The report must include information about opportunities for public participation in decisions that may affect the quality of the water.
 - 5) The CWS may include such additional information as it deems necessary for public education consistent with, and not detracting from, the purpose of the report.
 - 6) Suppliers required to comply with Subpart S of this Part.
 - A) Any GWS supplier that receives written notice from the Agency of a significant deficiency or which receives notice from a laboratory of a fecal indicator-positive groundwater source sample that is not invalidated by the Agency pursuant to Section 611.802(d) must inform its customers of any significant deficiency that is uncorrected at the time of the next report or of any fecal indicator-positive groundwater source sample in the next report. The supplier must continue to inform the public annually until the Agency, by a SEP issued pursuant to Section 611.110, determines that particular significant deficiency is corrected or the fecal contamination in the groundwater source is addressed pursuant to Section 611.803(a). Each report must include the following information:
 - i) The nature of the particular significant deficiency or the source of the fecal contamination (if the source is known) and the date the significant deficiency was identified by the Agency or the dates of the fecal indicator-positive groundwater source samples;

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- ii) Whether or not the fecal contamination in the groundwater source has been addressed pursuant to Section 611.803(a) and the date of such action;
 - iii) For each significant deficiency or fecal contamination in the groundwater source that has not been addressed pursuant to Section 611.803(a), the Agency-approved plan and schedule for correction, including interim measures, progress to date, and any interim measures completed; and
 - iv) If the system receives notice of a fecal indicator-positive groundwater source sample that is not invalidated by the Agency pursuant to Section 611.802(d), the potential health effects using the health effects language of Appendix A of this Part.
- B) If directed by the Agency by a SEP issued pursuant to Section 611.110, a supplier with significant deficiencies that have been corrected before the next report is issued must inform its customers of the significant deficiency, how the deficiency was corrected, and the date of correction pursuant to subsection (h)(6)(A) of this Section.
- 7) Suppliers required to comply with Subpart AA of this Part.
- A) Any supplier required to comply with the Level 1 assessment requirement or a Level 2 assessment requirement that is not due to an E. coli MCL violation must include in the report the text found in subsections (h)(7)(A)(i) and (h)(7)(A)(ii) or (h)(7)(A)(i) and (h)(7)(A)(iii) of this Section, as appropriate, filling in the blanks accordingly and the text found in subsection (h)(7)(A)(iv) of this Section, if appropriate.
 - i) "Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments."

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- ii) "During the past year we were required to conduct [insert number of Level 1 assessments] Level 1 assessment(s). [insert number of Level 1 assessments] Level 1 assessment(s) were completed. In addition, we were required to take [insert number of corrective actions] corrective actions and we completed [insert number of corrective actions] of these actions."
- iii) "During the past year [insert number of Level 2 assessments] Level 2 assessments were required to be completed for our water system. [insert number of Level 2 assessments] Level 2 assessments were completed. In addition, we were required to take [insert number of corrective actions] corrective actions and we completed [insert number of corrective actions] of these actions."
- iv) Any supplier that has failed to complete all the required assessments or correct all identified sanitary defects, is in violation of the treatment technique requirement and must also include one or both of the following statements, as appropriate: "During the past year we failed to conduct all of the required assessment(s)." or "During the past year we failed to correct all identified defects that were found during the assessment."

B) Any supplier required to conduct a Level 2 assessment due to an E. coli MCL violation must include in the report the text found in subsections (h)(7)(B)(i) and (h)(7)(B)(ii) ~~of this Section~~, filling in the blanks accordingly and the appropriate alternative text found in subsection (h)(7)(B)(ii) ~~of this Section~~, if appropriate.

- i) "E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We found *E. coli* bacteria, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and

18660 to correct any problems that were found during these
18661 assessments."

18662
18663 ii) "We were required to complete a Level 2 assessment
18664 because we found E. coli in our water system. In addition,
18665 we were required to take [insert number of corrective
18666 actions] corrective actions and we completed [insert
18667 number of corrective actions] of these actions."

18668
18669 iii) Any supplier that has failed to complete the required
18670 assessment or correct all identified sanitary defects, is in
18671 violation of the treatment technique requirement and must
18672 also include one or both of the following statements, as
18673 appropriate: "We failed to conduct the required
18674 assessment." or "We failed to correct all sanitary defects
18675 that were identified during the assessment that we
18676 conducted."

18677
18678 C) If a supplier detects E. coli and has violated the E. coli MCL, in
18679 addition to completing the table, as required in subsection (d)(4) ~~of~~
18680 ~~this Section~~, the supplier must include one or more of the
18681 following statements to describe any noncompliance, as applicable:

18682
18683 i) "We had an E. coli-positive repeat sample following a total
18684 coliform-positive routine sample."

18685
18686 ii) "We had a total coliform-positive repeat sample following
18687 an E. coli-positive routine sample."

18688
18689 iii) "We failed to take all required repeat samples following an
18690 E. coli-positive routine sample."

18691
18692 iv) "We failed to test for E. coli when any repeat sample tested
18693 positive for total coliform."

18694
18695 D) If a supplier detects E. coli and has not violated the E. coli MCL,
18696 in addition to completing the table as required in subsection (d)(4)
18697 ~~of this Section~~, the supplier may include a statement that explains
18698 that although it has detected E. coli, the supplier is not in violation
18699 of the E. coli MCL.

18700

18701 BOARD NOTE: Derived from 40 CFR 141.153 (2016)(2014).

18702

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.885 Report Delivery and Recordkeeping

- a) Except as provided in subsection (g) ~~of this Section~~, each CWS must mail or otherwise directly deliver one copy of the report to each customer.
- b) The CWS must make a good faith effort to reach consumers who do not get water bills, using a means approved by the Agency by a SEP issued pursuant to Section 611.110. A good faith effort to reach consumers includes, but is not limited to, methods such as the following: posting the reports on the Internet, advertising the availability of the report in the news media, publication in a local newspaper, or delivery to community organizations.
- c) No later than the date the CWS is required to distribute the report to its customers, each CWS must mail a copy of the report to the Agency, followed within three months by a certification that the report has been distributed to customers, and that the information is correct and consistent with the compliance monitoring data previously submitted to the Agency.
- d) No later than the date the CWS is required to distribute the report to its customers, each CWS must deliver the report to any other agency or clearinghouse identified by the Agency.
- e) Each CWS must make its reports available to the public upon request.
- f) Each CWS serving 100,000 or more persons must post its current year's report to a publicly-accessible site on the Internet.
- g) The Governor or his designee may waive the requirement of subsection (a) ~~of this Section~~ for a CWS serving fewer than 10,000 persons.
 - 1) Such a CWS must do the following:
 - A) The CWS must publish the report in one or more local newspapers serving the county in which the CWS is located;
 - B) The CWS must inform the customers that the report will not be mailed, either in the newspapers in which the report is published or by other means approved by the Agency; and
 - C) The CWS must make the report available to the public upon request.

18746
18747 2) Systems serving fewer than 500 persons may forgo the requirements of
18748 subsections (g)(1)(A) and (g)(1)(B) of this Section if they provide notice
18749 at least once per year to their customers by mail, by door-to-door delivery,
18750 or by posting in a location approved by the Agency that the report is
18751 available upon request.
18752

18753 h) Any system subject to this Subpart U must retain copies of its consumer
18754 confidence report for no less than three years.
18755

18756 BOARD NOTE: Derived from 40 CFR 141.155 (2016)(2013).

18757 (Source: Amended at 41 Ill. Reg. _____, effective _____)
18758
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18760 **SUBPART V: PUBLIC NOTIFICATION OF DRINKING WATER VIOLATIONS**

18761
18762 **Section 611.901 General Public Notification Requirements**

18763
18764 The requirements of this Subpart V replace former notice requirements.
18765

18766 a) Who must give public notice. Each owner or operator of a public water system (a
18767 CWS, an NTNCWS, or a transient non-CWS) must give notice for all violations
18768 of an NPDWR and for other situations, as listed in this subsection (a). The term
18769 "NPDWR violation" is used in this Subpart V to include violations of an MCL, an
18770 MRDL, a treatment technique, monitoring requirements, or a testing procedure set
18771 forth in this Part. Appendix G to this Part identifies the tier assignment for each
18772 specific violation or situation requiring a public notice.
18773

18774 1) NPDWR violations.

18775
18776 A) A failure to comply with an applicable MCL or MRDL.

18777
18778 B) A failure to comply with a prescribed treatment technique.

18779
18780 C) A failure to perform water quality monitoring, as required by this
18781 Part.

18782
18783 D) A failure to comply with testing procedures as prescribed by this
18784 Part.

18785
18786 2) Relief equivalent to a variance and exemptions under sections 1415 and
18787 1416 of SDWA.
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- A) Operation under relief equivalent to a SDWA section 1415 variance, under Section 611.111, or a SDWA section 1416 exemption, under Section 611.112.
 - B) A failure to comply with the requirements of any schedule that has been set under relief equivalent to a SDWA section 1415 variance, under Section 611.111, or a SDWA section 1415 exemption, under Section 611.112.
- 3) Special public notices.
- A) The occurrence of a waterborne disease outbreak or other waterborne emergency.
 - B) An exceedance of the nitrate MCL by a non-CWS, where granted permission by the Agency under Section 611.300(d).
 - C) The notice required by Section 611.908 for an exceedance of 2 mg/ℓ fluoride (the federal secondary MCL for fluoride (see 40 CFR 143.3)).

BOARD NOTE: See the Board Note appended to Section 611.908 for explanation.
 - D) The availability of unregulated contaminant monitoring data collected as required by USEPA pursuant to 40 CFR 141.40.
 - E) Other violations and situations determined by the Agency by a SEP issued pursuant to Section 611.110 to require a public notice under this Subpart V, not already listed in Appendix G of this Part.
- b) The type of public notice required for each violation or situation. The public notice requirements of this Subpart V are divided into three tiers, to take into account the seriousness of the violation or situation and of any potential adverse health effects that may be involved. The public notice requirements for each violation or situation listed in subsection (a) of this Section are determined by the tier to which it is assigned. This subsection (b) provides the definition of each tier. Appendix G of this Part identifies the tier assignment for each specific violation or situation.
- 1) Tier 1 public notice: required for NPDWR violations and situations with significant potential to have serious adverse effects on human health as a result of short-term exposure.

- 18832
- 18833
- 18834 2) Tier 2 public notice: required for all other NPDWR violations and
- 18835 situations with potential to have serious adverse effects on human health.
- 18836
- 18837 3) Tier 3 public notice: required for all other NPDWR violations and
- 18838 situations not included in Tier 1 and Tier 2.

18839 c) Who must receive notice.

- 18840
- 18841 1) Each PWS supplier must provide public notice to persons served by the
- 18842 water supplier, in accordance with this Subpart V. A PWS supplier that
- 18843 sells or otherwise provides drinking water to another PWS supplier (i.e., to
- 18844 a consecutive system) is required to give public notice to the owner or
- 18845 operator of the consecutive system; the consecutive system supplier is
- 18846 responsible for providing public notice to the persons it serves.
- 18847
- 18848 2) If a PWS supplier has a violation in a portion of the distribution system
- 18849 that is physically or hydraulically isolated from other parts of the
- 18850 distribution system, the Agency may allow the system to limit distribution
- 18851 of the public notice to only persons served by that portion of the system
- 18852 that is out of compliance. Permission by the Agency for limiting
- 18853 distribution of the notice must be granted in writing, by a SEP issued
- 18854 pursuant to Section 611.110.
- 18855
- 18856 3) A copy of the notice must also be sent to the Agency, in accordance with
- 18857 the requirements under Section 611.840(d).
- 18858

18859 BOARD NOTE: Derived from 40 CFR 141.201 (2016)(2014).

18860 (Source: Amended at 41 Ill. Reg. _____, effective _____)

18861

18862

18863 **Section 611.902 Tier 1 Public Notice: Form, Manner, and Frequency of Notice**

18864

- 18865 a) Violations or situations that require a Tier 1 public notice. This subsection (a)
- 18866 lists the violation categories and other situations requiring a Tier 1 public notice.
- 18867 Appendix G of this Part identifies the tier assignment for each specific violation
- 18868 or situation. The violation categories include:
- 18869
- 18870 1) ~~Violation~~Until March 31, 2016, violation of the MCL for total coliforms
- 18871 when fecal coliform or E. coli are present in the water distribution system
- 18872 (as specified in Section 611.325(b)), or when the water supplier fails to
- 18873 test for fecal coliforms or E. coli when any repeat sample tests positive for
- 18874 coliform (as specified in Section 611.525). Beginning April 1, 2016,

- 18875 violation of the MCL for E. coli (as specified in Section 611.325(c)).
18876
18877 2) Violation of the MCL for nitrate, nitrite, or total nitrate and nitrite, as
18878 defined in Section 611.301, or when the water supplier fails to take a
18879 confirmation sample within 24 hours after the supplier's receipt of the
18880 results from the first sample showing an exceedance of the nitrate or nitrite
18881 MCL, as specified in Section 611.606(b).
18882
18883 3) Exceedance of the nitrate MCL by a non-CWS supplier, where permitted
18884 to exceed the MCL by the Agency under Section 611.300(d), as required
18885 under Section 611.909.
18886
18887 4) Violation of the MRDL for chlorine dioxide, as defined in Section
18888 611.313(a), when one or more samples taken in the distribution system the
18889 day following an exceedance of the MRDL at the entrance of the
18890 distribution system exceed the MRDL, or when the water supplier does
18891 not take the required samples in the distribution system, as specified in
18892 Section 611.383(c)(2)(A).
18893
18894 5) This subsection (a)(5) refers to a violation of the former turbidity standard
18895 of Section 611.320, which the Board repealed because it applied to no
18896 suppliers in Illinois. This statement maintains structural consistency with
18897 the federal regulations.
18898
18899 6) Violation of the Surface Water Treatment Rule (SWTR), Interim
18900 Enhanced Surface Water Treatment Rule (IESWTR), or Long Term 1
18901 Enhanced Surface Water Treatment Rule (LT1ESWTR) treatment
18902 technique requirement resulting from a single exceedance of the maximum
18903 allowable turbidity limit (as identified in Appendix G), where the Agency
18904 determines after consultation that a Tier 1 notice is required or where
18905 consultation does not take place within 24 hours after the supplier learns
18906 of the violation.
18907
18908 7) Occurrence of a waterborne disease outbreak, as defined in Section
18909 611.101, or other waterborne emergency (such as a failure or significant
18910 interruption in key water treatment processes, a natural disaster that
18911 disrupts the water supply or distribution system, or a chemical spill or
18912 unexpected loading of possible pathogens into the source water that
18913 significantly increases the potential for drinking water contamination).
18914
18915 8) Detection of E. coli, enterococci, or coliphage in source water samples, as
18916 specified in Section 611.802(a) and (b).
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9) Other violations or situations with significant potential to have serious adverse effects on human health as a result of short-term exposure, as determined by the Agency by a SEP issued pursuant to Section 611.110.

b) When the Tier 1 public notice is to be provided. Additional steps required. A PWS supplier must do the following:

- 1) It must provide a public notice as soon as practical but no later than 24 hours after the supplier learns of the violation;
- 2) It must initiate consultation with the Agency as soon as practical, but no later than 24 hours after the PWS supplier learns of the violation or situation, to determine additional public notice requirements; and
- 3) It must comply with any additional public notification requirements (including any repeat notices or direction on the duration of the posted notices) that are established as a result of the consultation with the Agency. Such requirements may include the timing, form, manner, frequency, and content of repeat notices (if any) and other actions designed to reach all persons served.

c) The form and manner of the public notice. A PWS supplier must provide the notice within 24 hours in a form and manner reasonably calculated to reach all persons served. The form and manner used by the PWS supplier are to fit the specific situation, but must be designed to reach residential, transient, and non-transient users of the water system. In order to reach all persons served, a water supplier is to use, at a minimum, one or more of the following forms of delivery:

- 1) Appropriate broadcast media (such as radio and television);
- 2) Posting of the notice in conspicuous locations throughout the area served by the water supplier;
- 3) Hand delivery of the notice to persons served by the water supplier; or
- 4) Another delivery method approved in writing by the Agency by a SEP issued pursuant to Section 611.110.

BOARD NOTE: Derived from 40 CFR 141.202 (2016)(2014).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.903 Tier 2 Public Notice: Form, Manner, and Frequency of Notice

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- a) Violations or situations that require a Tier 2 public notice. This subsection (a) lists the violation categories and other situations requiring a Tier 2 public notice. Appendix G to this Part identifies the tier assignment for each specific violation or situation.
 - 1) All violations of the MCL, MRDL, and treatment technique requirements, except where a Tier 1 notice is required under Section 611.902(a) or where the Agency determines by a SEP issued pursuant to Section 611.110 that a Tier 1 notice is required.
 - 2) Violations of the monitoring and testing procedure requirements, where the Agency determines by a SEP issued pursuant to Section 611.110 that a Tier 2 rather than a Tier 3 public notice is required, taking into account potential health impacts and persistence of the violation.
 - 3) Failure to comply with the terms and conditions of any relief equivalent to a SDWA section 1415 variance or a SDWA section 1416 exemption in place.
 - 4) Failure to take corrective action or failure to maintain at least 4-log treatment of viruses (using inactivation, removal, or an Agency-approved combination of 4-log virus inactivation and removal) before or at the first customer pursuant to Section 611.803(a).
- b) When Tier 2 public notice is to be provided.
 - 1) A PWS supplier must provide the public notice as soon as practical, but no later than 30 days after the supplier learns of the violation. If the public notice is posted, the notice must remain in place for as long as the violation or situation persists, but in no case for less than seven days, even if the violation or situation is resolved. The Agency may, in appropriate circumstances, by a SEP issued pursuant to Section 611.110, allow additional time for the initial notice of up to three months from the date the supplier learns of the violation. It is not appropriate for the Agency to grant an extension to the 30-day deadline for any unresolved violation or to allow across-the-board extensions by rule or policy for other violations or situations requiring a Tier 2 public notice. Extensions granted by the Agency must be in writing.
 - 2) The PWS supplier must repeat the notice every three months as long as the violation or situation persists, unless the Agency determines that appropriate circumstances warrant a different repeat notice frequency. In

19004 no circumstance may the repeat notice be given less frequently than once
 19005 per year. It is not appropriate for the Agency to allow less frequent repeat
 19006 notice for an MCL or treatment technique violation under the Total
 19007 Coliform Rule or Subpart AA of this Part or a treatment technique
 19008 violation under the Surface Water Treatment Rule or Interim Enhanced
 19009 Surface Water Treatment Rule. It is also not appropriate for the Agency to
 19010 allow across-the-board reductions in the repeat notice frequency for other
 19011 ongoing violations requiring a Tier 2 repeat notice. An Agency
 19012 determination allowing repeat notices to be given less frequently than once
 19013 every three months must be in writing.
 19014

19015 3) For the turbidity violations specified in this subsection (b)(3), a PWS
 19016 supplier must consult with the Agency as soon as practical but no later
 19017 than 24 hours after the supplier learns of the violation, to determine
 19018 whether a Tier 1 public notice under Section 611.902(a) is required to
 19019 protect public health. When consultation does not take place within the 24-
 19020 hour period, the water system must distribute a Tier 1 notice of the
 19021 violation within the next 24 hours (i.e., no later than 48 hours after the
 19022 supplier learns of the violation), following the requirements under Section
 19023 611.902(b) and (c). Consultation with the Agency is required for the
 19024 following:
 19025

19026 A) Violation of the turbidity MCL under Section 611.320(b); or

19027
 19028 B) Violation of the SWTR, IESWTR, or treatment technique
 19029 requirement resulting from a single exceedance of the maximum
 19030 allowable turbidity limit.
 19031

19032 c) The form and manner of Tier 2 public notice. A PWS supplier must provide the
 19033 initial public notice and any repeat notices in a form and manner that is
 19034 reasonably calculated to reach persons served in the required time period. The
 19035 form and manner of the public notice may vary based on the specific situation and
 19036 type of water system, but it must at a minimum meet the following requirements:
 19037

19038 1) Unless directed otherwise by the Agency in writing, by a SEP issued
 19039 pursuant to Section 611.110, a CWS supplier must provide notice by the
 19040 following:
 19041

19042 A) Mail or other direct delivery to each customer receiving a bill and
 19043 to other service connections to which water is delivered by the
 19044 PWS supplier; and

19045
 19046 B) Any other method reasonably calculated to reach other persons

19047 regularly served by the supplier, if they would not normally be
19048 reached by the notice required in subsection (c)(1)(A) ~~of this~~
19049 ~~Section~~. Such persons may include those who do not pay water
19050 bills or do not have service connection addresses (e.g., house
19051 renters, apartment dwellers, university students, nursing home
19052 patients, prison inmates, etc.). Other methods may include:
19053 Publication in a local newspaper; delivery of multiple copies for
19054 distribution by customers that provide their drinking water to
19055 others (e.g., apartment building owners or large private
19056 employers); posting in public places served by the supplier or on
19057 the Internet; or delivery to community organizations.
19058

19059 2) Unless directed otherwise by the Agency in writing, by a SEP issued
19060 pursuant to Section 611.110, a non-CWS supplier must provide notice by
19061 the following means:
19062

19063 A) Posting the notice in conspicuous locations throughout the
19064 distribution system frequented by persons served by the supplier,
19065 or by mail or direct delivery to each customer and service
19066 connection (where known); and
19067

19068 B) Any other method reasonably calculated to reach other persons
19069 served by the system if they would not normally be reached by the
19070 notice required in subsection (c)(2)(A) ~~of this Section~~. Such
19071 persons may include those served who may not see a posted notice
19072 because the posted notice is not in a location they routinely pass
19073 by. Other methods may include the following: Publication in a
19074 local newspaper or newsletter distributed to customers; use of E-
19075 mail to notify employees or students; or delivery of multiple copies
19076 in central locations (e.g., community centers).
19077

19078 BOARD NOTE: Derived from 40 CFR 141.203 ~~(2016)~~(2014).

19079 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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19081
19082 **Section 611.904 Tier 3 Public Notice: Form, Manner, and Frequency of Notice**
19083

19084 a) Violations or situations that require a Tier 3 public notice. This subsection (a)
19085 lists the violation categories and other situations requiring a Tier 3 public notice.
19086 Appendix G of this Part identifies the tier assignment for each specific violation
19087 or situation.
19088

19089 1) Monitoring violations under this Part, except where a Tier 1 notice is

- 19090 required under Section 611.902(a) or where the Agency determines by a
 19091 SEP issued pursuant to Section 611.110 that a Tier 2 notice is required;
 19092
 19093 2) Failure to comply with a testing procedure established in this Part, except
 19094 where a Tier 1 notice is required under Section 611.902(a) or where the
 19095 Agency determines by a SEP issued pursuant to Section 611.110 that a
 19096 Tier 2 notice is required;
 19097
 19098 3) Operation under relief equivalent to a SDWA section 1415 variance
 19099 granted under Section 611.111 or relief equivalent to a SDWA section
 19100 1416 exemption granted under Section 611.112;
 19101
 19102 4) Availability of unregulated contaminant monitoring results, as required
 19103 under Section 611.907;
 19104
 19105 5) The notice for an exceedance of 2 mg/l fluoride (the federal secondary
 19106 MCL for fluoride (see 40 CFR 143.3)), as required under Section 611.908;
 19107 and
 19108
 19109 BOARD NOTE: See the Board Note appended to Section 611.908 for
 19110 explanation.
 19111
 19112 6) Reporting and recordkeeping violations under Subpart AA of this Part.
 19113
 19114 b) When the Tier 3 public notice is to be provided.
 19115
 19116 1) A PWS supplier must provide the public notice not later than one year
 19117 after the supplier learns of the violation or situation or begins operating
 19118 under relief equivalent to a SDWA section 1415 variance or section 1416
 19119 exemption. Following the initial notice, the supplier must repeat the
 19120 notice annually for as long as the violation, relief equivalent to a SDWA
 19121 section 1415 variance or section 1416 exemption, or other situation
 19122 persists. If the public notice is posted, the notice must remain in place for
 19123 as long as the violation, relief equivalent to a SDWA section 1415
 19124 variance or section 1416 exemption, or other situation persists, but in no
 19125 case less than seven days (even if the violation or situation is resolved).
 19126
 19127 2) Instead of individual Tier 3 public notices, a PWS supplier may use an
 19128 annual report detailing all violations and situations that occurred during
 19129 the previous twelve months, as long as the timing requirements of
 19130 subsection (b)(1) of this Section are met.
 19131
 19132 c) The form and manner of the Tier 3 public notice. A PWS supplier must provide

19133 the initial notice and any repeat notices in a form and manner that is reasonably
19134 calculated to reach persons served in the required time period. The form and
19135 manner of the public notice may vary based on the specific situation and type of
19136 water system, but it must at a minimum meet the following requirements:
19137

- 19138 1) Unless directed otherwise by the Agency by a SEP issued pursuant to
19139 Section 611.110 in writing, a CWS supplier must provide notice by the
19140 following:
19141
- 19142 A) Mail or other direct delivery to each customer receiving a bill and
19143 to other service connections to which water is delivered by the
19144 supplier; and
19145
- 19146 B) Any other method reasonably calculated to reach other persons
19147 regularly served by the supplier, if they would not normally be
19148 reached by the notice required in subsection (c)(1)(A) of this
19149 Section. Such persons may include those who do not pay water
19150 bills or do not have service connection addresses (e.g., house
19151 renters, apartment dwellers, university students, nursing home
19152 patients, prison inmates, etc.). Other methods may include the
19153 following: publication in a local newspaper; delivery of multiple
19154 copies for distribution by customers that provide their drinking
19155 water to others (e.g., apartment building owners or large private
19156 employers); posting in public places or on the Internet; or delivery
19157 to community organizations.
19158
- 19159 2) Unless directed otherwise by the Agency by a SEP issued pursuant to
19160 Section 611.110 in writing, a non-CWS supplier must provide notice by
19161 the following:
19162
- 19163 A) Posting the notice in conspicuous locations throughout the
19164 distribution system frequented by persons served by the supplier,
19165 or by mail or direct delivery to each customer and service
19166 connection (where known); and
19167
- 19168 B) Any other method reasonably calculated to reach other persons
19169 served by the supplier, if they would not normally be reached by
19170 the notice required in subsection (c)(2)(A) of this Section. Such
19171 persons may include those who may not see a posted notice
19172 because the notice is not in a location they routinely pass by.
19173 Other methods may include the following: publication in a local
19174 newspaper or newsletter distributed to customers; use of E-mail to
19175 notify employees or students; or delivery of multiple copies in

central locations (e.g., community centers).

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- d) When the Consumer Confidence Report may be used to meet the Tier 3 public notice requirements. For a CWS supplier, the Consumer Confidence Report (CCR) required under Subpart U of this Part may be used as a vehicle for the initial Tier 3 public notice and all required repeat notices, as long as the following is true:
- 1) The CCR is provided to persons served no later than 12 months after the supplier learns of the violation or situation as required under Section 611.904(b);
 - 2) The Tier 3 notice contained in the CCR follows the content requirements under Section 611.905; and
 - 3) The CCR is distributed following the delivery requirements under Section 611.904(c).

19194 BOARD NOTE: Derived from 40 CFR 141.204 (2016)(2014).

19195 (Source: Amended at 41 Ill. Reg. _____, effective _____)

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19198 **Section 611.905 Content of the Public Notice**
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- 19200 a) Elements included in public notice for violation of an NPDWR or other situations.
19201 When a PWS supplier violates an NPDWR or has a situation requiring public
19202 notification, each public notice must include the following elements:
19203
- 1) A description of the violation or situation, including the contaminants of concern, and (as applicable) the contaminant levels;
 - 2) When the violation or situation occurred;
 - 3) Any potential adverse health effects from the violation or situation, including the standard language under subsection (d)(1) or (d)(2) of this Section, whichever is applicable;
 - 4) The population at risk, including subpopulations particularly vulnerable if exposed to the contaminant in their drinking water;
 - 5) Whether alternative water supplies should be used;
 - 6) What actions consumers should take, including when they should seek
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- 19219 medical help, if known;
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19221 7) What the supplier is doing to correct the violation or situation;
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19223 8) When the water supplier expects to return to compliance or resolve the
19224 situation;
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19226 9) The name, business address, and phone number of the water system
19227 owner, operator, or designee of the public water system as a source of
19228 additional information concerning the notice; and
19229
19230 10) A statement to encourage the notice recipient to distribute the public
19231 notice to other persons served, using the standard language under
19232 subsection (d)(3) ~~of this Section~~, where applicable.
19233
19234 b) The elements that must be included in the public notice for public water systems
19235 operating under relief equivalent to a SDWA section 1415 variance or a section
19236 1416 exemption.
19237
19238 1) If a PWS supplier has been granted a relief equivalent to a SDWA section
19239 1415 variance, under Section 611.111, or a section 1416 exemption, under
19240 Section 611.112, the public notice must contain the following:
19241
19242 A) An explanation of the reasons for the relief equivalent to a SDWA
19243 section 1415 variance or a section 1416 exemption;
19244
19245 B) The date on which the relief equivalent to a SDWA section 1415
19246 variance or a section 1416 exemption was issued;
19247
19248 C) A brief status report on the steps that the supplier is taking to
19249 install treatment, find alternative sources of water, or otherwise
19250 comply with the terms and schedules of the relief equivalent to a
19251 SDWA section 1415 variance or a section 1416 exemption; and
19252
19253 D) A notice of any opportunity for public input in the review of the
19254 relief equivalent to a SDWA section 1415 variance or a section
19255 1416 exemption.
19256
19257 2) If a PWS supplier violates the conditions of relief equivalent to a SDWA
19258 section 1415 variance or a section 1416 exemption, the public notice must
19259 contain the ten elements listed in subsection (a) ~~of this Section~~.
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19261 c) How the public notice is to be presented.

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- 1) Each public notice required by this Section must comply with the following:
 - A) It must be displayed in a conspicuous way when printed or posted;
 - B) It must not contain overly technical language or very small print;
 - C) It must not be formatted in a way that defeats the purpose of the notice;
 - D) It must not contain language that nullifies the purpose of the notice.

- 2) Each public notice required by this Section must comply with multilingual requirements, as follows:
 - A) For a PWS supplier serving a large proportion of non-English speaking consumers, the public notice must contain information in the appropriate languages regarding the importance of the notice or contain a telephone number or address where persons served may contact the water supplier to obtain a translated copy of the notice or to request assistance in the appropriate language.
 - B) In cases where the Agency has not determined what constitutes a large proportion of non-English speaking consumers, the PWS supplier must include in the public notice the same information as in subsection (c)(2)(A) of this Section, where appropriate to reach a large proportion of non-English speaking persons served by the water supplier.

- d) Standard language that a PWS supplier must include in its public notice. A PWS supplier is required to include the following standard language in its public notice:
 - 1) Standard health effects language for MCL or MRDL violations, treatment technique violations, and violations of the condition of relief equivalent to a SDWA section 1415 variance or a section 1416 exemption. A PWS supplier must include in each public notice the health effects language specified in Appendix H to this Part corresponding to each MCL, MRDL, and treatment technique violation listed in Appendix G to this Part, and for each violation of a condition of relief equivalent to a SDWA section 1415 variance or a section 1416 exemption.

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- 2) Standard language for monitoring and testing procedure violations. A PWS supplier must include the following language in its notice, including the language necessary to fill in the blanks, for all monitoring and testing procedure violations listed in Appendix G of this Part:

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We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. During (compliance period), we "did not monitor or test" or "did not complete all monitoring or testing" for (contaminants), and therefore cannot be sure of the quality of your drinking water during that time.

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- 3) Standard language to encourage the distribution of the public notice to all persons served. A PWS supplier must include the following language in its notice (where applicable):

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Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

19328 BOARD NOTE: Derived from 40 CFR 141.205 (2016)(2002).

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19330 (Source: Amended at 41 Ill. Reg. _____, effective _____)

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19332 **Section 611.908 Special Notice for Exceedance of the Fluoride Secondary Standard**

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- a) When to give special notice. A CWS supplier that exceeds the federal fluoride secondary MCL of 2 mg/ℓ (see 40 CFR 143.3) (determined by the last single sample taken in accordance with Section 611.603), but does not exceed the maximum contaminant level (MCL) of 4 mg/ℓ for fluoride (as specified in Section 611.301), must provide the public notice in subsection (c) ~~of this Section~~ to persons served. Public notice must be provided as soon as practical but no later than 12 months from the day the supplier learns of the exceedance. A copy of the notice must also be sent to all new billing units and new customers at the time service begins and to the Department of Public Health. The PWS supplier must repeat the notice at least annually for as long as the SMCL is exceeded. If the public notice is posted, the notice must remain in place for as long as the fluoride SMCL is exceeded, but in no case less than seven days (even if the exceedance is eliminated). On a case-by-case basis, the Agency may require an initial notice sooner than 12 months and repeat notices more frequently than annually.

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BOARD NOTE: The federal regulations provide at 40 CFR 143.1 that secondary MCLs relate to the aesthetic qualities of water; they are not enforceable standards. The National Primary Drinking Water Regulations, however, include an enforceable requirement, at corresponding 40 CFR 141.208, that requires public notice upon exceedance of the secondary MCL for fluoride.

- b) The form and manner of a special notice. The form and manner of the public notice (including repeat notices) must follow the requirements for a Tier 3 public notice in Section 611.904(c), (d)(1), and (d)(3).
- c) Mandatory language in a special notice. The notice must contain the following language, including the language necessary to fill in the blanks:

This is an alert about your drinking water and a cosmetic dental problem that might affect children under nine years of age. At low levels, fluoride can help prevent cavities, but children drinking water containing more than 2 milligrams per liter (mg/l) of fluoride may develop cosmetic discoloration of their permanent teeth (dental fluorosis). The drinking water provided by your community water system (name) has a fluoride concentration of (insert value) mg/l. Dental fluorosis, in its moderate or severe forms, may result in a brown staining or pitting of the permanent teeth. This problem occurs only in developing teeth, before they erupt from the gums. Children under nine should be provided with alternative sources of drinking water or water that has been treated to remove the fluoride to avoid the possibility of staining and pitting of their permanent teeth. You may also want to contact your dentist about proper use by young children of fluoride-containing products. Older children and adults may safely drink the water.

Drinking water containing more than 4 mg/l of fluoride (the USEPA's drinking water standard) can increase your risk of developing bone disease. Your drinking water does not contain more than 4 mg/l of fluoride, but we're required to notify you when we discover that the fluoride levels in your drinking water exceed 2 mg/l because of this cosmetic dental problem.

For more information, please call (name of water system contact) of (name of community water system) at (phone number). Some home water treatment units are also available to remove fluoride from drinking water. To learn more about available home water treatment units, you may call NSF International at 1-877-8-NSF-HELP.

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BOARD NOTE: Derived from 40 CFR 141.208 (2016)(2014) .

(Source: Amended at 41 Ill. Reg. _____, effective _____)

SUBPART W: INITIAL DISTRIBUTION SYSTEM EVALUATIONS

Section 611.920 General Requirements

- a) USEPA has designated that the requirements of this Subpart W constitute National Primary Drinking Water Regulations. The regulations in this Subpart W establish monitoring and other requirements for identifying Subpart Y compliance monitoring locations for determining compliance with maximum contaminant levels for TTHMs and HAA5. The supplier must use an initial distribution system evaluation (IDSE) to determine the locations in its distribution system that are representative of high TTHM and HAA5 concentrations throughout the supplier's distribution system. An IDSE is used in conjunction with, but separate from, Subpart I compliance monitoring, to identify and select Subpart Y compliance monitoring locations.

- b) Applicability. A supplier is subject to the requirements of this Subpart W if it fulfills any of the following conditions:
 - 1) The supplier owns or operates a community water system that uses a primary or residual disinfectant other than ultraviolet light;
 - 2) The supplier delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light; or
 - 3) The supplier owns or operates a non-transient non-community water system that serves at least 10,000 people, and it either uses a primary or residual disinfectant other than ultraviolet light, or it delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light.

- c) The Agency may determine, by a SEP issued pursuant to Section 611.110, that a combined distribution system does not include certain consecutive systems based on such factors as the delivery of water to a consecutive system only on an emergency basis or the receiving of only a small percentage and small volume of water from a wholesale system. The Agency may also determine, by a SEP issued pursuant to Section 611.110, that a combined distribution system does not include certain wholesale systems based on such factors as the delivery of water to a consecutive system only on an emergency basis or the delivery of only a small percentage and small volume of water to a consecutive system.~~Schedule. A~~

19434 supplier must comply with the requirements of this Subpart W on the schedule
19435 provided in subsection (e)(1) of this Section based on its system type, as set forth
19436 in the applicable of subsections (e)(1)(A) through (e)(1)(E) of this Section, subject
19437 to the conditions of subsections (e)(1)(F) through (e)(1)(H) of this Section:
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19439 BOARD NOTE: Implementation of this Subpart W occurred in stages during
19440 October 1, 2006 through October 1, 2014, depending on population served and
19441 other factors. See 40 CFR 141.600(c). The Board removed the now-obsolete
19442 implementation dates.

19443 1) Compliance dates.

19444
19445 A) A supplier that is not part of a combined distribution system, or a
19446 supplier that serves the largest population in a combined
19447 distribution system, and which serves a population of 100,000 or
19448 more persons is required to have either submitted its standard
19449 monitoring plan, its system-specific study plan, or its 40/30
19450 certification or obtained or been subject to a very small system
19451 waiver before October 1, 2006. The supplier is further required to
19452 have completed its standard monitoring or system-specific study
19453 before September 30, 2008 and submitted its IDSE report to the
19454 Agency before January 1, 2009.

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19456 B) A supplier that is not part of a combined distribution system, or a
19457 supplier that serves the largest population in a combined
19458 distribution system, and which serves a population of 50,000 to
19459 99,999 persons is required to have either submitted its standard
19460 monitoring plan, its system-specific study plan, or its 40/30
19461 certification or obtained or been subject to a very small system
19462 waiver before April 1, 2007. The supplier is further required to
19463 have completed its standard monitoring or system-specific study
19464 before March 31, 2009 and submitted its IDSE report to the
19465 Agency before July 1, 2009.

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19467 C) A supplier that is not part of a combined distribution system, or a
19468 supplier that serves the largest population in a combined
19469 distribution system, and which serves a population of 10,000 to
19470 49,999 persons is required to have either submitted its standard
19471 monitoring plan, its system-specific study plan, or its 40/30
19472 certification or obtained or been subject to a very small system
19473 waiver before October 1, 2007. The supplier is further required to
19474 have completed its standard monitoring or system-specific study
19475 before September 30, 2009 and submitted its IDSE report to the
19476 Agency before January 1, 2010.
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- D) A supplier that is not part of a combined distribution system, or a supplier that serves the largest population in a combined distribution system, and which serves a population of fewer than 10,000 persons (and which is a CWS) is required to have either submitted its standard monitoring plan, its system-specific study plan, or its 40/30 certification or obtained or been subject to a very small system waiver before April 1, 2008. The supplier is further required to have completed its standard monitoring or system-specific study before March 31, 2010 and submitted its IDSE report to the Agency before July 1, 2010.
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- E) A supplier that is part of a combined distribution system which does not serve the largest population in the combined system, which is a wholesale system supplier or a consecutive system supplier, is required to have either submitted its standard monitoring plan, its system-specific study plan, or its 40/30 certification or obtained or been subject to a very small system waiver; is further required to have completed its standard monitoring or system-specific study; and submitted its IDSE report to the Agency at the same time as the supplier in the combined system that has the earliest compliance date.
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- F) If, within 12 months after the date when submission of the standard monitoring plan, the system-specific study plan, or the 40/30 certification or becoming subject to a very small system waiver was due, as identified in the applicable of subsections (a)(1) through (a)(4) of this Section, the Agency did not approve a supplier's plan or notify the supplier that it had not yet completed its review, the supplier may consider the plan that it submitted as approved. The supplier is required to have implemented that plan, and it is required to have completed standard monitoring or a system-specific study no later than the date when completion of the standard monitoring or system-specific study is due, as identified in the applicable of subsections (a)(1) through (a)(4) of this Section.
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- G) The supplier is required to have submitted its 40/30 certification pursuant to Section 611.923 before the date indicated in the applicable of subsections (a)(1) through (a)(4) of this Section.
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- H) If, within three months after the due date for submission of the IDSE report identified in this subsection (c)(1) (nine months after this date if the supplier is required to have complied on the

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~~schedule in subsection (c)(1)(C) of this Section), the Agency did not approve the supplier's IDSE report or notify the supplier that it had not yet completed its review, the supplier could consider the report that it submitted to the Agency as approved, and the supplier is required to have implemented the recommended Subpart Y monitoring as required.~~

~~2) For the purpose of determining the applicable compliance schedule in subsection (c)(1) of this Section, the Agency may, by a SEP issued pursuant to Section 611.110, determine that a combined distribution system does not include certain consecutive systems based on such factors as the receipt of water from a wholesale system only on an emergency basis or the receipt of only a small percentage and small volume of water from a wholesale system. The Agency may also determine, by a SEP issued pursuant to Section 611.110, that a combined distribution system does not include certain wholesale systems based on such factors as the delivery of water to a consecutive system only on an emergency basis or the delivery of only a small percentage and small volume of water to a consecutive system.~~

d) A supplier must do one of the following: it must conduct standard monitoring that meets the requirements in Section 611.921; it must conduct a system-specific study that meets the requirements in Section 611.922; it must certify to the Agency that it meets the 40/30 certification criteria under Section 611.923; or it must qualify for a very small system waiver under Section 611.924.

1) The supplier must have taken the full complement of routine TTHM and HAA5 compliance samples required of a system that serves the appropriate population and which uses the appropriate source water under Subpart I of this Part (or the supplier must have taken the full complement of reduced TTHM and HAA5 compliance samples required of a system with the supplier's population and source water under Subpart I of this Part if the supplier meets reduced monitoring criteria under Subpart I of this Part) during the period specified in Section 611.923(a) to meet the 40/30 certification criteria in Section 611.923. The supplier must have taken TTHM and HAA5 samples under Sections 611.381 and 611.382 to be eligible for the very small system waiver in Section 611.924.

2) If the supplier has not taken the required samples, the supplier must conduct standard monitoring that meets the requirements in Section 611.921, or a system-specific study that meets the requirements in Section 611.922.

- 19564 e) The supplier must use only the analytical methods specified in Section 611.381,
19565 or otherwise approved by the Agency for monitoring under this Subpart W, to
19566 demonstrate compliance with the requirements of this Subpart W.
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- 19568 f) IDSE results will not be used for the purpose of determining compliance with
19569 MCLs in Section 611.312.
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19571 BOARD NOTE: Derived from 40 CFR 141.600 (2016)(2012).

19572 (Source: Amended at 41 Ill. Reg. _____, effective _____)

19573 **Section 611.921 Standard Monitoring**

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- 19577 a) Standard monitoring plan. A supplier's standard monitoring plan must comply
19578 with subsections (a)(1) through (a)(4) of this Section. The supplier must prepare
19579 and submit its standard monitoring plan to the Agency according to the
19580 appropriate of the schedules provided in Section 611.920(c).
19581
- 19582 1) The supplier's standard monitoring plan must include a schematic of its
19583 distribution system (including distribution system entry points and their
19584 sources, and storage facilities), with notes indicating locations and dates of
19585 all projected standard monitoring, and all projected Subpart I compliance
19586 monitoring.
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- 19588 2) The supplier's standard monitoring plan must include justification of
19589 standard monitoring location selection and a summary of data the supplier
19590 relied on to justify standard monitoring location selection.
19591
- 19592 3) The supplier's standard monitoring plan must specify the population
19593 served and its system type (i.e., that it is a Subpart B or groundwater
19594 system).
19595
- 19596 4) The supplier must retain a complete copy of its standard monitoring plan
19597 submitted under this subsection (a), including any Agency modification of
19598 the plan, for as long as the supplier is required to retain its IDSE report
19599 under subsection (c)(4) of this Section.
19600
- 19601 b) Standard monitoring.
- 19602
- 19603 1) The supplier must monitor as indicated in the applicable of subsections
19604 (b)(1)(A) through (b)(1)(P) of this Section, subject to the limitations of
19605 subsections (b)(1)(Q) and (b)(1)(R) of this Section. The supplier must
19606 collect dual sample sets at each monitoring location. One sample in the

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dual sample set must be analyzed for TTHM. The other sample in the dual sample set must be analyzed for HAA5. The supplier must conduct one monitoring period during the peak historical month for TTHM levels or HAA5 levels or the month of warmest water temperature. The supplier must review available compliance, study, or operational data to determine the peak historical month for TTHM or HAA5 levels or warmest water temperature.

- A) A Subpart B system supplier that serves fewer than 500 persons and which operates a consecutive system must collect samples once each calendar year during the peak historical month: one near an entry point to the distribution system and one at a high TTHM location, for a total of two samples during each monitoring period.
- B) A Subpart B system supplier that serves fewer than 500 persons and which does not operate a consecutive system must collect samples once each calendar year during the peak historical month: one at a high TTHM location and one at a high HAA5 location, for a total of two samples during each monitoring period.
- C) A Subpart B system supplier that serves 500 to 3,300 persons and which operates a consecutive system must collect samples four times each calendar year (once every 90 days): one near an entry point to the distribution system and one at a high TTHM location, for a total of two samples during each monitoring period.
- D) A Subpart B system supplier that serves 500 to 3,300 persons and which does not operate a consecutive system must collect samples four times each calendar year (once every 90 days): one at a high TTHM location and one at a high HAA5 location, for a total of two samples during each monitoring period.
- E) A Subpart B system supplier that serves 3,301 to 9,999 persons must collect samples four times each calendar year (once every 90 days): one at a location in the distribution system that represents the average residence time, two at high TTHM locations, and one at a high HAA5 location, for a total of four samples during each monitoring period.
- F) A Subpart B system supplier that serves 10,000 to 49,999 persons must collect samples six times each calendar year (once every 60 days): one near an entry point to the distribution system, two at

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- locations in the distribution system that represent the average residence time, three at each TTHM location, and two at high HAA5 locations, for a total of eight samples during each monitoring period.
- G) A Subpart B system supplier that serves 50,000 to 249,999 persons must collect samples six times each calendar year (once every 60 days): three near entry points to the distribution system, four at locations in the distribution system that represent the average residence time, five at high TTHM locations, and four at high HAA5 locations, for a total of 16 samples during each monitoring period.
- H) A Subpart B system supplier that serves 250,000 to 999,999 persons must collect samples six times each calendar year (once every 60 days): four near entry points to the distribution system, six at locations in the distribution system that represent the average residence time, eight at high TTHM locations, and six at high HAA5 locations, for a total of 24 samples during each monitoring period.
- I) A Subpart B system supplier that serves 1,000,000 to 4,999,999 persons must collect samples six times each calendar year (once every 60 days): six near entry points to the distribution system, eight at locations in the distribution system that represent the average residence time, 10 at high TTHM locations, and eight at high HAA5 locations, for a total of 32 samples during each monitoring period.
- J) A Subpart B system supplier that serves 5,000,000 or more persons must collect samples six times each calendar year (once every 60 days): eight near entry points to the distribution system, 10 at locations in the distribution system that represent the average residence time, 12 at high TTHM locations, and 10 at high HAA5 locations, for a total of 40 samples during each monitoring period.
- K) A groundwater system supplier that serves fewer than 500 persons and which operates a consecutive system must collect samples once each calendar year during the peak historical month: one near an entry point to the distribution system and one at a high TTHM location, for a total of two samples during each monitoring period.

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- L) A groundwater system supplier that serves fewer than 500 persons and which does not operate a consecutive system must collect samples once each calendar year during the peak historical month: one at a high TTHM location and one at a high HAA5 location, for a total of two samples during each monitoring period.
- M) A groundwater system supplier that serves 500 to 9,999 persons must collect samples four times each calendar year (once every 90 days): one at a high TTHM location and one at a high HAA5 location, for a total of two samples during each monitoring period.
- N) A groundwater system supplier that serves 10,000 to 99,999 persons must collect samples four times each calendar year (once every 90 days): one near an entry point to the distribution system, one at a location in the distribution system that represents the average residence time, two at high TTHM locations, and two at high HAA5 locations, for a total of six samples during each monitoring period.
- O) A groundwater system supplier that serves 100,000 to 499,999 persons must collect samples four times each calendar year (once every 90 days): one near an entry point to the distribution system, one at a location in the distribution system that represents the average residence time, three at high TTHM locations, and three at high HAA5 locations, for a total of eight samples during each monitoring period.
- P) A groundwater system supplier that serves 500,000 or more persons must collect samples four times each calendar year (once every 90 days): two near an entry point to the distribution system, two at locations in the distribution system that represent the average residence time, four at high TTHM locations, and four at high HAA5 locations, for a total of 12 samples during each monitoring period.
- Q) A dual sample set (i.e., a TTHM and an HAA5 sample) must be taken at each monitoring location during each monitoring period.
- R) The "peak historical month," for the purposes of subsections (b)(1)(A), (b)(1)(B), (b)(1)(K), and (b)(1)(L) of this Section means the month with the highest TTHM or HAA5 levels or the warmest water temperature.

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- 2) The supplier must take samples at locations other than the existing Subpart I monitoring locations. Monitoring locations must be distributed throughout the distribution system.
 - 3) If the number of entry points to the distribution system is fewer than the specified number of entry point monitoring locations, excess entry point samples must be equally replaced at high TTHM and HAA5 locations. If there is an odd extra location number, the supplier must take a sample at a high TTHM location. If the number of entry points to the distribution system is more than the specified number of entry point monitoring locations, the supplier must take samples at the entry points to the distribution system that have the highest annual water flows.
 - 4) The supplier's monitoring under this subsection (b) may not be reduced under the provisions of Section 611.500, and the Agency may not reduce the supplier's monitoring using the provisions of Section 611.161.
- c) IDSE report. A supplier's IDSE report must include the elements required in subsections (c)(1) through (c)(4) ~~of this Section~~. The supplier must submit its IDSE report to the Agency according to the applicable of the schedules set forth in Section 611.920(c).
- 1) The supplier's IDSE report must include all TTHM and HAA5 analytical results from Subpart I compliance monitoring and all standard monitoring conducted during the period of the IDSE as individual analytical results and LRAAs presented in a tabular or spreadsheet format acceptable to the Agency. If changed from the supplier's standard monitoring plan submitted pursuant to subsection (a) ~~of this Section~~, the supplier's report must also include a schematic of the supplier's distribution system, the population served, and system type (Subpart B system or groundwater system).
 - 2) The supplier's IDSE report must include an explanation of any deviations from the supplier's approved standard monitoring plan.
 - 3) The supplier must recommend and justify Subpart Y compliance monitoring locations and timing based on the protocol in Section 611.925.
 - 4) The supplier must retain a complete copy of its IDSE report submitted under this Section for 10 years after the date on which the supplier submitted the supplier's report. If the Agency modifies the Subpart Y monitoring requirements that the supplier recommended in its IDSE report or if the Agency approves alternative monitoring locations pursuant to

19779 Section 611.161, the supplier must keep a copy of the Agency's
19780 notification on file for 10 years after the date of the Agency's notification.
19781 The supplier must make the IDSE report and any Agency notification
19782 available for review by the Agency or the public.
19783

19784 BOARD NOTE: Derived from 40 CFR 141.601 (2016)(2006).

19785 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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19788 **Section 611.922 System-Specific Studies**
19789

19790 a) System-specific study plan. A supplier's system-specific study plan must be
19791 based on either existing monitoring results, as required under subsection (a)(1) of
19792 this Section, or modeling, as required under subsection (a)(2) of this Section. The
19793 supplier must prepare and submit the supplier's system-specific study plan to the
19794 Agency according to the schedule in Section 611.920(c).
19795

19796 1) Existing monitoring results. A supplier may comply by submitting
19797 monitoring results collected before it is required to begin monitoring
19798 pursuant to Section 611.920(c). The monitoring results and analysis must
19799 meet the criteria in subsections (a)(1)(A) and (a)(1)(B) of this Section.
19800

19801 A) Minimum requirements.

19802 i) TTHM and HAA5 results must be based on samples
19803 collected and analyzed in accordance with Section 611.381.
19804 Samples must be collected no earlier than five years prior
19805 to the study plan submission date.
19806

19807 ii) The monitoring locations and frequency must meet the
19808 conditions identified in the applicable of subsections
19809 (a)(1)(A)(iii) through (a)(1)(A)(xv) of this Section. Each
19810 location must be sampled once during the peak historical
19811 month for TTHM levels or HAA5 levels or the month of
19812 warmest water temperature for every 12 months of data
19813 submitted for that location. Monitoring results must
19814 include all Subpart I compliance monitoring results, plus
19815 additional monitoring results as necessary to meet
19816 minimum sample requirements.
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19818 iii) A Subpart B system supplier that serves fewer than 500
19819 persons must collect samples from three monitoring
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- 19821 locations: three samples for TTHM and three samples for
19822 HAA5.
19823
19824 iv) A Subpart B system supplier that serves 500 to 3,300
19825 persons must collect samples from three monitoring
19826 locations: nine samples for TTHM and nine samples for
19827 HAA5.
19828
19829 v) A Subpart B system supplier that serves 3,301 to 9,999
19830 persons must collect samples from six monitoring
19831 locations: 36 samples for TTHM and 36 samples for
19832 HAA5.
19833
19834 vi) A Subpart B system supplier that serves 10,000 to 49,999
19835 persons must collect samples from each of 12 monitoring
19836 locations: 72 samples for TTHM and 72 samples for
19837 HAA5.
19838
19839 vii) A Subpart B system supplier that serves 50,000 to 249,999
19840 persons must collect samples from 24 monitoring locations:
19841 144 samples for TTHM and 144 samples for HAA5.
19842
19843 viii) A Subpart B system supplier that serves 250,000 to
19844 999,999 persons must collect samples from 36 monitoring
19845 locations: 216 samples for TTHM and 216 samples for
19846 HAA5.
19847
19848 ix) A Subpart B system supplier that serves 1,000,000 to
19849 4,999,999 persons must collect samples from 48
19850 monitoring locations: 288 samples for TTHM and 288
19851 samples for HAA5.
19852
19853 x) A Subpart B system supplier that serves 5,000,000 or more
19854 persons must collect samples from 60 monitoring locations:
19855 360 samples for TTHM and 360 samples for HAA5.
19856
19857 xi) A groundwater system supplier that serves fewer than 500
19858 persons must collect samples from three monitoring
19859 locations: three samples for TTHM and three samples for
19860 HAA5.
19861
19862 xii) A groundwater system supplier that serves 500 to 9,999
19863 persons must collect samples from three monitoring

- 19864 locations: nine samples for TTHM and nine samples for
19865 HAA5.
19866
19867 xiii) A groundwater system supplier that serves 10,000 to
19868 99,999 persons must collect samples from 12 monitoring
19869 locations: 48 samples for TTHM and 48 samples for
19870 HAA5.
19871
19872 xiv) A groundwater system supplier that serves 100,000 to
19873 499,999 persons must collect samples from 18 monitoring
19874 locations: 72 samples for TTHM and 72 samples for
19875 HAA5.
19876
19877 xv) A groundwater system supplier that serves 500,000 or more
19878 persons must collect samples from 24 monitoring locations:
19879 96 samples for TTHM and 96 samples for HAA5.
19880
19881 B) Reporting monitoring results. A supplier must report the following
19882 information:
19883
19884 i) The supplier must report previously collected monitoring
19885 results and certify that the reported monitoring results
19886 include all compliance and noncompliance results
19887 generated during the time period that began with the first
19888 reported result and which ended with the most recent
19889 Subpart I results;
19890
19891 ii) The supplier must certify that the samples were
19892 representative of the entire distribution system and
19893 treatment and that the distribution system and treatment
19894 have not changed significantly since the samples were
19895 collected;
19896
19897 iii) The supplier's study monitoring plan must include a
19898 schematic of its distribution system (including distribution
19899 system entry points and their sources and storage facilities
19900 in the system), with notes indicating the locations and dates
19901 of all completed or planned system-specific study
19902 monitoring;
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19904 iv) The supplier's system-specific study plan must specify the
19905 population served and its system type (i.e., that it is a
19906 Subpart B or groundwater system);

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- v) The supplier must retain a complete copy of its system-specific study plan submitted under this subsection (a)(1), including any Agency modification of the supplier's system-specific study plan, for as long as the supplier is required to retain its IDSE report under subsection (b)(5) of this Section; and
 - vi) If the supplier submits previously collected data that fully meet the number of samples required under subsection (a)(1)(A)(ii) of this Section, and the Agency rejects some of the data in writing, by a SEP issued pursuant to Section 611.110, the supplier must either conduct additional monitoring to replace rejected data on a schedule approved by the Agency in the SEP, or it must conduct standard monitoring under Section 611.921.
- 2) Modeling. A supplier may comply through analysis of an extended-period simulation hydraulic model. The extended-period simulation hydraulic model and analysis must meet the following criteria:
- A) Minimum extended-period hydraulic model requirements.
 - i) The extended-period hydraulic model must simulate 24 hour variation in demand and show a consistently repeating 24 hour pattern of residence time.
 - ii) The extended-period hydraulic model must represent the criteria listed in subsection (a)(2)(D) of this Section.

BOARD NOTE: This subsection (a)(2)(A)(ii) is derived from 40 CFR 141.602(a)(2)(i)(B), as added at 71 Fed. Reg. 388 (Jan. 4, 2006). The Board has codified 40 CFR 141.602(a)(2)(i)(B)(1) through (a)(2)(i)(B)(9) as subsections (a)(2)(D)(i) through (a)(2)(D)(ix) of this Section to comport with Illinois Administrative Code codification requirements.
 - iii) The extended-period hydraulic model must be calibrated or have calibration plans for the current configuration of the distribution system during the period of high TTHM formation potential. All storage facilities in the system must be evaluated as part of the calibration process. All

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required calibration must be completed no later than 12 months after the supplier has submitted the plan.

- B) Reporting modeling. The supplier's system-specific study plan must include the information described in subsections (a)(2)(B)(i) through (a)(2)(B)(vii) of this Section, subject to the requirements of subsection (a)(2)(B)(vii) of this Section.
- i) Tabular or spreadsheet data demonstrating that the model meets requirements in subsections (a)(2)(A)(ii) and (a)(2)(D) of this Section.
 - ii) A description of all calibration activities undertaken and, if calibration is complete, a graph of predicted tank levels versus measured tank levels for the system storage facility with the highest residence time in each pressure zone, and a time-series graph of the residence time at the longest residence time storage facility in the distribution system showing the predictions for the entire simulation period (i.e., from time zero until the time it takes for the model to reach a consistently repeating pattern of residence time).
 - iii) Model output showing preliminary 24-hour average residence time predictions throughout the distribution system.
 - iv) The timing and the number of samples representative of the distribution system planned for at least one monitoring period of TTHM and HAA5 dual-sample monitoring at a number of locations no fewer than would be required for the system under standard monitoring in Section 611.921 during the historical month of high TTHM. These samples must be taken at locations other than existing Subpart I compliance monitoring locations.
 - v) A description of how all requirements will be completed no later than 12 months after the supplier submits the supplier's system-specific study plan.
 - vi) A schematic of the supplier's distribution system (including distribution system entry points and their sources and system storage facilities), with notes indicating the locations and dates of all completed system-specific study

- 19993 monitoring (if calibration is complete) and all Subpart I
- 19994 compliance monitoring.
- 19995
- 19996 vii) The population served and system type (i.e., that it is a
- 19997 Subpart B or groundwater system).
- 19998
- 19999 viii) The supplier must retain a complete copy of the supplier's
- 20000 system-specific study plan submitted under this subsection
- 20001 (a)(2), including any Agency modification of the supplier's
- 20002 system-specific study plan, for as long as the supplier is
- 20003 required to retain the supplier's IDSE report under
- 20004 subsection (b)(7) of this Section.
- 20005
- 20006 C) If the supplier submits a model that does not fully meet the
- 20007 requirements under subsection (a)(2) of this Section, the supplier
- 20008 must correct the Agency-cited deficiencies and respond to Agency
- 20009 inquiries concerning the model. If the supplier fails to correct
- 20010 deficiencies or respond to inquiries to the Agency's satisfaction,
- 20011 the supplier must conduct standard monitoring under Section
- 20012 611.921.
- 20013
- 20014 D) The extended-period hydraulic model must represent the following
- 20015 criteria:
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- 20017 i) 75 percent of pipe volume;
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- 20019 ii) 50 percent of pipe length;
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- 20021 iii) All pressure zones;
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- 20023 iv) All 12-inch diameter and larger pipes;
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- 20025 v) All eight-inch and larger pipes that connect pressure zones,
- 20026 influence zones from different sources, storage facilities,
- 20027 major demand areas, pumps, and control valves or which
- 20028 are known or expected to be significant conveyors of water;
- 20029
- 20030 vi) All six-inch and larger pipes that connect remote areas of a
- 20031 distribution system to the main portion of the system;
- 20032
- 20033 vii) All storage facilities with standard operations represented
- 20034 in the model;
- 20035

of the system-specific study plan if the supplier believes that it has the necessary information before the time that the system-specific study plan is due. If the supplier elects this approach, its IDSE report must also include all information required under subsection (a) of this Section.

- 7) The supplier must retain a complete copy of its IDSE report submitted under this Section for 10 years after the date that the supplier submitted its IDSE report. If the Agency modifies the Subpart Y monitoring requirements that the supplier recommended in the supplier's IDSE report or if the Agency approves alternative monitoring locations, the supplier must keep a copy of the Agency's notification on file for 10 years after the date of the Agency's notification. The supplier must make the IDSE report and any Agency notification available for review by the Agency or the public.

BOARD NOTE: Derived from 40 CFR 141.602 (2016)(2006).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.923 40/30 Certification

- a) Eligibility. A supplier is eligible for 40/30 certification if it had no TTHM or HAA5 monitoring violations under Subpart I of this Part and no individual sample exceeded 0.040 mg/l for TTHM or 0.030 mg/l for HAA5 during an eight consecutive calendar quarter period during implementation of this Subpart W. Eligibility for 40/30 certification is based on eight consecutive calendar quarters of Subpart I compliance monitoring results, unless the supplier is on reduced monitoring under Subpart I of this Part and was not required to monitor. If the supplier did not monitor, the supplier must base its eligibility on compliance samples taken during the preceding 12 months, beginning no earlier than the date specified in the applicable of subsections (a)(1) through (a)(4) of this Section, subject to the limitations of subsection (a)(5) of this Section.

BOARD NOTE: Implementation of this Subpart W occurred in stages during October 1, 2006 through October 1, 2014. The monitoring that formed the basis of 40/30 certification was based on monitoring that began either January 2004 or January 2005, depending on population served and other factors. See 40 CFR 141.600(c) and 141.603(a). The Board removed the now-obsolete implementation dates.

- 1) ~~If the supplier's 40/30 certification was due no later than October 1, 2006, then its eligibility for 40/30 certification was based on eight consecutive calendar quarters of Subpart I compliance monitoring results that began no earlier than January 2004.~~

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- 2) ~~If the supplier's 40/30 certification was due no later than April 1, 2007, then its eligibility for 40/30 certification was based on eight consecutive calendar quarters of Subpart I compliance monitoring results that began no earlier than January 2004.~~
 - 3) ~~If the supplier's 40/30 certification was due no later than October 1, 2007, then its eligibility for 40/30 certification was based on eight consecutive calendar quarters of Subpart I compliance monitoring results that began no earlier than January 2005.~~
 - 4) ~~If the supplier's 40/30 certification was due no later than April 1, 2008, then its eligibility for 40/30 certification was based on eight consecutive calendar quarters of Subpart I compliance monitoring results that began no earlier than January 2005.~~
 - 5) ~~Eligibility for 40/30 certification is based on eight consecutive calendar quarters of Subpart I compliance monitoring results beginning no earlier than the date set forth in the applicable of subsections (a)(1) through (a)(4) of this Section, unless the supplier is on reduced monitoring under Subpart I of this Part and was not required to monitor during the specified period. If the supplier did not monitor during the specified period, the supplier must base its eligibility on compliance samples taken during the 12 months preceding the specified period.~~
- b) 40/30 certification.
- 1) A supplier must certify to the Agency that every individual compliance sample taken under Subpart I of this Part during the applicable of the periods specified in subsection (a) ~~of this Section~~ were no more than 0.040 mg/l for TTHM and 0.030 mg/l for HAA5, and that the supplier has not had any TTHM or HAA5 monitoring violations during the period specified in subsection (a) ~~of this Section~~.
 - 2) The Agency may require the supplier to submit compliance monitoring results, distribution system schematics, or recommended Subpart Y compliance monitoring locations in addition to the supplier's certification. If the supplier fails to submit the requested information, the Agency may require standard monitoring under Section 611.921 or a system-specific study under Section 611.922.

- 20164 3) The Agency may still require standard monitoring under Section 611.921
- 20165 or a system-specific study under Section 611.922 even if the supplier
- 20166 meets the criteria in subsection (a) ~~of this Section.~~
- 20167
- 20168 4) The supplier must retain a complete copy of its certification submitted
- 20169 under this Section for 10 years after the date that it submitted the supplier's
- 20170 certification. The supplier must make the certification, all data upon
- 20171 which the certification is based, and any Agency notification available for
- 20172 review by the Agency or the public.
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20174 BOARD NOTE: Derived from 40 CFR 141.603 ~~(2016)~~(2012).

20175 (Source: Amended at 41 Ill. Reg. _____, effective _____)

20176 **Section 611.925 Subpart Y Compliance Monitoring Location Recommendations**

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- 20178 a) A supplier's IDSE report must include its recommendations and justification for
- 20179 where and during what months it will conduct TTHM and HAA5 monitoring for
- 20180 Subpart Y of this Part. The supplier must base its recommendations on the
- 20181 criteria set forth in subsections (b) through (e) ~~of this Section.~~
- 20182
- 20183 b) The supplier must select the number of monitoring locations specified in the
- 20184 applicable of subsections (b)(1) through (b)(13) ~~of this Section~~, subject to the
- 20185 limitations of subsections (b)(14) and (b)(15) ~~of this Section~~. The supplier will
- 20186 use these recommended locations as Subpart Y routine compliance monitoring
- 20187 locations, unless the Agency requires different or additional locations. The
- 20188 supplier should distribute locations throughout the distribution system to the
- 20189 extent possible.
- 20190
- 20191 1) A Subpart B system supplier that serves fewer than 500 persons must
- 20192 annually collect samples from two monitoring locations: one sample from
- 20193 the highest TTHM location and one sample from the highest HAA5
- 20194 location.
- 20195
- 20196 2) A Subpart B system supplier that serves 500 to 3,300 persons must
- 20197 quarterly collect samples from two monitoring locations: one sample from
- 20198 the highest TTHM location and one sample from the highest HAA5
- 20199 location.
- 20200
- 20201 3) A Subpart B system supplier that serves 3,301 to 9,999 persons must
- 20202 quarterly collect samples from two monitoring locations: one sample from
- 20203 the highest TTHM location and one sample from the highest HAA5
- 20204 location.
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- 4) A Subpart B system supplier that serves 10,000 to 49,999 persons must quarterly collect samples from four monitoring locations: two samples from the highest TTHM locations, one sample from the highest HAA5 location, and one sample from an existing Subpart I compliance location.
- 5) A Subpart B system supplier that serves 50,000 to 249,999 persons must quarterly collect samples from eight monitoring locations: three samples from the highest TTHM location, three samples from the highest HAA5 locations, and two samples from existing Subpart I compliance locations.
- 6) A Subpart B system supplier that serves 250,000 to 999,999 persons must quarterly collect samples from 12 monitoring locations: five samples from the highest TTHM location, four samples from the highest HAA5 locations, and three samples from existing Subpart I compliance locations.
- 7) A Subpart B system supplier that serves 1,000,000 to 4,999,999 persons must quarterly collect samples from 16 monitoring locations: six samples from the highest TTHM location, six samples from the highest HAA5 locations, and four samples from existing Subpart I compliance locations.
- 8) A Subpart B system supplier that serves more than 5,000,000 persons must quarterly collect samples from 20 monitoring locations: eight samples from the highest TTHM location, seven samples from the highest HAA5 locations, and five samples from existing Subpart I compliance locations.
- 9) A groundwater system supplier that serves fewer than 500 persons must annually collect samples from two monitoring locations: one sample from the highest TTHM location and one sample from the highest HAA5 location.
- 10) A groundwater system supplier that serves 500 to 9,999 persons must annually collect samples from two monitoring locations: one sample from the highest TTHM location and one sample from the highest HAA5 location.
- 11) A groundwater system supplier that serves 10,000 to 99,999 persons must quarterly collect samples from four monitoring locations: two samples from the highest TTHM locations, one sample from the highest HAA5 location, and one sample from an existing Subpart I compliance location.

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- 12) A groundwater system supplier that serves 100,000 to 499,999 persons must quarterly collect samples from six monitoring locations: three samples from the highest TTHM locations, two samples from the highest HAA5 locations, and one sample from an existing Subpart I compliance location.
 - 13) A groundwater system supplier that serves more than 500,000 persons must quarterly collect samples from eight monitoring locations: three samples from the highest TTHM locations, three samples from the highest HAA5 locations, and two samples from existing Subpart I compliance locations.
 - 14) The supplier must monitor during the month of highest DBP concentrations.
 - 15) A supplier on quarterly monitoring must take dual sample sets every 90 days at each monitoring location, except for a Subpart B system supplier that serves 500 to 3,300 persons. A groundwater system supplier that serves 500 to 9,999 persons which is on annual monitoring must take dual sample sets at each monitoring location. Any other supplier that is on annual monitoring or which is a Subpart B system supplier that serves 500 to 3,300 persons is required to take individual TTHM and HAA5 samples (instead of a dual sample set) at the locations with the highest TTHM and HAA5 concentrations, respectively. For a supplier that serves fewer than 500 people, only one location with a dual sample set per monitoring period is needed if the highest TTHM and HAA5 concentrations occur at the same location and month.
- c) The supplier must recommend Subpart Y compliance monitoring locations based on standard monitoring results, system-specific study results, and Subpart I compliance monitoring results. The supplier must follow the protocol in subsections (c)(1) through (c)(8) of this Section. If required to monitor at more than eight locations, the supplier must repeat the protocol as necessary. If the supplier does not have existing Subpart I compliance monitoring results or if the supplier does not have enough existing Subpart I compliance monitoring results, the supplier must repeat the protocol, skipping the provisions of subsections (c)(3) and (c)(7) of this Section as necessary, until the supplier has identified the required total number of monitoring locations.
- 1) The location with the highest TTHM LRAA not previously selected as a Subpart Y monitoring location.

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- 2) The location with the highest HAA5 LRAA not previously selected as a Subpart Y monitoring location.
 - 3) The existing Subpart I average residence time compliance monitoring location (maximum residence time compliance monitoring location for a groundwater system) with the highest HAA5 LRAA not previously selected as a Subpart Y monitoring location.
 - 4) The location with the highest TTHM LRAA not previously selected as a Subpart Y monitoring location.
 - 5) The location with the highest TTHM LRAA not previously selected as a Subpart Y monitoring location.
 - 6) The location with the highest HAA5 LRAA not previously selected as a Subpart Y monitoring location.
 - 7) The existing Subpart I average residence time compliance monitoring location (maximum residence time compliance monitoring location for a groundwater system) with the highest TTHM LRAA not previously selected as a Subpart Y monitoring location.
 - 8) The location with the highest HAA5 LRAA not previously selected as a Subpart Y monitoring location.
- d) The supplier may recommend locations other than those specified in subsection (c) of this Section if the supplier includes a rationale for selecting other locations. If the Agency approves the alternative locations, the supplier must monitor at these locations to determine compliance under Subpart Y of this Part.
- e) The supplier's recommended schedule must include Subpart Y monitoring during the peak historical month for TTHM and HAA5 concentration, unless the Agency approves another month. Once the supplier has identified the peak historical month, and if the supplier is required to conduct routine monitoring at least quarterly, the supplier must schedule Subpart Y compliance monitoring at a regular frequency of every 90 or fewer days.

BOARD NOTE: Derived from 40 CFR 141.605 (2016)(2010).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

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

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Section 611.950 General Requirements

- a) The requirements of this Subpart X constitute national primary drinking water regulations. These regulations establish requirements for filtration and disinfection that are in addition to criteria under which filtration and disinfection are required under Subpart B of this Part. The regulations in this Subpart X establish or extend treatment technique requirements in lieu of maximum contaminant levels for the following contaminants: *Giardia lamblia*, viruses, heterotrophic plate count bacteria, *Legionella*, *Cryptosporidium*, and turbidity. The treatment technique requirements consist of installing and properly operating water treatment processes that reliably achieve the following:
 - 1) At least 99 percent (2-log) removal of *Cryptosporidium* between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer for filtered systems, or *Cryptosporidium* control under the watershed control plan for unfiltered systems; and
 - 2) Compliance with the profiling and benchmark requirements in Sections 611.953 and 611.954.

- b) Applicability of the Subpart X requirements. A supplier is subject to these requirements if the following is true of its system:
 - 1) Is a public water system;
 - 2) Uses surface water or groundwater under the direct influence of surface water as a source; and
 - 3) Serves fewer than 10,000 persons.

- c) This subsection (c) corresponds with 40 CFR 141.502, which includes a past implementation date. This statement maintains structural consistency with the corresponding federal provision. ~~Compliance deadline. A supplier must comply with these requirements in this Subpart X beginning January 1, 2005, except where otherwise noted.~~

- d) Subpart X requirements. There are seven requirements of this Subpart X, and a supplier must comply with all requirements that are applicable to its system. These requirements are the following:

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- 1) The supplier must cover any finished water reservoir that the supplier began to construct on or after March 15, 2002, as described in Section 611.951;
 - 2) If the supplier's system is an unfiltered system, the supplier must comply with the updated watershed control requirements described in Section 611.952;
 - 3) If the supplier's system is a community or non-transient non-community water system the supplier must develop a disinfection profile, as described in Section 611.953;
 - 4) If the supplier's system is considering making a significant change to its disinfection practices, the supplier must develop a disinfection benchmark and consult with the Agency for approval of the change, as described in Section 611.954;
 - 5) If the supplier's system is a filtered system, the supplier must comply with the combined filter effluent requirements, as described in Section 611.955;
 - 6) If the supplier's system is a filtered system that uses conventional or direct filtration, the supplier must comply with the individual filter turbidity requirements, as described in Section 611.956; and
 - 7) The supplier must comply with the applicable reporting and recordkeeping requirements, as described in Section 611.957.

20403 BOARD NOTE: Derived from 40 CFR 141.500 through 141.503 (2016)(2002).

20404 (Source: Amended at 41 Ill. Reg. _____, effective _____)

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20407 **Section 611.952 Additional Watershed Control Requirements for Unfiltered Systems**

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- a) Applicability. A Subpart B system supplier that serves fewer than 10,000 persons that does not provide filtration must continue to comply with all of the filtration avoidance criteria in Sections 611.211 and 611.230 through 611.233, as well as the additional watershed control requirements in subsection (b) of this Section.
 - b) Requirements to avoid filtration. A supplier must take any additional steps necessary to minimize the potential for contamination by *Cryptosporidium* oocysts in the source water. A watershed control program must fulfill the following for *Cryptosporidium*:

- 20419 1) The program must identify watershed characteristics and activities that
- 20420 may have an adverse effect on source water quality; and
- 20421
- 20422 2) The program must monitor the occurrence of activities that may have an
- 20423 adverse effect on source water quality.
- 20424
- 20425 c) Determination of adequacy of control requirements. During an onsite inspection
- 20426 conducted under the provisions of Section 611.232(c), the Agency must determine
- 20427 whether a watershed control program is adequate to limit potential contamination
- 20428 by *Cryptosporidium* oocysts. The adequacy of the program must be based on the
- 20429 comprehensiveness of the watershed review; the effectiveness of the program to
- 20430 monitor and control detrimental activities occurring in the watershed; and the
- 20431 extent to which the supplier has maximized land ownership or controlled land use
- 20432 within the watershed.
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20434 BOARD NOTE: Derived from 40 CFR 141.520 through 141.522 (2016)(2002).

20435 (Source: Amended at 41 Ill. Reg. _____, effective _____)

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20438 **Section 611.953 Disinfection Profile**

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- 20440 a) Applicability. A disinfection profile is a graphical representation of a system's
- 20441 level of *Giardia lamblia* or virus inactivation measured during the course of a
- 20442 year. A Subpart B community or non-transient non-community water system that
- 20443 serves fewer than 10,000 persons must develop a disinfection profile unless the
- 20444 Agency, by a SEP issued pursuant to Section 611.110, determines that a profile is
- 20445 unnecessary. The Agency may approve the use of a more representative data set
- 20446 for disinfection profiling than the data set required under subsections (c) through
- 20447 (g) of this Section.
- 20448
- 20449 b) Determination that a disinfection profile is not necessary. The Agency may only
- 20450 determine that a disinfection profile is not necessary if the system's TTHM and
- 20451 HAA5 levels are below 0.064 mg/l and 0.048 mg/l, respectively. To determine
- 20452 these levels, TTHM and HAA5 samples must have been collected after January 1,
- 20453 1998, during the month with the warmest water temperature, and at the point of
- 20454 maximum residence time in the distribution system. The Agency may, by a SEP
- 20455 issued pursuant to Section 611.110, approve the use of a different data set to
- 20456 determine these levels if it determines that the data set is representative TTHM
- 20457 and HAA5 data.
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- 20459 c) Development of a disinfection profile. A disinfection profile consists of the
- 20460 following three steps:
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- 1) First, the supplier must collect data for several parameters from the plant, as discussed in subsection (d) of this Section, over the course of 12 months; ~~If the supplier serves between 500 and 9,999 persons it must have begun to collect data no later than July 1, 2003. If the supplier serves fewer than 500 persons, it must begin to collect data no later than January 1, 2004.~~
 - 2) Second, the supplier must use this data to calculate weekly log inactivation as discussed in subsections (e) and (f) of this Section; and
 - 3) Third, the supplier must use these weekly log inactivations to develop a disinfection profile as specified in subsection (g) of this Section.
- d) Data required for a disinfection profile. A supplier must monitor the following parameters to determine the total log inactivation using the analytical methods in Section 611.531, once per week on the same calendar day, over 12 consecutive months:
- 1) The temperature of the disinfected water at each residual disinfectant concentration sampling point during peak hourly flow;
 - 2) If a supplier uses chlorine, the pH of the disinfected water at each residual disinfectant concentration sampling point during peak hourly flow;
 - 3) The disinfectant contact times ("T") during peak hourly flow; and
 - 4) The residual disinfectant concentrations ("C") of the water before or at the first customer and prior to each additional point of disinfection during peak hourly flow.
- e) Calculations based on the data collected. The tables in Appendix B of this Part must be used to determine the appropriate $CT_{99.9}$ value. The supplier must calculate the total inactivation ratio as follows, and multiply the value by 3.0 to determine log inactivation of *Giardia lamblia*:
- 1) If the supplier uses only one point of disinfectant application, it must determine either of the following:
 - A) One inactivation ratio ($CT_{calc}/CT_{99.9}$) before or at the first customer during peak hourly flow; or
 - B) Successive $CT_{calc}/CT_{99.9}$ values, representing sequential inactivation ratios, between the point of disinfectant application

20505 and a point before or at the first customer during peak hourly flow.
 20506 Under this alternative, the supplier must calculate the total
 20507 inactivation ratio by determining $CT_{\text{calc}}/CT_{99.9}$ for each sequence
 20508 and then adding the $CT_{\text{calc}}/CT_{99.9}$ values together to determine
 20509 $\Sigma CT_{\text{calc}}/CT_{99.9}$.
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20511 2) If the supplier uses more than one point of disinfectant application before
 20512 the first customer, it must determine the $CT_{\text{calc}}/CT_{99.9}$ value of each
 20513 disinfection segment immediately prior to the next point of disinfectant
 20514 application, or for the final segment, before or at the first customer, during
 20515 peak hourly flow using the procedure specified in subsection (e)(1)(B) of
 20516 this Section.
 20517

20518 f) Use of chloramines, ozone, or chlorine dioxide as a primary disinfectant. If a
 20519 supplier uses chloramines, ozone, or chlorine dioxide for primary disinfection, the
 20520 supplier must also calculate the logs of inactivation for viruses and develop an
 20521 additional disinfection profile for viruses using methods approved by the Agency.
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20523 g) Development and maintenance of the disinfection profile in graphic form. Each
 20524 log inactivation serves as a data point in the supplier's disinfection profile. A
 20525 supplier will have obtained 52 measurements (one for every week of the year).
 20526 This will allow the supplier and the Agency the opportunity to evaluate how
 20527 microbial inactivation varied over the course of the year by looking at all 52
 20528 measurements (the supplier's disinfection profile). The supplier must retain the
 20529 disinfection profile data in graphic form, such as a spreadsheet, which must be
 20530 available for review by the Agency as part of a sanitary survey. The supplier
 20531 must use this data to calculate a benchmark if the supplier is considering changes
 20532 to disinfection practices.
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20534 BOARD NOTE: Derived from 40 CFR 141.530 through 141.536 (2016)(2014).

20535 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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20538 **Section 611.954 Disinfection Benchmark**
 20539

20540 a) Applicability. A Subpart B system supplier that is required to develop a
 20541 disinfection profile under Section 611.953 must develop a disinfection benchmark
 20542 if it decides to make a significant change to its disinfection practice. The supplier
 20543 must consult with the Agency for approval before it can implement a significant
 20544 disinfection practice change.
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20546 b) Significant changes to disinfection practice. Significant changes to disinfection
 20547 practice include the following:

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- 1) Changes to the point of disinfection;
 - 2) Changes to the disinfectants used in the treatment plant;
 - 3) Changes to the disinfection process; or
 - 4) Any other modification identified by the Agency.
- c) Considering a significant change. A supplier that is considering a significant change to its disinfection practice must calculate disinfection benchmark, as described in subsections (d) and (e) of this Section, and provide the benchmarks to the Agency. A supplier may only make a significant disinfection practice change after consulting with the Agency for approval. A supplier must submit the following information to the Agency as part of the consultation and approval process:
- 1) A description of the proposed change;
 - 2) The disinfection profile for Giardia lamblia (and, if necessary, viruses) and disinfection benchmark;
 - 3) An analysis of how the proposed change will affect the current levels of disinfection; and
 - 4) Any additional information requested by the Agency.
- d) Calculation of a disinfection benchmark. A supplier that is making a significant change to its disinfection practice must calculate a disinfection benchmark using the following procedure:
- 1) Step 1: Using the data that the supplier collected to develop the disinfection profile, determine the average Giardia lamblia inactivation for each calendar month by dividing the sum of all Giardia lamblia inactivations for that month by the number of values calculated for that month; and
 - 2) Step 2: Determine the lowest monthly average value out of the 12 values. This value becomes the disinfection benchmark.
- e) If a supplier uses chloramines, ozone or chlorine dioxide for primary disinfection the supplier must calculate the disinfection benchmark from the data that the supplier collected for viruses to develop the disinfection profile in subsection (d)

20591 ~~of this Section.~~ This viral benchmark must be calculated in the same manner used
20592 to calculate the Giardia lamblia disinfection benchmark in subsection (d) ~~of this~~
20593 ~~Section.~~

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20595 BOARD NOTE: Derived from 40 CFR 141.540 through 141.544 (2016)(2003).

20596
20597 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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20599 **Section 611.955 Combined Filter Effluent Turbidity Limits**
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- 20601 a) Applicability. A Subpart B system supplier that serves fewer than 10,000
20602 persons, which is required to filter, and which utilizes filtration other than slow
20603 sand filtration or diatomaceous earth filtration must meet the combined filter
20604 effluent turbidity requirements of subsections (b) through (d) ~~of this Section.~~ If
20605 the supplier uses slow sand or diatomaceous earth filtration the supplier is not
20606 required to meet the combined filter effluent turbidity limits of this Subpart X, but
20607 the supplier must continue to meet the combined filter effluent turbidity limits in
20608 Section 611.250.
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- 20610 b) Combined filter effluent turbidity limits. A supplier must meet two strengthened
20611 combined filter effluent turbidity limits.
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- 20613 1) The first combined filter effluent turbidity limit is a "95th percentile"
20614 turbidity limit that a supplier must meet in at least 95 percent of the
20615 turbidity measurements taken each month. Measurements must continue
20616 to be taken as described in Sections 611.531 and 611.533. Monthly
20617 reporting must be completed according to Section 611.957(a). The
20618 following are the required limits for specific filtration technologies:
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- 20620 A) For a system with conventional filtration or direct filtration, the
20621 95th percentile turbidity value is 0.3 NTU.
20622
- 20623 B) For a system with any other alternative filter technology, the 95th
20624 percentile turbidity value is a value (not to exceed 1 NTU) to be
20625 determined by the Agency, by a SEP issued pursuant to Section
20626 611.110, based on the demonstration described in subsection (c) ~~of~~
20627 ~~this Section.~~
20628
- 20629 2) The second combined filter effluent turbidity limit is a "maximum"
20630 turbidity limit that a supplier may at no time exceed during the month.
20631 Measurements must continue to be taken as described in Sections 611.531
20632 and 611.533. Monthly reporting must be completed according to Section

20633 611.957(a). The following are the required limits for specific filtration
20634 technologies:

- 20635
- 20636 A) For a system with conventional filtration or direct filtration, the
20637 maximum turbidity value is 1 NTU.
- 20638
- 20639 B) For a system with any other alternative filter technology, the
20640 maximum turbidity value is a value (not to exceed 5 NTU) to be
20641 determined by the Agency, by a SEP issued pursuant to Section
20642 611.110, based on the demonstration described in subsection (c) of
20643 this Section.

20644

20645 c) Requirements for an alternative filtration system.

- 20646
- 20647 1) If a supplier's system consists of alternative filtration (filtration other than
20648 slow sand filtration, diatomaceous earth filtration, conventional filtration,
20649 or direct filtration) the supplier is required to conduct a demonstration (see
20650 tables in subsection (b) of this Section). The supplier must demonstrate to
20651 the Agency, using pilot plant studies or other means, that its system's
20652 filtration, in combination with disinfection treatment, consistently
20653 achieves the following:
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- 20655 A) 99 percent removal of *Cryptosporidium* oocysts;
- 20656
- 20657 B) 99.9 percent removal or inactivation of *Giardia lamblia* cysts; and
- 20658
- 20659 C) 99.99 percent removal or inactivation of viruses.
- 20660
- 20661 2) This subsection (c)(2) corresponds with 40 CFR 141.552(b), which
20662 USEPA has designated as "reserved." This statement maintains structural
20663 correspondence with the corresponding federal regulation.

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20665 d) Requirements for a lime-softening system. If a supplier practices lime softening,
20666 the supplier may acidify representative combined filter effluent turbidity samples
20667 prior to analysis using a protocol approved by the Agency.

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20669 BOARD NOTE: Derived from 40 CFR 141.550 through 141.553 (2016)(2014).

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20671 (Source: Amended at 41 Ill. Reg. _____, effective _____)

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20673 **Section 611.956 Individual Filter Turbidity Requirements**

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- a) Applicability. A Subpart B system supplier that serves fewer than 10,000 persons and utilizing conventional filtration or direct filtration must conduct continuous monitoring of turbidity for each individual filter in a supplier's system. The following requirements apply to continuous turbidity monitoring:
 - 1) Monitoring must be conducted using an approved method in Section 611.531;
 - 2) Calibration of turbidimeters must be conducted using procedures specified by the manufacturer;
 - 3) Results of turbidity monitoring must be recorded at least every 15 minutes;
 - 4) Monthly reporting must be completed according to Section 611.957(a); and
 - 5) Records must be maintained according to Section 611.957(b).
 - b) Failure of turbidity monitoring equipment. If there is a failure in the continuous turbidity monitoring equipment, the supplier must conduct grab sampling every four hours in lieu of continuous monitoring until the turbidimeter is back on-line. The supplier has 14 days to resume continuous monitoring before a violation is incurred.
 - c) Special requirements for systems with two or fewer filters. If a supplier's system only consists of two or fewer filters, the supplier may conduct continuous monitoring of combined filter effluent turbidity in lieu of individual filter effluent turbidity monitoring. Continuous monitoring must meet the same requirements set forth in subsections (a)(1) through (a)(4) and (b) ~~of this Section~~.
 - d) Follow-up action. Follow-up action is required according to the following requirements:
 - 1) If the turbidity of an individual filter (or the turbidity of combined filter effluent (CFE) for a system with two filters that monitor CFE in lieu of individual filters) exceeds 1.0 NTU in two consecutive recordings 15 minutes apart, the supplier must report to the Agency by the 10th of the following month and include the filter numbers, corresponding dates, turbidity values that exceeded 1.0 NTU, and the cause (if known) for the exceedances.

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- 2) If a supplier was required to report to the Agency for three months in a row and turbidity exceeded 1.0 NTU in two consecutive recordings 15 minutes apart at the same filter (or CFE for systems with two filters that monitor CFE in lieu of individual filters), the supplier must conduct a self-assessment of the filters within 14 days ~~after~~ of the day on which the filter exceeded 1.0 NTU in two consecutive measurements for the third straight month, unless a CPE, as specified in subsection (d)(3) ~~of this Section~~, was required. A supplier that has a system with two filters that monitor CFE in lieu of individual filters must conduct a self-assessment on both filters. The self-assessment must consist of at least the following components: assessment of filter performance, development of a filter profile, identification and prioritization of factors limiting filter performance, assessment of the applicability of corrections, and preparation of a filter self-assessment report.
- 3) If a supplier was required to report to the Agency for two months in a row and turbidity exceeded 2.0 NTU in two consecutive recordings 15 minutes apart at the same filter (or CFE for systems with two filters that monitor CFE in lieu of individual filters), the supplier must arrange to have a comprehensive performance evaluation (CPE) conducted by the Agency or a third party approved by the Agency not later than 60 days following the day the filter exceeded 2.0 NTU in two consecutive measurements for the second straight month. If a CPE has been completed by the Agency or a third party approved by the Agency within the 12 prior months or the system and Agency are jointly participating in an ongoing comprehensive technical assistance (CTA) project at the system, a new CPE is not required. If conducted, a CPE must be completed and submitted to the Agency no later than 120 days following the day the filter exceeded 2.0 NTU in two consecutive measurements for the second straight month.
- e) Special individual filter monitoring for a lime-softening system. If a supplier's system utilizes lime softening, the supplier may apply to the Agency for alternative turbidity exceedance levels for the levels specified in subsection (d) ~~of this Section~~. The supplier must be able to demonstrate to the Agency that higher turbidity levels are due to lime carryover only, and not due to degraded filter performance.

20754 BOARD NOTE: Derived from 40 CFR 141.560 through 141.564 ~~(2016)~~(2014).

20755 (Source: Amended at 41 Ill. Reg. _____, effective _____)

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20758 **Section 611.957 Reporting and Recordkeeping Requirements**
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- a) Reporting. This Subpart X requires a supplier to report several items to the Agency. Subsections (a)(1) through (a)(4) of this Section describe the items that must be reported and the frequency of reporting. (The supplier is required to report the information described in subsections (a)(1) through (a)(4) of this Section, if it is subject to the specific requirement indicated.)
- 1) If a supplier is subject to the combined filter effluent requirements (Section 611.955), it must report as follows:
 - A) The total number of filtered water turbidity measurements taken during the month, by the 10th of the following month.
 - B) The number and percentage of filtered water turbidity measurements taken during the month that are less than or equal to the supplier's required 95th percentile limit, by the 10th of the following month.
 - C) The date and value of any turbidity measurements taken during the month that exceed the maximum turbidity value for the supplier's filtration system, by the 10th of the following month.
 - 2) If the supplier is subject to the individual filter turbidity requirements (Section 611.956), it must report as follows:
 - A) The fact that the supplier's system conducted individual filter turbidity monitoring during the month, by the 10th of the following month.
 - B) The filter numbers, corresponding dates, and the turbidity values that exceeded 1.0 NTU during the month, by the 10th of the following month, but only if two consecutive measurements exceeded 1.0 NTU.
 - C) If a self-assessment is required, the date that it was triggered and the date that it was completed, by the 10th of the following month (or 14 days after the self-assessment was triggered only if the self-assessment was triggered during the last four days of the month).
 - D) If a CPE is required, the fact that the CPE is required and the date that it was triggered, by the 10th of the following month.
 - E) A copy of completed CPE report, within 120 days after the CPE was triggered.

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3) If the supplier is subject to the disinfection profiling (Section 611.953), it must report results of optional monitoring that show TTHM levels 0.064 mg/l and HAA5 levels 0.048 mg/l (only if the supplier wishes to forgo profiling) or that the supplier has begun disinfection profiling, as follows:

A) For a supplier that serves 500-9,999 persons; or

B) For a supplier that serves fewer than 500 persons, by January 1, 2004.

4) If the supplier is subject to the disinfection benchmarking (Section 611.954), it must report a description of the proposed change in disinfection, its system's disinfection profile for Giardia lamblia (and, if necessary, viruses) and disinfection benchmark, and an analysis of how the proposed change will affect the current levels of disinfection, anytime the supplier is considering a significant change to its disinfection practice.

b) Recordkeeping. A supplier must keep several types of records based on the requirements of this Subpart X, in addition to recordkeeping requirements under Sections 611.261 and 611.262. Subsections (b)(1) through (b)(3) describe the necessary records, the length of time these records must be kept, and for which requirement the records pertain. (The supplier is required to maintain records described in subsections (b)(1) through (b)(3) of this Section, if it is subject to the specific requirement indicated.)

1) If the supplier is subject to the individual filter turbidity requirements (Section 611.956), it must retain the results of individual filter monitoring as necessary records for at least three years.

2) If the supplier is subject to disinfection profiling (Section 611.953), it must retain the results of its disinfection profile (including raw data and analysis) as necessary records indefinitely.

3) If the supplier is subject to disinfection benchmarking (Section 611.954), it must retain its disinfection benchmark (including raw data and analysis) as necessary records indefinitely.

BOARD NOTE: Derived from 40 CFR 141.570 and 141.571 (2016)(2002).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

SUBPART Y: STAGE 2 DISINFECTION BYPRODUCTS REQUIREMENTS

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Section 611.970 General Requirements

- a) General. The requirements of this Subpart Y constitute NPDWRs. The regulations in this Subpart Y establish monitoring and other requirements for achieving compliance with MCLs based on LRAAs for TTHM and HAA5, and for achieving compliance with MRDLs for chlorine and chloramine for certain consecutive systems.
- b) Applicability. A supplier is subject to these requirements if its system is a CWS or a NTNCWS that uses a primary or residual disinfectant other than ultraviolet light or which delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light.
- c) ~~Schedule.—A supplier must comply with the requirements in this Subpart Y as follows: on the applicable schedule set forth in subsections (c)(1) through (c)(6) of this Section based on the supplier's system type, subject to the limitations of subsection (b)(7) of this Section.~~
- 1) ~~A supplier that is not part of a combined distribution system, or a supplier whose system serves the largest population in a combined system, and whose system serves 100,000 or more persons is required to have complied with the requirements of this Subpart Y before April 1, 2012.~~
- 2) ~~A supplier that is not part of a combined distribution system, or a supplier whose system serves the largest population in a combined system, and whose system serves 50,000 to 99,999 persons is required to have complied with the requirements of this Subpart Y before October 1, 2012.~~
- 3) ~~A supplier that is not part of a combined distribution system, or a supplier whose system serves the largest population in a combined system, and whose system serves 10,000 to 49,999 persons must comply with the requirements of this Subpart Y before October 1, 2013.~~
- 4) ~~A supplier that is not part of a combined distribution system, or a supplier whose system serves the largest population in a combined system, and whose system serves fewer than 10,000 persons must comply with the requirements of this Subpart Y before October 1, 2013 if no Cryptosporidium monitoring is required pursuant to Section 611.1001(a)(4).~~
- 5) ~~A supplier that is not part of a combined distribution system, or a supplier whose system serves the largest population in a combined system, and~~

- 20889 whose system serves fewer than 10,000 persons must comply with the
 20890 requirements of this Subpart Y before October 1, 2014 if Cryptosporidium
 20891 monitoring is required pursuant to Section 611.1001(a)(4) or (a)(6).
 20892
- 20893 ~~6)~~ A supplier whose consecutive system or wholesale system is part of a
 20894 combined system, other than a supplier that is subject to any of
 20895 subsections (e)(1) through (e)(4) of this Section, must comply with the
 20896 requirements of this Subpart Y before the earliest compliance date
 20897 applicable to any segment of the combined distribution system.
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- 20899 ~~7)~~ The Agency must, by a SEP issued pursuant to Section 611.110, grant up
 20900 to an additional 24 months for compliance with MCLs and operational
 20901 evaluation levels if it finds that the additional time is needed because the
 20902 supplier requires capital improvements to comply with an MCL.
 20903
- 20904 18) The supplier's monitoring frequency is specified in Section 611.971(a)(2).
 20905
- 20906 A) If a supplier is required to conduct quarterly monitoring, it must
 20907 begin monitoring in the first full calendar quarter that includes the
 20908 applicable compliance date set forth in this subsection (c).
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- 20910 B) If a supplier is required to conduct monitoring less frequently than
 20911 quarterly, it must begin monitoring in the calendar month
 20912 recommended in the IDSE report prepared pursuant to Section
 20913 611.921 or Section 611.922 or in the calendar month identified in
 20914 the Subpart Y monitoring plan developed pursuant to Section
 20915 611.972, but in no instance later than 12 months after the
 20916 applicable compliance date set forth in this subsection (c).
 20917
- 20918 29) If a supplier is required to conduct quarterly monitoring, it must make
 20919 compliance calculations at the end of the fourth calendar quarter that
 20920 follows the compliance date and at the end of each subsequent quarter (or
 20921 earlier if the LRAA calculated based on fewer than four quarters of data
 20922 would cause the MCL to be exceeded regardless of the monitoring results
 20923 of subsequent quarters). If a supplier is required to conduct monitoring
 20924 less frequently than quarterly, it must make compliance calculations
 20925 beginning with the first compliance sample taken after the compliance
 20926 date.
 20927
- 20928 310) ~~The~~ For the purpose of the schedule set forth in this subsection (e), the
 20929 Agency may, by a SEP issued pursuant to Section 611.110, determine that
 20930 the combined distribution system does not include certain consecutive
 20931 systems based on factors such as receipt of water from a wholesale system

20932 only on an emergency basis or receipt of only a small percentage and
20933 small volume of water from a wholesale system. The Agency may also
20934 determine that the combined distribution system does not include certain
20935 wholesale systems based on factors such as delivery of water to a
20936 consecutive system only on an emergency basis or delivery of only a small
20937 percentage and small volume of water to a consecutive system.
20938

20939 BOARD NOTE: Implementation of this Subpart Y occurred in stages during
20940 October 1, 2012 through October 1, 2014, depending on population served. See
20941 40 CFR 141.620(c)(1) through (c)(5). The Board removed the now-obsolete
20942 implementation dates. The Board found it necessary to deviate from the structure
20943 of 40 CFR 141.620(e) when incorporating this subsection (e). Subsections (e)(1)
20944 through (e)(4) of this Section correspond with 40 CFR 141.620(e)(1) through
20945 (e)(4). Subsections (e)(5) and (e)(6) of this Section correspond with the two
20946 segments of 40 CFR 141.620(e)(5). Subsection (e)(7) of this Section corresponds
20947 with the footnote to the table in 40 CFR 141.620(e). Subsections (e)(8) through
20948 (e)(10) of this Section correspond with 40 CFR 141.620(e)(6) through (e)(8).
20949

20950 d) Monitoring and compliance.
20951

20952 1) Suppliers required to monitor quarterly. To comply with Subpart Y MCLs
20953 in Section 611.312(b)(2), the supplier must calculate LRAAs for TTHM
20954 and HAA5 using monitoring results collected under this Subpart Y, and it
20955 must determine that each LRAA does not exceed the MCL. If the supplier
20956 fails to complete four consecutive quarters of monitoring, it must calculate
20957 compliance with the MCL based on the average of the available data from
20958 the most recent four quarters. If the supplier takes more than one sample
20959 per quarter at a monitoring location, it must average all samples taken in
20960 the quarter at that location to determine a quarterly average to be used in
20961 the LRAA calculation.
20962

20963 2) Suppliers required to monitor yearly or less frequently. To determine
20964 compliance with Subpart Y MCLs in Section 611.312(b)(2), the supplier
20965 must determine that each sample taken is less than the MCL. If any
20966 sample exceeds the MCL, the supplier must comply with the requirements
20967 of Section 611.975. If no sample exceeds the MCL, the sample result for
20968 each monitoring location is considered the LRAA for that monitoring
20969 location.
20970

20971 e) Violation for failure to monitor. A supplier is in violation of the monitoring
20972 requirements for each quarter that a monitoring result would be used in
20973 calculating an LRAA if the supplier fails to monitor.
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20975 BOARD NOTE: Derived from 40 CFR 141.620 (2016)~~(2012)~~.

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20977 (Source: Amended at 41 Ill. Reg. _____, effective _____)

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20979 **Section 611.971 Routine Monitoring**

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20981

a) Monitoring.

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1) If a supplier submitted an IDSE report, it must begin monitoring at the locations and during the months that the supplier has recommended in its IDSE report submitted pursuant to Section 611.925, following the schedule set forth in Section 611.970(c), unless the Agency, by a SEP issued pursuant to Section 611.110, requires other locations or additional locations after its review. If the supplier submitted a 40/30 certification pursuant to Section 611.923, it qualified for a very small system waiver pursuant to Section 611.924, or it is a NTNCWS that serves fewer than 10,000 persons, the supplier must monitor at the locations and on the dates identified in its monitoring plan as described in Section 611.382(f), updated as required by Section 611.972.

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2) The supplier must monitor at no fewer than the number of locations identified in the applicable of subsections (a)(2)(A) through (a)(2)(M) ~~of this Section~~, subject to the limitations of subsections (a)(2)(N) and (a)(2)(O) ~~of this Section~~.

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A) A Subpart B system supplier that serves fewer than 500 persons must monitor annually at two distribution system monitoring locations during each monitoring period.

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B) A Subpart B system supplier that serves 500 to 3,300 persons must monitor quarterly at two distribution system monitoring locations during each monitoring period.

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C) A Subpart B system supplier that serves 3,301 to 9,999 persons must monitor quarterly at two distribution system monitoring locations during each monitoring period.

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D) A Subpart B system supplier that serves 10,000 to 49,999 persons must monitor quarterly at four distribution system monitoring locations during each monitoring period.

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- 21016 E) A Subpart B system supplier that serves 50,000 to 249,999 persons
21017 must monitor quarterly at eight distribution system monitoring
21018 locations during each monitoring period.
- 21019
- 21020 F) A Subpart B system supplier that serves 250,000 to 999,999
21021 persons must monitor quarterly at 12 distribution system
21022 monitoring locations during each monitoring period.
- 21023
- 21024 G) A Subpart B system supplier that serves 1,000,000 to 4,999,999
21025 persons must monitor quarterly at 16 distribution system
21026 monitoring locations during each monitoring period.
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- 21028 H) A Subpart B system supplier that serves 5,000,000 or more persons
21029 must monitor quarterly at 20 distribution system monitoring
21030 locations during each monitoring period.
- 21031
- 21032 I) A groundwater system supplier that serves fewer than 500 persons
21033 must monitor annually at two distribution system monitoring
21034 locations during each monitoring period.
- 21035
- 21036 J) A groundwater system supplier that serves 500 to 9,999 persons
21037 must monitor annually at two distribution system monitoring
21038 locations during each monitoring period.
- 21039
- 21040 K) A groundwater system supplier that serves 10,000 to 99,999
21041 persons must monitor quarterly at four distribution system
21042 monitoring locations during each monitoring period.
- 21043
- 21044 L) A groundwater system supplier that serves 100,000 to 499,999
21045 persons must monitor quarterly at six distribution system
21046 monitoring locations during each monitoring period.
- 21047
- 21048 M) A groundwater system supplier that serves 500,000 or more
21049 persons must monitor quarterly at eight distribution system
21050 monitoring locations during each monitoring period.
- 21051
- 21052 N) The supplier must monitor during month of highest DBP
21053 concentrations.
- 21054
- 21055 O) A supplier on quarterly monitoring must take dual sample sets
21056 every 90 days at each monitoring location, except for a Subpart B
21057 system supplier that serves 500 to 3,300. A groundwater system
21058 supplier that serves 500 to 9,999 persons which is on annual

21059 monitoring must take dual sample sets at each monitoring location.
 21060 Any other supplier that is on annual monitoring or which is a
 21061 Subpart B system supplier that serves 500 to 3,300 is required to
 21062 take individual TTHM and HAA5 samples (instead of a dual
 21063 sample set) at the locations with the highest TTHM and HAA5
 21064 concentrations, respectively. For a supplier that serves fewer than
 21065 500 people, only one location with a dual sample set per
 21066 monitoring period is needed if the highest TTHM and HAA5
 21067 concentrations occur at the same location and month.
 21068

21069 3) If a supplier is an undisinfected system that begins using a disinfectant
 21070 other than UV light after the dates set forth in Subpart W of this Part for
 21071 complying with the IDSE requirements, the supplier must consult with the
 21072 Agency to identify compliance monitoring locations for this Subpart Y.
 21073 The supplier must then develop a monitoring plan pursuant to Section
 21074 611.972 that includes those monitoring locations.
 21075

21076 b) Analytical methods. A supplier must use an approved method listed in Section
 21077 611.381 for TTHM and HAA5 analyses in this Subpart Y. Analyses must be
 21078 conducted by laboratories that have received certification as specified in Section
 21079 611.381.
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21081 BOARD NOTE: Derived from 40 CFR 141.621 (2016)(2013).

21082 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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21085 **Section 611.973 Reduced Monitoring**
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21087 a) A supplier may reduce monitoring to the level specified in the applicable of
 21088 subsections (a)(1) through (a)(13) of this Section, subject to the limitation of
 21089 subsection (a)(14) of this Section, any time the LRAA is 0.040 mg/l or less for
 21090 TTHM and 0.030 mg/l or less for HAA5 at all monitoring locations. The
 21091 supplier may only use data collected pursuant to the provisions of this Subpart Y
 21092 or pursuant to Subpart I of this Part to qualify for reduced monitoring. In
 21093 addition, the source water annual average TOC level, before any treatment, must
 21094 be 4.0 mg/l or less at each treatment plant treating surface water or groundwater
 21095 under the direct influence of surface water, based on monitoring conducted
 21096 pursuant to either Section 611.382(b)(1)(C) or Section 611.382(d).
 21097

21098 1) A Subpart B system supplier that serves fewer than 500 persons may not
 21099 qualify for reduced monitoring.
 21100

- 21101 2) A Subpart B system supplier that serves 500 to 3,300 persons qualifies for
 21102 reduced monitoring to a minimum of one TTHM sample collected
 21103 annually from the location and during the quarter with the highest single
 21104 TTHM measurement and one HAA5 sample collected annually from the
 21105 location and during the quarter with the highest single HAA5
 21106 measurement, with the two samples collected as one dual sample set if the
 21107 highest TTHM and HAA5 measurements occurred at the same location
 21108 and during the same quarter.
 21109
- 21110 3) A Subpart B system supplier that serves 3,301 to 9,999 persons qualifies
 21111 for reduced monitoring to a minimum of one dual sample set collected
 21112 annually for TTHM from the location and during the quarter with the
 21113 highest single TTHM measurement and one dual sample set collected
 21114 annually for HAA5 from the location and during the quarter with the
 21115 highest single HAA5 measurement.
 21116
- 21117 4) A Subpart B system supplier that serves 10,000 to 49,999 persons
 21118 qualifies for reduced monitoring to a minimum of two dual sample sets
 21119 collected quarterly from the locations with the highest TTHM and HAA5
 21120 LRAAs.
 21121
- 21122 5) A Subpart B system supplier that serves 50,000 to 249,999 persons
 21123 qualifies for reduced monitoring to a minimum of four dual sample sets
 21124 collected quarterly from the locations with the two highest TTHM and two
 21125 HAA5 LRAAs.
 21126
- 21127 6) A Subpart B system supplier that serves 250,000 to 999,999 persons
 21128 qualifies for reduced monitoring to a minimum of six dual sample sets
 21129 collected quarterly from the locations with the three highest TTHM and
 21130 three HAA5 LRAAs.
 21131
- 21132 7) A Subpart B system supplier that serves 1,000,000 to 4,999,999 persons
 21133 qualifies for reduced monitoring to a minimum of eight dual sample sets
 21134 collected quarterly from the locations with the four highest TTHM and
 21135 four HAA5 LRAAs.
 21136
- 21137 8) A Subpart B system supplier that serves more than 5,000,000 persons
 21138 qualifies for reduced monitoring to a minimum of 10 dual sample sets
 21139 collected quarterly from the locations with the five highest TTHM and
 21140 five HAA5 LRAAs.
 21141
- 21142 9) A groundwater system supplier that serves fewer than 500 persons
 21143 qualifies for reduced monitoring to a minimum of one TTHM sample

- 21144 collected triennially from the location and during the quarter with the
 21145 highest single TTHM measurement and one HAA5 sample collected
 21146 annually from the location and during the quarter with the highest single
 21147 HAA5 measurement, with the two samples collected as one dual sample
 21148 set if the highest TTHM and HAA5 measurements occurred at the same
 21149 location and during the same quarter.
 21150
- 21151 10) A groundwater system supplier that serves 500 to 9,999 persons qualifies
 21152 for reduced monitoring to a minimum of one TTHM sample collected
 21153 annually from the location and during the quarter with the highest single
 21154 TTHM measurement and one HAA5 sample collected annually from the
 21155 location and during the quarter with the highest single HAA5
 21156 measurement, with the two samples collected as one dual sample set if the
 21157 highest TTHM and HAA5 measurements occurred at the same location
 21158 and during the same quarter.
 21159
- 21160 11) A groundwater system supplier that serves 10,000 to 99,999 persons
 21161 qualifies for reduced monitoring to a minimum of one TTHM dual sample
 21162 set collected annually from the location and during the quarter with the
 21163 highest single TTHM measurement and one HAA5 dual sample set
 21164 collected annually from the location and during the quarter with the
 21165 highest single HAA5 measurement.
 21166
- 21167 12) A groundwater system supplier that serves 100,000 to 499,999 persons
 21168 qualifies for reduced monitoring to a minimum of two dual sample sets
 21169 collected quarterly from the locations with the highest TTHM and highest
 21170 HAA5 LRAAs.
 21171
- 21172 13) A groundwater system supplier that serves more than 500,000 persons
 21173 qualifies for reduced monitoring to a minimum of four dual sample sets
 21174 collected quarterly from the two locations with the highest TTHM and two
 21175 highest HAA5 LRAAs.
 21176
- 21177 14) A supplier on quarterly monitoring must take dual sample sets every 90
 21178 days.
 21179
- 21180 b) The supplier may remain on reduced monitoring as long as the TTHM LRAA
 21181 does not exceed 0.040 mg/ℓ and the HAA5 LRAA does not exceed 0.030 mg/ℓ at
 21182 each monitoring location (for a supplier with quarterly reduced monitoring) or
 21183 each TTHM sample does not exceed 0.060 mg/ℓ and each HAA5 sample does not
 21184 exceed 0.045 mg/ℓ (for a supplier with annual or less frequent monitoring). In
 21185 addition, the source water annual average TOC level, before any treatment, must
 21186 not exceed 4.0 mg/ℓ at each treatment plant treating surface water or groundwater

under the direct influence of surface water, based on monitoring conducted pursuant to either Section 611.382(b)(1)(C) or (d).

- c) If the LRAA based on quarterly monitoring at any monitoring location exceeds either 0.040 mg/ℓ for TTHM or 0.030 mg/ℓ for HAA5, if the annual (or less frequent) sample at any location exceeds either 0.060 mg/ℓ for TTHM or 0.045 mg/ℓ for HAA5, or if the source water annual average TOC level, before any treatment, exceeds 4.0 mg/ℓ at any treatment plant treating surface water or groundwater under the direct influence of surface water, the supplier must resume routine monitoring pursuant to Section 611.971 or begin increased monitoring if Section 611.975 applies.
- d) The Agency may return a supplier to routine monitoring by a SEP issued pursuant to Section 611.110.

BOARD NOTE: Derived from 40 CFR 141.623 (2016)(2006).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.976 Operational Evaluation Levels

- a) A supplier has exceeded the operational evaluation level at any monitoring location where the sum of the two previous quarters' TTHM results plus twice the current quarter's TTHM result, divided by four to determine an average, exceeds 0.080 mg/ℓ, or where the sum of the two previous quarters' HAA5 results plus twice the current quarter's HAA5 result, divided by four to determine an average, exceeds 0.060 mg/ℓ.
- b) Effects of exceeding the operational evaluation level.
 - 1) If a supplier exceeds the operational evaluation level, the supplier must conduct an operational evaluation and submit a written report of the evaluation to the Agency no later than 90 days after being notified of the analytical result that causes it to exceed the operational evaluation level. The written report must be made available to the public upon request.
 - 2) The supplier's operational evaluation must include an examination of system treatment and distribution operational practices, including storage tank operations, excess storage capacity, distribution system flushing, changes in sources or source water quality, and treatment changes or problems that may contribute to TTHM and HAA5 formation and what steps could be considered to minimize future exceedances.

- 21230 A) A supplier may request and the Agency may allow the supplier to
21231 limit the scope of its evaluation if the supplier is able to identify
21232 the cause of the operational evaluation level exceedance.
21233
21234 B) A supplier's request to limit the scope of the evaluation does not
21235 extend the schedule in subsection (b)(1) ~~of this Section~~ for
21236 submitting the written report. The Agency must approve this
21237 limited scope of evaluation in writing, and the supplier must keep
21238 that approval with the completed report.
21239

21240 BOARD NOTE: Derived from 40 CFR 141.626 ~~(2016)~~(2014).

21241
21242 (Source: Amended at 41 Ill. Reg. _____, effective _____)
21243

21244 **Section 611.977 Requirements for Remaining on Reduced TTHM and HAA5 Monitoring**
21245 **Based on Subpart I Results**
21246

21247 A supplier may remain on reduced monitoring after the applicable dates identified in Section
21248 611.970(c) for compliance with this Subpart Y only if the supplier fulfills each of the
21249 requirements set forth in subsections (a) through (c) ~~of this Section~~, subject to the limitations of
21250 subsection (d) ~~of this Section~~:

- 21251
21252 a) The supplier qualifies for a 40/30 certification pursuant to Section 611.923 or it
21253 has received a very small system waiver pursuant to Section 611.924;
21254
21255 b) The supplier meets the reduced monitoring criteria set forth in Section 611.973(a);
21256 ~~and~~;
21257
21258 c) The supplier does not change or add monitoring locations from those used for
21259 compliance monitoring under Subpart I of this Part; ~~and~~;
21260
21261 d) If the supplier's monitoring locations pursuant to this Subpart Y differ from its
21262 monitoring locations pursuant to Subpart I of this Part, the supplier may not
21263 remain on reduced monitoring after the dates identified in Section 611.970(c) for
21264 the purposes of compliance with this Subpart Y.
21265

21266 BOARD NOTE: Derived from 40 CFR 141.627 ~~(2016)~~(2006).

21267
21268 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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21270 **SUBPART Z: ENHANCED TREATMENT FOR CRYPTOSPORIDIUM**
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21272 **Section 611.1001 Source Water Monitoring Requirements: Source Water Monitoring**

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- a) Initial round of source water monitoring. A supplier must conduct the following monitoring on the schedule in subsection (c) ~~of this Section~~, unless it meets the monitoring exemption criteria in subsection (d) ~~of this Section~~.
 - 1) A filtered system supplier that serves 10,000 or more people must sample its source water for Cryptosporidium, E. coli, and turbidity at least monthly for 24 months.
 - 2) An unfiltered system supplier that serves 10,000 or more people must sample its source water for Cryptosporidium at least monthly for 24 months.
 - 3) Smaller system suppliers monitoring for E. coli.
 - A) A filtered system supplier that serves fewer than 10,000 people must sample its source water for E. coli at least once every two weeks for 12 months.
 - B) A filtered system supplier that serves fewer than 10,000 people may avoid E. coli monitoring if the system notifies the Agency that it will monitor for Cryptosporidium as described in subsection (a)(4) ~~of this Section~~. The system must notify the Agency no later than three months prior to the date before which the system is otherwise required to start E. coli monitoring pursuant to Section 611.1001(c).
 - 4) Smaller system suppliers monitoring for Cryptosporidium. A filtered system supplier that serves fewer than 10,000 people must sample its source water for Cryptosporidium at least twice per month for 12 months or at least monthly for 24 months if it meets any of the conditions set forth in subsections (a)(4)(A) through (a)(4)(C) ~~of this Section~~, subject to the limitations of subsection (a)(4)(D) ~~of this Section~~, based on monitoring conducted pursuant to subsection (a)(3) ~~of this Section~~.
 - A) For a supplier that uses a lake or reservoir source, the annual mean E. coli concentration is greater than 10 E. coli/100 ml.
 - B) For a supplier that uses a flowing stream source the annual mean E. coli concentration is greater than 50 E. coli/100 ml.
 - C) The supplier does not conduct E. coli monitoring as described in subsection (a)(3) ~~of this Section~~.

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- D) A supplier that uses groundwater under the direct influence of surface water must comply with the requirements of subsection (a)(4) ~~of this Section~~ based on the E. coli level that applies to the nearest surface water body. If no surface water body is nearby, the system must comply based on the requirements that apply to a supplier that uses a lake or reservoir source.

- 5) For a filtered system supplier that serves fewer than 10,000 people, the Agency may, by a SEP issued pursuant to Section 611.110, approve monitoring for an indicator other than E. coli pursuant to subsection (a)(3) ~~of this Section~~. The Agency may also, by a SEP issued pursuant to Section 611.110, approve an alternative to the E. coli concentration in subsection (a)(4)(A), (a)(4)(B) or (a)(4)(D) ~~of this Section~~ to trigger Cryptosporidium monitoring. This approval by the Agency must be provided to the supplier in writing, and it must include the basis for the Agency's determination that the alternative indicator or trigger level will provide a more accurate identification of whether a system will exceed the Bin 1 Cryptosporidium level set forth in Section 611.1010.

- 6) An unfiltered system supplier that serves fewer than 10,000 people must sample its source water for Cryptosporidium at least twice per month for 12 months or at least monthly for 24 months.

- 7) A supplier may sample more frequently than required by this Section if the sampling frequency is evenly spaced throughout the monitoring period.

- b) Second round of source water monitoring. A supplier must conduct a second round of source water monitoring that meets the requirements for monitoring parameters, frequency, and duration described in subsection (a) ~~of this Section~~, unless it meets the monitoring exemption criteria in subsection (d) ~~of this Section~~. The supplier must conduct this monitoring on the schedule set forth in subsection (c) ~~of this Section~~.

- c) Monitoring schedule. A supplier must perform ~~begin~~ the monitoring required in subsections (a) and (b), except that a supplier serving fewer than 10,000 persons must begin monitoring of this Section no later than the month beginning with the applicable date listed in subsections (c)(1) and (c)(2)(e)(1) through (e)(5) of this Section.

- 1) A supplier that serves 100,000 or more persons is required to have begun ~~the first round of source water monitoring no later than the month~~

21358 beginning October 1, 2006, and it must begin the second round of source
21359 water monitoring no later than the month beginning April 1, 2015.

21360
21361 2) A supplier that serves 50,000 to 99,999 persons is required to have begun
21362 the first round of source water monitoring no later than the month
21363 beginning April 1, 2007, and it must begin the second round of source
21364 water monitoring no later than the month beginning October 1, 2015.

21365
21366 3) A supplier that serves 10,000 to 49,999 persons is required to have begun
21367 the first round of source water monitoring no later than the month
21368 beginning April 1, 2008, and it must begin the second round of source
21369 water monitoring no later than the month beginning October 1, 2016.

21370
21371 14) A supplier that serves fewer than 10,000 persons, that is a filtered system
21372 supplier, and which monitors for E. coli is required to have begun the first
21373 round of source water monitoring no later than the month beginning
21374 October 1, 2008, and it must begin the second round of source water
21375 monitoring no later than the month beginning October 1, 2017.

21376
21377 25) A supplier that serves fewer than 10,000 persons, that is an unfiltered
21378 system supplier, or that is a filtered system supplier which meets the
21379 conditions of subsection (a)(4) of this Section, and which monitors for
21380 Cryptosporidium, is required to have begun the first round of source water
21381 monitoring no later than the month beginning April 1, 2010, and it must
21382 begin the second round of source water monitoring no later than the month
21383 beginning April 1, 2019.

21384
21385 BOARD NOTE: Implementation of the first round of monitoring for this Subpart
21386 Z occurred in stages during October 1, 2006 through October 1, 2014, depending
21387 on population served. Implementation of the second round of monitoring
21388 occurred between April 15, 2015 and April 1, 2019. See 40 CFR 141.701(c).
21389 Subsections (c)(1) and (c)(2) correspond with 40 CFR 141.701(c)(4) and (c)(5).
21390 The Board removed the past implementation dates.

21391
21392 d) Monitoring avoidance.

21393
21394 1) A filtered system supplier is not required to conduct source water
21395 monitoring pursuant to this Subpart Z if the system will provide a total of
21396 at least 5.5-log of treatment for Cryptosporidium, equivalent to meeting
21397 the treatment requirements of Bin 4 in Section 611.1011.

21398
21399 2) An unfiltered system supplier is not required to conduct source water
21400 monitoring pursuant to this Subpart Z if the system will provide a total of

- 21401 at least 3-log Cryptosporidium inactivation, equivalent to meeting the
21402 treatment requirements for an unfiltered system supplier with a mean
21403 Cryptosporidium concentration of greater than 0.01 oocysts/ℓ in Section
21404 611.1012.
- 21405
- 21406 3) If a supplier chooses to provide the level of treatment set forth in
21407 subsection (d)(1) or (d)(2) ~~of this Section~~, as applicable, rather than start
21408 source water monitoring, it must notify the Agency in writing no later than
21409 the date on which the system is otherwise required to submit a sampling
21410 schedule for monitoring pursuant to Section 611.1002. Alternatively, a
21411 supplier may choose to stop sampling at any point after it has initiated
21412 monitoring if it notifies the Agency in writing that it will provide this level
21413 of treatment. The supplier must install and operate technologies to
21414 provide this level of treatment before the applicable treatment compliance
21415 date set forth in Section 611.1013.
- 21416
- 21417 e) Plants operating only part of the year. A supplier that has a Subpart B plant that
21418 operates for only part of the year must conduct source water monitoring in
21419 accordance with this Subpart Z, but with the following modifications:
- 21420
- 21421 1) The supplier must sample its source water only during the months that the
21422 plant operates, unless the Agency, by a SEP issued pursuant to Section
21423 611.110, specifies another monitoring period based on plant operating
21424 practices.
- 21425
- 21426 2) A supplier with plants that operate less than six months per year and
21427 which monitors for Cryptosporidium must collect at least six
21428 Cryptosporidium samples per year during each of two years of monitoring.
21429 Samples must be evenly spaced throughout the period during which the
21430 plant operates.
- 21431
- 21432 f) New sources and new systems.
- 21433
- 21434 1) New sources. A supplier that begins using a new source of surface water
21435 or groundwater under the direct influence of surface water after the
21436 supplier is required to begin monitoring pursuant to subsection (c) ~~of this~~
21437 ~~Section~~ must monitor the new source on a schedule that the Agency has
21438 approved by a SEP issued pursuant to Section 611.110. Source water
21439 monitoring must meet the requirements of this Subpart Z. The supplier
21440 must also meet the bin classification and Cryptosporidium treatment
21441 requirements of Sections 611.1010 and 611.1011 or Section 611.1012, as
21442 applicable, for the new source on a schedule that the Agency has approved
21443 by a SEP issued pursuant to Section 611.110.

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- 2) The requirements of Section 611.1001(f) apply to a Subpart B system supplier that begins operation after the applicable monitoring start date set forth in subsection (c) ~~of this Section~~.
 - 3) The supplier must begin a second round of source water monitoring no later than six years following initial bin classification pursuant to Section 611.1010 or determination of the mean Cryptosporidium level pursuant to Section 611.1012.
 - g) Failure to collect any source water sample required under this Section in accordance with the sampling schedule, sampling location, analytical method, approved laboratory, and reporting requirements of Sections 611.1002 through 611.1006 is a monitoring violation.
 - h) Grandfathering monitoring data. A supplier may use (grandfather) monitoring data collected prior to the applicable monitoring start date in subsection (c) ~~of this Section~~ to meet the initial source water monitoring requirements in subsection (a) ~~of this Section~~. Grandfathered data may substitute for an equivalent number of months at the end of the monitoring period. All data submitted pursuant to this subsection must meet the requirements set forth in Section 611.1007.

21466 BOARD NOTE: Derived from 40 CFR 141.701 (2016)~~(2012)~~.

21467 (Source: Amended at 41 Ill. Reg. _____, effective _____)

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21470 **Section 611.1002 Source Water Monitoring Requirements: Sampling Schedules**

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- a) A supplier required to conduct source water monitoring pursuant to Section 611.1001 must submit a sampling schedule that specifies the calendar dates on which it will collect each required sample.
 - 1) The supplier must submit sampling schedules no later than three months prior to the applicable date listed in Section 611.1001(c) for each round of required monitoring.
 - 2) Submission of the sampling schedule to USEPA.
 - A) A supplier that serves 10,000 or more people must submit its sampling schedule for the initial round of source water monitoring pursuant to Section 611.1001(a) to USEPA electronically at <https://intranet.epa.gov/lt2/>.

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- B) If a supplier is unable to submit the sampling schedule electronically, the supplier may use an alternative approach for submitting the sampling schedule that USEPA approves.
 - 3) A supplier that serves fewer than 10,000 people must submit to the Agency its sampling schedules for the initial round of source water monitoring Section 611.1001(a).
 - 4) A supplier must submit to the Agency sampling schedules for the second round of source water monitoring required by Section 611.1001(b).
 - 5) If USEPA or the Agency does not respond to a supplier regarding its sampling schedule, the supplier must sample at the reported schedule.
- b) A supplier must collect samples within two days before or two days after the dates indicated in its sampling schedule (i.e., within a five-day period around the schedule date) unless one of the conditions of subsection (b)(1) or (b)(2) of this Section applies.
- 1) If an extreme condition or situation exists that may pose danger to the sample collector, or one that cannot be avoided and which causes the supplier to be unable to sample in the scheduled five-day period, the supplier must sample as close to the scheduled date as is feasible, unless the Agency approves an alternative sampling date by a SEP issued pursuant to Section 611.110. The supplier must submit an explanation for the delayed sampling date to the Agency concurrent with the shipment of the sample to the laboratory.
 - 2) Replacement samples.
 - A) If a supplier is unable to report a valid analytical result for a scheduled sampling date due to equipment failure; loss of or damage to the sample; failure to comply with the analytical method requirements, including the quality control requirements in Section 611.1004; or the failure of an approved laboratory to analyze the sample, then the supplier must collect a replacement sample.
 - B) The supplier must collect the replacement sample not later than 21 days after receiving information that an analytical result cannot be reported for the scheduled date, unless the supplier demonstrates that collecting a replacement sample within this time frame is not feasible or the Agency approves an alternative resampling date by a SEP issued pursuant to Section 611.110. The supplier must

21530 submit an explanation for the delayed sampling date to the Agency
21531 concurrent with the shipment of the sample to the laboratory.
21532

21533 c) A supplier that fails to meet the criteria of subsection (b) ~~of this Section~~ for any
21534 source water sample required pursuant to Section 611.1001 must revise its
21535 sampling schedule to add dates for collecting all missed samples. A supplier must
21536 submit the revised schedule to the Agency for approval prior to collecting the
21537 missed samples.
21538

21539 BOARD NOTE: Derived from 40 CFR 141.702 ~~(2016)~~(2006).

21540 (Source: Amended at 41 Ill. Reg. _____, effective _____)
21541
21542

21543 **Section 611.1003 Source Water Monitoring Requirements: Sampling Locations**
21544

21545 a) A supplier required to conduct source water monitoring pursuant to Section
21546 611.1001 must collect samples for each plant that treats a surface water or
21547 groundwater under the direct influence of surface water source. Where multiple
21548 plants draw water from the same influent, such as the same pipe or intake, the
21549 Agency may, by a SEP issued pursuant to Section 611.110, approve one set of
21550 monitoring results to be used to satisfy the requirements of Section 611.1001 for
21551 all of the plants.
21552

21553 b) Source water sampling.
21554

21555 1) A supplier must collect source water samples prior to chemical treatment,
21556 such as coagulants, oxidants, and disinfectants, unless the supplier meets
21557 the condition of subsection (b)(2) ~~of this Section~~.
21558

21559 2) The Agency may, by a SEP issued pursuant to Section 611.110, approve a
21560 supplier to collect a source water sample after chemical treatment. To
21561 grant this approval, the Agency must determine that collecting a sample
21562 prior to chemical treatment is not feasible for the supplier and that the
21563 chemical treatment is unlikely to have a significant adverse effect on the
21564 analysis of the sample.
21565

21566 c) A supplier that recycles filter backwash water must collect source water samples
21567 prior to the point of filter backwash water addition.
21568

21569 d) Bank filtration.
21570

21571 1) A supplier that receives Cryptosporidium treatment credit for bank
21572 filtration pursuant to Section 611.743(b) or Section 611.955(c)(1), as

- 21573 applicable, must collect source water samples in the surface water prior to
21574 bank filtration.
21575
- 21576 2) A supplier that uses bank filtration as pretreatment to a filtration plant
21577 must collect source water samples from the well (i.e., after bank filtration).
21578 The use of bank filtration during monitoring must be consistent with
21579 routine operational practice. A supplier collecting samples after a bank
21580 filtration process may not receive treatment credit for the bank filtration
21581 pursuant to Section 611.1017(c).
21582
- 21583 e) Multiple sources. A supplier with plants that use multiple water sources,
21584 including multiple surface water sources and blended surface water and
21585 groundwater sources, must collect samples as specified in subsection (e)(1) or
21586 (e)(2) of this Section. The use of multiple sources during monitoring must be
21587 consistent with routine operational practice.
21588
- 21589 1) If a sampling tap is available where the sources are combined prior to
21590 treatment, the supplier must collect samples from the tap.
21591
- 21592 2) If a sampling tap where the sources are combined prior to treatment is not
21593 available, the supplier must collect samples at each source near the intake
21594 on the same day, and it must follow either of the following procedures for
21595 sample analysis:
21596
- 21597 A) The supplier may composite samples from each source into one
21598 sample prior to analysis. The volume of sample from each source
21599 must be weighted according to the proportion of the source in the
21600 total plant flow at the time the sample is collected; or
21601
- 21602 B) The supplier may analyze samples from each source separately and
21603 calculate a weighted average of the analysis results for each
21604 sampling date. The weighted average must be calculated by
21605 multiplying the analysis result for each source by the fraction the
21606 source contributed to total plant flow at the time the sample was
21607 collected and then summing these values.
21608
- 21609 f) Additional Requirements. A supplier must submit a description of its sampling
21610 locations to the Agency at the same time as the sampling schedule required
21611 pursuant to Section 611.1002. This description must address the position of the
21612 sampling location in relation to the supplier's water sources and treatment
21613 processes, including pretreatment, points of chemical treatment, and filter
21614 backwash recycle. If the Agency does not respond to a supplier regarding
21615 sampling locations, the supplier must sample at the reported locations.

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BOARD NOTE: Derived from 40 CFR 141.703 (2016)(2006).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.1004 Source Water Monitoring Requirements: Analytical Methods

- a) Cryptosporidium. A supplier must analyze for Cryptosporidium using USEPA OGWDW Methods, Method 1623 (05), 1623.1, or 1622 (05), each incorporated by reference in Section 611.102, or alternative methods approved by the Agency pursuant to Section 611.480.
 - 1) The supplier must analyze at least a 10 ℓ sample or a packed pellet volume of at least 2 ml as generated by the methods listed in subsection (a) of this Section. A supplier unable to process a 10 ℓ sample must analyze as much sample volume as can be filtered by two filters approved by USEPA for the methods listed in subsection (a) of this Section, up to a packed pellet volume of at least 2 ml.
 - 2) Matrix spike (MS) samples.
 - A) MS samples, as required by the methods in subsection (a) of this Section, must be spiked and filtered by a laboratory approved for Cryptosporidium analysis pursuant to Section 611.1005.
 - B) If the volume of the MS sample is greater than 10 ℓ, the supplier may filter all but 10 ℓ of the MS sample in the field, and ship the filtered sample and the remaining 10 ℓ of source water to the laboratory. In this case, the laboratory must spike the remaining 10 ℓ of water and filter it through the filter used to collect the balance of the sample in the field.
 - 3) Flow cytometer-counted spiking suspensions must be used for MS samples and ongoing precision and recovery samples.
- b) E. coli. A supplier must use methods for enumeration of E. coli in source water approved in 40 CFR 136.3(a), incorporated by reference in Section 611.102, or alternative methods approved by the Agency pursuant to Section 611.480.
 - 1) The time from sample collection to initiation of analysis may not exceed 30 hours, unless the supplier meets the condition of subsection (b)(2) of this Section.

- 21659 2) The Agency may, by a SEP issued pursuant to Section 611.110, approve
- 21660 on a case-by-case basis the holding of an E. coli sample for up to 48 hours
- 21661 between sample collection and initiation of analysis if it determines that
- 21662 analyzing an E. coli sample within 30 hours is not feasible. E. coli
- 21663 samples held between 30 to 48 hours must be analyzed by the Colilert®
- 21664 Test reagent version of Standard Methods, 18th, 19th, or 20th ed., Method
- 21665 9223 B incorporated by reference in Section 611.102.
- 21666
- 21667 3) A supplier must maintain the temperature of its samples between 0°C and
- 21668 10°C during storage and transit to the laboratory.
- 21669
- 21670 4) The supplier may use the membrane filtration, two-step procedure
- 21671 described in Standard Methods, 20th ed., Method 9222 D and G,
- 21672 incorporated by reference in Section 611.102.
- 21673

21674 BOARD NOTE: ~~On June 3, 2008 (at 73 Fed. Reg. 31616), USEPA added~~

21675 ~~appendix A to subpart C of 40 CFR 141, which authorized alternative~~

21676 ~~methods to those listed for E. coli by multiple tube technique at~~

21677 ~~corresponding 40 CFR 141.402(c)(2) to allow the use of Standard~~

21678 ~~Methods for the Examination of Water and Wastewater, 20th ed., Method~~

21679 ~~9222 D and G on June 3, 2008 (at 73 Fed. Reg. 31616).~~

- 21680
- 21681 c) Turbidity. A supplier must use methods for turbidity measurement approved in
- 21682 Section 611.531(a).
- 21683

21684 BOARD NOTE: Derived from 40 CFR 141.704 and appendix A to subpart C of 40 CFR

21685 141 ~~(2016)~~(2014).

21686 (Source: Amended at 41 Ill. Reg. _____, effective _____)

21687

21688

21689 **Section 611.1006 Source Water Monitoring Requirements: Reporting Source Water**

21690 **Monitoring Results**

- 21691
- 21692 a) A supplier must report results from the source water monitoring required pursuant
- 21693 to Section 611.1001 no later than 10 days after the end of the first month
- 21694 following the month when the sample is collected.
- 21695
- 21696 b) Submission of analytical results to USEPA.
- 21697
- 21698 1) A supplier that serves at least 10,000 people must report the results from
- 21699 the initial source water monitoring required pursuant to Section
- 21700 611.1001(a) to USEPA electronically at <https://intranet.epa.gov/lt2/>.
- 21701

- 21702 2) If a supplier is unable to report monitoring results electronically, the
21703 supplier may use an alternative approach for reporting monitoring results
21704 that USEPA approves.
21705
- 21706 c) A supplier that serves fewer than 10,000 people must report results from the
21707 initial source water monitoring required pursuant to Section 611.1001(a) to the
21708 Agency.
21709
- 21710 d) A supplier must report results from the second round of source water monitoring
21711 required pursuant to Section 611.1001(b) to the Agency.
21712
- 21713 e) A supplier must report the applicable information in subsections (e)(1) and (e)(2)
21714 ~~of this Section~~ for the source water monitoring required pursuant to Section
21715 611.1001.
21716
- 21717 1) A supplier must report the data elements set forth in subsection (e)(1)(D)
21718 ~~of this Section~~ for each Cryptosporidium analysis.
21719
- 21720 A) For matrix spike samples, a supplier must also report the sample
21721 volume spiked and estimated number of oocysts spiked. These
21722 data are not required for field samples.
21723
- 21724 B) For samples in which less than 10 ℓ is filtered or less than 100% of
21725 the sample volume is examined, the supplier must also report the
21726 number of filters used and the packed pellet volume.
21727
- 21728 C) For samples in which less than 100% of sample volume is
21729 examined, the supplier must also report the volume of resuspended
21730 concentrate and volume of this resuspension processed through
21731 immunomagnetic separation.
21732
- 21733 D) Data elements.
21734
- 21735 i) The PWS ID;
21736
- 21737 ii) The Facility ID;
21738
- 21739 iii) The sample collection date;
21740
- 21741 iv) The sample type (field or matrix spike);
21742
- 21743 v) The sample volume filtered (ℓ), to nearest ¼ ℓ;
21744

21745 vi) Whether 100 percent of the filtered volume was examined;
21746 and

21747
21748 vii) The number of oocysts counted.

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21750 BOARD NOTE: Subsection (e)(1)(D) is derived from
21751 unnumbered tabulated text in 40 CFR 141.706(e)(1) (2006).
21752

21753 2) A supplier must report the following data elements for each E. coli
21754 analysis:

21755
21756 A) The PWS ID;

21757
21758 B) The Facility ID;

21759
21760 C) The sample collection date;

21761
21762 D) The analytical method number;

21763
21764 E) The method type;

21765
21766 F) The source type (flowing stream, lake or reservoir, groundwater
21767 under the direct influence of surface water);

21768
21769 G) The E. coli count per 100 mL.

21770
21771 H) The turbidity, except that a supplier which serves fewer than
21772 10,000 people that is not required to monitor for turbidity pursuant
21773 to Section 611.1001 is not required to report turbidity with its E.
21774 coli results.
21775

21776 BOARD NOTE: Derived from 40 CFR 141.706 (2016)(2006).

21777
21778 (Source: Amended at 41 Ill. Reg. _____, effective _____)
21779

21780 **Section 611.1007 Source Water Monitoring Requirements: Grandfathering Previously**
21781 **Collected Data**

21782
21783 a) Initial source monitoring and Cryptosporidium samples.

21784
21785 1) A supplier may comply with the initial source water monitoring
21786 requirements of Section 611.1001(a) by grandfathering sample results
21787 collected before the supplier is required to begin monitoring (i.e.,

- 21788 previously collected data). To be grandfathered, the sample results and
 21789 analysis must meet the criteria in this Section and the Agency must
 21790 approve the use of the data by a SEP issued pursuant to Section 611.110.
 21791
 21792 2) A filtered system supplier may grandfather Cryptosporidium samples to
 21793 meet the requirements of Section 611.1001(a) when the supplier does not
 21794 have corresponding E. coli and turbidity samples. A supplier that
 21795 grandfathers Cryptosporidium samples without E. coli and turbidity
 21796 samples is not required to collect E. coli and turbidity samples when it
 21797 completes the requirements for Cryptosporidium monitoring pursuant to
 21798 Section 611.1001(a).
 21799
 21800 b) E. coli sample analysis. The analysis of E. coli samples must meet the analytical
 21801 method and approved laboratory requirements of Sections 611.1004 and
 21802 611.1005.
 21803
 21804 c) Cryptosporidium sample analysis. The analysis of Cryptosporidium samples must
 21805 meet the criteria in this subsection (c).
 21806
 21807 1) Laboratories must analyze Cryptosporidium samples using one of the
 21808 following analytical methods, incorporated by reference in Section
 21809 611.102, or alternative methods approved by the Agency pursuant to
 21810 Section 611.480:
 21811
 21812 A) USEPA OGWDW Methods, Method 1623 (05), ~~incorporated by~~
 21813 ~~reference in Section 611.102;~~
 21814
 21815 B) USEPA OGWDW Methods, Method 1622 (05), ~~incorporated by~~
 21816 ~~reference in Section 611.102;~~
 21817
 21818 C) USEPA OGWDW Methods, Method 1623 (01), ~~incorporated by~~
 21819 ~~reference in Section 611.102;~~
 21820
 21821 D) USEPA OGWDW Methods, Method 1622 (01), ~~incorporated by~~
 21822 ~~reference in Section 611.102;~~
 21823
 21824 E) USEPA OGWDW Methods, Method 1623 (99), ~~incorporated by~~
 21825 ~~reference in Section 611.102;~~ or
 21826
 21827 F) USEPA OGWDW Methods, Method 1622 (99), ~~incorporated by~~
 21828 ~~reference in Section 611.102.~~
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- 2) For each Cryptosporidium sample, the laboratory analyzed at least 10 ℓ of sample or at least 2 mℓ of packed pellet or as much volume as could be filtered by two filters that USEPA approved for the methods listed in subsection (c)(1) of this Section.
 - d) Sampling location. The sampling location must meet the conditions in Section 611.1003.
 - e) Sampling frequency. Cryptosporidium samples were collected no less frequently than each calendar month on a regular schedule, beginning no earlier than January 1999. Sample collection intervals may vary for the conditions specified in Section 611.1002(b)(1) and (b)(2) if the supplier provides documentation of the condition when reporting monitoring results.
 - 1) The Agency may, by a SEP issued pursuant to Section 611.110, approve grandfathering of previously collected data where there are time gaps in the sampling frequency if the supplier conducts additional monitoring that the Agency has specified by a SEP issued pursuant to Section 611.110 to ensure that the data used to comply with the initial source water monitoring requirements of Section 611.1001(a) are seasonally representative and unbiased.
 - 2) A supplier may grandfather previously collected data where the sampling frequency within each month varied. If the Cryptosporidium sampling frequency varied, the supplier must follow the monthly averaging procedure in Section 611.1010(b)(5) or Section 611.1012(a)(3), as applicable, when calculating the bin classification for a filtered system supplier or the mean Cryptosporidium concentration for an unfiltered system supplier.
 - f) Reporting monitoring results for grandfathering. A supplier that requests to grandfather previously collected monitoring results must report the following information by the applicable dates listed in this subsection. A supplier must report this information to the Agency.
 - 1) A supplier must report that it intends to submit previously collected monitoring results for grandfathering. This report must specify the number of previously collected results the supplier will submit, the dates of the first and last sample, and whether a supplier will conduct additional source water monitoring to meet the requirements of Section 611.1001(a). The supplier must report this information no later than the applicable date set forth in Section 611.1002.

- 21873 2) A supplier must report previously collected monitoring results for
21874 grandfathering, along with the associated documentation listed in
21875 subsections (f)(2)(A) through (f)(2)(D) ~~of this Section~~, no later than two
21876 months after the applicable date listed in Section 611.1001(c).
21877
 - 21878 A) For each sample result, a supplier must report the applicable data
21879 elements in Section 611.1006.
 - 21880
 - 21881 B) A supplier must certify that the reported monitoring results include
21882 all results that it generated during the time period beginning with
21883 the first reported result and ending with the final reported result.
21884 This applies to samples that were collected from the sampling
21885 location specified for source water monitoring pursuant to this
21886 Subpart Z, which were not spiked, and which were analyzed using
21887 the laboratory's routine process for the analytical methods listed in
21888 this Section.
 - 21889
 - 21890 C) The supplier must certify that the samples were representative of a
21891 plant's source waters and the source waters have not changed. It
21892 must report a description of the sampling locations, which must
21893 address the position of the sampling location in relation to its water
21894 sources and treatment processes, including points of chemical
21895 addition and filter backwash recycle.
 - 21896
 - 21897 D) For Cryptosporidium samples, the laboratory or laboratories that
21898 analyzed the samples must provide a letter certifying that the
21899 quality control criteria specified in the methods listed in subsection
21900 (c)(1) ~~of this Section~~ were met for each sample batch associated
21901 with the reported results. Alternatively, the laboratory may
21902 provide bench sheets and sample examination report forms for
21903 each field, matrix spike, initial precision and recovery, ongoing
21904 precision and recovery, and method blank sample associated with
21905 the reported results.
 - 21906
- 21907 g) If the Agency determines that a previously collected data set submitted for
21908 grandfathering was generated during source water conditions that were not normal
21909 for the supplier, such as a drought, the Agency may, by a SEP issued pursuant to
21910 Section 611.110, disapprove the data. Alternatively, the Agency may, by a SEP
21911 issued pursuant to Section 611.110, approve the previously collected data if the
21912 supplier reports additional source water monitoring data, as determined by the
21913 Agency, to ensure that the data set used pursuant to Section 611.1010 or Section
21914 611.1012 represents average source water conditions for the supplier.
21915

- 21916 h) If a supplier submits previously collected data that fully meet the number of
- 21917 samples required for initial source water monitoring pursuant to Section
- 21918 611.1001(a), and some of the data are rejected due to not meeting the
- 21919 requirements of this Section, the supplier must conduct additional monitoring to
- 21920 replace rejected data on a schedule that the Agency has approved by a SEP issued
- 21921 pursuant to Section 611.110. A supplier is not required to begin this additional
- 21922 monitoring until two months after notification that data have been rejected and
- 21923 additional monitoring is necessary.
- 21924

21925 BOARD NOTE: Derived from 40 CFR 141.707 (2016)(2013).

21926 (Source: Amended at 41 Ill. Reg. _____, effective _____)

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21929 **Section 611.1008 Disinfection Profiling and Benchmarking Requirements: Requirements**

21930 **When Making a Significant Change in Disinfection Practice**

- 21931
- 21932 a) Following the completion of initial source water monitoring pursuant to Section
- 21933 611.1001(a), a supplier that plans to make a significant change to its disinfection
- 21934 practice, as defined in subsection (b) of this Section, must develop disinfection
- 21935 profiles and calculate disinfection benchmarks for Giardia lamblia and viruses, as
- 21936 described in Section 611.1009. Prior to changing the disinfection practice, the
- 21937 supplier must notify the Agency, and it must include in this notice the following
- 21938 information:
- 21939
- 21940 1) A completed disinfection profile and disinfection benchmark for Giardia
- 21941 lamblia and viruses, as described in Section 611.1009;
- 21942
- 21943 2) A description of the proposed change in disinfection practice; and
- 21944
- 21945 3) An analysis of how the proposed change will affect the current level of
- 21946 disinfection.
- 21947
- 21948 b) Significant changes to disinfection practice are defined as any of the following:
- 21949
- 21950 1) Changes to the point of disinfection;
- 21951
- 21952 2) Changes to the disinfectants used in the treatment plant;
- 21953
- 21954 3) Changes to the disinfection process; or
- 21955
- 21956 4) Any other modification identified by the Agency, by a SEP issued
- 21957 pursuant to Section 611.110, as a significant change to disinfection
- 21958 practice.

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BOARD NOTE: Derived from 40 CFR 141.708 (2016)~~(2006)~~.

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.1009 Disinfection Profiling and Benchmarking Requirements: Developing the Disinfection Profile and Benchmark

- a) A supplier required to develop disinfection profiles pursuant to Section 611.1008 must follow the requirements of this Section. The supplier must monitor at least weekly for a period of 12 consecutive months to determine the total log inactivation for *Giardia lamblia* and viruses. If the supplier monitors more frequently than weekly, the monitoring frequency must be evenly spaced. A supplier that operates for fewer than 12 months per year must monitor weekly during the period of operation. A supplier must determine log inactivation for *Giardia lamblia* through the entire plant, based on the applicable CT_{99.9} values in Appendix B to this Part. A supplier must determine log inactivation for viruses through the entire treatment plant based on a protocol approved by the Agency by a SEP issued pursuant to Section 611.110.

- b) A supplier with a single point of disinfectant application prior to the entrance to the distribution system must conduct the monitoring in subsections (b)(1) through (b)(4) ~~of this Section~~. A supplier with more than one point of disinfectant application must conduct the monitoring in subsections (b)(1) through (b)(4) ~~of this Section~~ for each disinfection segment. A supplier must monitor the parameters necessary to determine the total inactivation ratio, using analytical methods in Section 611.531.
 - 1) For a supplier using a disinfectant other than UV, the temperature of the disinfected water must be measured at each residual disinfectant concentration sampling point during peak hourly flow or at an alternative location approved by the Agency by a SEP issued pursuant to Section 611.110.
 - 2) For a supplier using chlorine, the pH of the disinfected water must be measured at each chlorine residual disinfectant concentration sampling point during peak hourly flow or at an alternative location approved by the Agency by a SEP issued pursuant to Section 611.110.
 - 3) The disinfectant contact times (t) must be determined during peak hourly flow.

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- 4) The residual disinfectant concentrations (C) of the water before or at the first customer and prior to each additional point of disinfectant application must be measured during peak hourly flow.
 - c) In lieu of conducting new monitoring pursuant to subsection (b) ~~of this Section~~, a supplier may elect to meet the following requirements:
 - 1) A supplier that has at least one year of existing data that are substantially equivalent to data collected pursuant to the provisions of subsection (b) ~~of this Section~~ may use these data to develop disinfection profiles as specified in this Section if the supplier has neither made a significant change to its treatment practice nor changed sources since the data were collected. The supplier may develop disinfection profiles using up to three years of existing data.
 - 2) A supplier may use disinfection profiles developed pursuant to Section 611.742 or Section 611.953 in lieu of developing a new profile if the supplier has neither made a significant change to its treatment practice nor changed sources since the profile was developed. A supplier that has not developed a virus profile pursuant to Section 611.742 or Section 611.953 must develop a virus profile using the same monitoring data on which the Giardia lamblia profile is based.
 - d) A supplier must calculate the total inactivation ratio for Giardia lamblia, as specified in subsections (d)(1) through (d)(3) ~~of this Section~~.
 - 1) A supplier using only one point of disinfectant application may determine the total inactivation ratio for the disinfection segment based on either of the following methods:
 - A) It may determine one inactivation ratio (A_i) before or at the first customer during peak hourly flow; or
 - B) It may determine successive A_i values, representing sequential inactivation ratios, between the point of disinfectant application and a point before or at the first customer during peak hourly flow. The supplier must calculate the total inactivation ratio by determining A_i for each sequence and then adding the A_i values together to determine the total inactivation ratio (ΣA_i).
 - 2) A supplier using more than one point of disinfectant application before the first customer must determine the CT value of each disinfection segment immediately prior to the next point of disinfectant application, or for the

22044 final segment, before or at the first customer, during peak hourly flow.
22045 The A_i value of each segment and ΣA_i must be calculated using the
22046 method in subsection (d)(1)(B) ~~of this Section~~.

22047
22048 3) The supplier must determine the total logs of inactivation by multiplying
22049 the value calculated in subsection (d)(1) or (d)(2) ~~of this Section~~ by 3.0.

22050
22051 4) The supplier must calculate the log of inactivation for viruses using a
22052 protocol approved by the Agency by regulation or by a SEP issued
22053 pursuant to Section 611.110.

22054
22055 e) A supplier must use the following procedures to calculate a disinfection
22056 benchmark:

22057
22058 1) For each year of profiling data collected and calculated pursuant to
22059 subsections (a) through (d) ~~of this Section~~, the supplier must determine the
22060 lowest mean monthly level of both Giardia lamblia and virus inactivation.
22061 A supplier must determine the mean Giardia lamblia and virus inactivation
22062 for each calendar month for each year of profiling data by dividing the
22063 sum of daily or weekly Giardia lamblia and virus log inactivation by the
22064 number of values calculated for that month.

22065
22066 2) The disinfection benchmark is the lowest monthly mean value (for a
22067 supplier with one year of profiling data) or the mean of the lowest monthly
22068 mean values (for a supplier with more than one year of profiling data) of
22069 Giardia lamblia and virus log inactivation in each year of profiling data.

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22071 BOARD NOTE: Derived from 40 CFR 141.709 ~~(2016)~~(2006).

22072
22073 (Source: Amended at 41 Ill. Reg. _____, effective _____)

22074
22075 **Section 611.1010 Treatment Technique Requirements: Bin Classification for Filtered**
22076 **Suppliers**

22077
22078 a) Following completion of the initial round of source water monitoring required
22079 pursuant to Section 611.1001(a), a filtered system supplier must calculate an
22080 initial Cryptosporidium bin concentration for each plant for which monitoring was
22081 required. Calculation of the bin concentration must use the Cryptosporidium
22082 results reported pursuant to Section 611.1001(a) and must follow the appropriate
22083 of the procedures set forth in subsection (b) ~~of this Section~~.

22084
22085 b) Bin concentration calculation procedures.
22086

- 22087 1) For a supplier that collects a total of at least 48 samples, the bin
22088 concentration is equal to the arithmetic mean of all sample concentrations.
22089
- 22090 2) For a supplier that collects a total of at least 24 samples, but not more than
22091 47 samples, the bin concentration is equal to the highest arithmetic mean
22092 of all sample concentrations in any 12 consecutive months during which
22093 Cryptosporidium samples were collected.
22094
- 22095 3) For a supplier that serves fewer than 10,000 people and which monitors
22096 for Cryptosporidium for only one year (i.e., collect 24 samples in 12
22097 months), the bin concentration is equal to the arithmetic mean of all
22098 sample concentrations.
22099
- 22100 4) For a supplier with plants operating only part of the year that monitors
22101 fewer than 12 months per year pursuant to Section 611.1001(e), the bin
22102 concentration is equal to the highest arithmetic mean of all sample
22103 concentrations during any year of Cryptosporidium monitoring.
22104
- 22105 5) If the monthly Cryptosporidium sampling frequency varies, a supplier
22106 must first calculate a monthly average for each month of monitoring. A
22107 supplier must then use these monthly average concentrations, rather than
22108 individual sample concentrations, in the applicable calculation for bin
22109 classification in subsections (b)(1) through (b)(4) of this Section.
22110
- 22111 c) A filtered system supplier must determine its initial bin classification according to
22112 subsections (c)(1) through (c)(5), subject to the limitations of subsection (c)(6) of
22113 this Section, and using the Cryptosporidium bin concentration calculated pursuant
22114 to subsections (a) and (b) of this Section.
22115
- 22116 1) For a supplier that is required to monitor for Cryptosporidium pursuant to
22117 Section 611.1001 and which has a Cryptosporidium bin concentration of
22118 less than 0.075 oocysts/ℓ, the bin classification is Bin 1.
22119
- 22120 2) For a supplier that is required to monitor for Cryptosporidium pursuant to
22121 Section 611.1001 and which has a Cryptosporidium bin concentration of
22122 0.075 oocysts/ℓ or more, but less than 1.0 oocysts/ℓ, the bin classification
22123 is Bin 2.
22124
- 22125 3) For a supplier that is required to monitor for Cryptosporidium pursuant to
22126 Section 611.1001 and which has a Cryptosporidium bin concentration of
22127 1.0 oocysts/ℓ or more, but less than 3.0 oocysts/ℓ, the bin classification is
22128 Bin 3.
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- 4) For a supplier that is required to monitor for Cryptosporidium pursuant to Section 611.1001 and which has a Cryptosporidium bin concentration of 3.0 oocysts/ℓ or more, the bin classification is Bin 4.
 - 5) For a supplier that that serves fewer than 10,000 people and which is not required to monitor for Cryptosporidium pursuant to Section 611.1001(a)(4), the bin classification is Bin 1.
 - 6) The Cryptosporidium concentration is based on the applicable of the calculations set forth in subsection (a) or (d) ~~of this Section~~.
- d) Following completion of the second round of source water monitoring required pursuant to Section 611.1001(b), a filtered system supplier must recalculate its Cryptosporidium bin concentration using the Cryptosporidium results reported pursuant to Section 611.1001(b) and following the applicable of the procedures set forth in ~~subsection~~ subsection (b)(1) through (b)(4) ~~of this Section~~. A supplier must then redetermine its bin classification using this bin concentration and subsection (c) ~~of this Section~~.
- e) Reporting the bin classification.
- 1) A filtered system supplier must report its initial bin classification pursuant to subsection (c) ~~of this Section~~ to the Agency for approval no later than six months after the supplier is required to complete initial source water monitoring based on the applicable schedule set forth in Section 611.1001(c).
 - 2) A supplier must report its bin classification pursuant to subsection (d) ~~of this Section~~ to the Agency for approval no later than six months after the supplier is required to complete the second round of source water monitoring based on the applicable schedule set forth in Section 611.1001(c).
 - 3) The bin classification report to the Agency must include a summary of source water monitoring data and the calculation procedure used to determine bin classification.
- f) A failure to comply with the conditions of subsection (e) ~~of this Section~~ is a violation of the treatment technique requirement.

22170 BOARD NOTE: Derived from 40 CFR 141.710 ~~(2016)~~(2006).

22171 (Source: Amended at 41 Ill. Reg. _____, effective _____)

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Section 611.1011 Treatment Technique Requirements: Filtered System Additional Cryptosporidium Treatment Requirements

- a) A filtered system supplier must provide the level of additional treatment for Cryptosporidium specified in subsections (a)(1) through (a)(4) of this Section based on its bin classification, as determined pursuant to Section 611.1010, and according to the applicable schedule set forth in Section 611.1013.
 - 1) If the supplier's bin classification is Bin 1, and the supplier uses conventional filtration treatment (including softening) in full compliance with the applicable provisions of Subparts B, R, and X of this Part, no additional treatment is required.
 - 2) If the supplier's bin classification is Bin 2, and the supplier uses conventional filtration treatment (including softening) in full compliance with the applicable provisions of Subparts B, R, and X of this Part, then the additional Cryptosporidium treatment requirements are a 1-log treatment.
 - 3) If the supplier's bin classification is Bin 2, and the supplier uses direct filtration in full compliance with the applicable provisions of Subparts B, R, and X of this Part, then the additional Cryptosporidium treatment requirements are a 1.5-log treatment.
 - 4) If the supplier's bin classification is Bin 2, and the supplier uses slow sand or diatomaceous earth filtration in full compliance with the applicable provisions of Subparts B, R, and X of this Part, then the additional Cryptosporidium treatment requirements are a 1-log treatment.
 - 5) If the supplier's bin classification is Bin 2, and the supplier uses alternative filtration technologies in full compliance with the applicable provisions of Subparts B, R, and X of this Part, then the additional Cryptosporidium treatment requirements are as determined by the Agency, by a SEP issued pursuant to Section 611.110, such that the total Cryptosporidium removal and inactivation is at least 4.0-log.
 - 6) If the supplier's bin classification is Bin 3, and the supplier uses conventional filtration treatment (including softening) in full compliance with the applicable provisions of Subparts B, R, and X of this Part, then the additional Cryptosporidium treatment requirements are a 2-log treatment.

- 22216 7) If the supplier's bin classification is Bin 3, and the supplier uses direct
22217 filtration in full compliance with the applicable provisions of Subparts B,
22218 R, and X of this Part, then the additional Cryptosporidium treatment
22219 requirements are a 2.5-log treatment.
22220
- 22221 8) If the supplier's bin classification is Bin 3, and the supplier uses slow sand
22222 or diatomaceous earth filtration in full compliance with the applicable
22223 provisions of Subparts B, R, and X of this Part, then the additional
22224 Cryptosporidium treatment requirements are a 2-log treatment.
22225
- 22226 9) If the supplier's bin classification is Bin 3, and the supplier uses alternative
22227 filtration technologies in full compliance with the applicable provisions of
22228 Subparts B, R, and X of this Part, then the additional Cryptosporidium
22229 treatment requirements are as determined by the Agency, by a SEP issued
22230 pursuant to Section 611.110, such that the total Cryptosporidium removal
22231 and inactivation is at least 5.0-log.
22232
- 22233 10) If the supplier's bin classification is Bin 4, and the supplier uses
22234 conventional filtration treatment (including softening) in full compliance
22235 with the applicable provisions of Subparts B, R, and X of this Part, then
22236 the additional Cryptosporidium treatment requirements are a 2.5-log
22237 treatment.
22238
- 22239 11) If the supplier's bin classification is Bin 4, and the supplier uses direct
22240 filtration in full compliance with the applicable provisions of Subparts B,
22241 R, and X of this Part, then the additional Cryptosporidium treatment
22242 requirements are a 3-log treatment.
22243
- 22244 12) If the supplier's bin classification is Bin 4, and the supplier uses slow sand
22245 or diatomaceous earth filtration in full compliance with the applicable
22246 provisions of Subparts B, R, and X of this Part, then the additional
22247 Cryptosporidium treatment requirements are a 2.5-log treatment.
22248
- 22249 13) If the supplier's bin classification is Bin 4, and the supplier uses alternative
22250 filtration technologies in full compliance with the applicable provisions of
22251 Subparts B, R, and X of this Part, then the additional Cryptosporidium
22252 treatment requirements are as determined by the Agency, by a SEP issued
22253 pursuant to Section 611.110, such that the total Cryptosporidium removal
22254 and inactivation is at least 5.5-log.
22255
- 22256 b) Required treatment.
22257

- 22258 1) A filtered system supplier must use one or more of the treatment and
22259 management options listed in Section 611.1015, termed the microbial
22260 toolbox, to comply with the additional Cryptosporidium treatment
22261 required in subsection (a) ~~of this Section~~.
- 22262
- 22263 2) A supplier classified in Bin 3 or Bin 4 must achieve at least 1-log of the
22264 additional Cryptosporidium treatment required pursuant to subsection (a)
22265 ~~of this Section~~ using either one or a combination of the following: bag
22266 filters, bank filtration, cartridge filters, chlorine dioxide, membranes,
22267 ozone, or UV, as described in Sections 611.1016 through 611.1020.
- 22268
- 22269 c) A failure by a supplier in any month to achieve treatment credit by meeting
22270 criteria in Sections 611.1016 through 611.1020 for microbial toolbox options that
22271 is at least equal to the level of treatment required in subsection (a) ~~of this Section~~
22272 is a violation of the treatment technique requirement.
- 22273
- 22274 d) If the Agency determines, by a SEP issued pursuant to Section 611.110, during a
22275 sanitary survey or an equivalent source water assessment that after a supplier
22276 completed the monitoring conducted pursuant to Section 611.1001(a) or
22277 611.1001(b), significant changes occurred in the supplier's watershed that could
22278 lead to increased contamination of the source water by Cryptosporidium, the
22279 supplier must take actions specified by the Agency in the SEP to address the
22280 contamination. These actions may include additional source water monitoring or
22281 implementing microbial toolbox options listed in Section 611.1015.
- 22282

22283 BOARD NOTE: Derived from 40 CFR 141.711 (2016)~~(2006)~~.

22284 (Source: Amended at 41 Ill. Reg. _____, effective _____)

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22286
22287 **Section 611.1012 Treatment Technique Requirements: Unfiltered System**
22288 **Cryptosporidium Treatment Requirements**

- 22289 a) Determination of the mean Cryptosporidium level.
- 22290
- 22291 1) Following completion of the initial source water monitoring required by
22292 Section 611.1001(a), an unfiltered system supplier is required to have
22293 calculated the arithmetic mean of all Cryptosporidium sample
22294 concentrations reported pursuant to Section 611.1001(a). The supplier is
22295 required to have reported this value to the Agency for approval no later
22296 than six months after the month the supplier is required to have completed
22297 initial source water monitoring based on the applicable schedule set forth
22298 in Section 611.1001(c).
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- 2) Following completion of the second round of source water monitoring required by Section 611.1001(b), an unfiltered system supplier must calculate the arithmetic mean of all *Cryptosporidium* sample concentrations reported pursuant to Section 611.1001(b). The supplier must report this value to the Agency for approval no later than six months after the month the supplier is required to complete the second round of source water monitoring based on the applicable schedule set forth in Section 611.1001(c).
 - 3) If the monthly *Cryptosporidium* sampling frequency varies, a supplier must first calculate a monthly average for each month of monitoring. The supplier must then use these monthly average concentrations, rather than individual sample concentrations, in the calculation of the mean *Cryptosporidium* level in subsection (a)(1) or (a)(2) of this Section.
 - 4) The report to the Agency of the mean *Cryptosporidium* levels calculated pursuant to subsections (a)(1) and (a)(2) of this Section must include a summary of the source water monitoring data used for the calculation.
 - 5) A failure to comply with the conditions of subsection (a) of this Section is a violation of the treatment technique requirement.
- b) *Cryptosporidium* inactivation requirements. An unfiltered system supplier must provide the level of inactivation for *Cryptosporidium* specified in this subsection, based on its mean *Cryptosporidium* levels, as determined pursuant to subsection (a) of this Section and according to the applicable schedule set forth in Section 611.1013.
- 1) An unfiltered system supplier with a mean *Cryptosporidium* level of 0.01 oocysts/ℓ or less must provide at least 2-log *Cryptosporidium* inactivation.
 - 2) An unfiltered system supplier with a mean *Cryptosporidium* level of greater than 0.01 oocysts/ℓ must provide at least 3-log *Cryptosporidium* inactivation.
- c) Inactivation treatment technology requirements. An unfiltered system supplier must use chlorine dioxide, ozone, or UV, as described in Section 611.1020, to meet the *Cryptosporidium* inactivation requirements of this Section.
- 1) A supplier that uses chlorine dioxide or ozone and fails to achieve the *Cryptosporidium* inactivation required in subsection (b) of this Section on more than one day in the calendar month is in violation of the treatment technique requirement.

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2) A supplier that uses UV light and fails to achieve the Cryptosporidium inactivation required in subsection (b) ~~of this Section~~ by meeting the criteria in Section 611.1020(d)(3)(B) is in violation of the treatment technique requirement.

d) Use of two disinfectants. An unfiltered system supplier must meet the combined Cryptosporidium inactivation requirements of this Section and Giardia lamblia and virus inactivation requirements of Section 611.241 using a minimum of two disinfectants, and each of two disinfectants must separately achieve the total inactivation required for any of Cryptosporidium, Giardia lamblia, or viruses.

BOARD NOTE: Derived from 40 CFR 141.712 ~~(2016)~~(2012).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.1013 Treatment Technique Requirements: Schedule for Compliance with Cryptosporidium Treatment Requirements

a) Following initial bin classification pursuant to Section 611.1010(c), a filtered system supplier must provide the level of treatment for Cryptosporidium required by Section 611.1011 according to the applicable schedule set forth in subsection (c) ~~of this Section~~.

b) Following initial determination of the mean Cryptosporidium level pursuant to Section 611.1012(a)(1), an unfiltered system supplier must provide the level of treatment for Cryptosporidium required by Section 611.1012 according to the applicable schedule set forth in subsection (c) ~~of this Section~~.

c) This subsection (c) corresponds with 40 CFR 141.713(c), a now-obsolete implementing provision. This statement maintains structural consistency with the corresponding federal rules. ~~Cryptosporidium treatment compliance dates.~~

BOARD NOTE: Implementation of the treatment technique requirements occurred in stages during April 1, 2012 through October 1, 2014, depending on population served. The maximum extension of deadline for compliance was two years. See 40 CFR 141.713(c). The Board removed the now-obsolete implementation dates.

1) ~~A supplier that serves 100,000 or more persons is required to have complied with Cryptosporidium treatment requirements before April 1, 2012.~~

- 22387 2) A supplier that serves 50,000 to 99,999 persons is required to have
22388 ~~complied with Cryptosporidium treatment requirements before October 1,~~
22389 ~~2012.~~
22390
22391 3) A supplier that serves 10,000 to 49,999 persons must comply with
22392 ~~Cryptosporidium treatment requirements before October 1, 2013.~~
22393
22394 4) A supplier that serves fewer than 10,000 persons must comply with
22395 ~~Cryptosporidium treatment requirements before October 1, 2014.~~
22396
22397 5) The Agency may, by a SEP issued pursuant to Section 611.110, allow up
22398 ~~to an additional two years from the applicable date set forth in this~~
22399 ~~subsection (c) for complying with the treatment requirement if it~~
22400 ~~determines that the additional time is necessary for the supplier to make~~
22401 ~~capital improvements to implement the treatment.~~
22402
22403 d) If the bin classification for a filtered system supplier changes following the
22404 second round of source water monitoring, as determined pursuant to Section
22405 611.1010(d), the supplier must provide the level of treatment for Cryptosporidium
22406 required by Section 611.1011 on a schedule approved by the Agency by a SEP
22407 issued pursuant to Section 611.110.
22408
22409 e) If the mean Cryptosporidium level for an unfiltered system supplier changes
22410 following the second round of monitoring, as determined pursuant to Section
22411 611.1012(a)(2), and if the supplier must provide a different level of
22412 Cryptosporidium treatment pursuant to Section 611.1012 due to this change, the
22413 supplier must meet this treatment requirement on a schedule approved by the
22414 Agency by a SEP issued pursuant to Section 611.110.
22415

22416 BOARD NOTE: Derived from 40 CFR 141.713 ~~(2016)~~(2012).

22417 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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22420 **Section 611.1014 Treatment Technique Requirements: Requirements for Uncovered**
22421 **Finished Water Storage Facilities**
22422

- 22423 a) A supplier that uses uncovered finished water storage facilities must comply with
22424 the conditions of this Section.
22425
22426 b) A supplier ~~must notify~~is required to have notified the Agency in writing of the use
22427 of each uncovered finished water storage facility ~~no later than April 1, 2008.~~
22428

- 22429 c) A supplier ~~must meet~~ is required to have met either of the following conditions for
22430 each uncovered finished water storage facility, or ~~the supplier must comply~~ it is
22431 required to have been in compliance with an Agency-approved schedule to meet
22432 these conditions, ~~no later than April 1, 2009~~:
22433
22434 1) The supplier must cover any uncovered finished water storage facility; or
22435
22436 2) The supplier must treat the discharge from the uncovered finished water
22437 storage facility to the distribution system to achieve inactivation or
22438 removal of at least 4-log virus, 3-log Giardia lamblia, and 2-log
22439 Cryptosporidium using a protocol approved by the Agency.
22440
22441 d) A failure to comply with the requirements of this Section is a violation of the
22442 treatment technique requirement.
22443

22444 BOARD NOTE: Derived from 40 CFR 141.714 ~~(2016)~~(2012).

22445 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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22448 **Section 611.1015 Requirements for Microbial Toolbox Components: Microbial Toolbox**
22449 **Options for Meeting Cryptosporidium Treatment Requirements**
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- 22451 a) Treatment credits.
22452
22453 1) A supplier receives the applicable of the treatment credits set forth in
22454 subsection (b) ~~of this Section~~ by meeting the conditions for microbial
22455 toolbox options described in Sections 611.1016 through 611.1020. The
22456 supplier applies these treatment credits to meet the applicable treatment
22457 requirements set forth in Section 611.1011 or Section 611.1012.
22458
22459 2) An unfiltered system supplier is eligible for treatment credits for the
22460 microbial toolbox options described in Section 611.1020 only.
22461
22462 b) Subsections (b)(1) through (b)(5) ~~of this Section~~ summarize options in the
22463 microbial toolbox:
22464
22465 1) Source protection and management toolbox options.
22466
22467 A) Watershed control program: 0.5-log credit for Agency-approved
22468 program comprising required elements, annual program status
22469 report to Agency, and regular watershed survey. An unfiltered
22470 system supplier is not eligible for credit. Specific criteria are set
22471 forth in Section 611.1016(a).

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- B) Alternative source or intake management: No prescribed credit. A supplier may conduct simultaneous monitoring for treatment bin classification at alternative intake locations or under alternative intake management strategies. Specific criteria are set forth in Section 611.1016(b).
- 2) Pre-filtration toolbox options.
 - A) Presedimentation basin with coagulation: 0.5-log credit during any month that presedimentation basins achieve a monthly mean reduction of 0.5-log or greater in turbidity or alternative Agency-approved performance criteria. To be eligible, basins must be operated continuously with coagulant addition and all plant flow must pass through basins. Specific criteria are set forth in Section 611.1017(a).
 - B) Two-stage lime softening: 0.5-log credit for two-stage softening where chemical addition and hardness precipitation occur in both stages. All plant flow must pass through both stages. Single-stage softening is credited as equivalent to conventional treatment. Specific criteria are set forth in Section 611.1017(b).
 - C) Bank filtration: 0.5-log credit for 25-foot setback or 1.0-log credit for 50-foot setback; the aquifer must be unconsolidated sand containing at least 10 percent fines and average turbidity in the wells must be less than 1 NTU. A supplier using wells followed by filtration when conducting source water monitoring must sample the well to determine bin classification and is not eligible for additional credit. Specific criteria are set forth in Section 611.1017(c).
- 3) Treatment performance toolbox options.
 - A) Combined filter performance: 0.5-log credit for combined filter effluent turbidity less than or equal to 0.15 NTU in at least 95 percent of measurements each month. Specific criteria are set forth in Section 611.1018(a).
 - B) Individual filter performance: 0.5-log credit (in addition to 0.5-log combined filter performance credit) if individual filter effluent turbidity is less than or equal to 0.15 NTU in at least 95 percent of samples each month in each filter and is never greater than 0.3

- 22515 NTU in two consecutive measurements in any filter. Specific
22516 criteria are set forth in Section 611.1018(b).
22517
22518 C) Demonstration of performance: Credit awarded to unit process or
22519 treatment train based on a demonstration to the Agency with an
22520 Agency-approved protocol. Specific criteria are set forth in
22521 Section 611.1018(c).
22522
22523 4) Additional filtration toolbox options.
22524
22525 A) Bag or cartridge filters (individual filters): Up to 2-log credit
22526 based on the removal efficiency demonstrated during challenge
22527 testing with a 1.0-log factor of safety. Specific criteria are set forth
22528 in Section 611.1019(a).
22529
22530 B) Bag or cartridge filters (in series): Up to 2.5-log credit based on
22531 the removal efficiency demonstrated during challenge testing with
22532 a 0.5-log factor of safety. Specific criteria are set forth in Section
22533 611.1019(a).
22534
22535 C) Membrane filtration: Log credit equivalent to removal efficiency
22536 demonstrated in challenge test for device if supported by direct
22537 integrity testing. Specific criteria are set forth in Section
22538 611.1019(b).
22539
22540 D) Second stage filtration: 0.5-log credit for second separate granular
22541 media filtration stage if treatment train includes coagulation prior
22542 to first filter. Specific criteria are set forth in Section 611.1019(c).
22543
22544 E) Slow sand filters: 2.5-log credit as a secondary filtration step or
22545 3.0-log credit as a primary filtration process. No prior chlorination
22546 for either option. Specific criteria are set forth in Section
22547 611.1019(d).
22548
22549 5) Inactivation toolbox options.
22550
22551 A) Chlorine dioxide: Log credit based on measured CT in relation to
22552 CT table. Specific criteria are set forth in Section 611.1020(b).
22553
22554 B) Ozone: Log credit based on measured CT in relation to CT table.
22555 Specific criteria are set forth in Section 611.1020(b).
22556

- C) UV: Log credit based on validated UV dose in relation to UV dose table; reactor validation testing required to establish UV dose and associated operating conditions. Specific criteria are set forth in Section 611.1020(d).

BOARD NOTE: Derived from 40 CFR 141.715 (2016)(2006).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.1016 Requirements for Microbial Toolbox Components: Source Toolbox Components

- a) Watershed control program. A supplier receives 0.5-log Cryptosporidium treatment credit for implementing a watershed control program that meets the requirements of this Section.
 - 1) A supplier that intends to apply for the watershed control program credit must notify the Agency of its intent no later than two years prior to the treatment compliance date applicable to the supplier in Section 611.1013.
 - 2) A supplier must submit to the Agency a proposed watershed control plan no later than one year before the applicable treatment compliance date in Section 611.1013. The Agency must approve the watershed control plan for the supplier to receive watershed control program treatment credit. The watershed control plan must include the following elements:
 - A) Identification of an "area of influence" outside of which the likelihood of Cryptosporidium or fecal contamination affecting the treatment plant intake is not significant. This is the area to be evaluated in future watershed surveys pursuant to subsection (a)(5)(B) of this Section;
 - B) Identification of both potential and actual sources of Cryptosporidium contamination and an assessment of the relative impact of these sources on the supplier's source water quality;
 - C) An analysis of the effectiveness and feasibility of control measures that could reduce Cryptosporidium loading from sources of contamination to the supplier's source water; and
 - D) A statement of goals and specific actions the supplier will undertake to reduce source water Cryptosporidium levels. The plan must explain how the actions are expected to contribute to

- 22600 specific goals, identify watershed partners and their roles, identify
22601 resource requirements and commitments, and include a schedule
22602 for plan implementation with deadlines for completing specific
22603 actions identified in the plan.
22604
- 22605 3) A supplier with an existing watershed control program (i.e., a program in
22606 place on January 5, 2006) is eligible to seek this credit. Its watershed
22607 control plans must meet the criteria in subsection (a)(2) of this Section and
22608 must specify ongoing and future actions that will reduce source water
22609 Cryptosporidium levels.
22610
- 22611 4) If the Agency does not respond to a supplier regarding approval of a
22612 watershed control plan submitted pursuant to this Section and the supplier
22613 meets the other requirements of this Section, the watershed control
22614 program will be considered approved and 0.5 log Cryptosporidium
22615 treatment credit will be awarded, unless and until the Agency
22616 subsequently withdraws such approval by a SEP issued pursuant to
22617 Section 611.110.
22618
- 22619 5) A supplier must complete each of the following actions to maintain the
22620 0.5-log credit.
22621
- 22622 A) It must submit an annual watershed control program status report
22623 to the Agency. The annual watershed control program status
22624 report must describe the supplier's implementation of the approved
22625 plan and assess the adequacy of the plan to meet its goals. The
22626 report must explain how the supplier is addressing any
22627 shortcomings in plan implementation, including those previously
22628 identified by the Agency or as the result of the watershed survey
22629 conducted pursuant to subsection (a)(5)(B) of this Section. The
22630 report must also describe any significant changes that have
22631 occurred in the watershed since the last watershed sanitary survey.
22632 If a supplier determines during implementation that making a
22633 significant change to its approved watershed control program is
22634 necessary, the supplier must notify the Agency prior to making any
22635 such changes. If any change is likely to reduce the level of source
22636 water protection, the supplier must also list in its notification the
22637 actions the supplier will take to mitigate this effect;
22638
- 22639 B) The supplier must undergo a watershed sanitary survey every three
22640 years for a CWS supplier and every five years for a non-CWS
22641 supplier and submit the survey report to the Agency. The survey

22642 must be conducted according to Agency guidelines and by persons
22643 that the Agency approves.
22644

22645 i) The watershed sanitary survey must meet the following
22646 criteria: it must encompass the region identified in the
22647 Agency-approved watershed control plan as the area of
22648 influence; assess the implementation of actions to reduce
22649 source water *Cryptosporidium* levels; and identify any
22650 significant new sources of *Cryptosporidium*.
22651

22652 ii) If the Agency determines that significant changes may have
22653 occurred in the watershed since the previous watershed
22654 sanitary survey, the supplier must undergo another
22655 watershed sanitary survey before a date the Agency
22656 requires by a SEP issued pursuant to Section 611.110,
22657 which may be earlier than the regular date in subsection
22658 (a)(5)(B) of this Section; and
22659

22660 C) The supplier must make the watershed control plan, annual status
22661 reports, and watershed sanitary survey reports available to the
22662 public upon request. These documents must be in a plain language
22663 style and include criteria by which to evaluate the success of the
22664 program in achieving plan goals. The Agency may, by a SEP
22665 issued pursuant to Section 611.110, approve that a supplier
22666 withhold from the public portions of the annual status report,
22667 watershed control plan, and watershed sanitary survey based on
22668 water supply security considerations.
22669

22670 6) If the Agency determines that a supplier is not carrying out the approved
22671 watershed control plan, the Agency may, by a SEP issued pursuant to
22672 Section 611.110, withdraw the watershed control program treatment
22673 credit.
22674

22675 b) Alternative source.
22676

22677 1) A supplier may conduct source water monitoring that reflects a different
22678 intake location (either in the same source or for an alternate source) or a
22679 different procedure for the timing or level of withdrawal from the source
22680 (alternative source monitoring). If the Agency approves by a SEP issued
22681 pursuant to Section 611.110, a supplier may determine its bin
22682 classification pursuant to Section 611.1010 based on the alternative source
22683 monitoring results.
22684

- 22685 2) If a supplier conducts alternative source monitoring pursuant to subsection
22686 (b)(1) ~~of this Section~~, it must also monitor their current plant intake
22687 concurrently as described in Section 611.1001.
22688
- 22689 3) Alternative source monitoring pursuant to subsection (b)(1) ~~of this Section~~
22690 must meet the requirements for source monitoring to determine bin
22691 classification, as described in Sections 611.1001 through 611.1006. A
22692 supplier must report the alternative source monitoring results to the
22693 Agency, along with supporting information documenting the operating
22694 conditions under which the samples were collected.
22695
- 22696 4) If a supplier determines its bin classification pursuant to Section 611.1010
22697 using alternative source monitoring results that reflect a different intake
22698 location or a different procedure for managing the timing or level of
22699 withdrawal from the source, the supplier must relocate the intake or
22700 permanently adopt the withdrawal procedure, as applicable, no later than
22701 the applicable treatment compliance date in Section 611.1013.
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22703 BOARD NOTE: Derived from 40 CFR 141.716 (2016)~~(2006)~~.

22704 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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22707 **Section 611.1017 Requirements for Microbial Toolbox Components: Pre-Filtration**
22708 **Treatment Toolbox Components**
22709

- 22710 a) Presedimentation. A supplier receives 0.5-log Cryptosporidium treatment credit
22711 for a presedimentation basin during any month the process meets the criteria in
22712 this subsection (a).
22713
- 22714 1) The presedimentation basin must be in continuous operation and must
22715 treat the entire plant flow taken from a surface water or groundwater under
22716 the direct influent of surface water source.
22717
- 22718 2) The supplier must continuously add a coagulant to the presedimentation
22719 basin.
22720
- 22721 3) The presedimentation basin must achieve both of the following
22722 performance criteria:
22723
- 22724 A) It demonstrates at least 0.5-log mean reduction of influent
22725 turbidity. This reduction must be determined using daily turbidity
22726 measurements in the presedimentation process influent and
22727 effluent, and it must be calculated as follows: \log_{10} (monthly mean

22728 of daily influent turbidity) - log₁₀ (monthly mean of daily effluent
22729 turbidity); and

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B) It complies with Agency-approved performance criteria that demonstrate at least 0.5-log mean removal of micron-sized particulate material through the presedimentation process.

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b) Two-stage lime softening. A supplier receives an additional 0.5-log Cryptosporidium treatment credit for a two-stage lime softening plant if chemical addition and hardness precipitation occur in two separate and sequential softening stages prior to filtration. Both softening stages must treat the entire plant flow taken from a surface water or groundwater under the direct influent of surface water source.

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c) Bank filtration. A supplier receives Cryptosporidium treatment credit for bank filtration that serves as pretreatment to a filtration plant by meeting the criteria in this subsection (c). A supplier using bank filtration when it begins source water monitoring pursuant to Section 611.1001(a) must collect samples as described in Section 611.1003(d), and it is not eligible for this credit.

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1) A well with a groundwater flow path of at least 25 feet receives 0.5-log treatment credit, or a well with a groundwater flow path of at least 50 feet receives 1.0-log treatment credit. The groundwater flow path must be determined as specified in subsection (c)(4) of this Section.

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2) Only a well in granular aquifers is eligible for treatment credit. A granular aquifer is one comprised of sand, clay, silt, rock fragments, pebbles or larger particles, and minor cement. A supplier must characterize the aquifer at the well site to determine aquifer properties. A supplier must extract a core from the aquifer and demonstrate that in at least 90 percent of the core length, grains less than 1.0 mm in diameter constitute at least 10 percent of the core material.

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3) Only a horizontal or vertical well is eligible for treatment credit.

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4) For a vertical well, the groundwater flow path is the measured distance from the edge of the surface water body under high flow conditions (determined by the 100 year floodplain elevation boundary or by the floodway, as defined in Federal Emergency Management Agency flood hazard maps) to the well screen. For a horizontal well, the groundwater flow path is the measured distance from the bed of the river under normal flow conditions to the closest horizontal well lateral screen.

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- 5) The supplier must monitor each wellhead for turbidity at least once every four hours while the bank filtration process is in operation. If monthly average turbidity levels, based on daily maximum values in the well, exceed 1 NTU, the supplier must report this result to the Agency and conduct an assessment within 30 days to determine the cause of the high turbidity levels in the well. If the Agency determines that microbial removal has been compromised, it may, by a SEP issued pursuant to Section 611.110, revoke treatment credit until the supplier implements corrective actions approved by the Agency to remediate the problem.
 - 6) Springs and infiltration galleries are not eligible for treatment credit pursuant to this Section, but are eligible for credit pursuant to Section 611.1018(c).
 - 7) Bank filtration demonstration of performance. The Agency may, by a SEP issued pursuant to Section 611.110, approve *Cryptosporidium* treatment credit for bank filtration based on a demonstration of performance study that meets the criteria in this subsection. This treatment credit may be greater than 1.0-log and may be awarded to bank filtration that does not meet the criteria in subsections (c)(1) through (c)(5) of this Section.
 - A) The study must follow an Agency-approved protocol and must involve the collection of data on the removal of *Cryptosporidium* or a surrogate for *Cryptosporidium* and related hydrogeologic and water quality parameters during the full range of operating conditions.
 - B) The study must include sampling both from the production wells and from monitoring wells that are screened and located along the shortest flow path between the surface water source and the production wells.

22804 BOARD NOTE: Derived from 40 CFR 141.717 (2016)~~(2006)~~.

22805 (Source: Amended at 41 Ill. Reg. _____, effective _____)

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22808 **Section 611.1018 Requirements for Microbial Toolbox Components: Treatment**
22809 **Performance Toolbox Components**

- 22810
22811 a) Combined filter performance. A supplier that uses conventional filtration
22812 treatment or direct filtration treatment receives an additional 0.5-log
22813 *Cryptosporidium* treatment credit during any month it meets the criteria in this

22814 subsection (a). Its combined filter effluent (CFE) turbidity must be less than or
22815 equal to 0.15 NTU in at least 95 percent of the measurements. Turbidity must be
22816 measured as described in Sections 611.531 and 611.533.
22817

22818 b) Individual filter performance. A supplier that uses conventional filtration
22819 treatment or direct filtration treatment receives 0.5-log Cryptosporidium treatment
22820 credit, which can be in addition to the 0.5-log credit pursuant to subsection (a) of
22821 this Section, during any month it meets the criteria in this subsection (b).
22822 Compliance with these criteria must be based on individual filter turbidity
22823 monitoring as described in Section 611.744 or 611.956(a), as applicable.
22824

22825 1) The filtered water turbidity for each individual filter must be less than or
22826 equal to 0.15 NTU in at least 95 percent of the measurements recorded
22827 each month.
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22829 2) No individual filter may have a measured turbidity greater than 0.3 NTU
22830 in two consecutive measurements taken 15 minutes apart.
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22832 3) Any supplier that has received treatment credit for individual filter
22833 performance and fails to meet the requirements of subsection (b)(1) or
22834 (b)(2) of this Section during any month does not receive a treatment
22835 technique violation pursuant to Section 611.1011(c) if the Agency
22836 determines the following:
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22838 A) The failure was due to unusual and short-term circumstances that
22839 could not reasonably be prevented through optimizing treatment
22840 plant design, operation, and maintenance; and
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22842 B) The supplier has experienced no more than two such failures in
22843 any calendar year.
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22845 c) Demonstration of performance. The Agency may, by a SEP issued pursuant to
22846 Section 611.110, approve Cryptosporidium treatment credit for drinking water
22847 treatment processes based on a demonstration of performance study that meets the
22848 criteria in this subsection (c). This treatment credit may be greater than or less
22849 than the prescribed treatment credits in Section 611.1011 or Sections 611.1017
22850 through 611.1020 and may be awarded to treatment processes that do not meet the
22851 criteria for the prescribed credits.
22852

22853 1) The supplier cannot receive the prescribed treatment credit for any toolbox
22854 option in Sections 611.1017 through 611.1020 if that toolbox option is
22855 included in a demonstration of performance study for which treatment
22856 credit is awarded pursuant to this subsection (b).

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- 2) The demonstration of performance study must follow an Agency-approved protocol and must demonstrate the level of Cryptosporidium reduction the treatment process will achieve under the full range of expected operating conditions for the supplier.
- 3) Approval by the Agency must be in writing and may include monitoring and treatment performance criteria that the supplier must demonstrate and report on an ongoing basis to remain eligible for the treatment credit. The Agency may, by a SEP issued pursuant to Section 611.110, designate such criteria where necessary to verify that the conditions under which the demonstration of performance credit was approved are maintained during routine operation.

BOARD NOTE: Derived from 40 CFR 141.718 (2016)(2006).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.1019 Requirements for Microbial Toolbox Components: Additional Filtration Toolbox Components

- a) Bag and cartridge filters. A supplier receives Cryptosporidium treatment credit of up to 2.0-log for individual bag or cartridge filters and up to 2.5-log for bag or cartridge filters operated in series by meeting the criteria set forth in subsections (a)(1) through (a)(10) of this Section. To be eligible for this credit, the supplier must report the results of challenge testing that meets the requirements of subsections (a)(2) through (a)(9) of this Section to the Agency. The filters must treat the entire plant flow taken from a Subpart B source.
 - 1) The Cryptosporidium treatment credit awarded to bag or cartridge filters must be based on the removal efficiency demonstrated during challenge testing that is conducted according to the criteria set forth in subsections (a)(2) through (a)(9) of this Section. A factor of safety equal to 1-log for individual bag or cartridge filters and 0.5-log for bag or cartridge filters in series must be applied to challenge testing results to determine removal credit. A supplier may use results from challenge testing conducted prior to January 5, 2006 if the prior testing was consistent with the criteria specified in subsections (a)(2) through (a)(9) of this Section.
 - 2) Challenge testing must be performed on full-scale bag or cartridge filters, and the associated filter housing or pressure vessel, that are identical in material and construction to the filters and housings the supplier will use for removal of Cryptosporidium. Bag or cartridge filters must be

22900 challenge tested in the same configuration that the supplier will use, either
 22901 as individual filters or as a series configuration of filters.

22902
 22903 3) Challenge testing must be conducted using Cryptosporidium or a surrogate
 22904 that is removed no more efficiently than Cryptosporidium. The
 22905 microorganism or surrogate used during challenge testing is referred to as
 22906 the challenge particulate. The concentration of the challenge particulate
 22907 must be determined using a method capable of discreetly quantifying the
 22908 specific microorganism or surrogate used in the test; gross measurements
 22909 such as turbidity may not be used.

22910
 22911 4) The maximum feed water concentration that can be used during a
 22912 challenge test must be based on the detection limit of the challenge
 22913 particulate in the filtrate (i.e., filtrate detection limit) and must be
 22914 calculated using the following equation:

22915
 22916 Maximum Feed Concentration = $1 \times 10^4 \times$ (Filtrate Detection Limit)
 22917

22918 5) Challenge testing must be conducted at the maximum design flow rate for
 22919 the filter as specified by the manufacturer.

22920
 22921 6) Each filter evaluated must be tested for a duration sufficient to reach 100
 22922 percent of the terminal pressure drop, which establishes the maximum
 22923 pressure drop under which the filter may be used to comply with the
 22924 requirements of this Subpart Z.

22925
 22926 7) Removal efficiency of a filter must be determined from the results of the
 22927 challenge test and expressed in terms of log removal values using the
 22928 following equation:

22929
 22930
$$LRV = \text{Log}_{10} (C_f) - \text{Log}_{10} (C_p)$$

22931
 22932 Where:

- 22933
- LRV = log removal value demonstrated during challenge testing
 - C_f = the feed concentration measured during the challenge test
 - C_p = the filtrate concentration measured during the challenge test. In applying this equation, the same units must be used for the feed and filtrate concentrations. If the challenge particulate is not detected in the filtrate, then the term C_p must be set equal to the detection limit.

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- 8) Each filter tested must be challenged with the challenge particulate during three periods over the filtration cycle: within two hours ~~after~~ start-up of a new filter; when the pressure drop is between 45 and 55 percent of the terminal pressure drop; and at the end of the cycle after the pressure drop has reached 100 percent of the terminal pressure drop. An LRV must be calculated for each of these challenge periods for each filter tested. The LRV for the filter (LRV_{filter}) must be assigned the value of the minimum LRV observed during the three challenge periods for that filter.
 - 9) If fewer than 20 filters are tested, the overall removal efficiency for the filter product line must be set equal to the lowest LRV_{filter} among the filters tested. If 20 or more filters are tested, the overall removal efficiency for the filter product line must be set equal to the 10th percentile of the set of LRV_{filter} values for the various filters tested. The percentile is defined by $(i/(n+1))$ where i is the rank of n individual data points ordered lowest to highest. If necessary, the 10th percentile may be calculated using linear interpolation.
 - 10) If a previously tested filter is modified in a manner that could change the removal efficiency of the filter product line, challenge testing to demonstrate the removal efficiency of the modified filter must be conducted and submitted in writing to the Agency.
- b) Membrane filtration.
- 1) A supplier receives Cryptosporidium treatment credit for membrane filtration that meets the criteria of this subsection (b). Membrane cartridge filters that meet the definition of membrane filtration in Section 611.102 are eligible for this credit. The level of treatment credit a supplier receives is equal to the lower of the following values:
 - A) The removal efficiency demonstrated during challenge testing conducted pursuant to the conditions in subsection (b)(2) ~~of this Section~~; or
 - B) The maximum removal efficiency that can be verified through direct integrity testing used with the membrane filtration process pursuant to the conditions in subsection (b)(3) ~~of this Section~~.
 - 2) Challenge testing. The membrane used by the supplier must undergo challenge testing to evaluate removal efficiency, and the supplier must report the results of challenge testing to the Agency. Challenge testing must be conducted according to the criteria set forth in subsections

22978 (b)(2)(A) through (b)(2)(G) of this Section. A supplier may use data from
 22979 challenge testing conducted prior to January 5, 2006 if the prior testing
 22980 was consistent with the criteria set forth in subsections (b)(2)(A) through
 22981 (b)(2)(G) of this Section.
 22982

22983 A) Challenge testing must be conducted on either a full-scale
 22984 membrane module, identical in material and construction to the
 22985 membrane modules used in the supplier's treatment facility, or a
 22986 smaller-scale membrane module, identical in material and similar
 22987 in construction to the full-scale module. A module is defined as
 22988 the smallest component of a membrane unit in which a specific
 22989 membrane surface area is housed in a device with a filtrate outlet
 22990 structure.
 22991

22992 B) Challenge testing must be conducted using *Cryptosporidium*
 22993 oocysts or a surrogate that is removed no more efficiently than
 22994 *Cryptosporidium* oocysts. The organism or surrogate used during
 22995 challenge testing is referred to as the challenge particulate. The
 22996 concentration of the challenge particulate, in both the feed and
 22997 filtrate water, must be determined using a method capable of
 22998 discretely quantifying the specific challenge particulate used in the
 22999 test; gross measurements such as turbidity may not be used.
 23000

23001 C) The maximum feed water concentration that can be used during a
 23002 challenge test is based on the detection limit of the challenge
 23003 particulate in the filtrate and must be determined according to the
 23004 following equation:
 23005

$$\text{Maximum Feed Concentration} = 3.16 \times 10^6 \times (\text{Filtrate Detection Limit})$$

23006 D) Challenge testing must be conducted under representative
 23007 hydraulic conditions at the maximum design flux and maximum
 23008 design process recovery specified by the manufacturer for the
 23009 membrane module. Flux is defined as the throughput of a pressure
 23010 driven membrane process expressed as flow per unit of membrane
 23011 area. Recovery is defined as the volumetric percent of feed water
 23012 that is converted to filtrate over the course of an operating cycle
 23013 uninterrupted by events such as chemical cleaning or a solids
 23014 removal process (i.e., backwashing).
 23015
 23016

23017 E) Removal efficiency of a membrane module must be calculated
 23018 from the challenge test results and expressed as a log removal
 23019 value according to the following equation:
 23020

$$\text{LRV} = \text{Log}_{10} (C_f) - \text{Log}_{10} (C_p)$$

23021
 23022
 23023 Where:
 23024

- LRV = log removal value demonstrated during the challenge test
- C_f = the feed concentration measured during the challenge test
- C_p = the filtrate concentration measured during the challenge test. Equivalent units must be used for the feed and filtrate concentrations. If the challenge particulate is not detected in the filtrate, the term C_p is set equal to the detection limit for the purpose of calculating the LRV. An LRV must be calculated for each membrane module evaluated during the challenge test.

23025
 23026 F) The removal efficiency of a membrane filtration process
 23027 demonstrated during challenge testing must be expressed as a log
 23028 removal value ($\text{LRV}_{C\text{-Test}}$). If fewer than 20 modules are tested,
 23029 then $\text{LRV}_{C\text{-Test}}$ is equal to the lowest of the representative LRVs
 23030 among the modules tested. If 20 or more modules are tested, then
 23031 $\text{LRV}_{C\text{-Test}}$ is equal to the 10th percentile of the representative LRVs
 23032 among the modules tested. The percentile is defined by $(i/(n+1))$
 23033 where i is the rank of n individual data points ordered lowest to
 23034 highest. If necessary, the 10th percentile may be calculated using
 23035 linear interpolation.
 23036

23037 G) The challenge test must establish a quality control release value
 23038 (QCRV) for a non-destructive performance test that demonstrates
 23039 the Cryptosporidium removal capability of the membrane filtration
 23040 module. This performance test must be applied to each production
 23041 membrane module used by the supplier that was not directly
 23042 challenge tested in order to verify Cryptosporidium removal
 23043 capability. Production modules that do not meet the established
 23044 QCRV are not eligible for the treatment credit demonstrated during
 23045 the challenge test.
 23046

23047 H) If a previously tested membrane is modified in a manner that could
 23048 change the removal efficiency of the membrane or the applicability

23049 of the non-destructive performance test and associated QCRV,
 23050 additional challenge testing to demonstrate the removal efficiency
 23051 of, and determine a new QCRV for, the modified membrane must
 23052 be conducted and submitted to the Agency.
 23053

23054 3) Direct integrity testing. A supplier must conduct direct integrity testing in
 23055 a manner that demonstrates a removal efficiency equal to or greater than
 23056 the removal credit awarded to the membrane filtration process and meets
 23057 the requirements described in subsections (b)(3)(A) through (b)(3)(F) of
 23058 this Section. A "direct integrity test" is defined as a physical test applied
 23059 to a membrane unit in order to identify and isolate integrity breaches (i.e.,
 23060 one or more leaks that could result in contamination of the filtrate).
 23061

23062 A) The direct integrity test must be independently applied to each
 23063 membrane unit in service. A membrane unit is defined as a group
 23064 of membrane modules that share common valving that allows the
 23065 unit to be isolated from the rest of the treatment system for the
 23066 purpose of integrity testing or other maintenance.
 23067

23068 B) The direct integrity method must have a resolution of three
 23069 micrometers or less, where resolution is defined as the size of the
 23070 smallest integrity breach that contributes to a response from the
 23071 direct integrity test.
 23072

23073 C) The direct integrity test must have a sensitivity sufficient to verify
 23074 the log treatment credit awarded to the membrane filtration process
 23075 by the Agency, where sensitivity is defined as the maximum log
 23076 removal value that can be reliably verified by a direct integrity test.
 23077 Sensitivity must be determined using the appropriate of the
 23078 following approaches, considering the type of direct integrity test
 23079 the supplier uses:
 23080

23081 i) For a direct integrity test that uses an applied pressure or
 23082 vacuum, the direct integrity test sensitivity must be
 23083 calculated according to the following equation:
 23084

$$LRV_{DIT} = \text{Log}_{10} \left(\frac{Q_p}{VCF \times Q_{breach}} \right)$$

23085
 23086 Where:
 23087
 23088

LRV_{DIT} = the sensitivity of the direct integrity test

- Q_p = total design filtrate flow from the membrane unit
- Q_{breach} = flow of water from an integrity breach associated with the smallest integrity test response that can be reliably measured
- VCF = volumetric concentration factor. The volumetric concentration factor is the ratio of the suspended solids concentration on the high pressure side of the membrane relative to that in the feed water; or

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- ii) For a direct integrity test that uses a particulate or molecular marker, the direct integrity test sensitivity must be calculated according to the following equation:

$$LRV_{DIT} = \text{Log}_{10} (C_f) - \text{Log}_{10} (C_p)$$

Where:

- LRV_{DIT} = the sensitivity of the direct integrity test
- C_f = the typical feed concentration of the marker used in the test
- C_p = the filtrate concentration of the marker from an integral membrane unit

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- D) A supplier must establish a control limit within the sensitivity limits of the direct integrity test that is indicative of an integral membrane unit capable of meeting the removal credit awarded by the Agency.
- E) If the result of a direct integrity test exceeds the control limit established pursuant to subsection (b)(3)(D) of this Section, the supplier must remove the membrane unit from service. The supplier must conduct a direct integrity test to verify any repairs, and it may return the membrane unit to service only if the direct integrity test is within the established control limit.
- F) A supplier must conduct direct integrity testing on each membrane unit at a frequency of not less than once each day that the membrane unit is in operation. The Agency may, by a SEP issued pursuant to Section 611.110, approve less frequent testing, based

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on demonstrated process reliability, the use of multiple barriers effective for Cryptosporidium, or reliable process safeguards.

- 4) Indirect integrity monitoring. A supplier must conduct continuous indirect integrity monitoring on each membrane unit according to the criteria in subsections (b)(4)(A) through (b)(4)(E) ~~of this Section~~. "Indirect integrity monitoring" is defined as monitoring some aspect of filtrate water quality that is indicative of the removal of particulate matter. A supplier that implements continuous direct integrity testing of membrane units in accordance with the criteria in subsections (b)(3)(A) through (b)(3)(E) ~~of this Section~~ is not subject to the requirements for continuous indirect integrity monitoring. The supplier must submit a monthly report to the Agency summarizing all continuous indirect integrity monitoring results triggering direct integrity testing and the corrective action that was taken in each case.
 - A) Unless the Agency approves an alternative parameter by a SEP issued pursuant to Section 611.110, continuous indirect integrity monitoring must include continuous filtrate turbidity monitoring.
 - B) Continuous indirect integrity monitoring must be conducted at a frequency of no less than once every 15 minutes.
 - C) Continuous indirect integrity monitoring must be separately conducted on each membrane unit.
 - D) If continuous indirect integrity monitoring includes turbidity and if the filtrate turbidity readings are above 0.15 NTU for a period greater than 15 minutes (i.e., two consecutive 15-minute readings above 0.15 NTU), direct integrity testing must immediately be performed on the associated membrane unit, as specified in subsections (b)(3)(A) through (b)(3)(E) ~~of this Section~~.
 - E) If indirect integrity monitoring includes an Agency-approved alternative parameter and if the alternative parameter exceeds an Agency-approved control limit for a period greater than 15 minutes, direct integrity testing must immediately be performed on the associated membrane units, as specified in subsections (b)(3)(A) through (b)(3)(E) ~~of this Section~~.
- c) Second stage filtration. A supplier receives 0.5-log Cryptosporidium treatment credit for a separate second stage of filtration that consists of sand, dual media, GAC, or other fine grain media following granular media filtration if the Agency

23158 approves by a SEP issued pursuant to Section 611.110. To be eligible for this
 23159 credit, the first stage of filtration must be preceded by a coagulation step and both
 23160 filtration stages must treat the entire plant flow taken from a surface water or
 23161 groundwater under the direct influence of surface water source. A cap, such as
 23162 GAC, on a single stage of filtration is not eligible for this credit. The Agency
 23163 must approve the treatment credit based on an assessment of the design
 23164 characteristics of the filtration process.
 23165

- 23166 d) Slow sand filtration (as secondary filter). A supplier is eligible to receive 2.5-log
 23167 Cryptosporidium treatment credit by a SEP issued pursuant to Section 611.110 for
 23168 a slow sand filtration process that follows a separate stage of filtration if both
 23169 filtration stages treat entire plant flow taken from a surface water or groundwater
 23170 under the direct influence of surface water source and no disinfectant residual is
 23171 present in the influent water to the slow sand filtration process. The Agency must
 23172 approve the treatment credit based on an assessment of the design characteristics
 23173 of the filtration process. This subsection (d) does not apply to treatment credit
 23174 awarded to slow sand filtration used as a primary filtration process.
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23176 BOARD NOTE: Derived from 40 CFR 141.719 (2016)(2006).
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23178 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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23180 **Section 611.1020 Requirements for Microbial Toolbox Components: Inactivation Toolbox**
 23181 **Components**
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- 23183 a) Calculation of CT values.
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 23185 1) CT is the product of the disinfectant contact time (T, in minutes) and
 23186 disinfectant concentration (C, in milligrams per liter). A supplier with
 23187 treatment credit for chlorine dioxide or ozone pursuant to subsection (b) or
 23188 (c) of this Section must calculate CT at least once each day, with both C
 23189 and T measured during peak hourly flow, as specified in Sections 611.531
 23190 and 611.532.
 23191
 23192 2) A supplier with several disinfection segments in sequence may calculate
 23193 CT for each segment, where a disinfection segment is defined as a
 23194 treatment unit process with a measurable disinfectant residual level and a
 23195 liquid volume. Under this approach, the supplier must add the
 23196 Cryptosporidium CT values in each segment to determine the total CT for
 23197 the treatment plant.
 23198
 23199 b) CT values for chlorine dioxide and ozone.
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- 1) A supplier receives the Cryptosporidium treatment credit listed in Table H to this Part by meeting the corresponding chlorine dioxide CT value for the applicable water temperature, as described in subsection (a) of this Section.
 - 2) A supplier receives the Cryptosporidium treatment credit listed in Table I to this Part by meeting the corresponding ozone CT values for the applicable water temperature, as described in subsection (a) of this Section.
- c) Site-specific study. The Agency may, by a SEP issued pursuant to Section 611.110, approve alternative chlorine dioxide or ozone CT values to those listed in Tables H and I to this Part on a site-specific basis. The Agency must base this approval on a site-specific study conducted by the supplier according to an Agency-approved protocol.
- d) Ultraviolet light. A supplier receives Cryptosporidium, Giardia lamblia, and virus treatment credits for ultraviolet (UV) light reactors by achieving the corresponding UV dose values shown in Table J to this Part. The supplier must validate and monitor UV reactors, as described in subsections (d)(2) and (d)(3) of this Section, to demonstrate that they are achieving a particular UV dose value for treatment credit.
- 1) UV dose table. The treatment credits listed in Table J to this Part are for UV light at a wavelength of 254 nm as produced by a low-pressure mercury vapor lamp. To receive treatment credit for other lamp types, a supplier must demonstrate an equivalent germicidal dose through reactor validation testing, as described in subsection (d)(2) of this Section. The UV dose values in this table are applicable only to post-filter applications of UV in a filtered system supplier and to an unfiltered system supplier.
 - 2) Reactor validation testing. A supplier must use UV reactors that have undergone validation testing to determine the operating conditions under which the reactor delivers the UV dose required in subsection (d)(1) of this Section (i.e., validated operating conditions). These operating conditions must include flow rate; UV intensity, as measured by a UV sensor; and UV lamp status.
 - A) When determining validated operating conditions, a supplier must account for the following factors: UV absorbance of the water; lamp fouling and aging; measurement uncertainty of on-line sensors; UV dose distributions arising from the velocity profiles through the reactor; failure of UV lamps or other critical treatment

- 23244 system components; and inlet and outlet piping or channel
23245 configurations of the UV reactor.
23246
23247 B) Validation testing must include the following: Full scale testing of
23248 a reactor that conforms uniformly to the UV reactors used by the
23249 supplier and inactivation of a test microorganism whose dose
23250 response characteristics have been quantified with a low pressure
23251 mercury vapor lamp.
23252
23253 C) The Agency may, by a SEP issued pursuant to Section 611.110,
23254 approve an alternative approach to validation testing.
23255
23256 3) Reactor monitoring.
23257
23258 A) A supplier must monitor its UV reactors to determine if the
23259 reactors are operating within validated conditions, as determined
23260 pursuant to subsection (d)(2) of this Section. This monitoring must
23261 include UV intensity, as measured by a UV sensor; flow rate; lamp
23262 status; and other parameters that the Agency has designated by a
23263 SEP issued pursuant to Section 611.110 based on UV reactor
23264 operation. A supplier must verify the calibration of UV sensors
23265 and must recalibrate sensors in accordance with a protocol that the
23266 Agency has approved by the SEP issued pursuant to Section
23267 611.110.
23268
23269 B) To receive treatment credit for UV light, a supplier must treat at
23270 least 95 percent of the water delivered to the public during each
23271 month by UV reactors operating within validated conditions for the
23272 required UV dose, as described in subsections (d)(1) and (d)(2) of
23273 this Section. The supplier must demonstrate compliance with this
23274 condition by the monitoring required pursuant to subsection
23275 (d)(3)(A) of this Section.
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23277 BOARD NOTE: Derived from 40 CFR 141.720 (2016)(2006).

23278 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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23280
23281 **Section 611.1021 Reporting and Recordkeeping Requirements: Reporting Requirements**
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- 23283 a) A supplier must report sampling schedules pursuant to Section 611.1002 and
23284 source water monitoring results pursuant to Section 611.1006 unless it notifies the
23285 Agency that it will not conduct source water monitoring because the supplier
23286 meets the criteria of Section 611.1001(d).

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- b) A supplier must report the use of uncovered finished water storage facilities to the Agency, as described in Section 611.1014.
 - c) A filtered system supplier must report its Cryptosporidium bin classification, as described in Section 611.1010.
 - d) An unfiltered system supplier must report its mean source water Cryptosporidium level, as described in Section 611.1012.
 - e) A supplier must report disinfection profiles and benchmarks to the Agency, as described in Sections 611.1008 and 611.1009, prior to making a significant change in disinfection practice.
 - f) A supplier must report to the Agency in accordance with subsections (f)(1) through (f)(15) ~~of this Section~~ for any microbial toolbox options used to comply with treatment requirements pursuant to Section 611.1011 or Section 611.1012. Alternatively, the Agency may, by a SEP issued pursuant to Section 611.110, approve a supplier to certify operation within required parameters for treatment credit rather than reporting monthly operational data for toolbox options.
 - 1) A supplier that uses the watershed control program toolbox option must submit the following information on the indicated schedule:
 - A) A notice of intention to develop a new or continue an existing watershed control program no later than two years before the applicable treatment compliance date in Section 611.1013;
 - B) A watershed control plan no later than one year before the applicable treatment compliance date in Section 611.1013;
 - C) An annual watershed control program status report every 12 months, beginning one year after the applicable treatment compliance date in Section 611.1013; and
 - D) A watershed sanitary survey report: for a CWS supplier, every three years beginning three years after the applicable treatment compliance date in Section 611.1013 or, for a non-CWS supplier, every five years beginning five years after the applicable treatment compliance date in Section 611.1013.
 - 2) A supplier that uses the alternative source or intake management toolbox option must submit verification that it has relocated the intake or adopted

the intake withdrawal procedure reflected in monitoring results no later than the applicable treatment compliance date in Section 611.1013.

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23333 3) A supplier that uses the presedimentation toolbox option must submit
23334 monthly verification of the information set forth in each of subsections
23335 (f)(3)(A) through (f)(3)(D) ~~of this Section~~, subject to the limitations of
23336 subsection (f)(3)(E) ~~of this Section~~.
23337
23338 A) Continuous basin operation;
23339
23340 B) Treatment of 100% of the flow;
23341
23342 C) Continuous addition of a coagulant; and
23343
23344 D) At least 0.5-log mean reduction of influent turbidity or compliance
23345 with alternative Agency-approved performance criteria.
23346
23347 E) Monthly reporting must occur within 10 days following the month
23348 in which the monitoring was conducted, beginning on the
23349 applicable treatment compliance date in Section 611.1013.
23350
- 23351 4) A supplier that uses the two-stage lime softening toolbox option must
23352 submit monthly verification of the information set forth in each of
23353 subsections (f)(4)(A) and (f)(4)(B) ~~of this Section~~, subject to the
23354 limitations of subsection (f)(4)(C) ~~of this Section~~.
23355
23356 A) That chemical addition and hardness precipitation occurred in two
23357 separate and sequential softening stages prior to filtration; and
23358
23359 B) That both stages treated 100% of the plant flow.
23360
23361 C) Monthly reporting must occur within 10 days following the month
23362 in which the monitoring was conducted, beginning on the
23363 applicable treatment compliance date in Section 611.1013.
23364
- 23365 5) A supplier that uses the bank filtration toolbox option must submit the
23366 following information on the indicated schedule:
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23368 A) An initial demonstration of the following no later than the
23369 applicable treatment compliance date in Section 611.1013:
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23371 i) The existence of unconsolidated, predominantly sandy
23372 aquifer; and

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- ii) A setback distance of at least 25 ft. (0.5-log credit) or 50 ft. (1.0-log credit).
- B) If the monthly average of daily maximum turbidity is greater than 1 NTU, then the supplier must report that result and submit an assessment of the cause within 30 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in Section 611.1013.
- 6) A supplier that uses the combined filter performance toolbox option must submit monthly verification of combined filter effluent (CFE) turbidity levels less than or equal to 0.15 NTU in at least 95 percent of the four-hour CFE measurements taken each month. Monthly reporting must occur within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in Section 611.1013.
- 7) A supplier that uses the individual filter performance toolbox option must submit monthly verification of the information set forth in each of subsections (f)(7)(A) and (f)(7)(B) ~~of this Section~~, subject to the limitations of subsection (f)(7)(C) ~~of this Section~~.
 - A) That individual filter effluent (IFE) turbidity levels were less than or equal to 0.15 NTU in at least 95 percent of samples each month in each filter; and
 - B) That no individual filter measured greater than 0.3 NTU in two consecutive readings 15 minutes apart.
 - C) Monthly reporting must occur within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in Section 611.1013.
- 8) A supplier that uses the demonstration of performance toolbox option must submit the information set forth in each of subsections (f)(8)(A) and (f)(8)(B) ~~of this Section~~ on the indicated schedule:
 - A) Results from testing following an Agency-approved protocol no later than the applicable treatment compliance date in Section 611.1013; and

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- B) As required by the Agency, monthly verification of operation within conditions of Agency approval for demonstration of performance credit within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in Section 611.1013.

- 9) A supplier that uses the bag filters and cartridge filters toolbox option must submit the information set forth in each of subsections (f)(9)(A) and (f)(9)(B) ~~of this Section~~ on the indicated schedule:
 - A) A demonstration, no later than the applicable treatment compliance date in Section 611.1013, that the following criteria are met:
 - i) It must demonstrate that the process meets the definition of bag or cartridge filtration; and
 - ii) It must demonstrate that the removal efficiency established through challenge testing that meets criteria in this Subpart Z; and

 - B) Monthly verification, within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in Section 611.1013, that 100% of plant flow was filtered.

- 10) A supplier that uses the membrane filtration toolbox option must submit the following information on the indicated schedule:
 - A) Results of verification testing no later than the applicable treatment compliance date in Section 611.1013 that demonstrate the following:
 - i) It must demonstrate that the removal efficiency established through challenge testing that meets criteria set forth in this Subpart Z; and
 - ii) It must demonstrate the integrity test method and parameters, including resolution, sensitivity, test frequency, control limits, and associated baseline; and

 - B) A monthly report within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment

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compliance date in Section 611.1013, that summarizes the following:

- i) It must summarize all direct integrity tests above the control limit; and
- ii) If applicable, it must summarize any turbidity or alternative Agency-approved indirect integrity monitoring results triggering direct integrity testing and the corrective action that was taken.

- 11) A supplier that uses the second stage filtration toolbox option must submit monthly verification within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in Section 611.1013, that 100% of flow was filtered through both stages and that first stage was preceded by coagulation step.
- 12) A supplier that uses the slow sand filtration (as secondary filter) toolbox option must submit monthly verification within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in Section 611.1013, that both a slow sand filter and a preceding separate stage of filtration treated 100% of flow from Subpart B sources.
- 13) A supplier that uses the chlorine dioxide toolbox option must submit a monthly summary of CT values for each day within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in Section 611.1013, as described in Section 611.1020.
- 14) A supplier that uses the ozone toolbox option must submit a monthly summary of CT values for each day within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in Section 611.1013, as described in Section 611.1020.
- 15) A supplier that uses the UV toolbox option must submit the following information on the indicated schedule:
 - A) Validation test results no later than the applicable treatment compliance date in Section 611.1013, that demonstrate operating conditions that achieve required UV dose.

- B) A monthly report summarizing the percentage of water entering the distribution system that was not treated by UV reactors operating within validated conditions for the required dose within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in Section 611.1013, as specified in Section 611.1020(d).

BOARD NOTE: Derived from 40 CFR 141.721 (2016)(2006).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.1023 Requirements to Respond to Significant Deficiencies Identified in Sanitary Surveys Performed by USEPA or the Agency

- a) A "sanitary survey" is an onsite review of the water source (identifying sources of contamination by using results of source water assessments where available), facilities, equipment, operation, maintenance, and monitoring compliance of a PWS to evaluate the adequacy of the PWS, its sources and operations, and the distribution of safe drinking water.
- b) For the purposes of this Section, a "significant deficiency" includes a defect in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution supplier that USEPA or the Agency determines to be causing, or has the potential for causing, the introduction of contamination into the water delivered to consumers.
- c) For sanitary surveys performed by USEPA or the Agency, the supplier must respond in writing to significant deficiencies identified in sanitary survey reports no later than 45 days after receipt of the report, indicating how and on what schedule the supplier will address significant deficiencies noted in the survey.
- d) A supplier must correct significant deficiencies identified in sanitary survey reports according to the schedule approved by USEPA or the Agency, or if there is no approved schedule, according to the schedule reported pursuant to subsection (c) of this Section if such deficiencies are within the control of the supplier.

BOARD NOTE: Derived from 40 CFR 141.723 (2016)(2006).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

SUBPART AA: REVISED TOTAL COLIFORM RULE

23542 **Section 611.1051 General**

- 23543
- 23544 a) General. The provisions of this Subpart AA include both MCL and treatment
- 23545 technique requirements.
- 23546
- 23547 b) Applicability. The provisions of this Subpart AA apply to all PWSs.
- 23548
- 23549 c) This subsection (c) corresponds with 40 CFR 141.851(c), which includes a past
- 23550 compliance date. This statement maintains structural consistency with the federal
- 23551 regulations. ~~Compliance date. Systems must comply with the provisions of this~~
- 23552 ~~Subpart AA beginning April 1, 2016, unless otherwise specified in this Subpart~~
- 23553 ~~AA.~~
- 23554
- 23555 d) This subsection (d) corresponds with 40 CFR 141.851(d), a provision that pertains
- 23556 to USEPA implementation, which is not necessary in the Illinois regulations.
- 23557 This statement maintains structural consistency with the federal regulations.
- 23558
- 23559 e) Violations of NPDWRs. Failure to comply with the applicable requirements of
- 23560 Sections 611.1051 through 611.1061, including requirements established by the
- 23561 State pursuant to these provisions, is a violation of the NPDWRs in this Subpart
- 23562 AA.
- 23563

23564 BOARD NOTE: Derived from 40 CFR 141.851 (2016)~~(2013)~~.

23565 (Source: Amended at 41 Ill. Reg. _____, effective _____)

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23568 **Section 611.1052 Analytical Methods and Laboratory Certification**

- 23569
- 23570 a) Analytical methodology.
- 23571
- 23572 1) The standard sample volume required for analysis, regardless of analytical
- 23573 method used, is 100 mL.
- 23574
- 23575 2) A supplier needs only determine the presence or absence of total coliforms
- 23576 and E. coli; a determination of density is not required.
- 23577
- 23578 3) The time from sample collection to initiation of test medium incubation
- 23579 may not exceed 30 hours. Suppliers are encouraged but not required to
- 23580 hold samples below 10° C during transit.
- 23581
- 23582 4) If water having residual chlorine (measured as free, combined, or total
- 23583 chlorine) is to be analyzed, sufficient sodium thiosulfate (Na₂S₂O₃) must
- 23584 be added to the sample bottle before sterilization to neutralize any residual

chlorine in the water sample. Dechlorination procedures are addressed in section 2 of Standard Methods, 20th or 21st ed., Method 9060 A, each incorporated by reference in Section 611.102.

- 5) The supplier must conduct total coliform and E. coli analyses in accordance with one of the following analytical methods, each incorporated by reference in Section 611.102:

BOARD NOTE: All monitoring and analyses must be done in accordance with the version of the approved method recited in this subsection (a) and incorporated by reference in Section 611.102. The methods listed are the only versions that may be used for compliance with this Subpart AA. Laboratories should be careful to use only the approved versions of the methods, as product package inserts may not be the same as the approved versions of the methods.

A) Total coliforms, lactose fermentation methods:

- i) Standard total coliform fermentation technique: sections 1 and 2 of Standard Methods, 20th, 21st, or 22nd ed., Method 9221 B; or

BOARD NOTE: Lactose broth, as commercially available, may be used in lieu of lauryl tryptose broth, if the supplier conducts at least 25 parallel tests between lactose broth and lauryl tryptose broth using the water normally tested, and if the findings from this comparison demonstrate that the false-positive rate and false-negative rate for total coliforms, using lactose broth, is less than 10 percent. Because Standard Methods, 21st ed., Method 9221 B is the same version as Standard Methods Online 9221 B-99, the Board has not listed the Standard Methods Online version separately.

- ii) Presence-absence (P-A) coliform test: sections 1 and 2 of Standard Methods, 20th or 21st, Method 9221 D.

BOARD NOTE: A multiple tube enumerative format, as described in Standard Methods, 20th or 21st, Method 9221 D, is approved for this method for use in presence-absence determination under this Subpart AA. Because Standard Methods, 21st ed., Method 9221 D is the same version as

23627 Standard Methods Online 9221 D-99, the Board has not
23628 listed the Standard Methods Online version separately.
23629

23630 BOARD NOTE: USEPA added sections 1 and 2 of Standard
23631 Methods Online, Method 9221 B-06 as an approved alternative
23632 method for total coliforms in appendix A to subpart C of 40 CFR
23633 144 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard
23634 Methods, 22nd ed., Method 9221 B is the same version as Standard
23635 Methods Online, Method 9221 B-06, the Board has not listed the
23636 Standard Methods Online versions separately.
23637

23638 B) Total coliforms, membrane filtration methods:
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23640 i) Standard total coliform membrane filter procedure:
23641 Standard Methods, 20th or 21st ed., Method 9222 B or C.
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23643 BOARD NOTE: Because Standard Methods, 20th ed.,
23644 Methods 9222 B and C are the same version as Standard
23645 Methods Online 9222 B and C-97, the Board has not listed
23646 the Standard Methods Online version separately.
23647

23648 ii) Membrane filtration using MI medium: USEPA Method
23649 1604.
23650

23651 iii) m-ColiBlue24[®] Test.
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23653 BOARD NOTE: All filtration series must begin with
23654 membrane filtration equipment that has been sterilized by
23655 autoclaving. Exposure of filtration equipment to UV light is
23656 not adequate to ensure sterilization. Subsequent to the
23657 initial autoclaving, exposure of the filtration equipment to
23658 UV light may be used to sanitize the funnels between
23659 filtrations within a filtration series. Alternatively,
23660 membrane filtration equipment that is pre-sterilized by the
23661 manufacturer (i.e., disposable funnel units) may be used.
23662

23663 iv) Chromocult[®] Method.
23664

23665 BOARD NOTE: All filtration series must begin with
23666 membrane filtration equipment that has been sterilized by
23667 autoclaving. Exposure of filtration equipment to UV light is
23668 not adequate to ensure sterilization. Subsequent to the
23669 initial autoclaving, exposure of the filtration equipment to

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UV light may be used to sanitize the funnels between filtrations within a filtration series. Alternatively, membrane filtration equipment that is pre-sterilized by the manufacturer (i.e., disposable funnel units) may be used.

C) Total coliforms, enzyme substrate methods:

- i) Colilert® Test: Standard Methods, 20th, 21st, or 22nd ed., Method 9223 B;

BOARD NOTE: Multiple-tube and multi-well enumerative formats for this method are approved for use in presence-absence determination under this Subpart AA.

- ii) Colilert-18® Test: Standard Methods, 20th, 21st, or 22nd ed., Method 9223 B;

- iii) Colisure™ Test: Standard Methods, 20th, 21st, or 22nd ed., Method 9223 B;

BOARD NOTE: Multiple-tube and multi-well enumerative formats for this method are approved for use in presence-absence determination under this Subpart AA. Colisure™ Test results may be read after an incubation time of 24 hours. Because Standard Methods, 20th ed., Method 9223 B is the same version as Standard Methods Online 9223 B-97, the Board has not listed the Standard Methods Online version separately.

- iv) E*Colite® Test;
- v) ReadyCult® 2007 Test;
- vi) Modified Colitag™ Test; or
- vii) Tecta EC/TC P-A Test.

BOARD NOTE: USEPA added Standard Methods Online, Method 9223 B-04, Colilert-18® Test, and Tecta EC/TC P-A Test as approved alternative methods for total coliforms in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 9223 B is the same version as Standard Methods Online, Method 9223 B-04,

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the Board has not listed the Standard Methods Online versions separately.

- D) E. coli (following lactose fermentation methods), EC-MUG medium: section 1 of Standard Methods, 20th or ~~21st ed., or~~ 22nd ed., Method 9221 F.

BOARD NOTE: USEPA added section 1 of Standard Methods Online, Method 9221 F-06 as an approved alternative method for E. coli in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 9221 F is the same version as Standard Methods Online, Method 9221 F-06, the Board has not listed the Standard Methods Online versions separately.

- E) E. coli, partition method:

- i) EC broth with MUG (EC-MUG): section 1.c(2) of Standard Methods, 20th or 21st ed., Method 9222 G; or

BOARD NOTE: The following changes must be made to the EC broth with MUG (EC-MUG) formulation: potassium dihydrogen phosphate (KH₂PO₄) must be 1.5 g, and 4-methylumbelliferyl-β-D-glucuronide must be 0.05 g.

- ii) NA-MUG medium: section 1.c(1) of Standard Methods, 20th or 21st ed., Method 9222 G.

- F) E. coli, membrane filtration methods:

- i) Membrane filtration using MI medium: USEPA Method 1604.

- ii) m-ColiBlue24[®] Test.

BOARD NOTE: All filtration series must begin with membrane filtration equipment that has been sterilized by autoclaving. Exposure of filtration equipment to UV light is not adequate to ensure sterilization. Subsequent to the initial autoclaving, exposure of the filtration equipment to UV light may be used to sanitize the funnels between filtrations within a filtration series. Alternatively,

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membrane filtration equipment that is pre-sterilized by the manufacturer (i.e., disposable funnel units) may be used.

iii) Chromocult[®] Method.

BOARD NOTE: All filtration series must begin with membrane filtration equipment that has been sterilized by autoclaving. Exposure of filtration equipment to UV light is not adequate to ensure sterilization. Subsequent to the initial autoclaving, exposure of the filtration equipment to UV light may be used to sanitize the funnels between filtrations within a filtration series. Alternatively, membrane filtration equipment that is pre-sterilized by the manufacturer (i.e., disposable funnel units) may be used.

G) E. coli, enzyme substrate methods:

i) Colilert[®] Test: Standard Methods, 20th, 21st, or 22nd ed., Method 9223 B;

BOARD NOTE: Multiple-tube and multi-well enumerative formats for this method are approved for use in presence-absence determination under this Subpart AA. Because Standard Methods, 20th ed., Method 9223 B is the same version as Standard Methods Online 9223 B-97, the Board has not listed the Standard Methods Online version separately.

ii) Colilert-18[®] Test: Standard Methods, 20th, 21st, or 22nd ed., Method 9223 B;

iii) Colisure[™]: Standard Methods, 20th, 21st, or 22nd ed., Method 9223 B;

BOARD NOTE: Multiple-tube and multi-well enumerative formats for this method are approved for use in presence-absence determination under this Subpart AA. Colisure[™] results may be read after an incubation time of 24 hours. Because Standard Methods, 20th ed., Method 9223 B is the same version as Standard Methods Online 9223 B-97, the Board has not listed the Standard Methods Online version separately.

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- iv) E*Colite® Test;
- v) ReadyCult® 2007 Test;
- vi) Modified Colitag™ Test; or
- vii) Tecta EC/TC P-A Test.

BOARD NOTE: USEPA added ~~of~~ Standard Methods, 22nd ed., ~~Method~~Methods 9221 B (sections 1 and 2) and 9223 B as an approved alternative ~~method~~methods for total coliforms and Standard Methods, 22nd ed., Methods 9221 F (section 1) and 9223 B for as approved alternative methods for E. coli in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA added Standard Methods Online, Method 9223 B-04, Colilert-18® Test, and Tecta EC/TC P-A Test as approved alternative methods for E. coli in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 9223 B is the same version as Standard Methods Online, Method 9223 B-04, the Board has not listed the Standard Methods Online versions separately.

- b) Laboratory certification. A supplier must have all compliance samples required by this Subpart AA analyzed by a certified laboratory in one of the categories listed in Section 611.490(a). The laboratory used by the supplier must be certified for each method (and associated contaminants) that is used for compliance monitoring analyses under this Subpart AA.
- c) This subsection (c) corresponds with 40 CFR 141.1052(c), which is a centralized listing of incorporations by reference for the purposes of subpart Y to 40 CFR 141. The Board has centrally located all incorporations by reference in Section 611.102. This statement maintains structural consistency with the federal rules.

BOARD NOTE: Derived from 40 CFR 141.852 and appendix A to subpart C of 40 CFR 141 (2016)(2014).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.1053 General Monitoring Requirements for all PWSs

- a) Sample siting plans.

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- 1) A supplier must develop a written sample siting plan that identifies sampling sites and a sample collection schedule that are representative of water throughout the distribution system ~~not later than March 31, 2016~~. These plans are subject to Agency review and revision. The supplier must collect total coliform samples according to the written sample siting plan. Monitoring required by Sections 611.1054 through 611.1058 may take place at a customer's premises, a dedicated sampling station, or another designated compliance sampling location. Routine and repeat sample sites and any sampling points necessary to meet the requirements of Subpart S of this Part must be reflected in the sampling plan.
 - 2) A supplier must collect samples at regular time intervals throughout the month, except that systems that use only ground water and serve 4,900 or fewer people may collect all required samples on a single day if they are taken from different sites.
 - 3) A supplier must take at least the minimum number of required samples even if the system has had an E. coli MCL violation or has exceeded the coliform treatment technique triggers in Section 611.1059(a).
 - 4) A supplier may conduct more compliance monitoring than is required by this Subpart AA to investigate potential problems in the distribution system and use monitoring as a tool to assist in uncovering problems. A supplier may take more than the minimum number of required routine samples and must include the results in calculating whether the coliform treatment technique trigger in Section 611.1059(a)(1)(A) and (a)(1)(B) has been exceeded only if the samples are taken in accordance with the existing sample siting plan and are representative of water throughout the distribution system.
 - 5) A supplier must identify repeat monitoring locations in the sample siting plan. Unless the provisions of ~~subsection~~ subsections (a)(5)(A) or (a)(5)(B) ~~of this Section~~ are met, the supplier must collect at least one repeat sample from the sampling tap where the original total coliform-positive sample was taken, and at least one repeat sample at a tap within five service connections upstream and at least one repeat sample at a tap within five service connections downstream of the original sampling site. If a total coliform-positive sample is at the end of the distribution system, or one service connection away from the end of the distribution system, the supplier must still take all required repeat samples. However, the Agency may grant a SEP pursuant to Section 611.110 that allows an alternative sampling location in lieu of the requirement to collect at least one repeat sample upstream or downstream of the original sampling site.

23883 Except as provided for in subsection (a)(5)(B) of this Section, a supplier
23884 required to conduct triggered source water monitoring pursuant to Section
23885 611.802(a) must take ground water source samples in addition to repeat
23886 samples required under this Subpart AA.
23887

23888 A) A supplier may propose repeat monitoring locations to the Agency
23889 that the supplier believes to be representative of a pathway for
23890 contamination of the distribution system. A supplier may elect to
23891 specify either alternative fixed locations or criteria for selecting
23892 repeat sampling sites on a situational basis in a standard operating
23893 procedure (SOP) in its sample siting plan. The supplier must
23894 design its SOP to focus the repeat samples at locations that best
23895 verify and determine the extent of potential contamination of the
23896 distribution system area based on specific situations. The Agency
23897 may, by a SEP issued pursuant to Section 611.110, modify the
23898 SOP or require alternative monitoring locations as the Agency
23899 determines is necessary.
23900

23901 B) A GWS supplier that serves 1,000 or fewer people may propose
23902 repeat sampling locations to the Agency that differentiate potential
23903 source water and distribution system contamination (e.g., by
23904 sampling at entry points to the distribution system). A GWS
23905 supplier that has a single well and which is required to conduct
23906 triggered source water monitoring may, as allowed by a SEP
23907 issued pursuant to Section 611.110, take one of its repeat samples
23908 at the monitoring location required for triggered source water
23909 monitoring pursuant to Section 611.802(a). The supplier must
23910 justify an Agency determination that the sample siting plan
23911 remains representative of water quality in the distribution system.
23912 If approved by a SEP issued pursuant to Section 611.110, the
23913 supplier may use that sample result to meet the monitoring
23914 requirements in both Section 611.802(a) and this Section.
23915

23916 i) If a repeat sample taken at the monitoring location required
23917 for triggered source water monitoring is E. coli-positive,
23918 the supplier has violated the E. coli MCL and must also
23919 comply with Section 611.802(a)(3). If a supplier takes
23920 more than one repeat sample at the monitoring location
23921 required for triggered source water monitoring, the supplier
23922 may reduce the number of additional source water samples
23923 required under Section 611.802(a)(3) by the number of
23924 repeat samples taken at that location that were not E. coli-
23925 positive.

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- ii) If a supplier takes more than one repeat sample at the monitoring location required for triggered source water monitoring under Section 611.802(a), and more than one repeat sample is E. coli-positive, the supplier has violated the E. coli MCL and must also comply with Section 611.803(a)(1).
 - iii) If all repeat samples taken at the monitoring location required for triggered source water monitoring are E. coli-negative and a repeat sample taken at a monitoring location other than the one required for triggered source water monitoring is E. coli-positive, the supplier has violated the E. coli MCL, but is not required to comply with Section 611.802(a)(3).
- 6) The Agency may, by a SEP issued pursuant to Section 611.110, review, revise, and approve, as appropriate, repeat sampling proposed by a supplier pursuant to subsections (a)(5)(A) and (a)(5)(B) of this Section. The supplier must justify an Agency determination that the sample siting plan remains representative of the water quality in the distribution system. The Agency may determine that monitoring at the entry point to the distribution system (especially for undisinfected ground water systems) is effective to differentiate between potential source water and distribution system problems.
- b) Special purpose samples. Special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, must not be used to determine whether the coliform treatment technique trigger has been exceeded. Repeat samples taken pursuant to Section 611.1058 are not considered special purpose samples, and must be used to determine whether the coliform treatment technique trigger has been exceeded.
- c) Invalidation of total coliform samples. A total coliform-positive sample invalidated under this subsection (c) does not count toward meeting the minimum monitoring requirements of this Subpart AA.
 - 1) The Agency may, by a SEP issued pursuant to Section 611.110, invalidate a total coliform-positive sample only if the conditions of subsection (c)(1)(A), (c)(1)(B), or (c)(1)(C) of this Section are met.
 - A) The laboratory establishes that improper sample analysis caused the total coliform-positive result.

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- B) The Agency, on the basis of the results of repeat samples collected as required under Section 611.1058(a), determines that the total coliform-positive sample resulted from a domestic or other non-distribution system plumbing problem. The Agency cannot invalidate a sample on the basis of repeat sample results unless all repeat samples collected at the same tap as the original total coliform-positive sample are also total coliform-positive, and all repeat samples collected at a location other than the original tap are total coliform-negative (e.g., a Agency cannot invalidate a total coliform-positive sample on the basis of repeat samples if all the repeat samples are total coliform-negative, or if the system has only one service connection).

 - C) The Agency has substantial grounds to believe that a total coliform-positive result is due to a circumstance or condition that does not reflect water quality in the distribution system. In this case, the system must still collect all repeat samples required under Section 611.1058(a), and use them to determine whether a coliform treatment technique trigger in Section 611.1059 has been exceeded. To invalidate a total coliform-positive sample under this subsection (c)(1), the decision and supporting rationale must be documented in writing and approved and signed by the Agency, as a SEP issued pursuant to Section 611.110. The Agency must make this document available to USEPA and the public. The written documentation must state the specific cause of the total coliform-positive sample, and what action the supplier has taken, or will take, to correct this problem. The Agency may not invalidate a total coliform-positive sample solely on the grounds that all repeat samples are total coliform-negative.
- 2) A laboratory must invalidate a total coliform sample (unless total coliforms are detected) if the sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined (e.g., the multiple-tube fermentation technique), produces a turbid culture in the absence of an acid reaction in the presence-absence (P-A) coliform test, or exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter (e.g., membrane filter technique). If a laboratory invalidates a sample because of such interference, the supplier must collect another sample from the same location as the original sample within 24 hours ~~after~~ being notified of the interference problem, and have it analyzed for the presence of total coliforms. The supplier must continue to re-sample

24012 within 24 hours and have the samples analyzed until it obtains a valid
24013 result. The Agency may, by a SEP issued pursuant to Section 611.110,
24014 waive the 24-hour time limit on a case-by-case basis. Alternatively, the
24015 Agency or any interested person may file a petition for rulemaking,
24016 pursuant to Sections 27 and 28 of the Act [415 ILCS 5/27 and 28], to
24017 establish criteria for waiving the 24-hour sampling time limit to use in lieu
24018 of case-by-case extensions.
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24020 BOARD NOTE: Derived from 40 CFR 141.853 (2016)(2013).

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24022 (Source: Amended at 41 Ill. Reg. _____, effective _____)
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24024 **Section 611.1054 Routine Monitoring Requirements for Non-CWSs That Serve 1,000 or**
24025 **Fewer People Using Only Groundwater**
24026

24027 a) General.
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- 24029 1) This Section applies to non-CWS suppliers that use only groundwater
24030 (except groundwater under the direct influence of surface water, as
24031 defined in Section 611.102) and which serve 1,000 or fewer people.
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- 24033 2) Following any total coliform-positive sample taken pursuant to this
24034 Section, a supplier must comply with the repeat monitoring requirements
24035 and E. coli analytical requirements in Section 611.1058.
24036
- 24037 3) Once all monitoring required by this Section and Section 611.1058 for a
24038 calendar month has been completed, a supplier must determine whether
24039 any coliform treatment technique triggers specified in Section 611.1059
24040 have been exceeded. If any trigger has been exceeded, the supplier must
24041 complete assessments as required by Section 611.1059.
24042
- 24043 4) For the purpose of determining eligibility for remaining on or qualifying
24044 for quarterly monitoring under the provisions of subsections (f)(4) and
24045 (g)(2), respectively, ~~of this Section~~ for transient non-CWS suppliers, the
24046 Agency may elect to not count monitoring violations under Section
24047 611.1060(c)(1) if the missed sample is collected no later than the end of
24048 the monitoring period following the monitoring period in which the
24049 sample was missed. The supplier must collect the make-up sample in a
24050 different week than the routine sample for that monitoring period and
24051 should collect the sample as soon as possible during the monitoring
24052 period. The Agency may not use this provision under subsection (h) ~~of~~
24053 ~~this Section~~. This authority does not affect the provisions of Sections
24054 611.1060(c)(1) and 611.1061(a)(4) of this Part.

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- b) Monitoring frequency for total coliforms. A supplier must monitor each calendar quarter that the supplier provides water to the public, except for a seasonal system supplier or as provided under subsections (c) through (h) and (j) of this Section. A seasonal system supplier must meet the monitoring requirements of subsection (i) of this Section.

- c) Transition to this Subpart AA. The Agency must perform a special monitoring evaluation during each sanitary survey to review the status of the supplier's system, including the distribution system, to determine whether the supplier is on an appropriate monitoring schedule. After the Agency has performed the special monitoring evaluation during each sanitary survey, the Agency may modify the supplier's monitoring schedule, as the Agency determines is necessary, or the Agency may allow the supplier to stay on its existing monitoring schedule, consistent with the provisions of this Section. The Agency may not allow a supplier to begin less frequent monitoring under the special monitoring evaluation unless the supplier has already met the applicable criteria for less frequent monitoring in this Section. For a seasonal system supplier on quarterly or annual monitoring, this evaluation must include review of the approved sample siting plan, which must designate the time periods for monitoring based on site-specific considerations (e.g., during periods of highest demand or highest vulnerability to contamination). The seasonal system supplier must collect compliance samples during these time periods.
 - 1) A supplier, including a seasonal system supplier, must continue to monitor according to the total coliform monitoring schedules under Sections 611.521 through 611.527 that were in effect on March 31, 2016, unless any of the conditions for increased monitoring in subsection (f) of this Section are triggered on or after April 1, 2016, or unless otherwise directed by the Agency.

 - 2) ~~Beginning April 1, 2016, the Agency must perform a special monitoring evaluation during each sanitary survey to review the status of the supplier's system, including the distribution system, to determine whether the supplier is on an appropriate monitoring schedule. After the Agency has performed the special monitoring evaluation during each sanitary survey, the Agency may modify the supplier's monitoring schedule, as the Agency determines is necessary, or the Agency may allow the supplier to stay on its existing monitoring schedule, consistent with the provisions of this Section. The Agency may not allow a supplier to begin less frequent monitoring under the special monitoring evaluation unless the supplier has already met the applicable criteria for less frequent monitoring in this Section. For a seasonal system supplier on quarterly or annual~~

~~monitoring, this evaluation must include review of the approved sample siting plan, which must designate the time periods for monitoring based on site-specific considerations (e.g., during periods of highest demand or highest vulnerability to contamination). The seasonal system supplier must collect compliance samples during these time periods.~~

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- d) Annual site visits. ~~A~~Beginning no later than calendar year 2017, a supplier on annual monitoring, including a seasonal system supplier, must have an initial and recurring annual site visit by the Agency that is equivalent to a Level 2 assessment or an annual voluntary Level 2 assessment that meets the criteria in Section 611.1059(b) to remain on annual monitoring. The periodic required sanitary survey may be used to meet the requirement for an annual site visit for the year in which the sanitary survey was completed.

- e) Criteria for annual monitoring. ~~The~~Beginning April 1, 2016, the Agency may, by a SEP issued pursuant to Section 611.110, reduce the monitoring frequency for a well-operated GWS supplier from quarterly routine monitoring to no less than annual monitoring, if the supplier demonstrates that it meets the criteria for reduced monitoring in subsections (e)(1) through (e)(3) ~~of this Section~~, except for a supplier that has been on increased monitoring under the provisions of subsection (f) ~~of this Section~~. A supplier on increased monitoring under subsection (f) ~~of this Section~~ must meet the provisions of subsection (g) ~~of this Section~~ to go to quarterly monitoring and must meet the provisions of subsection (h) ~~of this Section~~ to go to annual monitoring.
 - 1) The supplier's system has a clean compliance history for a minimum of 12 months;
 - 2) The most recent sanitary survey shows that the supplier's system is free of sanitary defects or has corrected all identified sanitary defects, has a protected water source, and meets Agency-approved construction standards; and
 - 3) The Agency has conducted an annual site visit within the last 12 months, and the supplier has corrected all identified sanitary defects. The supplier may substitute a Level 2 assessment that meets the criteria in Section 611.1059(b) for the Agency annual site visit.

- f) Increased monitoring requirements for suppliers on quarterly or annual monitoring. A supplier on quarterly or annual monitoring that experiences any of the events identified in subsections (f)(1) through (f)(4) ~~of this Section~~ must begin monthly monitoring the month following the event. A supplier on annual monitoring that experiences the event identified in subsections (f)(5) ~~of this~~

- 24141 Section must begin quarterly monitoring the quarter following the event. The
 24142 supplier must continue monthly or quarterly monitoring until the requirements in
 24143 subsection (g) of this Section for quarterly monitoring or subsection (h) of this
 24144 Section for annual monitoring are met. A supplier on monthly monitoring for
 24145 reasons other than those identified in subsections (f)(1) through (f)(4) of this
 24146 Section is not considered to be on increased monitoring for the purposes of
 24147 subsections (g) and (h) of this Section.
 24148
 24149 1) The supplier's system triggers a Level 2 assessment or two Level 1
 24150 assessments under the provisions of Section 611.1059 in a rolling 12-
 24151 month period.
 24152
 24153 2) The supplier's system has an E. coli MCL violation.
 24154
 24155 3) The supplier's system has a coliform treatment technique violation.
 24156
 24157 4) The supplier's system has two Subpart AA monitoring violations or one
 24158 Subpart AA monitoring violation and one Level 1 assessment under the
 24159 provisions of Section 611.1059 in a rolling 12-month period for a system
 24160 on quarterly monitoring.
 24161
 24162 5) The supplier's system has one Subpart AA monitoring violation for a
 24163 system on annual monitoring.
 24164
 24165 g) Requirements for returning to quarterly monitoring. The Agency may, by a SEP
 24166 issued pursuant to Section 611.110, reduce the monitoring frequency for a
 24167 supplier on monthly monitoring triggered under subsection (f) of this Section to
 24168 quarterly monitoring if the supplier's system meets the criteria in subsections
 24169 (g)(1) and (g)(2) of this Section.
 24170
 24171 1) Within the last 12 months, the supplier must have a completed sanitary
 24172 survey or a site visit of its system by the Agency or a voluntary Level 2
 24173 assessment of its system by a party approved by the Agency, the supplier's
 24174 system must be free of sanitary defects, and the supplier's system must
 24175 have a protected water source; and
 24176
 24177 2) The supplier's system must have a clean compliance history for a
 24178 minimum of 12 months.
 24179
 24180 h) Requirements for a supplier on increased monitoring to qualify for annual
 24181 monitoring. The Agency may, by a SEP issued pursuant to Section 611.110,
 24182 reduce the monitoring frequency for a supplier on increased monitoring under
 24183 subsection (f) of this Section if the supplier's system meets the criteria in

24184 subsection (g) of this Section and the criteria in subsections (h)(1) and (h)(2) of
24185 this Section.
24186

24187 1) An annual site visit by the Agency and correction of all identified sanitary
24188 defects. The supplier may substitute a voluntary Level 2 assessment by a
24189 party approved by the Agency for the Agency annual site visit in any
24190 given year.
24191

24192 2) The supplier must have in place or adopt one or more of the following
24193 additional enhancements to the water system barriers to contamination:
24194

24195 A) Cross connection control, as approved by the Agency.
24196

24197 B) An operator certified by an appropriate Agency certification
24198 program or regular visits by a circuit rider certified by an
24199 appropriate Agency certification program.
24200

24201 C) Continuous disinfection entering the distribution system and a
24202 residual in the distribution system in accordance with criteria
24203 specified by the Agency.
24204

24205 D) Demonstration of maintenance of at least a four-log removal or
24206 inactivation of viruses as provided for under Section
24207 141.403(b)(3).
24208

24209 E) Other equivalent enhancements to water system barriers as
24210 approved by the State.
24211

24212 i) Seasonal systems.
24213

24214 1) ~~All Beginning April 1, 2016,~~ all seasonal system suppliers must
24215 demonstrate completion of an Agency-approved start-up procedure, which
24216 may include a requirement for startup sampling prior to serving water to
24217 the public.
24218

24219 2) A seasonal system supplier must monitor every month that it is in
24220 operation unless it meets the criteria in subsections (i)(2)(i) through (iii) of
24221 this Section to be eligible for monitoring less frequently than monthly
24222 ~~beginning April 1, 2016,~~ except as provided under subsection (c) of this
24223 Section.
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24225 A) Seasonal a system supplier monitoring less frequently than
24226 monthly must have an approved sample siting plan that designates

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the time period for monitoring based on site-specific considerations (e.g., during periods of highest demand or highest vulnerability to contamination). A seasonal system supplier must collect compliance samples during this time period.

B) To be eligible for quarterly monitoring, the supplier must meet the criteria in subsection (g) ~~of this Section~~.

C) To be eligible for annual monitoring, the supplier must meet the criteria under subsection (h) ~~of this Section~~.

3) The Agency may, by a SEP issued pursuant to Section 611.110, exempt any seasonal system supplier from some or all of the requirements for seasonal system suppliers if the entire distribution system remains pressurized during the entire period that the supplier's system is not operating, except that a supplier that monitors less frequently than monthly must still monitor during the vulnerable period designated by the Agency.

j) Additional routine monitoring the month following a total coliform-positive sample. A supplier that collects samples on a quarterly or annual frequency must conduct additional routine monitoring the month following one or more total coliform-positive samples (with or without a Level 1 treatment technique trigger). The supplier must collect at least three routine samples during the next month, except that the Agency may, by a SEP issued pursuant to Section 611.110, waive this requirement if the conditions of subsection (j)(1), (j)(2), or (j)(3) ~~of this Section~~ are met. The supplier may either collect samples at regular time intervals throughout the month or may collect all required routine samples on a single day if samples are taken from different sites. The supplier must use the results of additional routine samples in coliform treatment technique trigger calculations under Section 611.1059(a).

1) The Agency may, by a SEP issued pursuant to Section 611.110, waive the requirement to collect three routine samples the next month in which the supplier provides water to the public if the Agency, or an agent approved by the Agency, performs a site visit before the end of the next month in which the supplier's system provides water to the public. Although a sanitary survey need not be performed, the site visit must be sufficiently detailed to allow the Agency to determine whether additional monitoring or any corrective action is needed. The Agency cannot approve an employee of the supplier to perform this site visit, even if the employee is an agent approved by the Agency to perform sanitary surveys.

- 24270 2) The Agency may, by a SEP issued pursuant to Section 611.110, waive the
24271 requirement to collect three routine samples the next month in which the
24272 supplier provides water to the public if the Agency has determined why
24273 the sample was total coliform-positive and has established that the supplier
24274 has corrected the problem or will correct the problem before the end of the
24275 next month in which the supplier's system serves water to the public. In
24276 this case, the Agency must document this decision to waive the following
24277 month's additional monitoring requirement in writing, have it approved
24278 and signed by the supervisor of the Agency official who recommends such
24279 a decision, and make this document available to USEPA and public. The
24280 written documentation must describe the specific cause of the total
24281 coliform-positive sample and what action the supplier has taken or will
24282 take to correct this problem.
24283
- 24284 3) The Agency may not waive the requirement to collect three additional
24285 routine samples the next month in which the supplier's system provides
24286 water to the public solely on the grounds that all repeat samples are total
24287 coliform-negative. If the Agency determines that the supplier has
24288 corrected the contamination problem before the supplier takes the set of
24289 repeat samples required in Section 611.1058, and all repeat samples were
24290 total coliform-negative, the Agency may, by a SEP issued pursuant to
24291 Section 611.110, waive the requirement for additional routine monitoring
24292 the next month.
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24294 BOARD NOTE: Derived from 40 CFR 141.854 (2016)(~~2013~~).

24295 (Source: Amended at 41 Ill. Reg. _____, effective _____)

24296 **Section 611.1055 Routine Monitoring Requirements for CWSs That Serve 1,000 or Fewer**
24297 **People Using Only Groundwater**

- 24300 a) General.
- 24301 1) This Section applies to CWS suppliers that use only ground water (except
24302 ground water under the direct influence of surface water, as defined in
24303 Section 611.102) and which serve 1,000 or fewer people.
24304
- 24305 2) Following any total coliform-positive sample taken under the provisions
24306 of this Section, the supplier must comply with the repeat monitoring
24307 requirements and E. coli analytical requirements in Section 611.1058.
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- 24309 3) Once all monitoring required by this Section and Section 611.1058 for a
24310 calendar month has been completed, the supplier must determine whether
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any coliform treatment technique triggers specified in Section 611.1059 have been exceeded. If any trigger has been exceeded, the supplier must complete assessments as required by Section 611.1059.

b) Monitoring frequency for total coliforms. The monitoring frequency for total coliforms is one sample per month, except as provided for under subsections (c) through (f) of this Section.

c) Transition to Subpart AA. The Agency must perform a special monitoring evaluation during each sanitary survey to review the status of the supplier's system, including the distribution system, to determine whether the system is on an appropriate monitoring schedule. After the Agency has performed the special monitoring evaluation during each sanitary survey, the Agency may, by a SEP issued pursuant to Section 611.110, modify the supplier's monitoring schedule, as necessary. Alternatively, the Agency may allow the supplier to stay on its existing monitoring schedule, consistent with the provisions of this Section. The Agency may not allow a supplier to begin less frequent monitoring under the special monitoring evaluation unless the supplier has already met the applicable criteria for less frequent monitoring in this Section.

1) ~~A supplier must continue to monitor according to the total coliform monitoring schedules under Sections 611.521 through 611.527 that were in effect on March 31, 2016, unless any of the conditions in subsection (e) of this Section are triggered on or after April 1, 2016, or unless otherwise directed by the Agency, by a SEP issued pursuant to Section 611.110.~~

2) ~~Beginning April 1, 2016, the Agency must perform a special monitoring evaluation during each sanitary survey to review the status of the supplier's system, including the distribution system, to determine whether the system is on an appropriate monitoring schedule. After the Agency has performed the special monitoring evaluation during each sanitary survey, the Agency may, by a SEP issued pursuant to Section 611.110, modify the supplier's monitoring schedule, as necessary. Alternatively, the Agency may allow the supplier to stay on its existing monitoring schedule, consistent with the provisions of this Section. The Agency may not allow a supplier to begin less frequent monitoring under the special monitoring evaluation unless the supplier has already met the applicable criteria for less frequent monitoring in this Section.~~

d) Criteria for reduced monitoring.

1) The Agency may, by a SEP issued pursuant to Section 611.110, reduce the monitoring frequency from monthly monitoring to no less than quarterly

24356 monitoring if the supplier is in compliance with Agency-certified operator
24357 provisions and demonstrates that it meets the criteria in subsections
24358 (d)(1)(A) through (d)(1)(C) of this Section. A supplier that loses its
24359 certified operator must return to monthly monitoring the month following
24360 that loss.
24361

- 24362 A) The supplier has a clean compliance history for a minimum of 12
24363 months.
24364
- 24365 B) The most recent sanitary survey shows the supplier is free of
24366 sanitary defects (or has an approved plan and schedule to correct
24367 them and is in compliance with the plan and the schedule), has a
24368 protected water source, and meets Agency-approved construction
24369 standards.
24370
- 24371 C) The supplier meets at least one of the following criteria:
24372
 - 24373 i) An annual site visit by the Agency that is equivalent to a
24374 Level 2 assessment or an annual Level 2 assessment by a
24375 party approved by the Agency and correction of all
24376 identified sanitary defects (or an approved plan and
24377 schedule to correct them and is in compliance with the plan
24378 and schedule).
24379
 - 24380 ii) Cross connection control, as approved by the Agency.
24381
 - 24382 iii) Continuous disinfection entering the distribution system
24383 and a residual in the distribution system in accordance with
24384 criteria specified by the Agency.
24385
 - 24386 iv) Demonstration of maintenance of at least a 4-log removal
24387 or inactivation of viruses as provided for under Section
24388 611.803(b)(3).
24389
 - 24390 v) Other equivalent enhancements to water system barriers as
24391 approved by the Agency.
24392

24393 2) This subsection (d)(2) corresponds with 40 CFR 141.855(d)(2), which
24394 USEPA has marked "reserved-". This statement maintains structural
24395 consistency with the corresponding federal provision.
24396

24397 e) Return to routine monthly monitoring requirements. A supplier on quarterly
24398 monitoring that experience any of the events in subsections (e)(1) through (e)(4)

- 24399 of this Section must begin monthly monitoring the month following the event.
24400 The supplier must continue monthly monitoring until it meets the reduced
24401 monitoring requirements in subsection (d) of this Section.
24402
- 24403 1) The supplier triggers a Level 2 assessment or two Level 1 assessments in a
24404 rolling 12-month period.
 - 24405
 - 24406 2) The supplier has an E. coli MCL violation.
24407
 - 24408 3) The supplier has a coliform treatment technique violation.
24409
 - 24410 4) The supplier has two Subpart AA monitoring violations in a rolling 12-
24411 month period.
24412
- 24413 f) Additional routine monitoring the month following a total coliform-positive
24414 sample. A supplier collecting samples on a quarterly frequency must conduct
24415 additional routine monitoring the month following one or more total coliform-
24416 positive samples (with or without a Level 1 treatment technique trigger). A
24417 supplier must collect at least three routine samples during the next month, except
24418 that the Agency may, by a SEP issued pursuant to Section 611.110, waive this
24419 requirement if the conditions of subsection (f)(1), (f)(2), or (f)(3) of this Section
24420 are met. A supplier may either collect samples at regular time intervals
24421 throughout the month or may collect all required routine samples on a single day
24422 if samples are taken from different sites. A supplier must use the results of
24423 additional routine samples in coliform treatment technique trigger calculations.
24424
- 24425 1) The Agency may, by a SEP issued pursuant to Section 611.110, waive the
24426 requirement to collect three routine samples the next month in which the
24427 supplier's system provides water to the public if the Agency, or an agent
24428 approved by the Agency, performs a site visit before the end of the next
24429 month in which the supplier's system provides water to the public.
24430 Although a sanitary survey need not be performed, the site visit must be
24431 sufficiently detailed to allow the Agency to determine whether additional
24432 monitoring or any corrective action is needed. The Agency cannot
24433 approve an employee of the supplier to perform this site visit, even if the
24434 employee is an agent approved by the Agency to perform sanitary surveys.
24435
 - 24436 2) The Agency may, by a SEP issued pursuant to Section 611.110, waive the
24437 requirement to collect three routine samples the next month in which the
24438 supplier's system provides water to the public if the Agency has
24439 determined why the sample was total coliform-positive and has
24440 established that the supplier has corrected the problem or will correct the
24441 problem before the end of the next month in which the supplier's system

24442 serves water to the public. In this case, the Agency must document this
24443 decision to waive the following month's additional monitoring
24444 requirement in writing, have it approved and signed by the supervisor of
24445 the Agency official who recommends such a decision, and make this
24446 document available to USEPA and the public. The written documentation
24447 must describe the specific cause of the total coliform-positive sample and
24448 what action the supplier has taken or will take to correct this problem.
24449

- 24450 3) The Agency may not waive the requirement to collect three additional
24451 routine samples the next month in which the supplier's system provides
24452 water to the public solely on the grounds that all repeat samples are total
24453 coliform-negative. If the Agency determines that the supplier has
24454 corrected the contamination problem before the supplier takes the set of
24455 repeat samples required in Section 611.1058, and all repeat samples were
24456 total coliform-negative, the Agency may, by a SEP issued pursuant to
24457 Section 611.110, waive the requirement for additional routine monitoring
24458 the next month.
24459

24460 BOARD NOTE: Derived from 40 CFR 141.855 (2016)~~(2014)~~.

24461 (Source: Amended at 41 Ill. Reg. _____, effective _____)
24462

24463
24464 **Section 611.1056 Routine Monitoring Requirements for Subpart B Systems That Serve**
24465 **1,000 or Fewer People**
24466

24467 a) General.
24468

- 24469 1) The provisions of this Section apply to a Subpart B system supplier that
24470 serves 1,000 or fewer people.
24471
24472 2) Following any total coliform-positive sample taken under the provisions
24473 of this Section, a supplier must comply with the repeat monitoring
24474 requirements and E. coli analytical requirements in Section 611.1058.
24475
24476 3) Once all monitoring required by this Section and Section 611.1058 for a
24477 calendar month has been completed, a supplier must determine whether
24478 any coliform treatment technique triggers specified in Section 611.1059
24479 have been exceeded. If any trigger has been exceeded, the supplier must
24480 complete assessments as required by Section 611.1059.
24481
24482 4) Seasonal system suppliers.
24483

24484 A) ~~All~~Beginning April 1, 2016, all seasonal system suppliers must
24485 demonstrate completion of an Agency-approved start-up
24486 procedure, which may include a requirement for start-up sampling
24487 prior to serving water to the public.

24488
24489 B) The Agency may, by a SEP issued pursuant to Section 611.110,
24490 exempt any seasonal system supplier from some or all of the
24491 requirements for seasonal system suppliers if the supplier's entire
24492 distribution system remains pressurized during the entire period
24493 that the supplier's system is not operating.

24494
24495 b) Routine monitoring frequency for total coliforms. A Subpart B system supplier
24496 (including a consecutive system supplier) must monitor monthly. A supplier may
24497 not reduce monitoring.

24498
24499 c) Unfiltered Subpart B system suppliers. A Subpart B system supplier that does not
24500 practice filtration in compliance with Subparts B, R, X, and Z of this Part must
24501 collect at least one total coliform sample near the first service connection each
24502 day that the turbidity level of the source water, measured as specified in Section
24503 611.532(b), exceeds 1 NTU. When one or more turbidity measurements in any
24504 day exceed 1 NTU, the supplier must collect this coliform sample within 24 hours
24505 ~~after~~of the first exceedance, unless the Agency determines that the supplier, for
24506 logistical reasons outside the supplier's control, cannot have the sample analyzed
24507 within 30 hours ~~after~~of collection, and the Agency identifies an alternative sample
24508 collection schedule. Sample results from the coliform monitoring required by this
24509 subsection (c) must be included in determining whether the coliform treatment
24510 technique trigger in Section 611.1059 has been exceeded.

24511
24512 BOARD NOTE: Derived from 40 CFR 141.856 ~~(2016)~~(2013).

24513
24514 (Source: Amended at 41 Ill. Reg. _____, effective _____)

24515
24516 **Section 611.1057 Routine Monitoring Requirements for PWSs That Serve More Than**
24517 **1,000 People**

24518
24519 a) General.

24520
24521 1) The provisions of this Section apply to public water systems serving more
24522 than 1,000 persons.

24523
24524 2) Following any total coliform-positive sample taken under the provisions
24525 of this Section, the supplier must comply with the repeat monitoring
24526 requirements and E. coli analytical requirements in Section 611.1058.

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- 3) Once all monitoring required by this Section and Section 611.1058 for a calendar month has been completed, a supplier must determine whether any coliform treatment technique triggers specified in Section 611.1059 have been exceeded. If any trigger has been exceeded, the supplier must complete assessments as required by Section 611.1059.
 - 4) Seasonal systems.
 - A) ~~Beginning April 1, 2016,~~ a seasonal system supplier must demonstrate completion of an Agency-approved start-up procedure, which may include a requirement for start-up sampling prior to serving water to the public.
 - B) The Agency may, by a SEP issued pursuant to Section 611.110, exempt any seasonal system supplier from some or all of the requirements for seasonal system suppliers if the supplier's entire distribution system remains pressurized during the entire period that the supplier's system is not operating.
 - b) Monitoring frequency for total coliforms. The monitoring frequency for total coliforms is based on the population served by the supplier's system, as follows:

TOTAL COLIFORM MONITORING FREQUENCY FOR PUBLIC
 WATER SYSTEMS SERVING MORE THAN 1,000 PEOPLE

Population served	Minimum number of samples per month
1,001 to 2,500	2
2,501 to 3,300	3
3,301 to 4,100	4
4,101 to 4,900	5
4,901 to 5,800	6
5,801 to 6,700	7
6,701 to 7,600	8
7,601 to 8,500	9

8,501 to 12,900	10
12,901 to 17,200	15
17,201 to 21,500	20
21,501 to 25,000	25
25,001 to 33,000	30
33,001 to 41,000	40
41,001 to 50,000	50
50,001 to 59,000	60
59,001 to 70,000	70
70,001 to 83,000	80
83,001 to 96,000	90
96,001 to 130,000	100
130,001 to 220,000	120
220,001 to 320,000	150
320,001 to 450,000	180
450,001 to 600,000	210
600,001 to 780,000	240
780,001 to 970,000	270
970,001 to 1,230,000	300
1,230,001 to 1,520,000	330
1,520,001 to 1,850,000	360
1,850,001 to 2,270,000	390
2,270,001 to 3,020,000	420

3,020,001 to 3,960,000	450
3,960,001 or more	480

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- c) Unfiltered Subpart B systems. A Subpart B system supplier that does not practice filtration in compliance with Subparts B, R, X, and Z of this Part must collect at least one total coliform sample near the first service connection each day that the turbidity level of the source water, measured as specified in Section 611.532(b), exceeds 1 NTU. When one or more turbidity measurements in any day exceed 1 NTU, the supplier must collect this coliform sample within 24 hours ~~after~~ of the first exceedance, unless the Agency determines that the supplier, for logistical reasons outside the supplier's control, cannot have the sample analyzed within 30 hours ~~after~~ of collection, and the Agency identifies an alternative sample collection schedule. Sample results from this coliform monitoring must be included in determining whether the coliform treatment technique trigger in Section 611.1059 has been exceeded.
 - d) Reduced monitoring. A supplier may not reduce monitoring, except for a non-CWS supplier that uses only ground water (and not ground water under the direct influence of surface water) and which serves 1,000 or fewer people in some months and more than 1,000 persons in other months. In months when more than 1,000 persons are served, the supplier must monitor at the frequency specified in subsection (a) ~~of this Section~~. In months when the supplier serves 1,000 or fewer people, the Agency may, by a SEP issued pursuant to Section 611.110, reduce the monitoring frequency, in writing, to a frequency allowed under Section 611.1054 for a similarly situated supplier that always serves 1,000 or fewer people, taking into account the provisions in Section 611.1054(e) through (g).

24578 BOARD NOTE: Derived from 40 CFR 141.857 ~~(2016)~~(2013).

24579 (Source: Amended at 41 Ill. Reg. _____, effective _____)

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24582 **Section 611.1058 Repeat Monitoring and E. coli Requirements**

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- a) Repeat monitoring.
 - 1) If a sample taken under Sections 611.1054 though 611.1057 is total coliform-positive, the supplier must collect a set of repeat samples within 24 hours ~~after~~ of being notified of the positive result. The supplier must collect no fewer than three repeat samples for each total coliform-positive sample found. The Agency may, by a SEP issued pursuant to Section 611.110, extend the 24-hour limit on a case-by-case basis if the supplier has a logistical problem in collecting the repeat samples within 24 hours

- 24593 that is beyond its control. Alternatively, the Agency may implement
24594 criteria for the supplier to use in lieu of case-by-case extensions. In the
24595 case of an extension, the Agency must specify how much time the supplier
24596 has to collect the repeat samples. The Agency cannot waive the
24597 requirement for a supplier to collect repeat samples in subsections (a)(1)
24598 through (a)(3) of this Section.
24599
- 24600 2) The supplier must collect all repeat samples on the same day, except that
24601 the Agency may, by a SEP issued pursuant to Section 611.110, allow a
24602 supplier with a single service connection to collect the required set of
24603 repeat samples over a three-day period or to collect a larger volume repeat
24604 samples in one or more sample containers of any size, as long as the total
24605 volume collected is at least 300 mL.
24606
- 24607 3) The supplier must collect an additional set of repeat samples in the manner
24608 specified in subsections (a)(1) through (a)(3) of this Section if one or more
24609 repeat samples in the current set of repeat samples is total coliform-
24610 positive. The supplier must collect the additional set of repeat samples
24611 within 24 hours after being notified of the positive result, unless the
24612 Agency extends the limit as provided in subsection (a)(1) of this Section.
24613 The supplier must continue to collect additional sets of repeat samples
24614 until either total coliforms are not detected in one complete set of repeat
24615 samples or the supplier determines that a coliform treatment technique
24616 trigger specified in Section 611.1059(a) has been exceeded as a result of a
24617 repeat sample being total coliform-positive and notifies the Agency. If a
24618 trigger identified in Section 611.1059 is exceeded as a result of a routine
24619 sample being total coliform-positive, the supplier is required to conduct
24620 only one round of repeat monitoring for each total coliform-positive
24621 routine sample.
24622
- 24623 4) After a supplier collects a routine sample and before it learns the results of
24624 the analysis of that sample, if the supplier collects another routine sample
24625 from within five adjacent service connections of the initial sample, and the
24626 initial sample, after analysis, is found to contain total coliforms, then the
24627 system may count the subsequent sample as a repeat sample instead of as a
24628 routine sample.
24629
- 24630 5) Results of all routine and repeat samples taken under Sections 611.1054
24631 through 611.1058 not invalidated by the Agency must be used to
24632 determine whether a coliform treatment technique trigger specified in
24633 Section 611.1059 has been exceeded.
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- 24635 b) Escherichia coli (E. coli) testing.

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- 1) If any routine or repeat sample is total coliform-positive, the supplier must analyze that total coliform-positive culture medium to determine if E. coli are present. If E. coli are present, the supplier must notify the Agency by the end of the day when the supplier is notified of the test result, unless the supplier is notified of the result after the Agency office is closed and the Agency does not have either an after-hours phone line or an alternative notification procedure, in which case the supplier must notify the Agency before the end of the next business day.
 - 2) The Agency has the discretion to allow a supplier, on a case-by-case basis, to forego E. coli testing on a total coliform-positive sample if that supplier assumes that the total coliform-positive sample is E. coli-positive. Accordingly, the supplier must notify the Agency as specified in subsection (b)(1) of this Section and the provisions of Section 141.63(c) apply.

BOARD NOTE: Derived from 40 CFR 141.858 (2016)(2013).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 611.1059 Coliform Treatment Technique Triggers and Assessment Requirements for Protection Against Potential Fecal Contamination

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- a) Treatment technique triggers. A supplier must conduct assessments in accordance with subsection (b) of this Section after exceeding treatment technique triggers in subsections (a)(1) and (a)(2) of this Section.
 - 1) Level 1 treatment technique triggers.
 - A) For a supplier taking 40 or more samples per month, the supplier exceeds 5.0% total coliform-positive samples for the month.
 - B) For a supplier taking fewer than 40 samples per month, the supplier has two or more total coliform-positive samples in the same month.
 - C) The supplier fails to take every required repeat sample after any single total coliform-positive sample.
 - 2) Level 2 treatment technique triggers.
 - A) An E. coli MCL violation, as specified in Section 611.1060(a).

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- B) A second Level 1 trigger as defined in subsection (a)(1) of this Section, within a rolling 12-month period, unless the Agency, by a SEP issued pursuant to Section 611.110, has determined a likely reason that the samples that caused the first Level 1 treatment technique trigger were total coliform-positive and has established that the supplier has corrected the problem.
 - C) For a supplier with approved annual monitoring, a Level 1 trigger in two consecutive years.
- b) Requirements for assessments.
- 1) A supplier must ensure that Level 1 and Level 2 assessments are conducted in order to identify the possible presence of sanitary defects and defects in distribution system coliform monitoring practices. Level 2 assessments must be conducted by parties approved by the Agency.
 - 2) When conducting assessments, the supplier must ensure that the assessor evaluates minimum elements that include review and identification of inadequacies in sample sites; sampling protocol; sample processing; atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., small ground water systems); and existing water quality monitoring data. The supplier must conduct the assessment consistent with any Agency directives that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system.
 - 3) Level 1 assessments. A supplier must conduct a Level 1 assessment consistent with Agency requirements if the supplier exceeds one of the treatment technique triggers in subsection (a)(1) of this Section.
 - A) The supplier must complete a Level 1 assessment as soon as practical after any trigger in subsection (a)(1) of this Section. In the completed assessment form, the supplier must describe sanitary defects detected, corrective actions completed, and a proposed timetable for any corrective actions not already completed. The assessment form may also note that no sanitary defects were identified. The supplier must submit the completed Level 1

- 24721 assessment form to the Agency within 30 days after the supplier
24722 learns that it has exceeded a trigger.
24723
24724 B) If the Agency reviews the completed Level 1 assessment and
24725 determines that the assessment is not sufficient (including any
24726 proposed timetable for any corrective actions not already
24727 completed), the Agency must consult with the supplier. If the
24728 Agency, by a SEP issued pursuant to Section 611.110, requires
24729 revisions after consultation, the supplier must submit a revised
24730 assessment form to the Agency on an agreed-upon schedule not to
24731 exceed 30 days from the date of the consultation.
24732
24733 C) Upon completion and submission of the assessment form by the
24734 supplier, the Agency must determine if the supplier has identified a
24735 likely cause for the Level 1 trigger and, if so, establish that the
24736 supplier has corrected the problem, or has included a schedule
24737 acceptable to the Agency for correcting the problem.
24738
24739 4) Level 2 assessments. A supplier must ensure that a Level 2 assessment
24740 consistent with Agency requirements is conducted if the supplier exceeds
24741 one of the treatment technique triggers in subsection (a)(2) of this Section.
24742 The supplier must comply with any expedited actions or additional actions
24743 required by the Agency, by a SEP issued pursuant to Section 611.110, in
24744 the case of an E. coli MCL violation.
24745
24746 A) The supplier must ensure that a Level 2 assessment is completed
24747 by the Agency or by a party approved by the Agency as soon as
24748 practical after any trigger in subsection (a)(2) of this Section. The
24749 supplier must submit a completed Level 2 assessment form to the
24750 Agency within 30 days after the supplier learns that it has
24751 exceeded a trigger. The assessment form must describe sanitary
24752 defects detected, corrective actions completed, and a proposed
24753 timetable for any corrective actions not already completed. The
24754 assessment form may also note that no sanitary defects were
24755 identified.
24756
24757 B) The supplier may conduct Level 2 assessments if the supplier has
24758 staff or management with the certification or qualifications
24759 specified by the Agency unless otherwise directed by the Agency,
24760 by a SEP issued pursuant to Section 611.110.
24761
24762 C) If the Agency reviews the completed Level 2 assessment and
24763 determines that the assessment is not sufficient (including any

24764 proposed timetable for any corrective actions not already
24765 completed), the Agency must consult with the system. If the
24766 Agency requires revisions after consultation, the supplier must
24767 submit a revised assessment form to the Agency on an agreed-upon
24768 schedule not to exceed 30 days.

24769
24770 D) Upon completion and submission of the assessment form by the
24771 supplier, the Agency must determine if the system has identified a
24772 likely cause for the Level 2 trigger and determine whether the
24773 supplier has corrected the problem, or has included a schedule
24774 acceptable to the Agency for correcting the problem.
24775

24776 c) Corrective action. A supplier must correct sanitary defects found through either
24777 Level 1 or 2 assessments conducted under subsection (b) ~~of this Section~~. For
24778 corrections not completed by the time of submission of the assessment form, the
24779 supplier must complete the corrective actions in compliance with a timetable
24780 approved by the Agency, by a SEP issued pursuant to Section 611.110, in
24781 consultation with the supplier. The supplier must notify the Agency when each
24782 scheduled corrective action is completed.
24783

24784 d) Consultation. At any time during the assessment or corrective action phase, either
24785 the water supplier or the Agency may request a consultation with the other party
24786 to determine the appropriate actions to be taken. The supplier may consult with
24787 the Agency on all relevant information that may impact on its ability to comply
24788 with a requirement of this Subpart AA, including the method of accomplishment,
24789 an appropriate timeframe, and other relevant information.
24790

24791 BOARD NOTE: Derived from 40 CFR 141.859 ~~(2013)~~(2016).

24792
24793 (Source: Amended at 41 Ill. Reg. _____, effective _____)
24794

24795 **Section 611.1060 Violations**
24796

24797 a) E. coli MCL violations. A supplier is in violation of the MCL for E. coli when
24798 any of the conditions identified in subsections (a)(1) through (a)(4) ~~of this Section~~
24799 occur.
24800

24801 1) The supplier has an E. coli-positive repeat sample following a total
24802 coliform-positive routine sample.
24803

24804 2) The supplier has a total coliform-positive repeat sample following an E.
24805 coli-positive routine sample.
24806

- 24807 3) The supplier fails to take all required repeat samples following an E. coli-
24808 positive routine sample.
- 24809
- 24810 4) The supplier fails to test for E. coli when any repeat sample tests positive
24811 for total coliform.
- 24812
- 24813 b) Treatment technique violation.
- 24814
- 24815 1) A treatment technique violation occurs when a supplier exceeds a
24816 treatment technique trigger specified in Section 611.1059(a) and then fails
24817 to conduct the required assessment or corrective actions within the
24818 timeframe specified in Section 611.1059(b) and (c).
- 24819
- 24820 2) A treatment technique violation occurs when a seasonal system supplier
24821 fails to complete an Agency-approved start-up procedure prior to serving
24822 water to the public.
- 24823
- 24824 c) Monitoring violations.
- 24825
- 24826 1) Failure to take every required routine or additional routine sample in a
24827 compliance period is a monitoring violation.
- 24828
- 24829 2) Failure to analyze for E. coli following a total coliform-positive routine
24830 sample is a monitoring violation.
- 24831
- 24832 d) Reporting violations.
- 24833
- 24834 1) Failure to submit a monitoring report or completed assessment form after
24835 a supplier properly conducts monitoring or assessment in a timely manner
24836 is a reporting violation.
- 24837
- 24838 2) Failure to notify the Agency following an E. coli-positive sample as
24839 required by Section 611.1058(b)(1) in a timely manner is a reporting
24840 violation.
- 24841
- 24842 3) Failure to submit certification of completion of Agency-approved start-up
24843 procedure by a seasonal system is a reporting violation.
- 24844

24845 BOARD NOTE: Derived from 40 CFR 141.860 ~~(2016)~~(2013).

24846 (Source: Amended at 41 Ill. Reg. _____, effective _____)

24848

24849 **Section 611.APPENDIX A Regulated Contaminants**

24850

24851 Microbiological contaminants.

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24853

Contaminant (units): ~~Total Coliform Bacteria, until March 31, 2016~~

24854

Traditional MCL in mg/l: ~~MCL: (a supplier that collects 40 or more samples/month) five percent or fewer of monthly samples are positive; (systems that collect fewer than 40 samples/month) one or fewer positive monthly samples.~~

24855

24856

~~To convert for CCR, multiply by:—~~

24857

~~MCL in CCR units: MCL: (a supplier that collects 40 or more samples/month) five percent or fewer of monthly samples are positive; (a supplier that collects fewer than 40 samples/month) one or fewer positive monthly samples.~~

24858

24859

24860

~~MCLG: 0~~

24861

~~Major sources in drinking water: Naturally present in the environment.~~

24862

~~Health effects language: Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.~~

24863

24864

24865

24866

24867

Contaminant (units): ~~Total Coliform Bacteria, beginning April 1, 2016~~

24868

~~Traditional MCL in mg/l: TT~~

24869

~~To convert for CCR, multiply by: —~~

24870

~~MCL in CCR units: TT~~

24871

~~MCLG: N/A~~

24872

~~Major sources in drinking water: Naturally present in the environment.~~

24873

~~Health effects language: Use language found in Section 611.883(h)(7)(A)(i)~~

24874

24875

Contaminant (units): ~~Fecal coliform and E. coli, until March 31, 2016~~

24876

~~Traditional MCL in mg/l: 0~~

24877

~~To convert for CCR, multiply by:—~~

24878

~~MCL in CCR units: 0~~

24879

~~MCLG: 0~~

24880

~~Major sources in drinking water: Human and animal fecal waste.~~

24881

~~Health effects language: Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.~~

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24883

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Contaminant (units): ~~E. coli, beginning April 1, 2016~~

24888

~~Traditional MCL in mg/l: Routine and repeat samples are total coliform-positive and~~

24889

~~either is E. coli-positive or system fails to take repeat samples following E. coli-positive~~

24890

24891 routine sample or system fails to analyze total coliform-positive repeat sample for E.
 24892 coli.
 24893 To convert for CCR, multiply by: –
 24894 MCL in CCR units: Routine and repeat samples are total coliform-positive and either is
 24895 E. coli-positive or system fails to take repeat samples following E. coli-positive routine
 24896 sample or system fails to analyze total coliform-positive repeat sample for E. coli.
 24897 MCLG: 0
 24898 Major sources in drinking water: Human and animal fecal waste.
 24899 Health effects language: E. coli are bacteria whose presence indicates that the water may
 24900 be contaminated with human or animal wastes. Human pathogens in these wastes can
 24901 cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other
 24902 symptoms. They may pose a special health risk for infants, young children, the elderly,
 24903 and people with severely-compromised immune systems.
 24904
 24905 Contaminant (units): Fecal Indicators (enterococci or coliphage).
 24906 Traditional MCL in mg/l: TT.
 24907 To convert for CCR, multiply by: –
 24908 MCL in CCR units: TT.
 24909 MCLG: N/A
 24910 Major sources in drinking water: Human and animal fecal waste.
 24911 Health effects language: Fecal indicators are microbes whose presence indicates that the
 24912 water may be contaminated with human or animal wastes. Microbes in these wastes can
 24913 cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or other
 24914 symptoms. They may pose a special health risk for infants, young children, some of the
 24915 elderly, and people with severely compromised immune systems.
 24916
 24917 Contaminant (units): Total organic carbon (ppm)
 24918 Traditional MCL in mg/l: TT
 24919 To convert for CCR, multiply by: –
 24920 MCL in CCR units: TT
 24921 MCLG: N/A
 24922 Major sources in drinking water: Naturally present in the environment.
 24923 Health effects language: Total organic carbon (TOC) has no health
 24924 effects. However, total organic carbon provides a medium for the formation of
 24925 disinfection byproducts. These byproducts include trihalomethanes (THMs) and
 24926 haloacetic acids (HAAs). Drinking water containing these byproducts in excess of
 24927 the MCL may lead to adverse health effects, liver or kidney problems, or nervous
 24928 system effects, and may lead to an increased risk of getting cancer.
 24929
 24930 Contaminant (units): Turbidity (NTU)
 24931 Traditional MCL in mg/l: TT
 24932 To convert for CCR, multiply by: –
 24933 MCL in CCR units: TT

24934 MCLG: N/A

24935 Major sources in drinking water: Soil runoff.

24936 Health effects language: Turbidity has no health effects. However, turbidity can interfere

24937 with disinfection and provide a medium for microbial growth. Turbidity may indicate

24938 the presence of disease-causing organisms. These organisms include bacteria, viruses,

24939 and parasites that can cause symptoms such as nausea, cramps, diarrhea, and

24940 associated headaches.

24941

24942 Radioactive contaminants.

24943

24944 Contaminant (units): Beta/photon emitters (mrem/yr)

24945 Traditional MCL in mg/ℓ: 4 mrem/yr

24946 To convert for CCR, multiply by: –

24947 MCL in CCR units: 4

24948 MCLG: 0

24949 Major sources in drinking water: Decay of natural and man-made deposits.

24950 Health effects language: Certain minerals are radioactive and may emit forms of

24951 radiation known as photons and beta radiation. Some people who drink water

24952 containing beta particle and photon radioactivity in excess of the MCL over many

24953 years may have an increased risk of getting cancer.

24954

24955 Contaminant (units): Alpha emitters (pCi/ℓ)

24956 Traditional MCL in mg/ℓ: 15 pCi/ℓ

24957 To convert for CCR, multiply by: –

24958 MCL in CCR units: 15

24959 MCLG: 0

24960 Major sources in drinking water: Erosion of natural deposits.

24961 Health effects language: Certain minerals are radioactive and may emit a form of

24962 radiation known as alpha radiation. Some people who drink water containing alpha

24963 emitters in excess of the MCL over many years may have an increased risk of getting

24964 cancer.

24965

24966 Contaminant (units): Combined radium (pCi/ℓ)

24967 Traditional MCL in mg/ℓ: 5 pCi/ℓ

24968 To convert for CCR, multiply by: –

24969 MCL in CCR units: 5

24970 MCLG: 0

24971 Major sources in drinking water: Erosion of natural deposits.

24972 Health effects language: Some people who drink water containing radium-226 or -228 in

24973 excess of the MCL over many years may have an increased risk of getting cancer.

24974

24975 Contaminant (units): Uranium (µg/ℓ)

24976 Traditional MCL in mg/ℓ: 30 µg/ℓ

24977 To convert for CCR, multiply by: –
24978 MCL in CCR units: 30
24979 MCLG: 0
24980 Major sources in drinking water: Erosion of natural deposits.
24981 Health effects language: Some people who drink water containing uranium in excess of
24982 the MCL over many years may have an increased risk of getting cancer and kidney
24983 toxicity.
24984
24985 Inorganic contaminants.
24986
24987 Contaminant (units): Antimony (ppb)
24988 Traditional MCL in mg/ℓ: 0.006
24989 To convert for CCR, multiply by: 1000
24990 MCL in CCR units: 6
24991 MCLG: 6
24992 Major sources in drinking water: Discharge from petroleum refineries; fire retardants;
24993 ceramics; electronics; solder.
24994 Health effects language: Some people who drink water containing antimony well in
24995 excess of the MCL over many years could experience increases in blood cholesterol
24996 and decreases in blood sugar.
24997
24998 Contaminant (units): Arsenic (ppb)
24999 Traditional MCL in mg/ℓ: 0.010
25000
25001 To convert for CCR, multiply by: 1000
25002 MCL in CCR units: 50
25003 MCLG: 0
25004 Major sources in drinking water: Erosion of natural deposits; runoff from orchards;
25005 runoff from glass and electronics production wastes.
25006 Health effects language: Some people who drink water containing arsenic in excess of
25007 the MCL over many years could experience skin damage or problems with their
25008 circulatory system, and may have an increased risk of getting cancer.
25009
25010 Contaminant (units): Asbestos (MFL)
25011 Traditional MCL in mg/ℓ: 7 MFL
25012 To convert for CCR, multiply by: –
25013 MCL in CCR units: 7
25014 MCLG: 7
25015 Major sources in drinking water: Decay of asbestos cement water mains; erosion of
25016 natural deposits.
25017 Health effects language: Some people who drink water containing asbestos in excess of
25018 the MCL over many years may have an increased risk of developing benign intestinal
25019 polyps.

25020
25021 Contaminant (units): Barium (ppm)
25022 Traditional MCL in mg/l: 2
25023 To convert for CCR, multiply by: –
25024 MCL in CCR units: 2
25025 MCLG: 2
25026 Major sources in drinking water: Discharge of drilling wastes; discharge from metal
25027 refineries; erosion of natural deposits.
25028 Health effects language: Some people who drink water containing barium in excess of
25029 the MCL over many years could experience an increase in their blood pressure.
25030
25031 Contaminant (units): Beryllium (ppb)
25032 Traditional MCL in mg/l: 0.004
25033 To convert for CCR, multiply by: 1000
25034 MCL in CCR units: 4
25035 MCLG: 4
25036 Major sources in drinking water: Discharge from metal refineries and coal-burning
25037 factories; discharge from electrical, aerospace, and defense industries.
25038 Health effects language: Some people who drink water containing beryllium well in
25039 excess of the MCL over many years could develop intestinal lesions.
25040
25041 Contaminant (units): Bromate (ppb)
25042 Traditional MCL in mg/l: 0.010
25043 To convert for CCR, multiply by: 1000
25044 MCL in CCR units: 10
25045 MCLG: 0
25046 Major sources in drinking water: By-product of drinking water disinfection.
25047 Health effects language: Some people who drink water containing bromate in excess of
25048 the MCL over many years may have an increased risk of getting cancer.
25049
25050 Contaminant (units): Cadmium (ppb)
25051 Traditional MCL in mg/l: 0.005
25052 To convert for CCR, multiply by: 1000
25053 MCL in CCR units: 5
25054 MCLG: 5
25055 Major sources in drinking water: Corrosion of galvanized pipes; erosion of natural
25056 deposits; discharge from metal refineries; runoff from waste batteries and paints.
25057 Health effects language: Some people who drink water containing cadmium in excess of
25058 the MCL over many years could experience kidney damage.
25059
25060 Contaminant (units): Chloramines (ppm)
25061 Traditional MCL in mg/l: MRDL=4
25062 To convert for CCR, multiply by: –

25063 MCL in CCR units: MRDL=4
25064 MCLG: MRDLG=4
25065 Major sources in drinking water: Water additive used to control microbes.
25066 Health effects language: Some people who drink water containing chloramines well in
25067 excess of the MRDL could experience irritating effects to their eyes and nose. Some
25068 people who drink water containing chloramines well in excess of the MRDL could
25069 experience stomach discomfort or anemia.
25070
25071 Contaminant (units): Chlorine (ppm)
25072 Traditional MCL in mg/ℓ: MRDL=4
25073 To convert for CCR, multiply by: –
25074 MCL in CCR units: MRDL=4
25075 MCLG: MRDLG=4
25076 Major sources in drinking water: Water additive used to control microbes.
25077 Health effects language: Some people who drink water containing chlorine well in
25078 excess of the MRDL could experience irritating effects to their eyes and nose. Some
25079 people who drink water containing chlorine well in excess of the MRDL could
25080 experience stomach discomfort.
25081
25082 Contaminant (units): Chlorine dioxide (ppb)
25083 Traditional MCL in mg/ℓ: MRDL=800
25084 To convert for CCR, multiply by: 1000
25085 MCL in CCR units: MRDL=800
25086 MCLG: MRDLG=800
25087 Major sources in drinking water: Water additive used to control microbes.
25088 Health effects language: Some infants and young children who drink water containing
25089 chlorine dioxide well in excess of the MRDL could experience nervous system
25090 effects. Similar effects may occur in fetuses of pregnant women who drink water
25091 containing chlorine dioxide in excess of the MRDL. Some people may experience
25092 anemia.
25093
25094 Contaminant (units): Chlorite (ppm)
25095 Traditional MCL in mg/ℓ: MRDL=1
25096 To convert for CCR, multiply by: –
25097 MCL in CCR units: MRDL=1
25098 MCLG: MRDLG=0.8
25099 Major sources in drinking water: By-product of drinking water disinfection.
25100 Health effects language: Some infants and young children who drink water containing
25101 chlorite well in excess of the MCL could experience nervous system effects. Similar
25102 effects may occur in fetuses of pregnant women who drink water containing chlorite
25103 in excess of the MCL. Some people may experience anemia.
25104
25105 Contaminant (units): Chromium (ppb)

25106 Traditional MCL in mg/ℓ: 0.1
25107 To convert for CCR, multiply by: 1000
25108 MCL in CCR units: 100
25109 MCLG: 100
25110 Major sources in drinking water: Discharge from steel and pulp mills; erosion of natural
25111 deposits.
25112 Health effects language: Some people who use water containing chromium well in
25113 excess of the MCL over many years could experience allergic dermatitis.
25114
25115 Contaminant (units): Copper (ppm)
25116 Traditional MCL in mg/ℓ: AL=1.3
25117 To convert for CCR, multiply by: –
25118 MCL in CCR units: AL=1.3
25119 MCLG: 1.3
25120 Major sources in drinking water: Corrosion of household plumbing systems; erosion of
25121 natural deposits.
25122 Health effects language: Copper is an essential nutrient, but some people who drink
25123 water containing copper in excess of the action level over a relatively short amount of
25124 time could experience gastrointestinal distress. Some people who drink water
25125 containing copper in excess of the action level over many years could suffer liver or
25126 kidney damage. People with Wilson's Disease should consult their personal doctor.
25127
25128 Contaminant (units): Cyanide (ppb)
25129 Traditional MCL in mg/ℓ: 0.2
25130 To convert for CCR, multiply by: 1000
25131 MCL in CCR units: 200
25132 MCLG: 200
25133 Major sources in drinking water: Discharge from steel/metal factories; discharge from
25134 plastic and fertilizer factories.
25135 Health effects language: Some people who drink water containing cyanide well in excess
25136 of the MCL over many years could experience nerve damage or problems with their
25137 thyroid.
25138
25139 Contaminant (units): Fluoride (ppm)
25140 Traditional MCL in mg/ℓ: 4
25141 To convert for CCR, multiply by: –
25142 MCL in CCR units: 4
25143 MCLG: 4
25144 Major sources in drinking water: Erosion of natural deposits; water additive that
25145 promotes strong teeth; discharge from fertilizer and aluminum factories.
25146 Health effects language: Some people who drink water containing fluoride in excess of
25147 the MCL over many years could get bone disease, including pain and tenderness of
25148 the bones. Fluoride in drinking water at half the MCL or more may cause mottling of

25149 children's teeth, usually in children less than nine years old. Mottling, also known as
25150 dental fluorosis, may include brown staining or pitting of the teeth, and occurs only in
25151 developing teeth before they erupt from the gums.
25152

25153 Contaminant (units): Lead (ppb)
25154 Traditional MCL in mg/ℓ: AL=0.015
25155 To convert for CCR, multiply by: 1000
25156 MCL in CCR units: AL=15
25157 MCLG: 0

25158 Major sources in drinking water: Corrosion of household plumbing systems; erosion of
25159 natural deposits.

25160 Health effects language: Infants and children who drink water containing lead in excess
25161 of the action level could experience delays in their physical or mental development.
25162 Children could show slight deficits in attention span and learning abilities. Adults
25163 who drink this water over many years could develop kidney problems or high blood
25164 pressure.
25165

25166 Contaminant (units): Mercury (inorganic) (ppb)
25167 Traditional MCL in mg/ℓ: 0.002
25168 To convert for CCR, multiply by: 1000
25169 MCL in CCR units: 2
25170 MCLG: 2

25171 Major sources in drinking water: Erosion of natural deposits; discharge from refineries
25172 and factories; runoff from landfills; runoff from cropland.

25173 Health effects language: Some people who drink water containing inorganic mercury
25174 well in excess of the MCL over many years could experience kidney damage.
25175

25176 Contaminant (units): Nitrate (ppm)
25177 Traditional MCL in mg/ℓ: 10
25178 To convert for CCR, multiply by: –
25179 MCL in CCR units: 10
25180 MCLG: 10

25181 Major sources in drinking water: Runoff from fertilizer use; leaching from septic tanks,
25182 sewage; erosion of natural deposits.

25183 Health effects language: Infants below the age of six months who drink water containing
25184 nitrate in excess of the MCL could become seriously ill and, if untreated, may die.
25185 Symptoms include shortness of breath and blue baby syndrome.
25186

25187 Contaminant (units): Nitrite (ppm)
25188 Traditional MCL in mg/ℓ: 1
25189 To convert for CCR, multiply by: –
25190 MCL in CCR units: 1
25191 MCLG: 1

- 25192 Major sources in drinking water: Runoff from fertilizer use; leaching from septic tanks,
25193 sewage; erosion of natural deposits.
- 25194 Health effects language: Infants below the age of six months who drink water containing
25195 nitrite in excess of the MCL could become seriously ill and, if untreated, may die.
25196 Symptoms include shortness of breath and blue baby syndrome.
25197
- 25198 Contaminant (units): Selenium (ppb)
25199 Traditional MCL in mg/l: 0.05
25200 To convert for CCR, multiply by: 1000
25201 MCL in CCR units: 50
25202 MCLG: 50
- 25203 Major sources in drinking water: Discharge from petroleum and metal refineries; erosion
25204 of natural deposits; discharge from mines.
- 25205 Health effects language: Selenium is an essential nutrient. However, some people who
25206 drink water containing selenium in excess of the MCL over many years could
25207 experience hair or fingernail losses, numbness in fingers or toes, or problems with
25208 their circulation.
25209
- 25210 Contaminant (units): Thallium (ppb)
25211 Traditional MCL in mg/l: 0.002
25212 To convert for CCR, multiply by: 1000
25213 MCL in CCR units: 2
25214 MCLG: 0.5
- 25215 Major sources in drinking water: Leaching from ore-processing sites; discharge from
25216 electronics, glass, and drug factories.
- 25217 Health effects language: Some people who drink water containing thallium in excess of
25218 the MCL over many years could experience hair loss, changes in their blood, or
25219 problems with their kidneys, intestines, or liver.
25220
- 25221 Synthetic organic contaminants including pesticides and herbicides.
25222
- 25223 Contaminant (units): 2,4-D (ppb)
25224 Traditional MCL in mg/l: 0.07
25225 To convert for CCR, multiply by: 1000
25226 MCL in CCR units: 70
25227 MCLG: 70
- 25228 Major sources in drinking water: Runoff from herbicide used on row crops.
25229 Health effects language: Some people who drink water containing the weed killer 2,4-D
25230 well in excess of the MCL over many years could experience problems with their
25231 kidneys, liver, or adrenal glands.
25232
- 25233 Contaminant (units): 2,4,5-TP (silvex) (ppb)
25234 Traditional MCL in mg/l: 0.05

- 25235 To convert for CCR, multiply by: 1000
25236 MCL in CCR units: 50
25237 MCLG: 50
25238 Major sources in drinking water: Residue of banned herbicide.
25239 Health effects language: Some people who drink water containing silvex in excess of the
25240 MCL over many years could experience liver problems.
25241
25242 Contaminant (units): Acrylamide
25243 Traditional MCL in mg/ℓ: TT
25244 To convert for CCR, multiply by: –
25245 MCL in CCR units: TT
25246 MCLG: 0
25247 Major sources in drinking water: Added to water during sewage/wastewater treatment.
25248 Health effects language: Some people who drink water containing high levels of
25249 acrylamide over a long period of time could have problems with their nervous system
25250 or blood, and may have an increased risk of getting cancer.
25251
25252 Contaminant (units): Alachlor (ppb)
25253 Traditional MCL in mg/ℓ: 0.002
25254 To convert for CCR, multiply by: 1000
25255 MCL in CCR units: 2
25256 MCLG: 0
25257 Major sources in drinking water: Runoff from herbicide used on row crops.
25258 Health effects language: Some people who drink water containing alachlor in excess of
25259 the MCL over many years could have problems with their eyes, liver, kidneys, or
25260 spleen, or experience anemia, and may have an increased risk of getting cancer.
25261
25262 Contaminant (units): Atrazine (ppb)
25263 Traditional MCL in mg/ℓ: 0.003
25264 To convert for CCR, multiply by: 1000
25265 MCL in CCR units: 3
25266 MCLG: 3
25267 Major sources in drinking water: Runoff from herbicide used on row crops.
25268 Health effects language: Some people who drink water containing atrazine well in excess
25269 of the MCL over many years could experience problems with their cardiovascular
25270 system or reproductive difficulties.
25271
25272 Contaminant (units): Benzo(a)pyrene (PAH) (nanograms/ℓ)
25273 Traditional MCL in mg/ℓ: 0.0002
25274 To convert for CCR, multiply by: 1,000,000
25275 MCL in CCR units: 200
25276 MCLG: 0
25277 Major sources in drinking water: Leaching from linings of water storage tanks and

25278 distribution lines.

25279 Health effects language: Some people who drink water containing benzo(a)pyrene in
25280 excess of the MCL over many years may experience reproductive difficulties and
25281 may have an increased risk of getting cancer.

25282

25283 Contaminant (units): Carbofuran (ppb)
25284 Traditional MCL in mg/l: 0.04
25285 To convert for CCR, multiply by: 1000
25286 MCL in CCR units: 40
25287 MCLG: 40
25288 Major sources in drinking water: Leaching of soil fumigant used on rice and alfalfa.
25289 Health effects language: Some people who drink water containing carbofuran in excess
25290 of the MCL over many years could experience problems with their blood, or nervous
25291 or reproductive systems.

25292

25293 Contaminant (units): Chlordane (ppb)
25294 Traditional MCL in mg/l: 0.002
25295 To convert for CCR, multiply by: 1000
25296 MCL in CCR units: 2
25297 MCLG: 0
25298 Major sources in drinking water: Residue of banned termiticide.
25299 Health effects language: Some people who drink water containing chlordane in excess of
25300 the MCL over many years could experience problems with their liver or nervous
25301 system, and may have an increased risk of getting cancer.

25302

25303 Contaminant (units): Dalapon (ppb)
25304 Traditional MCL in mg/l: 0.2
25305 To convert for CCR, multiply by: 1000
25306 MCL in CCR units: 200
25307 MCLG: 200
25308 Major sources in drinking water: Runoff from herbicide used on rights of way.
25309 Health effects language: Some people who drink water containing dalapon well in excess
25310 of the MCL over many years could experience minor kidney changes.

25311

25312 Contaminant (units): Di(2-ethylhexyl)adipate (ppb)
25313 Traditional MCL in mg/l: 0.4
25314 To convert for CCR, multiply by: 1000
25315 MCL in CCR units: 400
25316 MCLG: 400
25317 Major sources in drinking water: Discharge from chemical factories.
25318 Health effects language: Some people who drink water containing di(2-
25319 ethylhexyl)adipate well in excess of the MCL over many years could experience toxic
25320 effects, such as weight loss, liver enlargement, or possible reproductive difficulties.

25321
25322 Contaminant (units): Di(2-ethylhexyl)phthalate (ppb)
25323 Traditional MCL in mg/l: 0.006
25324 To convert for CCR, multiply by: 1000
25325 MCL in CCR units: 6
25326 MCLG: 0
25327 Major sources in drinking water: Discharge from rubber and chemical factories.
25328 Health effects language: Some people who drink water containing di(2-
25329 ethylhexyl)phthalate well in excess of the MCL over many years may have problems
25330 with their liver or experience reproductive difficulties, and they may have an
25331 increased risk of getting cancer.
25332
25333 Contaminant (units): Dibromochloropropane (DBCP) (ppt)
25334 Traditional MCL in mg/l: 0.0002
25335 To convert for CCR, multiply by: 1,000,000
25336 MCL in CCR units: 200
25337 MCLG: 0
25338 Major sources in drinking water: Runoff/leaching from soil fumigant used on soybeans,
25339 cotton, pineapples, and orchards.
25340 Health effects language: Some people who drink water containing DBCP in excess of the
25341 MCL over many years could experience reproductive problems and may have an
25342 increased risk of getting cancer.
25343
25344 Contaminant (units): Dinoseb (ppb)
25345 Traditional MCL in mg/l: 0.007
25346 To convert for CCR, multiply by: 1000
25347 MCL in CCR units: 7
25348 MCLG: 7
25349 Major sources in drinking water: Runoff from herbicide used on soybeans and
25350 vegetables.
25351 Health effects language: Some people who drink water containing dinoseb well in excess
25352 of the MCL over many years could experience reproductive difficulties.
25353
25354 Contaminant (units): Diquat (ppb)
25355 Traditional MCL in mg/l: 0.02
25356 To convert for CCR, multiply by: 1000
25357 MCL in CCR units: 20
25358 MCLG: 20
25359 Major sources in drinking water: Runoff from herbicide use.
25360 Health effects language: Some people who drink water containing diquat in excess of the
25361 MCL over many years could get cataracts.
25362
25363 Contaminant (units): Dioxin (2,3,7,8-TCDD) (ppq)

25364 Traditional MCL in mg/l: 0.00000003
25365 To convert for CCR, multiply by: 1,000,000,000
25366 MCL in CCR units: 30
25367 MCLG: 0
25368 Major sources in drinking water: Emissions from waste incineration and other
25369 combustion; discharge from chemical factories.
25370 Health effects language: Some people who drink water containing dioxin in excess of the
25371 MCL over many years could experience reproductive difficulties and may have an
25372 increased risk of getting cancer.
25373
25374 Contaminant (units): Endothall (ppb)
25375 Traditional MCL in mg/l: 0.1
25376 To convert for CCR, multiply by: 1000
25377 MCL in CCR units: 100
25378 MCLG: 100
25379 Major sources in drinking water: Runoff from herbicide use.
25380 Health effects language: Some people who drink water containing endothall in excess of
25381 the MCL over many years could experience problems with their stomach or
25382 intestines.
25383
25384 Contaminant (units): Endrin (ppb)
25385 Traditional MCL in mg/l: 0.002
25386 To convert for CCR, multiply by: 1000
25387 MCL in CCR units: 2
25388 MCLG: 2
25389 Major sources in drinking water: Residue of banned insecticide.
25390 Health effects language: Some people who drink water containing endrin in excess of the
25391 MCL over many years could experience liver problems.
25392
25393 Contaminant (units): Epichlorohydrin
25394 Traditional MCL in mg/l: TT
25395 To convert for CCR, multiply by: –
25396 MCL in CCR units: TT
25397 MCLG: 0
25398 Major sources in drinking water: Discharge from industrial chemical factories; an
25399 impurity of some water treatment chemicals.
25400 Health effects language: Some people who drink water containing high levels of
25401 epichlorohydrin over a long period of time could experience stomach problems, and
25402 may have an increased risk of getting cancer.
25403
25404 Contaminant (units): Ethylene dibromide (ppt)
25405 Traditional MCL in mg/l: 0.00005
25406 To convert for CCR, multiply by: 1,000,000

25407 MCL in CCR units: 50
25408 MCLG: 0
25409 Major sources in drinking water: Discharge from petroleum refineries.
25410 Health effects language: Some people who drink water containing ethylene dibromide in
25411 excess of the MCL over many years could experience problems with their liver,
25412 stomach, reproductive system, or kidneys, and may have an increased risk of getting
25413 cancer.
25414
25415 Contaminant (units): Glyphosate (ppb)
25416 Traditional MCL in mg/l: 0.7
25417 To convert for CCR, multiply by: 1000
25418 MCL in CCR units: 700
25419 MCLG: 700
25420 Major sources in drinking water: Runoff from herbicide use.
25421 Health effects language: Some people who drink water containing glyphosate in excess
25422 of the MCL over many years could experience problems with their kidneys or
25423 reproductive difficulties.
25424
25425 Contaminant (units): Heptachlor (ppt)
25426 Traditional MCL in mg/l: 0.0004
25427 To convert for CCR, multiply by: 1,000,000
25428 MCL in CCR units: 400
25429 MCLG: 0
25430 Major sources in drinking water: Residue of banned pesticide.
25431 Health effects language: Some people who drink water containing heptachlor in excess
25432 of the MCL over many years could experience liver damage and may have an
25433 increased risk of getting cancer.
25434
25435 Contaminant (units): Heptachlor epoxide (ppt)
25436 Traditional MCL in mg/l: 0.0002
25437 To convert for CCR, multiply by: 1,000,000
25438 MCL in CCR units: 200
25439 MCLG: 0
25440 Major sources in drinking water: Breakdown of heptachlor.
25441 Health effects language: Some people who drink water containing heptachlor epoxide in
25442 excess of the MCL over many years could experience liver damage, and may have an
25443 increased risk of getting cancer.
25444
25445 Contaminant (units): Hexachlorobenzene (ppb)
25446 Traditional MCL in mg/l: 0.001
25447 To convert for CCR, multiply by: 1000
25448 MCL in CCR units: 1
25449 MCLG: 0

25450 Major sources in drinking water: Discharge from metal refineries and agricultural
25451 chemical factories.
25452 Health effects language: Some people who drink water containing
25453 hexachlorobenzene in excess of the MCL over many years could experience problems
25454 with their liver or kidneys, or adverse reproductive effects, and may have an
25455 increased risk of getting cancer.
25456
25457 Contaminant (units): Hexachlorocyclopentadiene (ppb)
25458 Traditional MCL in mg/l: 0.05
25459 To convert for CCR, multiply by: 1000
25460 MCL in CCR units: 50
25461 MCLG: 50
25462 Major sources in drinking water: Discharge from chemical factories.
25463 Health effects language: Some people who drink water containing
25464 hexachlorocyclopentadiene well in excess of the MCL over many years could
25465 experience problems with their kidneys or stomach.
25466
25467 Contaminant (units): Lindane (ppt)
25468 Traditional MCL in mg/l: 0.0002
25469 To convert for CCR, multiply by: 1,000,000
25470 MCL in CCR units: 200
25471 MCLG: 200
25472 Major sources in drinking water: Runoff/leaching from insecticide used on cattle,
25473 lumber, gardens.
25474 Health effects language: Some people who drink water containing lindane in excess of
25475 the MCL over many years could experience problems with their kidneys or liver.
25476
25477 Contaminant (units): Methoxychlor (ppb)
25478 Traditional MCL in mg/l: 0.04
25479 To convert for CCR, multiply by: 1000
25480 MCL in CCR units: 40
25481 MCLG: 40
25482 Major sources in drinking water: Runoff/leaching from insecticide used on fruits,
25483 vegetables, alfalfa, livestock.
25484 Health effects language: Some people who drink water containing methoxychlor in
25485 excess of the MCL over many years could experience reproductive difficulties.
25486
25487 Contaminant (units): Oxamyl (vydate) (ppb)
25488 Traditional MCL in mg/l: 0.2
25489 To convert for CCR, multiply by: 1000
25490 MCL in CCR units: 200
25491 MCLG: 200
25492 Major sources in drinking water: Runoff/leaching from insecticide used on apples,

25493 potatoes and tomatoes.
25494 Health effects language: Some people who drink water containing oxamyl in excess of
25495 the MCL over many years could experience slight nervous system effects.
25496
25497 Contaminant (units): PCBs (polychlorinated biphenyls) (ppt)
25498 Traditional MCL in mg/l: 0.0005
25499 To convert for CCR, multiply by: 1,000,000
25500 MCL in CCR units: 500
25501 MCLG: 0
25502 Major sources in drinking water: Runoff from landfills; discharge of waste chemicals.
25503 Health effects language: Some people who drink water containing PCBs in excess of the
25504 MCL over many years could experience changes in their skin, problems with their
25505 thymus gland, immune deficiencies, or reproductive or nervous system difficulties,
25506 and may have an increased risk of getting cancer.
25507
25508 Contaminant (units): Pentachlorophenol (ppb)
25509 Traditional MCL in mg/l: 0.001
25510 To convert for CCR, multiply by: 1000
25511 MCL in CCR units: 1
25512 MCLG: 0
25513 Major sources in drinking water: Discharge from wood preserving factories.
25514 Health effects language: Some people who drink water containing pentachlorophenol in
25515 excess of the MCL over many years could experience problems with their liver or
25516 kidneys, and may have an increased risk of getting cancer.
25517
25518 Contaminant (units): Picloram (ppb)
25519 Traditional MCL in mg/l: 0.5
25520 To convert for CCR, multiply by: 1000
25521 MCL in CCR units: 500
25522 MCLG: 500
25523 Major sources in drinking water: Herbicide runoff.
25524 Health effects language: Some people who drink water containing picloram in excess of
25525 the MCL over many years could experience problems with their liver.
25526
25527 Contaminant (units): Simazine (ppb)
25528 Traditional MCL in mg/l: 0.004
25529 To convert for CCR, multiply by: 1000
25530 MCL in CCR units: 4
25531 MCLG: 4
25532 Major sources in drinking water: Herbicide runoff.
25533 Health effects language: Some people who drink water containing simazine in excess of
25534 the MCL over many years could experience problems with their blood.
25535

- 25536 Contaminant (units): Toxaphene (ppb)
25537 Traditional MCL in mg/l: 0.003
25538 To convert for CCR, multiply by: 1000
25539 MCL in CCR units: 3
25540 MCLG: 0
25541 Major sources in drinking water: Runoff/leaching from insecticide used on cotton and
25542 cattle.
25543 Health effects language: Some people who drink water containing toxaphene in excess
25544 of the MCL over many years could have problems with their kidneys, liver, or thyroid,
25545 and may have an increased risk of getting cancer.
25546
25547 Volatile organic contaminants.
25548
25549 Contaminant (units): Benzene (ppb)
25550 Traditional MCL in mg/l: 0.005
25551 To convert for CCR, multiply by: 1000
25552 MCL in CCR units: 5
25553 MCLG: 0
25554 Major sources in drinking water: Discharge from factories; leaching from gas storage
25555 tanks and landfills.
25556 Health effects language: Some people who drink water containing benzene in excess of
25557 the MCL over many years could experience anemia or a decrease in blood platelets,
25558 and may have an increased risk of getting cancer.
25559
25560 Contaminant (units): Carbon tetrachloride (ppb)
25561 Traditional MCL in mg/l: 0.005
25562 To convert for CCR, multiply by: 1000
25563 MCL in CCR units: 5
25564 MCLG: 0
25565 Major sources in drinking water: Discharge from chemical plants and other industrial
25566 activities.
25567 Health effects language: Some people who drink water containing carbon tetrachloride in
25568 excess of the MCL over many years could experience problems with their liver and
25569 may have an increased risk of getting cancer.
25570
25571 Contaminant (units): Chlorobenzene (ppb)
25572 Traditional MCL in mg/l: 0.1
25573 To convert for CCR, multiply by: 1000
25574 MCL in CCR units: 100
25575 MCLG: 100
25576 Major sources in drinking water: Discharge from chemical and agricultural chemical
25577 factories.
25578 Health effects language: Some people who drink water containing chlorobenzene in

25579 excess of the MCL over many years could experience problems with their liver or
 25580 kidneys.

25581
 25582 Contaminant (units): o-Dichlorobenzene (ppb)
 25583 Traditional MCL in mg/l: 0.6
 25584 To convert for CCR, multiply by: 1000
 25585 MCL in CCR units: 600
 25586 MCLG: 600
 25587 Major sources in drinking water: Discharge from industrial chemical factories.
 25588 Health effects language: Some people who drink water containing o-dichlorobenzene
 25589 well in excess of the MCL over many years could experience problems with their
 25590 liver, kidneys, or circulatory systems.

25591
 25592 Contaminant (units): p-Dichlorobenzene (ppb)
 25593 Traditional MCL in mg/l: 0.075
 25594 To convert for CCR, multiply by: 1000
 25595 MCL in CCR units: 75
 25596 MCLG: 75
 25597 Major sources in drinking water: Discharge from industrial chemical factories.
 25598 Health effects language: Some people who drink water containing p-dichlorobenzene in
 25599 excess of the MCL over many years could experience anemia; damage to their liver,
 25600 kidneys, or spleen; or changes in their blood.

25601
 25602 Contaminant (units): 1,2-Dichloroethane (ppb)
 25603 Traditional MCL in mg/l: 0.005
 25604 To convert for CCR, multiply by: 1000
 25605 MCL in CCR units: 5
 25606 MCLG: 0
 25607 Major sources in drinking water: Discharge from industrial chemical factories.
 25608 Health effects language: Some people who drink water containing 1,2-dichloroethane in
 25609 excess of the MCL over many years may have an increased risk of getting cancer.

25610
 25611 Contaminant (units): 1,1-Dichloroethylene (ppb)
 25612 Traditional MCL in mg/l: 0.007
 25613 To convert for CCR, multiply by: 1000
 25614 MCL in CCR units: 7
 25615 MCLG: 7
 25616 Major sources in drinking water: Discharge from industrial chemical factories.
 25617 Health effects language: Some people who drink water containing 1,1-dichloroethylene
 25618 in excess of the MCL over many years could experience problems with their liver.

25619
 25620 Contaminant (units): cis-1,2-Dichloroethylene (ppb)
 25621 Traditional MCL in mg/l: 0.07

25622 To convert for CCR, multiply by: 1000
25623 MCL in CCR units: 70
25624 MCLG: 70
25625 Major sources in drinking water: Discharge from industrial chemical factories.
25626 Health effects language: Some people who drink water containing cis-1,2-
25627 dichloroethylene in excess of the MCL over many years could experience problems
25628 with their liver.
25629
25630 Contaminant (units): trans-1,2-Dichloroethylene (ppb)
25631 Traditional MCL in mg/ℓ: 0.1
25632 To convert for CCR, multiply by: 1000
25633 MCL in CCR units: 100
25634 MCLG: 100
25635 Major sources in drinking water: Discharge from industrial chemical factories.
25636 Health effects language: Some people who drink water containing trans-1,2-
25637 dichloroethylene well in excess of the MCL over many years could experience
25638 problems with their liver.
25639
25640 Contaminant (units): Dichloromethane (ppb)
25641 Traditional MCL in mg/ℓ: 0.005
25642 To convert for CCR, multiply by: 1000
25643 MCL in CCR units: 5
25644 MCLG: 0
25645 Major sources in drinking water: Discharge from pharmaceutical and chemical factories.
25646 Health effects language: Some people who drink water containing dichloromethane in
25647 excess of the MCL over many years could have liver problems and may have an
25648 increased risk of getting cancer.
25649
25650 Contaminant (units): 1,2-Dichloropropane (ppb)
25651 Traditional MCL in mg/ℓ: 0.005
25652 To convert for CCR, multiply by: 1000
25653 MCL in CCR units: 5
25654 MCLG: 0
25655 Major sources in drinking water: Discharge from industrial chemical factories.
25656 Health effects language: Some people who drink water containing 1,2-dichloropropane
25657 in excess of the MCL over many years may have an increased risk of getting cancer.
25658
25659 Contaminant (units): Ethylbenzene (ppb)
25660 Traditional MCL in mg/ℓ: 0.7
25661 To convert for CCR, multiply by: 1000
25662 MCL in CCR units: 700
25663 MCLG: 700
25664 Major sources in drinking water: Discharge from petroleum refineries.

25665 Health effects language: Some people who drink water containing ethylbenzene well in
25666 excess of the MCL over many years could experience problems with their liver or
25667 kidneys.
25668

25669 Contaminant (units): Haloacetic acids (HAA5) (ppb)
25670 Traditional MCL in mg/l: 0.060
25671 To convert for CCR, multiply by: 1000
25672 MCL in CCR units: 60
25673 MCLG: N/A
25674 Major sources in drinking water: Byproduct of drinking water disinfection.
25675 Health effects language: Some people who drink water containing haloacetic acids in
25676 excess of the MCL over many years may have an increased risk of getting cancer.
25677

25678 Contaminant (units): Styrene (ppb)
25679 Traditional MCL in mg/l: 0.1
25680 To convert for CCR, multiply by: 1000
25681 MCL in CCR units: 100
25682 MCLG: 100
25683 Major sources in drinking water: Discharge from rubber and plastic factories; leaching
25684 from landfills.
25685 Health effects language: Some people who drink water containing styrene well in excess
25686 of the MCL over many years could have problems with their liver, kidneys, or
25687 circulatory system.
25688

25689 Contaminant (units): Tetrachloroethylene (ppb)
25690 Traditional MCL in mg/l: 0.005
25691 To convert for CCR, multiply by: 1000
25692 MCL in CCR units: 5
25693 MCLG: 0
25694 Major sources in drinking water: Discharge from factories and dry cleaners.
25695 Health effects language: Some people who drink water containing tetrachloroethylene in
25696 excess of the MCL over many years could have problems with their liver, and may
25697 have an increased risk of getting cancer.
25698

25699 Contaminant (units): 1,2,4-Trichlorobenzene (ppb)
25700 Traditional MCL in mg/l: 0.07
25701 To convert for CCR, multiply by: 1000
25702 MCL in CCR units: 70
25703 MCLG: 70
25704 Major sources in drinking water: Discharge from textile-finishing factories.
25705 Health effects language: Some people who drink water containing 1,2,4-trichlorobenzene
25706 well in excess of the MCL over many years could experience changes in their adrenal
25707 glands.

25708
25709 Contaminant (units): 1,1,1-Trichloroethane (ppb)
25710 Traditional MCL in mg/ℓ: 0.2
25711 To convert for CCR, multiply by: 1000
25712 MCL in CCR units: 200
25713 MCLG: 200
25714 Major sources in drinking water: Discharge from metal degreasing sites and other
25715 factories.
25716 Health effects language: Some people who drink water containing 1,1,1-trichloroethane
25717 in excess of the MCL over many years could experience problems with their liver,
25718 nervous system, or circulatory system.
25719
25720 Contaminant (units): 1,1,2-Trichloroethane (ppb)
25721 Traditional MCL in mg/ℓ: 0.005
25722 To convert for CCR, multiply by: 1000
25723 MCL in CCR units: 5
25724 MCLG: 3
25725 Major sources in drinking water: Discharge from industrial chemical factories.
25726 Health effects language: Some people who drink water containing 1,1,2-trichloroethane
25727 well in excess of the MCL over many years could have problems with their liver,
25728 kidneys, or immune systems.
25729
25730 Contaminant (units): Trichloroethylene (ppb)
25731 Traditional MCL in mg/ℓ: 0.005
25732 To convert for CCR, multiply by: 1000
25733 MCL in CCR units: 5
25734 MCLG: 0
25735 Major sources in drinking water: Discharge from metal degreasing sites and other
25736 factories.
25737 Health effects language: Some people who drink water containing trichloroethylene in
25738 excess of the MCL over many years could experience problems with their liver and
25739 may have an increased risk of getting cancer.
25740
25741 Contaminant (units): TTHMs (total trihalomethanes) (ppb)
25742 Traditional MCL in mg/ℓ: 0.10/0.080
25743 To convert for CCR, multiply by: 1000
25744 MCL in CCR units: 100/80
25745 MCLG: N/A
25746 Major sources in drinking water: Byproduct of drinking water disinfection.
25747 Health effects language: Some people who drink water containing trihalomethanes in
25748 excess of the MCL over many years may experience problems with their liver,
25749 kidneys, or central nervous system, and may have an increased risk of getting cancer.
25750

- 25751 Contaminant (units): Toluene (ppm)
 25752 Traditional MCL in mg/ℓ: 1
 25753 To convert for CCR, multiply by: –
 25754 MCL in CCR units: 1
 25755 MCLG: 1
 25756 Major sources in drinking water: Discharge from petroleum factories.
 25757 Health effects language: Some people who drink water containing toluene well in excess
 25758 of the MCL over many years could have problems with their nervous system,
 25759 kidneys, or liver.
 25760
 25761 Contaminant (units): Vinyl Chloride (ppb)
 25762 Traditional MCL in mg/ℓ: 0.002
 25763 To convert for CCR, multiply by: 1000
 25764 MCL in CCR units: 2
 25765 MCLG: 0
 25766 Major sources in drinking water: Leaching from PVC piping; discharge from plastics
 25767 factories.
 25768 Health effects language: Some people who drink water containing vinyl chloride in
 25769 excess of the MCL over many years may have an increased risk of getting cancer.
 25770
 25771 Contaminant (units): Xylenes (ppm)
 25772 Traditional MCL in mg/ℓ: 10
 25773 To convert for CCR, multiply by: –
 25774 MCL in CCR units: 10
 25775 MCLG: 10
 25776 Major sources in drinking water: Discharge from petroleum factories; discharge from
 25777 chemical factories.
 25778 Health effects language: Some people who drink water containing xylenes in excess of
 25779 the MCL over many years could experience damage to their nervous system.
 25780
 25781 Key.
 25782

Abbreviation	Meaning
AL	action level
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
MFL	million fibers per liter
MRDL	maximum residual disinfectant level
MRDLG	maximum residual disinfectant level goal
mrem/year	millirems per year (a measure of radiation absorbed by the body)
N/A	not applicable
NTU	nephelometric turbidity units (a measure of water clarity)

pCi/ℓ	picocuries per liter (a measure of radioactivity)
ppm	parts per million, or milligrams per liter (mg/ℓ)
ppb	parts per billion, or micrograms per liter (μg/ℓ)
ppt	parts per trillion, or nanograms per liter
ppq	parts per quadrillion, or picograms per liter
TT	treatment technique

25783

25784 BOARD NOTE: Derived from appendix A to subpart O to 40 CFR 141 ~~(2016)~~(2013).

25785

25786 (Source: Amended at 41 Ill. Reg. _____, effective _____)

25787

25788 **Section 611.APPENDIX D Defined Substrate Method for the Simultaneous Detection of**
25789 **Total Coliforms and Escherichia Coli from Drinking Water (Repealed)**

25790
25791 ~~Autoanalysis Colilert Presence Absence (AC P A) Method.~~

25792
25793 ~~The AC P A test format must be either a 100 ml 10-tube most probable number test (one tube~~
25794 ~~positive denoting the presence of total coliforms in that sample) or a single vessel containing~~
25795 ~~sufficient reagent to receive 100 ml of sample. The reagent is available from Access Medical~~
25796 ~~Systems, Branford Connecticut.~~

25797
25798 ~~The AC P A method must be performed as follows:~~

- 25799
- 25800 1. ~~For the 10-tube method, add 10 ml of water sample to each test tube. For the~~
25801 ~~single vessel method, add 100 ml of water sample to the vessel.~~
 - 25802
 - 25803 2. ~~Dissolve the reagent powder by agitation. (This should produce a colorless~~
25804 ~~solution.)~~
 - 25805
 - 25806 3. ~~Incubate the test tubes or vessel at 35° C for 24 hours.~~
 - 25807
 - 25808 4. ~~Development of yellow during incubation denotes the presence of total coliforms~~
25809 ~~in either the test tube or the vessel.~~
 - 25810
 - 25811 5. ~~Expose each positive (yellow) test tube or vessel to a fluorescent (366 nm) light~~
25812 ~~source. Fluorescence specifically demonstrates the presence of Escherichia coli.~~

25813
25814 ~~BOARD NOTE: Derived from S. Edberg, M. Allen & D. Smith, "National Field~~
25815 ~~Evaluation of a Defined Substrate Method for the Simultaneous Detection of Total~~
25816 ~~Coliforms and Escherichia coli from Drinking Water: Comparison with Presence-~~
25817 ~~Absence Techniques," Applied and Environmental Microbiology, vol. 55, pp. 1003-1008,~~
25818 ~~as incorporated by reference in Section 611.102(b) (2012). This method is for use in~~
25819 ~~conjunction with the requirements of Section 611.526.~~

25820
25821 ~~(Source: Repealed at 41 Ill. Reg. _____, effective _____)~~
25822

25823 **Section 611.APPENDIX G NPDWR Violations and Situations Requiring Public Notice**

25824
25825 See note 1 at the end of this Appendix G for an explanation of the Agency's authority to alter the
25826 magnitude of a violation from that set forth in the following table.
25827

Contaminant	MCL/MRDL/TT violations ²		Monitoring & testing procedure violations	
	Tier of public notice required	Citation	Tier of public notice required	Citation

25828
25829 I. Violations of National Primary Drinking Water Regulations (NPDWR):³

25830
25831 A. Microbiological Contaminants

1a. <u>Corresponding row 1a in Appendix A to Subpart Q to 40 CFR 141 no longer applies by its own terms. This statement maintains structural consistency with the federal regulations. Total coliform bacteria, until March 31, 2016</u>	2	611.325(a)	3	611.521-611.525
1b. Total coliform (TT violations resulting from failure to perform assessments or corrective actions, monitoring violations, and reporting violations), beginning April 1, 2016	2	611.1060(b)(1)	3	611.1060(c)(1) 611.1060(d)(1)
1c. Seasonal system failure to follow State-approved start-up plan prior to serving water to the public or failure to provide certification to the Agency, beginning April 1, 2016	2	611.1060(b)(2)	3	611.1060(d)(3)

<p>2a. <u>Corresponding row 2a in Appendix A to Subpart Q to 40 CFR 141 no longer applies by its own terms. This statement maintains structural consistency with the federal regulations.Fecal coliform/E. coli, until March 31, 2016</u></p>	<p>†</p>	<p>611.325(b)</p>	<p>⁴1,3</p>	<p>611.525</p>
<p>2b. E. coli (MCL, monitoring, and reporting violations); beginning April 1, 2016</p>	<p>1</p>	<p>611.1060(a)</p>	<p>3</p>	<p>611.1060(c) 611.1060(d)(2)</p>
<p>2c. E. coli (TT violations resulting from failure to perform Level 2 assessments or corrective action), beginning April 1, 2016</p>	<p>2</p>	<p>611.1060(b)(1)</p>		
<p>3. Turbidity MCL</p>	<p>2</p>	<p>611.320(a)</p>	<p>3</p>	<p>611.560</p>
<p>4. Turbidity MCL (average of two days' samples greater than 5 NTU)</p>	<p>⁵2, 1</p>	<p>611.320(b)</p>	<p>3</p>	<p>611.560</p>
<p>5. Turbidity (for TT violations resulting from a single exceedance of maximum allowable turbidity level)</p>	<p>⁶2, 1</p>	<p>611.231(b), 611.233(b)(1), 611.250(a)(2), 611.250(b)(2), 611.250(c)(2), 611.250(d), 611.743(a)(2), 611.743(b), 611.955(b)(2)</p>	<p>3</p>	<p>611.531(a), 611.532(b), 611.533(a), 611.744, 611.956(a)(1)-(a)(3), 611.956(b)</p>
<p>6. Surface Water Treatment Rule violations, other than violations resulting from single exceedance of max. allowable turbidity level (TT)</p>	<p>2</p>	<p>611.211, 611.213, 611.220, 611.230- 611.233, 611.240- 611.242, 611.250</p>	<p>3</p>	<p>611.531- 611.533</p>

7. Interim Enhanced Surface Water Treatment Rule violations, other than violations resulting from single exceedance of max. turbidity level (TT)	2	⁷ 611.740-611.743, 611.950-611.955	3	611.742, 611.744, 611.953, 611.954, 611.956
8. Filter Backwash Recycling Rule violations	2	611.276(c)	3	611.276(b), (d)
9. Long Term 1 Enhanced Surface Water Treatment Rule violations	2	611.950-611.955	3	611.953, 611.954, 611.956
10. LT2ESWTR violations	2	611.1010-611.1020	¹⁹ 2, 3	611.1001-611.1005 and 611.1008-611.1009
11. Groundwater Rule violations	2	611.804	3	611.802(h)

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25833

B. Inorganic Chemicals (IOCs)

1. Antimony	2	611.301(b)	3	611.600, 611.601, 611.603
2. Arsenic	2	611.301(b)	3	611.601, 611.603
3. Asbestos (fibers greater than 10 µm)	2	611.301(b)	3	611.600, 611.601, 611.602
4. Barium	2	611.301(b)	3	611.600, 611.601, 611.603
5. Beryllium	2	611.301(b)	3	611.600, 611.601, 611.603
6. Cadmium	2	611.301(b)	3	611.600, 611.601, 611.603
7. Chromium (total)	2	611.301(b)	3	611.600, 611.601, 611.603
8. Cyanide	2	611.301(b)	3	611.600, 611.601, 611.603

9. Fluoride	2	611.301(b)	3	611.600, 611.601, 611.603
10. Mercury (inorganic)	2	611.301(b)	3	611.600, 611.601, 611.603
11. Nitrate	1	611.301(b)	⁸ 1, 3	611.600, 611.601, 611.604, 611.606
12. Nitrite	1	611.301(b)	⁸ 1, 3	611.600, 611.601, 611.605, 611.606
13. Total Nitrate and Nitrite	1	611.301(b)	3	611.600, 611.601
14. Selenium	2	611.301(b)	3	611.600, 611.601, 611.603
15. Thallium	2	611.301(b)	3	611.600, 611.601, 611.603

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C. Lead and Copper Rule (Action Level for lead is 0.015 mg/ℓ, for copper is 1.3 mg/ℓ)

1. Lead and Copper Rule (TT)	2	611.350- 611.355	3	611.356- 611.359
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D. Synthetic Organic Chemicals (SOCs)

1. 2,4-D	2	611.311(c)611.310(e)	3	611.648
2. 2,4,5-TP (silvex)	2	611.311(c)611.310(e)	3	611.648
3. Alachlor	2	611.311(c)611.310(e)	3	611.648
4. Atrazine	2	611.311(c)611.310(e)	3	611.648
5. Benzo(a)pyrene (PAHs)	2	611.311(c)611.310(e)	3	611.648
6. Carbofuran	2	611.311(c)611.310(e)	3	611.648
7. Chlordane	2	611.311(c)611.310(e)	3	611.648

8. Dalapon	2	611.311(c)611.310(e)	3	611.648
9. Di(2-ethylhexyl)adipate	2	611.311(c)611.310(e)	3	611.648
10. Di(2-ethylhexyl)phthalate	2	611.311(c)611.310(e)	3	611.648
11. Dibromochloropropane (DBCP)	2	611.311(c)611.310(e)	3	611.648
12. Dinoseb	2	611.311(c)611.310(e)	3	611.648
13. Dioxin (2,3,7,8-TCDD)	2	611.311(c)611.310(e)	3	611.648
14. Diquat	2	611.311(c)611.310(e)	3	611.648
15. Endothall	2	611.311(c)611.310(e)	3	611.648
16. Endrin	2	611.311(c)611.310(e)	3	611.648
17. Ethylene dibromide	2	611.311(c)611.310(e)	3	611.648
18. Glyphosate	2	611.311(c)611.310(e)	3	611.648
19. Heptachlor	2	611.311(c)611.310(e)	3	611.648
20. Heptachlor epoxide	2	611.311(c)611.310(e)	3	611.648
21. Hexachlorobenzene	2	611.311(c)611.310(e)	3	611.648
22. Hexachlorocyclopentadiene	2	611.311(c)611.310(e)	3	611.648
23. Lindane	2	611.311(c)611.310(e)	3	611.648
24. Methoxychlor	2	611.311(c)611.310(e)	3	611.648
25. Oxamyl (Vydate)	2	611.311(c)611.310(e)	3	611.648
26. Pentachlorophenol	2	611.311(c)611.310(e)	3	611.648
27. Picloram	2	611.311(c)611.310(e)	3	611.648
28. Polychlorinated biphenyls (PCBs)	2	611.311(c)611.310(e)	3	611.648

29. Simazine	2	611.311(c)611-310(e)	3	611.648
30. Toxaphene	2	611.311(c)611-310(e)	3	611.648

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E. Volatile Organic Chemicals (VOCs)

1. Benzene	2	611.311(a)611-310(a)	3	611.646
2. Carbon tetrachloride	2	611.311(a)611-310(a)	3	611.646
3. Chlorobenzene (monochlorobenzene)	2	611.311(a)611-310(a)	3	611.646
4. o-Dichlorobenzene	2	611.311(a)611-310(a)	3	611.646
5. p-Dichlorobenzene	2	611.311(a)611-310(a)	3	611.646
6. 1,2-Dichloroethane	2	611.311(a)611-310(a)	3	611.646
7. 1,1-Dichloroethylene	2	611.311(a)611-310(a)	3	611.646
8. cis-1,2-Dichloroethylene	2	611.311(a)611-310(a)	3	611.646
9. trans-1,2-Dichloroethylene	2	611.311(a)611-310(a)	3	611.646
10. Dichloromethane	2	611.311(a)611-310(a)	3	611.646
11. 1,2-Dichloropropane	2	611.311(a)611-310(a)	3	611.646
12. Ethylbenzene	2	611.311(a)611-310(a)	3	611.646
13. Styrene	2	611.311(a)611-310(a)	3	611.646
14. Tetrachloroethylene	2	611.311(a)611-310(a)	3	611.646
15. Toluene	2	611.311(a)611-310(a)	3	611.646
16. 1,2,4-Trichlorobenzene	2	611.311(a)611-310(a)	3	611.646
17. 1,1,1-Trichloroethane	2	611.311(a)611-310(a)	3	611.646
18. 1,1,2-Trichloroethane	2	611.311(a)611-310(a)	3	611.646

19. Trichloroethylene	2	611.311(a) 310(a)	3	611.646
20. Vinyl chloride	2	611.311(a) 310(a)	3	611.646
21. Xylenes (total)	2	611.311(a) 310(a)	3	611.646

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F. Radioactive Contaminants

1. Beta/photon emitters	2	611.330(d)	3	611.720(a), 611.732
2. Alpha emitters	2	611.330(c)	3	611.720(a), 611.731
3. Combined radium (226 & 228)	2	611.330(b)	3	611.720(a), 611.731
4. Uranium	2	611.330(e)	3	611.720(a), 611.731

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G. Disinfection Byproducts (DBPs), Byproduct Precursors, Disinfectant Residuals. Where disinfection is used in the treatment of drinking water, disinfectants combine with organic and inorganic matter present in water to form chemicals called disinfection byproducts (DBPs). USEPA sets standards for controlling the levels of disinfectants and DBPs in drinking water, including trihalomethanes (THMs) and haloacetic acids (HAAs).¹³

1. Total trihalomethanes (TTHMs)	2	¹¹ 611.312(b)	3	Subparts W and Y of this Part
2. Haloacetic Acids (HAA5)	2	611.312(b)	3	Subpart Y of this Part
3. Bromate	2	611.312(a)	3	611.382(a)-(b)
4. Chlorite	2	611.312(a)	3	611.382(a)-(b)
5. Chlorine (MRDL)	2	611.313(a)	3	611.382(a), (c)
6. Chloramine (MRDL)	2	611.313(a)	3	611.382(a), (c)
7. Chlorine dioxide (MRDL), where any two consecutive daily samples at entrance to distribution system only are above MRDL	2	611.313(a), 611.383(c)(3)	2 ¹² , 3	611.382(a), (c), 611.383(c)(2)
8. Chlorine dioxide (MRDL), where samples in distribution system the next day are also above MRDL	¹³ 1	611.313(a), 611.383(c)(3)	1	611.382(a), (c), 611.383(c)(2)
9. Control of DBP precursors – TOC (TT)	2	611.385(a)-(b)	3	611.382(a), (d)

10. Benchmarking and disinfection profiling	N/A	N/A	3	611.742, 611.953, 611.954
11. Development of monitoring plan	N/A	N/A	3	611.382(f)

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H. Other Treatment Techniques

1. Acrylamide (TT)	2	611.296	N/A	N/A
2. Epichlorohydrin (TT)	2	611.296	N/A	N/A

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II. Unregulated Contaminant Monitoring: ¹⁴

A. Unregulated contaminants	N/A	N/A	3	as required by USEPA pursuant to 40 CFR 141.40
B. Nickel	N/A	N/A	3	611.603, 611.611

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III. Public Notification for Relief Equivalent to a SDWA section 1415 Variance or a section 1416 Exemption.

A. Operation under relief equivalent to a SDWA section 1415 variance or a section 1416 exemption	3	¹⁵ 1415, 1416	N/A	N/A
B. Violation of conditions of relief equivalent to a SDWA section 1415 variance or a section 1416 exemption	2	1415, 1416, ¹⁶ 611.111, 611.112	N/A	N/A

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IV. Other Situations Requiring Public Notification.

A. Fluoride secondary maximum contaminant level (SMCL) exceedance	3	611.858	N/A	N/A
B. Exceedance of nitrate MCL for a non-CWS supplier, as allowed by the Agency	1	611.300(d)	N/A	N/A
C. Availability of unregulated contaminant monitoring data	3	as required by USEPA pursuant to 40 CFR 141.40	N/A	N/A

D. Waterborne disease outbreak	1	611.101, 611.233(b)(2)	N/A	N/A
E. Other waterborne emergency ¹⁷	1	N/A	N/A	N/A
F. Source water sample positive for Groundwater Rule fecal indicators: E. coli, enterococci, or coliphage	1	611.802(g)	N/A	N/A
G. Other situations as determined by the Agency by a SEP issued pursuant to Section 611.110	¹⁸ 1, 2, 3	N/A	N/A	N/A

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Appendix G – Endnotes

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1. Violations and other situations not listed in this table (e.g., failure to prepare Consumer Confidence Reports) do not require notice, unless otherwise determined by the Agency by a SEP issued pursuant to Section 611.110. The Agency may, by a SEP issued pursuant to Section 611.110, further require a more stringent public notice tier (e.g., Tier 1 instead of Tier 2 or Tier 2 instead of Tier 3) for specific violations and situations listed in this Appendix, as authorized under Sections 611.902(a) and 611.903(a).

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2. Definition of the abbreviations used: "MCL" means maximum contaminant level, "MRDL" means maximum residual disinfectant level, and "TT" means treatment technique.

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3. The term "violations of National Primary Drinking Water Regulations (NPDWR)" is used here to include violations of MCL, MRDL, treatment technique, monitoring, and testing procedure requirements.

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4. Failure to test for fecal coliform or E. coli is a Tier 1 violation if testing is not done after any repeat sample tests positive for coliform. All other total coliform monitoring and testing procedure violations are Tier 3 violations.

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5. A supplier that violates the turbidity MCL of 5 NTU based on an average of measurements over two consecutive days must consult with the Agency within 24 hours after learning of the violation. Based on this consultation, the Agency may subsequently decide to issue a SEP pursuant to Section 611.110 that elevates the violation to a Tier 1 violation. If a supplier is unable to make contact with the Agency in the 24-hour period, the violation is automatically elevated to a Tier 1 violation.

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6. A supplier with a treatment technique violation involving a single exceedance of a

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- 25887 maximum turbidity limit under the Surface Water Treatment Rule (SWTR), the Interim
25888 Enhanced Surface Water Treatment Rule (IESWTR), or the Long Term 1 Enhanced
25889 Surface Water Treatment Rule are required to consult with the Agency within 24 hours
25890 after learning of the violation. Based on this consultation, the Agency may subsequently
25891 decide to issue a SEP pursuant to Section 611.110 that elevates the violation to a Tier 1
25892 violation. If a supplier is unable to make contact with the Agency in the 24-hour period,
25893 the violation is automatically elevated to a Tier 1 violation.
25894
- 25895 7. The Surface Water Treatment Rule (SWTR) remains in effect for a supplier that serves at
25896 least 10,000 persons; the Interim Enhanced Surface Water Treatment Rule adds
25897 additional requirements and does not in many cases supercede the SWTR.
25898
- 25899 8. Failure to take a confirmation sample within 24 hours for nitrate or nitrite after an initial
25900 sample exceeds the MCL is a Tier 1 violation. Other monitoring violations for nitrate are
25901 Tier 3.
25902
- 25903 9. Failure to take a confirmation sample within 24 hours for nitrate or nitrite after an initial
25904 sample exceeds the MCL is a Tier 1 violation. Other monitoring violations for nitrate are
25905 Tier 3.
25906
- 25907 10. A Subpart B community or non-transient non-community system supplier must comply
25908 with new DBP MCLs, disinfectant MRDLs, and related monitoring requirements. A
25909 Subpart B transient non-community system supplier that serves 10,000 or more persons
25910 that uses chlorine dioxide as a disinfectant or oxidant or a Subpart B transient non-
25911 community system supplier that serves fewer than 10,000 persons, which uses only
25912 groundwater not under the direct influence of surface water, and which uses chlorine
25913 dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL.
25914
- 25915 11. Sections 611.312(b)(1) and 611.382(a) and (b) apply until Subpart Y of this Part takes
25916 effect under the schedule set forth in Section 611.970(c).
25917
- 25918 12. Failure to monitor for chlorine dioxide at the entrance to the distribution system the day
25919 after exceeding the MRDL at the entrance to the distribution system is a Tier 2 violation.
25920
- 25921 13. If any daily sample taken at the entrance to the distribution system exceeds the MRDL
25922 for chlorine dioxide and one or more samples taken in the distribution system the next
25923 day exceed the MRDL, Tier 1 notification is required. A failure to take the required
25924 samples in the distribution system after the MRDL is exceeded at the entry point also
25925 triggers Tier 1 notification.
25926
- 25927 14. Some water suppliers must monitor for certain unregulated contaminants as required by
25928 USEPA pursuant to 40 CFR 141.40.
25929

- 25930 15. This citation refers to sections 1415 and 1416 of the federal Safe Drinking Water Act.
25931 sections 1415 and 1416 require that "a schedule prescribed...for a public water system
25932 granted relief equivalent to a SDWA section 1415 variance or a section 1416 exemption
25933 must require compliance by the system...."
25934
- 25935 16. In addition to sections 1415 and 1416 of the federal Safe Drinking Water Act, 40 CFR
25936 142.307 specifies the items and schedule milestones that must be included in relief
25937 equivalent to a SDWA section 1415 small system variance. In granting any form of relief
25938 from an NPDWR, the Board will consider all applicable federal requirements for and
25939 limitations on the State's ability to grant relief consistent with federal law.
25940
- 25941 17. Other waterborne emergencies require a Tier 1 public notice under Section 611.902(a) for
25942 situations that do not meet the definition of a waterborne disease outbreak given in
25943 Section 611.101, but which still have the potential to have serious adverse effects on
25944 health as a result of short-term exposure. These could include outbreaks not related to
25945 treatment deficiencies, as well as situations that have the potential to cause outbreaks,
25946 such as failures or significant interruption in water treatment processes, natural disasters
25947 that disrupt the water supply or distribution system, chemical spills, or unexpected
25948 loading of possible pathogens into the source water.
25949
- 25950 18. The Agency may place any other situation in any tier it deems appropriate in writing,
25951 based on the prospective threat which it determines that the situation poses to public
25952 health, and subject to Board review pursuant to Section 40 of the Act [415 ILCS 5/40].
25953
- 25954 19. A failure to collect three or more samples for Cryptosporidium analysis is a Tier 2
25955 violation requiring special notice, as specified in Section 611.911. All other monitoring
25956 and testing procedure violations are Tier 3.
25957

25958 BOARD NOTE: Derived from ~~appendix~~Appendix A to ~~subpart~~Subpart Q to 40 CFR 141
25959 ~~(2016)~~(2014).

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(Source: Amended at 41 Ill. Reg. _____, effective _____)

25963 **Section 611.APPENDIX H Standard Health Effects Language for Public Notification**
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Contaminant	MCLG ¹ mg/ℓ	MCL ² mg/ℓ	Standard health effects language for public notification
National Primary Drinking Water Regulations (NPDWR):			
A. Microbiological Contaminants			
1a. <u>Corresponding row 1a in Appendix B to Subpart Q to 40 CFR 141 no longer applies by its own terms. This statement maintains structural consistency with the federal regulations. Total coliform, until March 31, 2016</u>	Zero	See footnote 3	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.
1b. <u>Corresponding row 1b in Appendix B to Subpart Q to 40 CFR 141 no longer applies by its own terms. This statement maintains structural consistency with the federal regulations. Fecal coliform/E. coli, until March 31, 2016</u>	Zero	Zero	Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.
1c. Fecal indicators (GWR): i. E. coli ii. enterococci iii. coliphage	Zero None None	TT TT TT	Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.

<p>1d. Groundwater Rule TT violations</p>	<p>None</p>	<p>TT</p>	<p>Inadequately treated or inadequately protected water may contain disease-causing organisms. These organisms can cause symptoms such as diarrhea, nausea, cramps, and associated headaches.</p>
<p>1e. Subpart Y Coliform Assessment and/or Corrective Action Violations, beginning April 1, 2016</p>	<p>N/A</p>	<p>TT</p>	<p>Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessments to identify problems and to correct any problems that are found. (The system must use the following applicable sentences:) We failed to conduct the required assessment. We failed to correct all identified sanitary defects that were found during the assessment(s).</p>

<p>1f. Subpart Y E. coli Assessment and/or Corrective Action Violations, beginning April 1, 2016</p>	<p>N/A</p>	<p>TT</p>	<p>E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We violated the standard for E. coli, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct a detailed assessment to identify problems and to correct any problems that are found. (The system must use the following applicable sentences:) We failed to conduct the required assessment. We failed to correct all identified sanitary defects that were found during the assessment that we conducted.</p>
<p>1g. E. coli, beginning April 1, 2016</p>	<p>Zero</p>	<p>See footnote 22</p>	<p>E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems.</p>

<p>1h. Subpart Y Seasonal System TT Violations; beginning April 1, 2016</p>	<p>N/A</p>	<p>TT</p>	<p>When this violation includes the failure to monitor for total coliforms or E. coli prior to serving water to the public, the mandatory language found at Section 611.905(d)(2) must be used. When this violation includes failure to complete other actions, the appropriate elements found in Section 611.905(a) to describe the violation must be used.</p>
<p>2a. Turbidity (MCL) ⁴</p>	<p>None</p>	<p>1 NTU ⁵/5 NTU</p>	<p>Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.</p>
<p>2b. Turbidity (SWTR TT)</p>	<p>None</p>	<p>TT ⁷</p>	<p>Turbidity has no health effects. However, ⁶ turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.</p>
<p>2c. Turbidity (IESWTR TT and LT1ESWTR TT)</p>	<p>None</p>	<p>TT</p>	<p>Turbidity has no health effects. However, ⁸ turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.</p>

B. Surface Water Treatment Rule (SWTR), Interim Enhanced Surface Water Treatment Rule (IESWTR), Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR), and Filter Backwash Recycling Rule (FBRR) violations:			
3. Giardia lamblia (SWTR/IESWTR/LT1ESWTR)	Zero	TT ¹⁰	Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
4. Viruses (SWTR/IESWTR/LT1ESWTR)			Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
5. Heterotrophic plate count (HPC) bacteria ⁹ (SWTR/IESWTR/LT1ESWTR)			Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
6. Legionella (SWTR/IESWTR/LT1ESWTR)			Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
7. Cryptosporidium (IESWTR/FBRR/LT1ESWTR)			Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
C. Inorganic Chemicals (IOCs)			
8. Antimony	0.006	0.006	Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.

9. Arsenic	0	0.010	Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.
10. Asbestos (10 µm)	7 MFL ¹¹	7 MFL	Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.
11. Barium	2	2	Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.
12. Beryllium	0.004	0.004	Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions.
13. Cadmium	0.005	0.005	Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.
14. Chromium (total)	0.1	0.1	Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.
15. Cyanide	0.2	0.2	Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid.

16. Fluoride	4.0	4.0	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in children less than nine years old. Mottling, also known as dental fluorosis, may include brown staining or pitting of the teeth, and occurs only in developing teeth before they erupt from the gums.
17. Mercury (inorganic)	0.002	0.002	Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage.
18. Nitrate	10	10	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
19. Nitrite	1	1	Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
20. Total Nitrate and Nitrite	10	10	Infants below the age of six months who drink water containing nitrate and nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.

21. Selenium	0.05	0.05	Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with their circulation.
22. Thallium	0.0005	0.002	Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, changes in their blood, or problems with their kidneys, intestines, or liver.
D. Lead and Copper Rule			
23. Lead	Zero	TT ¹²	Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.
24. Copper	1.3	TT ¹³	Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

E. Synthetic Organic Chemicals (SOCs)			
25. 2,4-D	0.07	0.07	Some people who drink water containing the weed killer 2,4-D well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands.
26. 2,4,5-TP (silvex)	0.05	0.05	Some people who drink water containing silvex in excess of the MCL over many years could experience liver problems.
27. Alachlor	Zero	0.002	Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer.
28. Atrazine	0.003	0.003	Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties.
29. Benzo(a)pyrene (PAHs).	Zero	0.0002	Some people who drink water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.
30. Carbofuran	0.04	0.04	Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood, or nervous or reproductive systems.
31. Chlordane	Zero	0.002	Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver or nervous system, and may have an increased risk of getting cancer.

32. Dalapon	0.2	0.2	Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.
33. Di(2-ethylhexyl)adipate	0.4	0.4	Some people who drink water containing di(2-ethylhexyl)adipate well in excess of the MCL over many years could experience toxic effects, such as weight loss, liver enlargement, or possible reproductive difficulties.
34. Di(2-ethylhexyl) phthalate	Zero	0.006	Some people who drink water containing di(2-ethylhexyl) phthalate well in excess of the MCL over many years may have problems with their liver or experience reproductive difficulties, and they may have an increased risk of getting cancer.
35. Dibromochloropropane (DBCP)	Zero	0.0002	Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
36. Dinoseb	0.007	0.007	Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties.
37. Dioxin (2,3,7,8-TCDD)	Zero	3×10^{-8}	Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
38. Diquat	0.02	0.02	Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.

39. Endothall	0.1	0.1	Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines.
40. Endrin	0.002	0.002	Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.
41. Ethylene dibromide	Zero	0.00005	Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive system, or kidneys, and may have an increased risk of getting cancer.
42. Glyphosate	0.7	0.7	Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties.
43. Heptachlor	Zero	0.0004	Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer.
44. Heptachlor epoxide	Zero	0.0002	Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer.
45. Hexachlorobenzene	Zero	0.001	Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer.

46. Hexachlorocyclopentadiene	0.05	0.05	Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.
47. Lindane	0.0002	0.0002	Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.
48. Methoxychlor	0.04	0.04	Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties.
49. Oxamyl (Vydate)	0.2	0.2	Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.
50. Pentachlorophenol	Zero	0.001	Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and may have an increased risk of getting cancer.
51. Picloram	0.5	0.5	Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver.
52. Polychlorinated biphenyls (PCBs)	Zero	0.0005	Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer.

53. Simazine	0.004	0.004	Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.
54. Toxaphene	Zero	0.003	Some people who drink water containing toxaphene in excess of the MCL over many years could have problems with their kidneys, liver, or thyroid, and may have an increased risk of getting cancer.
F. Volatile Organic Chemicals (VOCs)			
55. Benzene	Zero	0.005	Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer.
56. Carbon tetrachloride	Zero	0.005	Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
57. Chlorobenzene (monochlorobenzene)	0.1	0.1	Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys.
58. o-Dichlorobenzene	0.6	0.6	Some people who drink water containing o-dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory systems.
59. p-Dichlorobenzene	0.075	0.075	Some people who drink water containing p-dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood.

60. 1,2-Dichloroethane	Zero	0.005	Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer.
61. 1,1-Dichloroethylene	0.007	0.007	Some people who drink water containing 1,1-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
62. cis-1,2-Dichloroethylene	0.07	0.07	Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
63. trans-1,2-Dichloroethylene	0.1	0.1	Some people who drink water containing trans-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver.
64. Dichloromethane	Zero	0.005	Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer.
65. 1,2-Dichloropropane	Zero	0.005	Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.
66. Ethylbenzene	0.7	0.7	Some people who drink water containing ethylbenzene well in excess of the MCL over many years could experience problems with their liver or kidneys.
67. Styrene	0.1	0.1	Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system.

68. Tetrachloroethylene	Zero	0.005	Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer.
69. Toluene	1	1	Some people who drink water containing toluene well in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver.
70. 1,2,4-Trichlorobenzene	0.07	0.07	Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands.
71. 1,1,1-Trichloroethane	0.2	0.2	Some people who drink water containing 1,1,1-trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system.
72. 1,1,2-Trichloroethane	0.003	0.005	Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune systems.
73. Trichloroethylene	Zero	0.005	Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
74. Vinyl chloride	Zero	0.002	Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.

75. Xylenes (total)	10	10	Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system.
G. Radioactive Contaminants			
76. Beta/photon emitters	Zero	4 mrem/yr ¹⁴	Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.
77. Alpha emitters	Zero	15 pCi/ℓ ¹⁵	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
78. Combined radium (226 & 228)	Zero	5 pCi/ℓ	Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.
79. Uranium	Zero	30 µg/ℓ	Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer and kidney toxicity.
<p>H. Disinfection Byproducts (DBPs), Byproduct Precursors, and Disinfectant Residuals: Where disinfection is used in the treatment of drinking water, disinfectants combine with organic and inorganic matter present in water to form chemicals called disinfection byproducts (DBPs). USEPA sets standards for controlling the levels of disinfectants and DBPs in drinking water, including trihalomethanes (THMs) and haloacetic acids (HAA5) ¹⁶</p>			

80. Total trihalomethanes (TTHMs)	N/A	0.080 ^{17,18}	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.
81. Haloacetic Acids (HAA5)	N/A	0.060 ¹⁹	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.
82. Bromate	Zero	0.010	Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer.
83. Chlorite	0.08	1.0	Some infants and young children who drink water containing chlorite in excess of the MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia.
84. Chlorine	4 (MRDLG) ²⁰	4.0 (MRDL) ²¹	Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.

<p>85. Chloramines</p>	<p>4 (MRDLG)</p>	<p>4.0 (MRDL)</p>	<p>Some people who use water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia.</p>
<p>85a. Chlorine dioxide, where any two consecutive daily samples taken at the entrance to the distribution system are above the MRDL</p>	<p>0.8 (MRDLG)</p>	<p>0.8 (MRDL)</p>	<p>Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia.</p> <p>Add for public notification only: The chlorine dioxide violations reported today are the result of exceedances at the treatment facility only, not within the distribution system that delivers water to consumers. Continued compliance with chlorine dioxide levels within the distribution system minimizes the potential risk of these violations to consumers.</p>

<p>86a. Chlorine dioxide, where one or more distribution system samples are above the MRDL</p>	<p>0.8 (MRDLG)</p>	<p>0.8 (MRDL)</p>	<p>Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia.</p> <p>Add for public notification only: The chlorine dioxide violations reported today include exceedances of the USEPA standard within the distribution system that delivers water to consumers. Violations of the chlorine dioxide standard within the distribution system may harm human health based on short-term exposures. Certain groups, including fetuses, infants, and young children, may be especially susceptible to nervous system effects from excessive chlorine dioxide exposure.</p>
<p>87. Control of DBP precursors (TOC)</p>	<p>None</p>	<p>TT</p>	<p>Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.</p>

I. Other Treatment Techniques:			
88. Acrylamide	Zero	TT	Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer.
89. Epichlorohydrin	Zero	TT	Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer.

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Appendix H – Endnotes

1. "MCLG" means maximum contaminant level goal.
2. "MCL" means maximum contaminant level.
3. This endnote corresponds with endnote 3 to appendix B to subpart Q to 40 CFR 14, which applied only to paragraph 1a in the table, which no longer has operative effect. This statement maintains structural consistency with the corresponding federal rules. For a water supplier analyzing at least 40 samples per month, no more than 5.0 percent of the monthly samples may be positive for total coliforms. For a supplier analyzing fewer than 40 samples per month, no more than one sample per month may be positive for total coliforms.
4. There are various regulations that set turbidity standards for different types of systems, including Section 611.320, the 1989 Surface Water Treatment Rule (SWTR), the 1998 Interim Enhanced Surface Water Treatment Rule (IESWTR), and the 2002 Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR). The MCL for the monthly turbidity average is 1 NTU; the MCL for the 2-day average is 5 NTU for a supplier that is required to filter but has not yet installed filtration (Section 611.320).
5. "NTU" means nephelometric turbidity unit.
6. There are various regulations that set turbidity standards for different types of systems, including Section 611.320, the 1989 SWTR, the 1998 IESWTR, and the 2002 LT1ESWTR. A supplier subject to the SWTR (both filtered and unfiltered) may not exceed 5 NTU. In addition, in filtered systems, 95 percent of samples each month must not exceed 0.5 NTU in systems using conventional or direct filtration and must not

- 25994 exceed 1 NTU in systems using slow sand or diatomaceous earth filtration or other
 25995 filtration technologies approved by the Agency.
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- 25997 7. "TT" means treatment technique.
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- 25999 8. There are various regulations that set turbidity standards for different types of systems,
 26000 including Section 611.320, the 1989 SWTR, the 1998 IESWTR, and the 2002
 26001 LT1ESWTR. For a supplier subject to the IESWTR (a supplier that serves at least
 26002 10,000 people, using surface water or groundwater under the direct influence of surface
 26003 water), that use conventional filtration or direct filtration, the turbidity level of a system's
 26004 combined filter effluent may not exceed 0.3 NTU in at least 95 percent of monthly
 26005 measurements, and the turbidity level of a system's combined filter effluent must not
 26006 exceed 1 NTU at any time. A supplier subject to the IESWTR using technologies other
 26007 than conventional, direct, slow sand, or diatomaceous earth filtration must meet turbidity
 26008 limits set by the Agency. For a supplier subject to the LT1ESWTR (a supplier that serves
 26009 fewer than 10,000 people, using surface water or groundwater under the direct influence
 26010 of surface water) that uses conventional filtration or direct filtration, ~~after January 1,~~
 26011 ~~2005,~~ the turbidity level of the supplier's combined filter effluent may not exceed 0.3
 26012 NTU in at least 95 percent of monthly measurements, and the turbidity level of the
 26013 supplier's combined filter effluent must not exceed 1 NTU at any time. A supplier
 26014 subject to the LT1ESWTR using technologies other than conventional, direct, slow sand,
 26015 or diatomaceous earth filtration must meet turbidity limits set by the Agency.
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- 26017 9. The bacteria detected by heterotrophic plate count (HPC) are not necessarily harmful.
 26018 HPC is simply an alternative method of determining disinfectant residual levels. The
 26019 number of such bacteria is an indicator of whether there is enough disinfectant in the
 26020 distribution system.
 26021
- 26022 10. SWTR, IESWTR, and LT1ESWTR treatment technique violations that involve turbidity
 26023 exceedances may use the health effects language for turbidity instead.
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- 26025 11. Millions of fibers per liter.
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- 26027 12. Action Level = 0.015 mg/ℓ.
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- 26029 13. Action Level = 1.3 mg/ℓ.
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- 26031 14. Millirems per year.
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- 26033 15. Picocuries per liter.
 26034
- 26035 16. A surface water system supplier or a groundwater system supplier under the direct
 26036 influence of surface water is regulated under Subpart B of this Part. A Subpart B

26037 community water system supplier or a non-transient non-community system supplier
26038 must comply with Subpart I DBP MCLs and disinfectant maximum residual disinfectant
26039 levels (MRDLs). A Subpart B transient non-community system supplier that uses
26040 chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide
26041 MRDL.

- 26042
- 26043 17. Community and non-transient non-community systems must comply with Subpart Y
26044 TTHM and HAA5 MCLs of 0.080 mg/ℓ and 0.060 mg/ℓ, respectively (with compliance
26045 calculated as a locational running annual average) on the schedule in Section 611.970.
26046
- 26047 18. The MCL for total trihalomethanes is the sum of the concentrations of the individual
26048 trihalomethanes.
26049
- 26050 19. The MCL for haloacetic acids is the sum of the concentrations of the individual
26051 haloacetic acids.
26052
- 26053 20. "MRDLG" means maximum residual disinfectant level goal.
26054
- 26055 21. "MRDL" means maximum residual disinfectant level.
26056
- 26057 22. The supplier is in compliance unless one of the following conditions occurs: (1) the
26058 supplier's system has an E. coli-positive repeat sample following a total coliform-positive
26059 routine sample; (2) the supplier's system has a total coliform-positive repeat sample
26060 following an E. coli-positive routine sample; (3) the supplier fails to take all required
26061 repeat samples following an E. coli-positive routine sample; or (4) the supplier fails to
26062 test for E. coli when any repeat sample tests positive for total coliform.
26063

26064 BOARD NOTE: Derived from appendix B to subpart Q to 40 CFR 141 (2016)(2014).

26065 (Source: Amended at 41 Ill. Reg. _____, effective _____)
26066
26067

26068 **Section 611.TABLE E Lead and Copper Monitoring Start Dates (Repealed)**

26069

System Size (Persons served)	First Six-month Monitoring Period Begins
more than 50,000	January 1, 1992
3,301 to 50,000	July 1, 1992
3,300 or fewer	July 1, 1993

26070
26071 BOARD NOTE: Derived from 40 CFR 141.86(d)(1) (2012).

26072
26073 (Source: Repealed at 41 Ill. Reg. _____, effective _____)

26074

26075 **Section 611.TABLE Z Federal Effective Dates**

26076

26077 The following are the effective dates of the various federal NPDWRs:

26078

Fluoride (40 CFR 141.62(b)(1)) (corresponding with Section 611.301(b))	October 2, 1987
Phase I VOCs (40 CFR 141.61(a) through (a)(8)) (corresponding with Section 611.311(a)) (benzene, carbon tetrachloride, p-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethylene, 1,1,1-trichloroethane, trichloroethylene, and vinyl chloride)	January 9, 1989
Total Coliforms Rule (40 CFR 141.21 & 141.63) (corresponding with Sections 611.521-611.527 & 611.325) (total coliforms, fecal coliforms, and E. coli) <u>Replaced by the Revised Total Coliforms Rule (40 CFR 141, subpart Y)</u>	December 31, 1990
Surface Water Treatment Rule (40 CFR 141, subpart H) (corresponding with Subpart B of this Part) (filtration, disinfection, and turbidity)	Effective: December 31, 1990 Compliance: December 31, 1991
Lead and Copper (40 CFR 141, subpart I) (corresponding with Subpart G of this Part) (lead and copper monitoring, reporting, and recordkeeping requirements of 40 CFR 141.86 through 141.91)	July 7, 1991
Phase II IOCs (40 CFR 141.62(b)(2) and (b)(4) through (b)(10)) (corresponding with Section 611.301(b)) (asbestos, cadmium, chromium, mercury, nitrate, nitrite, and selenium)	July 30, 1992
Phase II VOCs (40 CFR 141.61(a)(9) through (a)(18)) (o-dichlorobenzene, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, 1,2-dichloropropane, ethylbenzene, monochlorobenzene, styrene, tetrachloroethylene, toluene, and xylenes (total))	July 30, 1992
Phase II SOCs (40 CFR 141.61(c)(1) through (c)(18)) (alachlor, atrazine, carbofuran, chlordane, dibromochloropropane, ethylene dibromide, heptachlor, heptachlor epoxide, lindane, methoxychlor, polychlorinated biphenyls, toxaphene, 2,4-D, and 2,4,5-TP (silvex))	July 30, 1992

Phase V SOC (40 CFR 141.61(c)(3)) (corresponding with Section 611.311(c)) (endrin)	August 17, 1992
Lead and Copper (40 CFR141, subpart I) (corresponding with Subpart G of this Part) (lead and copper corrosion control, water treatment, public education, and lead service line replacement requirements of 40 CFR 141.81 through 141.85)	December 7, 1992
Phase IIB IOC (40 CFR 141.62(b)(3)) (corresponding with Section 611.301(b)) (barium)	January 1, 1993
Phase IIB SOCs (40 CFR 141.61(a)(9) through (a)(18)) (corresponding with Section 611.311(c)) (aldicarb, aldicarb sulfone, aldicarb sulfoxide, and pentachlorophenol. See the Board note appended to Section 611.311(c) for information relating to implementation of requirements relating to aldicarb, aldicarb sulfone, and aldicarb sulfoxide.)	January 1, 1993
Phase V IOCs (40 CFR 141.62(b)(11) through (b)(15)) (corresponding with Section 611.301(b)) (antimony, beryllium, cyanide, nickel, and thallium)	January 17, 1994
Phase V VOCs (40 CFR 141.61(b)(19) through (b)(21)) (corresponding with Section 611.311(a)) (dichloromethane, 1,2,4-trichlorobenzene, and 1,1,2-trichloroethane)	January 17, 1994
Phase V SOCs (40 CFR 141.61(c)(19) through (c)(25)) (corresponding with Section 611.311(c)) (benzo(a)pyrene, dalapon, di(2-ethylhexyl)adipate, di(2-ethylhexyl)phthalate dinoseb, diquat, endothall, glyphosate, hexachlorobenzene, hexachlorocyclopentadiene, oxamyl, picloram, simazine, and 2,3,7,8-TCDD)	January 17, 1994
Consumer Confidence Report Rule (40 CFR 141, subpart Q) (corresponding with Subpart O of this Part) (notification to public of drinking water quality)	September 18, 1998

Interim Enhanced Surface Water Treatment Rule (40 CFR 141, subpart P) (corresponding with Subpart R of this Part) (applicable to suppliers providing water to fewer than 10,000 persons) (Giardia lamblia, viruses, heterotrophic plate count bacteria, Legionella, Cryptosporidium, and turbidity)	February 16, 1999
Public Notification Rule (40 CFR 141, subpart Q) (corresponding with Subpart V of this Part) (notification to public of NPDWR violations, variances or exemptions, or other situations that could bear on public health)	June 5, 2000
Filter Backwash Rule (40 CFR 141.76) (corresponding with Section 611.276) (reuse of spent filter backwash water, thickener supernatant, or liquids from dewatering processes)	August 7, 2001
Disinfection/Disinfectant Byproducts Rule (40 CFR 141.64, 141.65 & 141, subpart L) Smaller Systems (serving 10,000 or fewer persons) Larger Systems (serving more than 10,000 persons) (corresponding with Sections 611.312 & 611.313) (total trihalomethanes, haloacetic acids (five), bromate, chlorite, chlorine, chloramines, and chlorine dioxide)	December 16, 2001 December 16, 2003
Long Term 1 Enhanced Surface Water Treatment Rule (40 CFR 141, Subpart T) (corresponding with Subpart X of this Part) (applicable to suppliers providing water to 10,000 or more persons) (Giardia lamblia, viruses, heterotrophic plate count bacteria, Legionella, Cryptosporidium, and turbidity)	February 13, 2002
Radionuclides (40 CFR 141.66) (corresponding with Section 611.330) (combined radium (Ra-226 + Ra-228), gross alpha particle activity, beta particle and photon activity, and uranium)	December 8, 2003
Arsenic (40 CFR 141.62(b)(16)) (corresponding with Section 611.301(b)) (arsenic)	January 23, 2006
Stage 2 Disinfection/Disinfectant Byproducts Rule (40 CFR 141, subparts U & V) Systems that serve fewer than 10,000 persons	

Submit plan	April 1, 2008
Complete monitoring or study	March 31, 2010
Submit IDSE report	July 1, 2010
Compliance with monitoring requirements	
If no Cryptosporidium monitoring is required	October 1, 2013
If Cryptosporidium monitoring is required	October 1, 2014
Systems that serve 10,000 to 49,999 persons	
Submit plan	October 1, 2007
Complete monitoring or study	September 30, 2009
Submit IDSE report	January 1, 2010
Compliance with monitoring requirements	October 1, 2013
Systems that serve 50,000 to 99,999 persons	
Submit plan	April 1, 2007
Complete monitoring or study	March 31, 2009
Submit IDSE report	July 1, 2009
Compliance with monitoring requirements	October 1, 2012
Systems that serve 100,000 or more persons	
Submit plan	October 1, 2006
Complete monitoring or study	September 30, 2008
Submit IDSE report	January 1, 2009
Compliance with monitoring requirements	April 1, 2012
(corresponding with Subparts W & Y of this Part)	
(total trihalomethanes and haloacetic acids (five))	
 Long Term 2 Enhanced Surface Water Treatment Rule (40 CFR 141, subpart W)	
Systems that serve fewer than 10,000 persons	
And which monitor for E. coli	
Begin first round of monitoring	October 1, 2008
Begin treatment for Cryptosporidium	October 1, 2014
Begin second round of monitoring	October 1, 2017
And which monitor for cryptosporidium	
Begin first round of monitoring	April 1, 2010
Begin treatment for Cryptosporidium	October 1, 2014
Begin second round of monitoring	April 1, 2019
Systems that serve 10,000 to 49,999 persons	
Begin first round of monitoring	April 1, 2008
Begin treatment for Cryptosporidium	October 1, 2013
Begin second round of monitoring	October 1, 2016
Systems that serve 50,000 to 99,999 persons	
Begin first round of monitoring	April 1, 2007
Begin treatment for Cryptosporidium	October 1, 2012
Begin second round of monitoring	October 1, 2015
Systems that serve 100,000 or more persons	

Begin first round of monitoring	October 1, 2006
Begin treatment for Cryptosporidium	April 1, 2012
Begin second round of monitoring (corresponding with Subpart Z of this Part) (E. coli, Cryptosporidium, Giardia lamblia, viruses, and turbidity)	April 1, 2015
Groundwater Rule (40 CFR 141, subpart S) (corresponding with Subpart S of this Part) (E. coli, enterococci, and coliphage)	December 1, 2009
Revised Total Coliforms Rule (40 CFR 141, Subpart Y) (corresponding with subpart AA of this Part) (total coliforms (indicator), E. coli)	Effective: April 15, 2013 Compliance: April 1, 2016

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26081

(Source: Amended at 41 Ill. Reg. _____, effective _____)