

ILLINOIS POLLUTION CONTROL BOARD

August 20, 2015

IN THE MATTER OF: )  
SDWA UPDATE, USEPA AMENDMENTS ) R16-4  
(January 1, 2015 through June 30, 2015) ) (Identical-in-Substance  
) Rulemaking - Public Water Supply)

Proposed Rule. Proposal for Public Comment.

OPINION AND ORDER OF THE BOARD (by J.A. Burke):

**SUMMARY OF THIS ACTION**

The Board today proposes amendments to the Illinois regulations that are “identical in substance” (IIS) to drinking water regulations adopted by the United States Environmental Protection Agency (USEPA). The Board reserved this docket to accommodate USEPA revisions to the National Primary Drinking Water Regulations (NPDWRs) that occurred in the first half of 2015. USEPA did not amend the federal NPDWRs during this period. Rather, the Board uses this opportunity to make a limited number of minor needed corrections to the existing text of various provisions. JCAR staff suggested two of the corrections after the most recent amendments to the Illinois primary drinking water standards. The Illinois Environmental Protection Agency also brought needed corrections to the Board’s attention, and the Board found others. The corrections are discussed below.

Sections 7.2 and 17.5 of the Environmental Protection Act (Act) (415 ILCS 5/7.2 and 17.5 (2012)) provide for quick adoption by the Board of regulations that are identical in substance to federal regulations that USEPA adopts to implement Sections 1412(b), 1414(c), 1417(a), and 1445(a) of the federal Safe Drinking Water Act (SDWA) (42 U.S.C. §§ 300g-1(a), 300g-3(c), 300g-6(a), and 300j-4(a) (2011)). The USEPA National Primary Drinking Water Regulations (NPDWRs) implement Sections 1412(b), 1414(c), 1417(a), and 1445(a) of the federal SDWA (42 U.S.C. §§ 300g-1(a), 300g-3(c), 300g-6(a), and 300j-4(a) (2011)). The federal SDWA regulations are found at 40 C.F.R. 141 through 143. Section 17.5 also provides that Title VII of the Act and Section 5 of the Illinois Administrative Procedure Act (APA) (5 ILCS 100/5-35 and 5-40 (2012)) do not apply to the Board’s adoption of identical-in-substance regulations.

The Board will cause the proposed amendments to be published in the *Illinois Register* and will hold the docket open to receive public comments for 45 days after the date of publication. The Board will then adopt and file the final rules, taking into account the public comments received. The Board specifically requests comment on one aspect of the rules. The Board requests comments on the way the Board has incorporated the recitation of the secondary MCL for fluoride into the Illinois regulations while avoiding adopting the secondary MCL in any way that implies operational validity under Illinois law and regulations.

## TIMETABLE FOR COMPLETION OF THIS RULEMAKING

As is more fully explained below, JCAR submitted suggestions for corrections on March 3, 2015, and the Illinois Environmental Protection Agency (Agency) filed a rulemaking proposal with the Board on May 22, 2015. Under Section 7.2 of the Act (415 ILCS 5/7.2(b) (2012)), the Board must complete this rulemaking within one year of the date of finding that corrections are needed. Finding today that correction is necessary establishes a due date of August 19, 2016, pursuant to Section 7.2(b) of the Act (415 ILCS 5/7.2(b)) (2012)). The Board, however, presently expects that the needed corrections will be adopted and filed no later than the end of calendar 2015. Adoption of this proposal for public comment today will allow completion of the present amendments before December 31, 2015.

Based on proposal today, the Board presently anticipates the following dates for completion of intermediate activities in this proceeding:

<b>Date of Board vote to propose amendments:</b>	<b>August 20, 2015</b>
Submission for <i>Illinois Register</i> publication:	August 31, 2015
Probable <i>Illinois Register</i> publication date:	September 11, 2015
Probable End of 45-day public comment period:	October 26, 2015
<b>Date of Board vote to adopt amendments:</b>	<b>November 5, 2015</b>
Possible filing and <b>effective date:</b>	<b>November 16, 2015</b>
Possible <i>Illinois Register</i> publication date:	November 25, 2015

This estimated timetable of intermediate activities towards completion of the amendments has a slight amount of extra time added to allow for any minor unforeseen delays in finalizing the amendments. However, progress could occur more slowly due to unforeseen events. Nevertheless, the Board anticipates that the present amendments will be filed with the Office of the Secretary of State and become effective before December 31, 2015.

## DISCUSSION

The discussion includes three primary segments. The first considers corrections prompted by JCAR suggestions. The second segment considers corrections based on Agency suggestions. The third segment considers Board-initiated corrections.

### JCAR-Suggested Corrections

During the pendency of the prior update, SDWA Update, USEPA Amendments (January 1, 2014 through June 30, 2014) R15-6 (Feb. 19, 2015), JCAR submitted an e-mail that recommended corrections to segments of the Illinois primary drinking water rules that were not already involved in the R15-6 update. The Board designated the e-mail, together with the Board staff response, as PC 5 in that docket.

All of the JCAR-suggested corrections are minor. None warrants specific discussion. All are listed in Table 1, which appears at the end of the opinion segment of this opinion and order.

### **Agency-Suggested Corrections**

The Agency-suggested corrections relate to recitation of the federal secondary maximum contaminant limit (MCL) for fluoride. While the Board's IIS mandate does not ordinarily extend to secondary MCLs, recitation of the federal secondary MCL for fluoride is necessary for the purpose of a public notice requirement that is squarely within the IIS mandate. This is explained below.

The Agency filed the rulemaking, Amendments to Primary Drinking Water Standards: 35 Ill. Adm. Code 611, R15-23, on May 20, 2015. The principal objective of that proceeding is lowering the primary maximum contaminant level (MCL) for fluoride. As an ancillary matter, the Agency seeks correction of an error in two provisions of the public notice rules. These provisions require public notice by a supplier when an exceedance of the secondary MCL for fluoride. The Illinois regulations do not state the secondary MCL for fluoride. Rather, the notice provisions cross-reference a rule that the Board repealed in 2011.

Primary MCLs are based on protection of human health. 42 U.S.C. § 300f(1) (2013). Secondary MCLs are based on protection of public welfare, which includes aesthetic, odor, taste, and other non-health-related qualities of drinking water. 42 U.S.C. § 300f(2) (2013). Only primary MCLs fall within the Board's IIS mandate in section 17.5 of the Act. *See* 415 ILCS 5/17.5 (2014). NPDWRs are defined as the primary MCLs or treatment techniques for drinking water that USEPA has established to protect human health. 42 U.S.C. § 300f(1)(C) (2013).

The IIS mandate in section 17.5 requires the Board to adopt and maintain rules adopted by USEPA pursuant to four SDWA authorizations for rulemaking. These four subject-matter areas are (1) the NPDWRs adopted pursuant to section 1412(b) of SDWA, which include the primary MCLs; (2) the public notice requirements adopted pursuant to section 1414(c) of SDWA, which include the notice required for exceedance of the secondary MCL for fluoride; (3) the prohibition of lead pipes pursuant to section 1417(a) of SDWA; and (4) the unregulated contaminants monitoring requirements pursuant to section 1445(a) of SDWA.

Prior to 2000, federal rules at 40 C.F.R. 141.32(f) and 143.5 (1989) provided for special notice for exceedance of the secondary MCL for fluoride. In 1990, The Board added the federal notice provision to the Illinois rules. In the Illinois regulations, 35 Ill. Adm. Code 611.856 corresponded with 40 C.F.R. 141.32(f), and 35 Ill. Adm. Code 611.858 corresponded with 40 C.F.R. 143.3 and 143.5. *See Safe Drinking Water Act Regulations*, R88-26 (Aug. 9, 1990), slip op. at p. 108. The Board added the federal secondary MCL for fluoride at 35 Ill. Adm. Code 611.300(c).<sup>1</sup> The Board stated that there was no other place to include the federal secondary MCL. Safe Drinking Water Act Regulations, R88-26 (Aug. 9, 1990), slip op. at p. 74.)

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<sup>1</sup> The secondary MCL for fluoride appeared together with the primary MCLs. *See* 35 Ill. Adm. Code 611.300 (1992). A Board note appended to 35 Ill. Adm. Code 611.300(c) recited that the

USEPA revised the federal public notification rules in 2000, and the former public notice requirements expired on October 21, 2000. USEPA adopted new public notice requirements in subpart Q of 40 C.F.R. 141, added a sunset clause to 40 C.F.R. 141.32, and removed 40 C.F.R. 143.5. *See* 65 Fed. Reg. 25982, 26022, 26049 (May 4, 2015). Among the new public notice rules was 40 C.F.R. 141.208, a requirement for notice for exceedance of the secondary MCL for fluoride. The Board repealed 35 Ill. Adm. Code 611.856 and 611.858 and adopted a corresponding public notice requirement as 35 Ill. Adm. Code 611.908 in SDWA Update, USEPA Amendments (January 1, 2000 through June 30, 2000), R01-7 (Jan. 4, 2001). This provision requires a water supplier to issue special notice for fluoride whenever the water provided exceeds the secondary MCL of 2 mg/ℓ for fluoride.

In response to USEPA adoption of revised MCLs in 1991, *see* 56 Fed. Reg. 30266 (July 1, 1991), the Board incorporated the revised MCLs into then-new 35 Ill. Adm. Code 611.301. The Board deemed all of the existing MCLs in 35 Ill. Adm. Code 611.300 as “old MCLs,” including the secondary MCL for fluoride. *See* Safe Drinking Water Act Update, Phase II and Coliform Rules (July 1, 1990 through January 31, 1991), R91-3, Safe Drinking Water Act Phase I Corrections, R92-9 (Nov. 19, 1992). In 1993, the Board deleted the “old MCL” for fluoride in Safe Drinking Water Act Update, Phase V Rules (July 1, 1992 through December 31, 1992), R93-1 (May 5, 1993) slip op. at p. 25, observing that the secondary MCLs are advisory only.<sup>2</sup>

The removal of the secondary MCL for fluoride from 35 Ill. Adm. Code 611.300(c) and repeal of 35 Ill. Adm. Code 611.858 created a problem. The Agency now directs the Board’s attention to the problem in its rulemaking petition in Amendments to Primary Drinking Water Standards: 35 Ill. Adm. Code 611, R15-23. The special notice for fluoride provision in 35 Ill. Adm. Code 611.908<sup>3</sup> refers to now-repealed 35 Ill. Adm. Code 611.858 for recitation of the secondary MCL for fluoride. By its petition, the Agency proposed restoring 35 Ill. Adm. Code 611.858, as follows:

Section 611.858 Fluoride Secondary Standard

The secondary standard for fluoride is 2.0 mg/L.

BOARD NOTE: Derived from 40 CFR 143.3 (2014).

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secondary MCL for fluoride was derived from 40 C.F.R. 141.11(c). *See* 35 Ill. Adm. Code 611.300 (1992).

<sup>2</sup> This was the source of the Board’s reluctance to include the secondary MCL for fluoride in R88-26. *Compare* Safe Drinking Water Act Update, Phase II and Coliform Rules (July 1, 1990 through January 31, 1991), R91-3, Safe Drinking Water Act Phase I Corrections, R92-9 (Nov. 19, 1992), slip op. at p. 18 *with* Safe Drinking Water Act Regulations, R88-26 (Aug. 9, 1990), slip op. at p. 74.

<sup>3</sup> And 35 Ill. Adm. Code 611.904(a)(5), which deems special notice for fluoride a Tier 3 public notice.

The Board granted expedited consideration of the Agency's petition and proposed this restoration for First Notice without substantive review. *See Amendments to Primary Drinking Water Standards: 35 Ill. Adm. Code 611, R15-23* (June 4, 2015); 39 Ill. Reg. 8691 (June 26, 2015). In response to inquiries submitted in writing by the Board in docket R15-23, the Agency submitted PC 7. The Agency stated that an alternative posed by the Board would be equally viable to the proposed restoration of 35 Ill. Adm. Code 611.858. The Board's suggested alternative was to remove all cross-references to 35 Ill. Adm. Code 611.858 and add recitation of the secondary MCL for fluoride in the special notice and ancillary provisions<sup>4</sup> that rely on the secondary MCL.

The Board has determined to pursue the alternative suggested to the Agency in the R15-23 proceeding. The Board will do so in this IIS update, rather than in docket R15-23, as requested by the Agency. The Board would prefer to correct errors in IIS rules in an IIS proceeding where doing so does not result in delay of the correction. As is explained below, no such delay will occur in this proceeding.

Also, the Board wants to avoid adding a secondary MCL into the Illinois primary drinking water standards. Today's proposed amendments would directly state that exceedance of 2mg/l fluoride triggers the special notice requirement. Added parentheses and notes indicate that this is the federal secondary MCL for fluoride. The sole function of the 2mg/l level in Illinois is to trigger the special notice requirement; the number does not impose any standard on the quality of the water itself.

### **Board Corrections**

The word "exceedance" has come into common use in federal environmental regulations. In 2001, the Board determined that the spelling should appear as "exceedance" consistent with rules of Latin grammar. *SDWA Update, USEPA Amendments (July 1, 2000 through December 31, 2000; Radionuclides)*, R01-20 (Oct. 4, 2001), slip op. at p. 10. In 2008, however, the Board observed that the prevailing spelling was "exceedance," and determined to follow USEPA's lead when USEPA corrected appearances of "exceedance" to "exceedence." The Board stated as follows:

As a result of the recent USEPA change of the spelling from "exceedence" to "exceedance," the Board has reconsidered the previous position. The Board has chosen to follow the USEPA lead and change the spelling to "exceedance" in the Illinois rules. It appears that since the Board took its previous position with regard to the spelling, there has been a growing tendency to use the spelling "exceedance." This is the spelling used in the relatively new fourth edition of the *American Heritage Dictionary*. *See* "exceedance." *Dictionary.com*. *The American Heritage Dictionary of the English Language*, 4th ed. Houghton Mifflin

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<sup>4</sup> The special notice provision is 35 Ill. Adm. Code 611.908(a). The ancillary provisions are 35 Ill. Adm. Code 611.901(a)(3)(C) (listing of special public notices) and 611.904(a)(5) (listing of Tier 3 public notices).

Company, 2004. (<http://dictionary.reference.com/browse/exceedance> (accessed: February 19, 2008)). It is also apparently endorsed by Princeton University. See “exceedance.” Dictionary.com. *WordNet® 3.0*. Princeton University. (<http://dictionary.reference.com/browse/exceedance> (accessed: February 19, 2008)). RCRA Subtitle C Update, USEPA Amendments (March 5, 2005, September 8, 2005, and January 1, 2006 through June 30, 2006), R07-5, RCRA Subtitle C Update, USEPA Amendments (July 1, 2006 through December 31, 2006), R07-14 (June 5, 2008), slip op. at pp. 57-58.

In considering the Agency-suggested corrections, the Board encountered appearances of the word “exceedance.” This prompted a search of the entire text of 35 Ill. Adm. Code 611 for the spelling “exceedance.” The Board found 49 appearances in several provisions. The Board has corrected each appearance to the prevailing spelling “exceedance.” Table 1 indicates each correction.

### **No Other Federal Actions Having a Direct Impact on the Illinois SDWA (Drinking Water) Regulations**

No Board action will be required based on a USEPA action that is outside the direct scope of the Board’s IIS mandate. An example of such a USEPA action would include amendment of a rule outside the scope of the NPDWR rules upon which an NPDWR relies, by cross-reference, incorporation by reference, or direct contribution of substantive language (such as the secondary MCL for fluoride). The versions of the *Code of Federal Regulations* or the *United States Code* incorporated by reference in 35 Ill. Adm. Code 611.102 are the latest versions of these documents currently available. If the Government Printing Office publishes later versions prior to final adoption of the present amendments, the Board will update the incorporations by reference at that time.

### **PUBLIC COMMENTS**

The Board will receive public comments on this proposal for 45 days following its publication in the *Illinois Register*. After that time, the Board will immediately consider adoption of the amendments, making any necessary changes made evident through the public comments. The Board expects to file any adopted rules with the Secretary of State immediately after adoption, likely by November 16, 2015, but no later than December 31, 2015.

Before adoption of this proposal for public comment, the Board considered three documents, as is described in the foregoing discussions:

- A March 3, 2015 e-mail exchange between Johnathan Eastvold, JCAR staff, and Michael McCambridge, Board hearing officer, docketed in SDWA Update, USEPA Amendments (January 1, 2014 through June 30, 2014) R15-6 as PC 5.
- The petition for rulemaking and statement of reasons filed May 20, 2015 by the Agency in Amendments to Primary Drinking Water Standards: 35 Ill. Adm. Code 611, R15-23.

- Responses to Board inquiries submitted July 28, 2015 by the Agency, docketed as PC 7 in Amendments to Primary Drinking Water Standards: 35 Ill. Adm. Code 611, R15-23.

These three documents form the basis of corrections that the Boards finds are needed in the text of the Illinois primary drinking water regulations.

### **Tabulations of Miscellaneous Corrections and Board Housekeeping Amendments**

Table 1 below lists the various corrections that the Board has made in the base text involved in this proposal. Table 1 indicates the location of each correction, its source, and describes the correction made. Some of the entries in these tables are discussed further in appropriate segments of the foregoing discussions. Table 2 lists a single JCAR suggestion that the Board has not followed.

**Table 1: Miscellaneous Corrections and Board Housekeeping Amendments**

Section	Source	Revision(s)
611, table of contents, 611.908 heading	Board	Corrected the spelling “exceedance” to “exceedance.”
611, table of contents, 611.909 heading	Board	Corrected the spelling “exceedance” to “exceedance.”
611.102(a), “Tecta EC/TC P-A Test”	JCAR, Board	Corrected “Tecta EC/TC P-A Test . . .” to “TECTA™ EC/TC medium and the TECTA™ Instrument: a . . .” in the formal document title.
611.102(b), AWWA, Standard Methods, 22nd ed., Method 9223 B	JCAR	Added a comma after “Colilert® Test” to offset the element of the series.
611.102(b), Palintest, Ltd.	JCAR	Removed “21” from the street address.
611.102(b), Veolia Water Solutions and Technologies, “Tecta EC/TC P-A Test”	JCAR, Board	Corrected the formal document title by adding “TECTA™ EC/TC medium and the TECTA™ Instrument: a.”
611.261(e)(2)	Board	Corrected the spelling “exceedance” to “exceedance.”

611.261 Board note	Board	Updated the <i>Code of Federal Regulations</i> citation to the latest version available.
611.262(c)(2)	Board	Corrected the spelling “exceedance” to “exceedance.”
611.262 Board note	Board	Updated the <i>Code of Federal Regulations</i> citation to the latest version available.
611.351(c)(1)	Board	Corrected the spelling “exceedance” to “exceedance.”
611.351 Board note	Board	Updated the <i>Code of Federal Regulations</i> citation to the latest version available.
611.357(d)(2)	Board	Corrected the spelling “exceedance” to “exceedance.”
611.357 Board note	Board	Updated the <i>Code of Federal Regulations</i> citation to the latest version available, including deletion of now-obsolete <i>Federal Register</i> citations.
611.358(a)(2)(A)	Board	Corrected the spelling “exceedance” to “exceedance.”
611.358 Board note	Board	Updated the <i>Code of Federal Regulations</i> citation to the latest version available, including deletion of now-obsolete <i>Federal Register</i> citations.
611.383(c)(2)(A)	Board	Corrected the spelling “exceedance” to “exceedance.”
611.383(c)(2)(B)	Board	Corrected the spelling “exceedance” to “exceedance.”
611.383 Board note	Board	Updated the <i>Code of Federal Regulations</i> citation to the latest version available.
611.609(b)	Board	Corrected the spelling “exceedance” to “exceedance.”
611.609 Board note	Board	Updated the <i>Code of Federal Regulations</i> citation to the latest version available.
611.732(f)	Board	Corrected the spelling “exceedance” to “exceedance.”
611.745(b)	Board	Corrected the spelling “exceedance” to “exceedance.”
611.745(b)(1)	Board	Corrected the spelling “exceedance” to “exceedance (three times).”
611.745(b)(2)	Board	Corrected the spelling “exceedance” to “exceedance (three times).”

611.745(b)(3)	Board	Corrected the spelling “exceedance” to “exceedance (twice).
611.745(b)(4)	Board	Corrected the spelling “exceedance” to “exceedance (three times).
611.745 Board note	Board	Updated the <i>Code of Federal Regulations</i> citation to the latest version available.
611.901(a)(3)(B)	Board	Corrected the spelling “exceedance” to “exceedance.”
611.901(a)(3)(C)	Board, Agency	Added “the notice required by Section 611.908 for”; corrected the spelling “exceedance” to “exceedance”; changed “the secondary fluoride standard of Section 611.858” to “2 mg/ℓ fluoride (the federal secondary MCL for fluoride (see 40 CFR 143.3))
611.901(a)(3)(C) Board note	Board	Directed attention to the Board note appended to Section 611.908 for explanation.
611.902(a)(2)	Board	Corrected the spelling “exceedance” to “exceedance.”
611.902(a)(3)	Board	Corrected the spelling “exceedance” to “exceedance.”
611.902(a)(4)	Board	Corrected the spelling “exceedance” to “exceedance.”
611.902(a)(6)	Board	Corrected the spelling “exceedance” to “exceedance.”
611.902 Board note	Board	Updated the <i>Code of Federal Regulations</i> citation to the latest version available.
611.903(b)(3)(B)	Board	Corrected the spelling “exceedance” to “exceedance.”
611.903 Board note	Board	Updated the <i>Code of Federal Regulations</i> citation to the latest version available.
611.904(a)(5)	Board, Agency	Added “the notice Section 611.908 for”; corrected the spelling “exceedance” to “exceedance”; changed “the secondary fluoride standard of Section 611.858” to “2 mg/ℓ fluoride (the federal secondary MCL for fluoride (see 40 CFR 143.3))
611.904(a)(5) Board note	Board	Directed attention to the Board note appended to Section 611.908 for explanation.
611.904 Board note	Board	Updated the <i>Code of Federal Regulations</i> citation to the latest version available.

611.908 heading	Board	Corrected the spelling “exceedance” to “exceedance.”
611.908(a)	Agency, Board	Changed “fluoride secondary standard (SMCL) of 2 mg/ℓ, as specified in Section 611.858” to “federal fluoride secondary MCL of 2 mg/ℓ (see 40 CFR 143.3)”; corrected the spelling “exceedance” to “exceedance” (twice).
611.908(a)	Board	Added explanation of the nature of a secondary MCL and the federal requirement for special notice for fluoride for exceedance of the secondary MCL for fluoride.
611.908 Board note	Board	Updated the <i>Code of Federal Regulations</i> citation to the latest version available.
611.909 heading	Board	Corrected the spelling “exceedance” to “exceedance.”
611.909 Board note	Board	Updated the <i>Code of Federal Regulations</i> citation to the latest version available.
611.956(d)(1)	Board	Corrected the spelling “exceedances” to “exceedances.”
611.956(e)	Board	Corrected the spelling “exceedance” to “exceedance.”
611.956 Board note	Board	Updated the <i>Code of Federal Regulations</i> citation to the latest version available.
611.976(b)(2)	Board	Corrected the spelling “exceedances” to “exceedances.”
611.976(b)(2)(A)	Board	Corrected the spelling “exceedance” to “exceedance.”
611.976 Board note	Board	Updated the <i>Code of Federal Regulations</i> citation to the latest version available.
611.Appendix G, ¶ I.A.5	Board	Corrected the spelling “exceedance” to “exceedance.”
611.Appendix G, ¶ I.A.6	Board	Corrected the spelling “exceedance” to “exceedance.”
611.Appendix G, ¶ I.A.7	Board	Corrected the spelling “exceedance” to “exceedance.”
611.Appendix G, ¶ IV.A	Board	Corrected the spelling “exceedance” to “exceedance.”

611.Appendix G, ¶ IV.B	Board	Corrected the spelling “exceedance” to “exceedance.”
611.Appendix G, note 6	Board	Corrected the spelling “exceedance” to “exceedance.”
611.Appendix H, ¶ 85a	Board	Corrected the spelling “exceedances” to “exceedances.”
611.Appendix H, ¶ 86a	Board	Corrected the spelling “exceedances” to “exceedances.”
611.Appendix H, note 10	Board	Corrected the spelling “exceedances” to “exceedances.”
611.Appendix H Board note	Board	Updated the <i>Code of Federal Regulations</i> citation to the latest version available.

**Table 2: JCAR Suggestion Not Accepted**

Section Affected	Source(s) of Request: Requested Revision(s)	Explanation
611.102(b), Standard Methods Online Board note	JCAR: Should the Board remove the closing parenthesis mark after “silvex,” rather than the opening parenthesis mark from before “dalapon”?	The name “silvex” is an alternative name for 2,4,5-TP, so the Board added the name in parentheses. The name “dalapon” is the next chemical in the listing.

**ORDER**

The Board directs the Clerk to provide notice in the *Illinois Register* of the following proposed amendments to the Illinois primary drinking water regulations at 35 Ill. Adm. Code 611:

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

PART 611  
PRIMARY DRINKING WATER STANDARDS

SUBPART A: GENERAL

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

SUBPART B: FILTRATION AND DISINFECTION

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

611.230	Filtration Effective Dates
611.231	Source Water Quality Conditions
611.232	Site-Specific Conditions
611.233	Treatment Technique Violations
611.240	Disinfection
611.241	Unfiltered PWSs
611.242	Filtered PWSs
611.250	Filtration
611.261	Unfiltered PWSs: Reporting and Recordkeeping
611.262	Filtered PWSs: Reporting and Recordkeeping
611.271	Protection during Repair Work
611.272	Disinfection Following Repair
611.276	Recycle Provisions

#### SUBPART C: USE OF NON-CENTRALIZED TREATMENT DEVICES

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

#### SUBPART D: TREATMENT TECHNIQUES

Section	
611.295	General Requirements
611.296	Acrylamide and Epichlorohydrin
611.297	Corrosion Control

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

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

#### SUBPART G: LEAD AND COPPER

Section	
611.350	General Requirements
611.351	Applicability of Corrosion Control
611.352	Corrosion Control Treatment
611.353	Source Water Treatment
611.354	Lead Service Line Replacement

611.355	Public Education and Supplemental Monitoring
611.356	Tap Water Monitoring for Lead and Copper
611.357	Monitoring for Water Quality Parameters
611.358	Monitoring for Lead and Copper in Source Water
611.359	Analytical Methods
611.360	Reporting
611.361	Recordkeeping

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

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

**SUBPART K: GENERAL MONITORING AND ANALYTICAL  
REQUIREMENTS**

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

**SUBPART L: MICROBIOLOGICAL MONITORING AND ANALYTICAL  
REQUIREMENTS**

Section	
611.521	Routine Coliform Monitoring
611.522	Repeat Coliform Monitoring
611.523	Invalidation of Total Coliform Samples
611.524	Sanitary Surveys
611.525	Fecal Coliform and E. Coli Testing
611.526	Analytical Methodology
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611.852	Reporting other Violations (Repealed)
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611.1006	Source Water Monitoring Requirements: Reporting Source Water Monitoring Results
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**AUTHORITY:** Implementing Sections 7.2, 17, and 17.5 and authorized by Section 27 of the Environmental Protection Act [415 ILCS 5/7.2, 17, 17.5, and 27].

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

**SUBPART A: GENERAL**

**Section 611.102 Incorporations by Reference**

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

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

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

“ChlordioX Plus Test” means “Chlorine Dioxide and Chlorite in Drinking Water by Amperometry using Disposable Sensors,” available from

Palintest Ltd.

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

“Colilert® Test” means Standard Methods, 21st ed., Method 9223 B, Chromogenic Substrate Coliform Test (using IDEXX Laboratories, Inc. Colilert® medium).

“Colilert-18® Test” means Standard Methods, 21st ed., Method 9223 B, Chromogenic Substrate Coliform Test (using IDEXX Laboratories, Inc. Colilert-18® medium).

“Colisure™ Test” means “Colisure Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia coli in Drinking Water,” available from IDEXX Laboratories, Inc.

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

“Chromocult® Method” means “Chromocult® Coliform Agar Presence/Absence Membrane Filter Test Method for Detection and Identification of Coliform Bacteria and Escherichia coli in Finished Waters,” available from EMD Millipore.

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

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

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

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

“EML Procedures Manual” means “EML Procedures Manual, HASL

300,” available from USDOE, EML.

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

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

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

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

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

“Hach Method 10260” means “Hach Method 10260—Determination of Chlorinated Oxidants (Free and Total) in Water Using Disposable Planar Reagent-filled Cuvettes and Mesofluic Channel Colorimetry,” available from the Hach Company.

“Hach SPDANS 2 Method 10225” means “Hach Company SPADNS 2 (Arsenic-free) Fluoride Method 10225—Spectrophotometric Measurement of Fluoride in Water and Wastewater,” available from the Hach Co.

“Hach TNTplus 835/836 Method 10206” means “Hach Company TNTplus 835/836 Nitrate Method 10206—Spectrophotometric Measurement of Nitrate in Water and Wastewater,” available from the Hach Co.

“ITS Method D99-003” means Method D99-003, Revision 3.0, “Free Chlorine Species ( $\text{HOCl}^-$  and  $\text{OCl}^-$ ) by Test Strip,” available from Industrial Test Systems, Inc.

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

“m-ColiBlue24 Test” means “Total Coliforms and E. coli Membrane Filtration Method with m-ColiBlue24® Broth,” available from USEPA, Water Resource Center and Hach Company.

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

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

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

“Modified Colitag™ Test” means “Modified Colitag™ Test Method for Simultaneous Detection of E. coli and other Total Coliforms in Water,” available from NEMI and CPI International.

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

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

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

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

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

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

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

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

“Palintest Method 1001” means “‘Lead in Drinking Water by Differential Pulse Anodic Stripping Voltammetry,’ Method Number 1001,” available from Palintest, Ltd. or the Hach Company.

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

“Readycult® 2000” means “Readycult Coliforms 100 Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia coli in Finished Waters,” v. 1.0, available from EMD Millipore.

“Readycult® 2007” means “Readycult® Coliforms 100 Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia coli in Finished Waters,” v. 1.1, available from EMD Millipore.

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

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

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

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

“Systea Easy (1-Reagent)” means “Systea Easy (1-Reagent) Nitrate Method,” available from NEMI or Systea Scientific LLC.

“Technical Bulletin 601” means “Technical Bulletin 601, Standard Method of Testing for Nitrate in Drinking Water,” July 1994, available from Thermo Scientific.

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

“Tecta EC/TC P-A Test” means ~~“Tecta EC/TC P-A Test”~~ “TECTA™ EC/TC medium and the TECTA™ Instrument: a Presence/Absence Method for Simultaneous Detection of Total Coliforms and Escherichia coli (E.coli) in Drinking Water,” available from Veolia Water Solutions and Technologies.

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

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

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

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

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

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

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

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

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

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

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

“USEPA NERL Method 415.3 (rev. 1.1)” means Method 415.3, Revision 1.1, “Determination of Total Organic Carbon and Specific UV

Absorbance at 254 nm in Source Water and Drinking Water,” USEPA, February 2005, EPA 600/R-05/055. Available from USEPA, Office of Research and Development.

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

“USEPA NERL Method 525.3 (ver. 1.0)” means Method 525.3, Version 1.0, “Determination of Total Semivolatile Organic Chemicals in Drinking Water by Solid Phase Extraction and Capillary Column Gas Chromatography/Mass Spectrometry (GC/MS),” USEPA, February 2012, EPA 600/R-12/010. Available from USEPA, Office of Research and Development.

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

“USEPA OGWDW Methods” means the methods listed as available from the USEPA, Office of Ground Water and Drinking Water (Methods 302.0, 317.0 (rev. 2.0), 326.0 (rev. 1.0), 327.0 (rev. 1.1), 334.0, 515.4 (rev. 1.0), 523 (rev. 1.0), 524.3 (rev. 1.0), 524.4, 531.2 (rev. 1.0), 536 (rev. 1.0), 552.3 (rev. 1.0), 557, 1622 (99), 1622 (01), 1622 (05), 1623 (99), 1623 (01), 1623 (05), and 1623.1). Available from NTIS; USEPA, NSCEP; or USEPA, OGWDW.

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

“USEPA Organic and Inorganic Methods” means “Methods for the Determination of Organic and Inorganic Compounds in Drinking Water,

Volume 1,” EPA 815/R-00/014, PB2000-106981, August 2000. Available from NTIS.

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

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

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

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

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

BOARD NOTE: The USGS Methods are available in three volumes published in 1977, 1989, and 1993, as outlined in subsection (b) of this Section.

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

- b) The Board incorporates the following publications by reference:

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

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

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

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

“Standard Methods for the Examination of Water and

Wastewater,” 16th Edition, 1985 (referred to as “Standard Methods, 16th ed.”). See the methods listed separately for the same references under American Waterworks Association.

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

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

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

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

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

“Standard Methods for the Examination of Water and Wastewater,” 22nd Edition, 2012 (referred to as “Standard Methods, 22nd ed.”). See the methods listed separately for the same references under American Waterworks Association.

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

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

BOARD NOTE: At the table to 40 CFR 141.402(c)(2), USEPA approved the method as described in the above literature review. The method itself is embodied in the printed instructions to the proprietary kit available from IDEXX Laboratories, Inc.

(accessible on-line and available by download from [www.asm.org](http://www.asm.org), as “Enterolert™ Procedure”). ASTM approved the method as “Standard Test Method for Enterococci in Water Using Enterolert™,” which is available in two versions from ASTM: ASTM Method D6503-99 (superseded) and ASTM Method D6503-99. While it is more conventional to incorporate the method as presented in the kit instructions or as approved by ASTM by reference, the Board is constrained to incorporate the version that appears in the technical literature by reference, which is the version that USEPA has explicitly approved.

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

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

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

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

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

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

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

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

“Standard Methods for the Examination of Water and Wastewater,” 16th Edition, 1985 (referred to as “Standard Methods, 16th ed.”).

Method 907A, Heterotrophic Plate Count, Pour Plate Method, referenced in Section 611.213.

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

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

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

Method 7500-<sup>3</sup>H B, Tritium in Water, referenced in Section 611.720.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Method 4500-CN<sup>-</sup> C, Cyanide, Total Cyanide after Distillation, referenced in Section 611.611.

Method 4500-CN<sup>-</sup> E, Cyanide, Colorimetric Method, referenced in Section 611.611.

Method 4500-CN<sup>-</sup> F, Cyanide, Cyanide-Selective Electrode Method, referenced in Section 611.611.

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

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

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

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

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

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

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

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

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

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

Method 4500-F<sup>-</sup> B, Fluoride, Preliminary Distillation Step, referenced in Section 611.611.

Method 4500-F<sup>-</sup> C, Fluoride, Ion-Selective Electrode Method, referenced in Section 611.611.

Method 4500-F<sup>-</sup> D, Fluoride, SPADNS Method, referenced in Section 611.611.

Method 4500-F<sup>-</sup> E, Fluoride, Complexone Method, referenced in Section 611.611.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Method 9223, Chromogenic Substrate Coliform Test (Proposed) (also referred to as the variations “Colilert® Test” and “Colisure™ Test”), referenced in Sections 611.526 and 611.531.

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

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

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

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

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

Method 2320 B, Alkalinity, Titration Method, referenced in

Section 611.611.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Method 4500-CN<sup>-</sup> C, Cyanide, Total Cyanide after Distillation, referenced in Section 611.611.

Method 4500-CN<sup>-</sup> E, Cyanide, Colorimetric Method, referenced in Section 611.611.

Method 4500-CN<sup>-</sup> F, Cyanide, Cyanide-Selective Electrode Method, referenced in Section 611.611.

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

Method 4500-F<sup>-</sup> B, Fluoride, Preliminary Distillation Step, referenced in Section 611.611.

Method 4500-F<sup>-</sup> C, Fluoride, Ion-Selective Electrode Method, referenced in Section 611.611.

Method 4500-F<sup>-</sup> D, Fluoride, SPADNS Method, referenced in Section 611.611.

Method 4500-F<sup>-</sup> E, Fluoride, Complexone Method,

referenced in Section 611.611.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Method 6651 B, Glyphosate Herbicide, referenced in

Section 611.645.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Method 9223, Chromogenic Substrate Coliform Test (also referred to as the variations “Colilert® Test” and

“Colisure™ Test”), referenced in Sections 611.526 and 611.531.

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

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

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

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

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

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

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

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

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

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

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

Method 3125, Metals by Inductively Coupled Plasma/Mass Spectrometry, referenced in Section 611.720.

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

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

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

Method 4500-CN<sup>-</sup> C, Cyanide, Total Cyanide after Distillation, referenced in Section 611.611.

Method 4500-CN<sup>-</sup> E, Cyanide, Colorimetric Method, referenced in Section 611.611.

Method 4500-CN<sup>-</sup> F, Cyanide, Cyanide-Selective Electrode Method, referenced in Section 611.611.

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

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

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

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

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

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

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

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

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

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

Method 4500-F<sup>-</sup> B, Fluoride, Preliminary Distillation Step, referenced in Section 611.611.

Method 4500-F<sup>-</sup> C, Fluoride, Ion-Selective Electrode Method, referenced in Section 611.611.

Method 4500-F<sup>-</sup> D, Fluoride, SPADNS Method, referenced in Section 611.611.

Method 4500-F<sup>-</sup> E, Fluoride, Complexone Method, referenced in Section 611.611.

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

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

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

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

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

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

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

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

Method 4500-SiO<sub>2</sub> C, Silica, Molybdosilicate Method, referenced in Section 611.611.

Method 4500-SiO<sub>2</sub> D, Silica, Heteropoly Blue Method, referenced in Section 611.611.

Method 4500-SiO<sub>2</sub> E, Silica, Automated Method for Molybdate-Reactive Silica, referenced in Section 611.611.

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

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

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

Method 5910 B, UV-Absorbing Organic Constituents, Ultraviolet Absorption Method, referenced in Sections 611.381 and 611.382.

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

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

Method 6651 B, Glyphosate Herbicide, Liquid Chromatographic Post-Column Fluorescence Method, referenced in Section 611.645.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Method 9060 A, Samples, Collection, referenced in Section 611.1052.

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

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

Method 9221 B, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Standard Total Coliform Fermentation Technique, referenced in Sections 611.526, 611.531, and 611.1052.

Method 9221 C, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Estimation of Bacterial Density, referenced in Sections 611.526, 611.531, and 611.1052.

Method 9221 D, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Presence-Absence (P-A) Coliform Test, referenced in Sections 611.526 and 611.1052.

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

Method 9221 F, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Escherichia Coli Procedure (Proposed), referenced in Section 611.802.

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

Method 9222 B, Membrane Filter Technique for Members of the Coliform Group, Standard Total Coliform Membrane Filter Procedure, referenced in Sections 611.526, 611.531, and 611.1052.

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

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

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

Method 9223, Chromogenic Substrate Coliform Test (also referred to as the variations “Colilert® Test” and “Colisure™ Test”), referenced in Sections 611.526 and 611.531.

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.

Method 9230 B, Fecal Streptococcus and Enterococcus Groups, Multiple Tube Techniques, referenced in Section 611.802.

Method 9230 C, Fecal Streptococcus and Enterococcus Groups, Membrane Filter Techniques, referenced in Section 611.802.

“Standard Methods for the Examination of Water and Wastewater,” 21st Edition, 2005 (referred to as “Standard Methods, 21st ed.”).

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

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

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

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

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

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

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

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

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

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

Method 3125, Metals by Inductively Coupled Plasma/Mass Spectrometry, referenced in Section 611.720.

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

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

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

Method 4500-Cl D, Chlorine, Amperometric Titration Method, referenced in Section 611.381.

Method 4500-Cl E, Chlorine, Low-Level Amperometric Titration Method, referenced in Section 611.381.

Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric Method, referenced in Section 611.381.

Method 4500-Cl G, Chlorine, DPD Colorimetric Method, referenced in Section 611.381.

Method 4500-Cl H, Chlorine, Syringaldazine (FACTS) Method, referenced in Section 611.381.

Method 4500-Cl I, Chlorine, Iodometric Electrode Method, referenced in Section 611.381.

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

Method 4500-ClO<sub>2</sub> E, Chlorine Dioxide, Amperometric Method II (Proposed), referenced in Section 611.381.

Method 4500-CN<sup>-</sup> E, Cyanide, Colorimetric Method, referenced in Section 611.611.

Method 4500-CN<sup>-</sup> F, Cyanide, Cyanide-Selective Electrode Method, referenced in Section 611.611.

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

Method 4500-F<sup>-</sup> B, Fluoride, Preliminary Distillation Step, referenced in Section 611.611.

Method 4500-F<sup>-</sup> C, Fluoride, Ion-Selective Electrode Method, referenced in Section 611.611.

Method 4500-F<sup>-</sup> D, Fluoride, SPADNS Method, referenced in Section 611.611.

Method 4500-F<sup>-</sup> E, Fluoride, Complexone Method, referenced in Section 611.611.

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

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

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

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

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

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

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

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

Method 4500-SiO<sub>2</sub> C, Silica, Molybdosilicate Method, referenced in Section 611.611.

Method 4500-SiO<sub>2</sub> D, Silica, Heteropoly Blue Method, referenced in Section 611.611.

Method 4500-SiO<sub>2</sub> E, Silica, Automated Method for Molybdate-Reactive Silica, referenced in Section 611.611.

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

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

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

Method 5910 B, UV-Absorbing Organic Constituents, Ultraviolet Absorption Method, referenced in Sections 611.381 and 611.382.

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

Method 6610 B, Carbamate Pesticide Method, High-Performance Liquid Chromatographic Method, referenced

in Section 611.645.

Method 6640 B, Acidic Herbicide Compounds, Micro Liquid-Liquid Extraction Gas Chromatographic Method, referenced in Section 611.645.

Method 6651 B, Glyphosate Herbicide, Liquid Chromatographic Post-Column Fluorescence Method, referenced in Section 611.645.

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

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

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

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

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

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

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

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

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

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

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

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

611.720.

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

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

Method 9060 A, Samples, Collection, referenced in Section 611.1052.

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

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

Method 9221 B, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Standard Total Coliform Fermentation Technique, referenced in Sections 611.526, 611.531, and 611.1052.

Method 9221 C, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Estimation of Bacterial Density, referenced in Sections 611.526, 611.531, and 611.1052.

Method 9221 D, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Presence-Absence (P-A) Coliform Test, referenced in Section 611.526 and 611.1052.

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

Method 9221 F, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Escherichia Coli Procedure (Proposed), referenced in Section 611.802.

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

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

and 611.1052.

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

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

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

Method 9223, Chromogenic Substrate Coliform Test (also referred to as the variations “Colilert® Test ” and “Colisure™ Test”), referenced in Sections 611.526 and 611.531.

Method 9223 B, Chromogenic Substrate Coliform Test (also referred to as the variations “Colilert® Test,” “Colisure™ Test,” and “Colilert-18® Test”, based on the particular medium used, available from IDEXX Laboratories, Inc.), referenced in Sections 611.526, 611.802, 611.1004, and 611.1052.

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

“Standard Methods for the Examination of Water and Wastewater,” 22nd Edition, 2012 (referred to as “Standard Methods, 22nd ed.”). See the methods listed separately for the same references under American Waterworks Association.

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

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

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

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

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

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

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

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

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

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

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

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

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

Method 4500-Cl D, Chlorine, Amperometric Titration Method, referenced in Section 611.381.

Method 4500-Cl E, Chlorine, Low-Level Amperometric Titration Method, referenced in Section 611.381.

Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric Method, referenced in Section 611.381.

Method 4500-Cl G, Chlorine, DPD Colorimetric Method, referenced in Section 611.381.

Method 4500-Cl H, Chlorine, Syringaldazine (FACTS) Method, referenced in Section 611.381.

Method 4500-Cl I, Chlorine, Iodometric Electrode Method, referenced in Section 611.381.

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

Method 4500-ClO<sub>2</sub> E, Chlorine Dioxide, Amperometric Method II (Proposed), referenced in Section 611.381.

Method 4500-CN<sup>-</sup> E, Cyanide, Colorimetric Method, referenced in Section 611.611.

Method 4500-CN<sup>-</sup> F, Cyanide, Cyanide-Selective Electrode Method, referenced in Section 611.611.

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

Method 4500-F<sup>-</sup> B, Fluoride, Preliminary Distillation Step, referenced in Section 611.611.

Method 4500-F<sup>-</sup> C, Fluoride, Ion-Selective Electrode Method, referenced in Section 611.611.

Method 4500-F<sup>-</sup> D, Fluoride, SPADNS Method, referenced in Section 611.611.

Method 4500-F<sup>-</sup> E, Fluoride, Complexone Method, referenced in Section 611.611.

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

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

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

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

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

611.611.

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

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

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

Method 4500-SiO<sub>2</sub> C, Silica, Molybdosilicate Method, referenced in Section 611.611.

Method 4500-SiO<sub>2</sub> D, Silica, Heteropoly Blue Method, referenced in Section 611.611.

Method 4500-SiO<sub>2</sub> E, Silica, Automated Method for Molybdate-Reactive Silica, referenced in Section 611.611.

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

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

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

Method 5910 B, UV-Absorbing Organic Constituents, Ultraviolet Absorption Method, referenced in Sections 611.381 and 611.382.

Method 6251 B, Disinfection By-Products: Haloacetic Acids and Trichlorophenol, referenced in Section 611.381.

Method 6610 B, Carbamate Pesticide Method, High-Performance Liquid Chromatographic Method, referenced in Section 611.645.

Method 6640 B, Acidic Herbicide Compounds, Micro Liquid-Liquid Extraction Gas Chromatographic Method, referenced in Section 611.645.

Method 6651 B, Glyphosate Herbicide, Liquid Chromatographic Post-Column Fluorescence Method, referenced in Section 611.645.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Method 9060 A, Samples, Collection, referenced in Section 611.1052.

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

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

Method 9221 B, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Standard Total Coliform Fermentation Technique, referenced in Sections 611.526, 611.531, and 611.1052.

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

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

Method 9221 F, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Escherichia Coli Procedure (Proposed), referenced in Section 611.802 and 611.1052.

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

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

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

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

Method 9223 B, Chromogenic Substrate Coliform Test (also referred to as the variations “Colilert® Test,” “Colisure™ Test,” and “Colilert-18® Test”, based on the particular medium used, available from IDEXX Laboratories, Inc.), referenced in Sections 611.526,

611.802, 611.1004, and 611.1052.

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

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

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

ASTM Method D511-93 A and B, “Standard Test Methods for Calcium and Magnesium in Water,” “Test Method A—Complexometric Titration” & “Test Method B—Atomic Absorption Spectrophotometric,” approved 1993, referenced in Section 611.611.

ASTM Method D511-03 A and B, “Standard Test Methods for Calcium and Magnesium in Water,” “Test Method A—Complexometric Titration” & “Test Method B—Atomic Absorption Spectrophotometric,” approved 2003, referenced in Section 611.611.

ASTM Method D511-09 A and B, “Standard Test Methods for Calcium and Magnesium in Water,” “Test Method A—Complexometric Titration” & “Test Method B—Atomic Absorption Spectrophotometric,” approved 2009, referenced in Section 611.611.

ASTM Method D515-88 A, “Standard Test Methods for Phosphorus in Water,” “Test Method A—Colorimetric Ascorbic Acid Reduction,” approved August 19, 1988, referenced in Section 611.611.

ASTM Method D859-94, “Standard Test Method for Silica in Water,” approved 1994, referenced in Section 611.611.

ASTM Method D859-00, “Standard Test Method for Silica in Water,” approved 2000, referenced in Section 611.611.

ASTM Method D859-05, “Standard Test Method for Silica in Water,” approved 2005, referenced in Section 611.611.

ASTM Method D859-10, “Standard Test Method for Silica in Water,” approved 2010, referenced in Section 611.611.

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.

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.

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.

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.

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.

ASTM Method D1179-93 B, “Standard Test Methods for Fluoride in Water,” “Test Method B—Ion Selective Electrode,” approved 1993, referenced in Section 611.611.

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.

ASTM Method D1179-04 B, “Standard Test Methods for Fluoride in Water,” “Test Method B—Ion Selective Electrode,” approved 2004, referenced in Section 611.611.

ASTM Method D1179-10 B, “Standard Test Methods for Fluoride in Water,” “Test Method B—Ion Selective Electrode,” approved 2010, referenced in Section 611.611.

ASTM Method D1253-86, “Standard Test Method for Residual Chlorine in Water,” reapproved 1992, referenced in Section 611.381.

ASTM Method D1253-96, “Standard Test Method for Residual Chlorine in Water,” approved 1996, referenced in Section 611.381.

ASTM Method D1253-03, “Standard Test Method for Residual Chlorine in Water,” approved 2003, referenced in Sections 611.381 and 611.531.

ASTM Method D1253-08, “Standard Test Method for Residual Chlorine in Water,” approved 2008, referenced in Sections 611.381 and 611.531.

ASTM Method D1293-95 A or B, “Standard Test Methods for pH of Water,” “Test Method A—Precise Laboratory Measurement” & “Test Method B—Routine or Continuous Measurement,” approved 1995, referenced in Section 611.611.

ASTM Method D1293-99 A or B, “Standard Test Methods for pH of Water,” “Test Method A—Precise Laboratory Measurement” & “Test Method B—Routine or Continuous Measurement,” approved 1999, referenced in Section 611.611.

ASTM Method D1293-12, “Standard Test Methods for pH of Water,” approved 2012, referenced in Section 611.611.

ASTM Method D1688-95 A or C, “Standard Test Methods for Copper in Water,” “Test Method A—Atomic Absorption, Direct” & “Test Method C—Atomic Absorption, Graphite Furnace,” approved 1995, referenced in Section 611.611.

ASTM Method D1688-02 A or C, “Standard Test Methods for Copper in Water,” “Test Method A—Atomic Absorption, Direct” & “Test Method C—Atomic Absorption, Graphite Furnace,” approved 2002, referenced in Section 611.611.

ASTM Method D1688-07 A or C, “Standard Test Methods for Copper in Water,” “Test Method A—Atomic Absorption, Direct” & “Test Method C—Atomic Absorption, Graphite Furnace,” approved 2007, referenced in Section 611.611.

ASTM Method D2036-98 A or B, “Standard Test Methods for Cyanide in Water,” “Test Method A—Total Cyanides after Distillation” & “Test Method B—Cyanides Amenable to Chlorination by Difference,” approved 1998, referenced in Section 611.611.

ASTM Method D2036-06 A or B, “Standard Test Methods for Cyanide in Water,” “Test Method A—Total Cyanides after Distillation” & “Test Method B—Cyanides Amenable to Chlorination by Difference,” approved 2006, referenced in Section 611.611.

ASTM Method D2459-72, “Standard Test Method for Gamma Spectrometry in Water,” approved July 28, 1972, discontinued 1988, referenced in Section 611.720.

ASTM Method D2460-97, “Standard Test Method for Radionuclides of Radium in Water,” approved 1997, referenced in Section 611.720.

ASTM Method D2460-07, “Standard Test Method for Radionuclides of Radium in Water,” approved 2007, referenced in Section 611.720.

ASTM Method D2907-97, “Standard Test Methods for Microquantities of Uranium in Water by Fluorometry,” approved 1997, referenced in Section 611.720.

ASTM Method D2972-97 B or C, “Standard Test Methods for Arsenic in Water,” “Test Method B—Atomic Absorption, Hydride Generation” & “Test Method C—Atomic Absorption, Graphite Furnace,” approved 1997, referenced in Section 611.611.

ASTM Method D2972-03 B or C, “Standard Test Methods for Arsenic in Water,” “Test Method B—Atomic Absorption, Hydride Generation” & “Test Method C—Atomic Absorption, Graphite Furnace,” approved 2003, referenced in Section 611.611.

ASTM Method D2972-08 B or C, “Standard Test Methods for Arsenic in Water,” “Test Method B—Atomic Absorption, Hydride Generation” & “Test Method C—Atomic Absorption, Graphite Furnace,” approved 2008, referenced in Section 611.611.

ASTM Method D3223-97, “Standard Test Method for Total Mercury in Water,” approved 1997, referenced in Section 611.611.

ASTM Method D3223-02, “Standard Test Method for Total Mercury in Water,” approved 2002, referenced in Section 611.611.

ASTM Method D3223-12, “Standard Test Method for Total Mercury in Water,” approved 2012, referenced in Section 611.611.

ASTM Method D3454-97, “Standard Test Method for Radium-226 in Water,” approved 1997, referenced in Section 611.720.

ASTM Method D3454-05, “Standard Test Method for Radium-226 in Water,” approved 2005, referenced in Section 611.720.

ASTM Method D3559-96 D, “Standard Test Methods for Lead in Water,” “Test Method D—Atomic Absorption, Graphite Furnace,”

approved August 6, 1990, referenced in Section 611.611.

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.

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.

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.

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.

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.

ASTM Method D3649-91, “Standard Test Method for High-Resolution Gamma-Ray Spectrometry of Water,” approved 1991, referenced in Section 611.720.

ASTM Method D3649-98a, “Standard Test Method for High-Resolution Gamma-Ray Spectrometry of Water,” approved 1998, referenced in Section 611.720.

ASTM Method D3649-06, “Standard Test Method for High-Resolution Gamma-Ray Spectrometry of Water,” approved 2006, referenced in Section 611.720.

ASTM Method D3697-92, “Standard Test Method for Antimony in Water,” approved 1992, referenced in Section 611.611.

ASTM Method D3697-02, “Standard Test Method for Antimony in Water,” approved 2002, referenced in Section 611.611.

ASTM Method D3697-07, “Standard Test Method for Antimony in Water,” approved 2007, referenced in Section 611.611.

ASTM Method D3859-98 A and B, “Standard Test Methods for Selenium in Water,” “Method A—Atomic Absorption, Hydride Method” & “Method B—Atomic Absorption, Graphite Furnace,” approved 1998, referenced in Section 611.611.

ASTM Method D3859-03 A and B, “Standard Test Methods for Selenium in Water,” “Method A—Atomic Absorption, Hydride Method” & “Method B—Atomic Absorption, Graphite Furnace,” approved 2003, referenced in Section 611.611.

ASTM Method D3859-08 A and B, “Standard Test Methods for Selenium in Water,” “Method A—Atomic Absorption, Hydride Method” & “Method B—Atomic Absorption, Graphite Furnace,” approved 2008, referenced in Section 611.611.

ASTM Method D3867-90 A and B, “Standard Test Methods for Nitrite-Nitrate in Water,” “Test Method A—Automated Cadmium Reduction” & “Test Method B—Manual Cadmium Reduction,” approved January 10, 1990, referenced in Section 611.611.

ASTM Method D3972-97, “Standard Test Method for Isotopic Uranium in Water by Radiochemistry,” approved 1997, referenced in Section 611.720.

ASTM Method D3972-02, “Standard Test Method for Isotopic Uranium in Water by Radiochemistry,” approved 2002, referenced in Section 611.720.

ASTM Method D3972-09, “Standard Test Method for Isotopic Uranium in Water by Radiochemistry,” approved 2009, referenced in Section 611.720.

ASTM Method D4107-91, “Standard Test Method for Tritium in Drinking Water,” approved 1991, referenced in Section 611.720.

ASTM Method D4107-98, “Standard Test Method for Tritium in Drinking Water,” approved 1998, referenced in Section 611.720.

ASTM Method D4107-08, “Standard Test Method for Tritium in Drinking Water,” approved 2008, referenced in Section 611.720.

ASTM Method D4327-97, “Standard Test Method for Anions in Water by Ion Chromatography,” approved 1997, referenced in Section 611.611.

ASTM Method D4327-03, “Standard Test Method for Anions in Water by Ion Chromatography,” approved 2003, referenced in Section 611.611.

ASTM Method D4327-11, “Standard Test Method for Anions in Water by Ion Chromatography,” approved 2011, referenced in Section 611.611.

ASTM Method D4785-93, "Standard Test Method for Low-Level Iodine-131 in Water," approved 1993, referenced in Section 611.720.

ASTM Method D4785-98, "Standard Test Method for Low-Level Iodine-131 in Water," approved 1998, referenced in Section 611.720.

ASTM Method D4785-08, "Standard Test Method for Low-Level Iodine-131 in Water," approved 2008, referenced in Section 611.720.

ASTM Method D5174-97, "Standard Test Method for Trace Uranium in Water by Pulsed-Laser Phosphorimetry," approved 1997, referenced in Section 611.720.

ASTM Method D5174-02, "Standard Test Method for Trace Uranium in Water by Pulsed-Laser Phosphorimetry," approved 2002, referenced in Section 611.720.

ASTM Method D5174-07, "Standard Test Method for Trace Uranium in Water by Pulsed-Laser Phosphorimetry," approved 2007, referenced in Section 611.720.

ASTM Method D5317-93, "Standard Test Method for Determination of Chlorinated Organic Acid Compounds in Water by Gas Chromatography with an Electron Capture Detector," approved 1993, referenced in Section 611.645.

ASTM Method D5317-98(2003), "Standard Test Method for Determination of Chlorinated Organic Acid Compounds in Water by Gas Chromatography with an Electron Capture Detector," approved 1998 (reapproved 2003), referenced in Section 611.645.

ASTM Method D5673-03, "Standard Test Method for Elements in Water by Inductively Coupled Plasma-Mass Spectrometry," approved 2003, referenced in Section 611.720.

ASTM Method D5673-05, "Standard Test Method for Elements in Water by Inductively Coupled Plasma-Mass Spectrometry," approved 2005, referenced in Section 611.720.

ASTM Method D5673-10, "Standard Test Method for Elements in Water by Inductively Coupled Plasma-Mass Spectrometry," approved 2010, referenced in Section 611.720.

ASTM Method D6239-09, "Standard Test Method for Uranium in Drinking Water by High-Resolution Alpha-Liquid-Scintillation

Spectrometry,” approved 2009, referenced in Section 611.720.

ASTM Method D6508-00(2005), “Standard Test Method for Determination of Dissolved Inorganic Anions in Aqueous Matrices Using Capillary Ion Electrophoresis and Chromate Electrolyte,” approved 2000 (revised 2005), referenced in Section 611.611.

ASTM Method D6581-00, “Standard Test Method for Bromate, Bromide, Chlorate, and Chlorite in Drinking Water by Chemically Suppressed Ion Chromatography,” approved 2000, referenced in Section 611.381.

ASTM Method D6581-08 A and B, “Standard Test Method for Bromate, Bromide, Chlorate, and Chlorite in Drinking Water by Suppressed Ion Chromatography,” “Test Method A—Chemically Suppressed Ion Chromatography” & “Test Method B—Electrolytically Suppressed Ion Chromatography,” approved 2008, referenced in Section 611.381.

ASTM Method D6919-03, “Standard Test Method for Determination of Dissolved Alkali and Alkaline Earth Cations and Ammonium in Water and Wastewater by Ion Chromatography,” approved 2003, referenced in Section 611.611.

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

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

BOARD NOTE: The most recent version of ASTM methods are available for paid download from the ASTM at [www.astm.org](http://www.astm.org). Note that the most recent version of an ASTM method may not be the version approved for use by USEPA and incorporated by reference in subsection (b) of this Section.

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

“Fluoride in Water and Wastewater,” Industrial Method #129-71W, December 1972 (referred to as “Technicon Methods, Method #129-71W”). See 40 CFR 141.23(k)(1), footnote 11 (2014), referenced in Section 611.611.

“Fluoride in Water and Wastewater,” #380-75WE, February 1976

(referred to as “Technicon Methods, Method #380-75WE”). See 40 CFR 141.23(k)(1), footnote 11 (2014), referenced in Section 611.611.

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

“Charm E\*Colite Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia coli in Drinking Water,” January 9, 1998 (referred to as “E\*Colite Test”), referenced in Section 611.802 and 611.1052 (also available from USEPA, Water Resource Center).

“Fast Phage Test Procedure. Presence/Absence for Coliphage in Ground Water with Same Day Positive Prediction,” version 009 (Nov. 2012) (referred to as “Charm Fast Phage Test”), referenced in Section 611.802.

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

“Colitag® Product as a Test for Detection and Identification of Coliforms and E. coli Bacteria in Drinking Water and Source Water as Required in National Primary Drinking Water Regulations,” August 2001, referenced in Section 611.526.

“Modified Colitag™ Test Method for Simultaneous Detection of E. coli and other Total Coliforms in Water (ATP D05-0035),” August 2009 (referred to as “Modified Colitag™ Test”), referenced in Sections 611.526 and 611.802. See also NEMI.

EMD Millipore (division of Merck KGaA, Darmstadt, Germany), 290 Concord Road, Billerica, MA 01821 (800-645-5476 or 781-533-6000).

“Chromocult® Coliform Agar Presence/Absence Membrane Filter Test Method for Detection and Identification of Coliform Bacteria and Escherichia coli in Finished Waters,” November 2000 (referred to as “Chromocult® Method, Version 1.0”), referenced in Sections 611.526, 611.802, and 611.1052.

“Readycult Coliforms 100 Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia coli in Finished Waters,” November 2000 (referred to as “Readycult® 2000”), Version 1.0, referenced in Section 611.526.

“Readycult Coliforms 100 Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia coli in Finished Waters,” Version 1.1, January 2007 (referred to as

“Readycult® 2007”), referenced in Section 611.802 and 611.1052.

Georgia Tech Research Institute, Robert Rosson, 925 Dalney Road, Atlanta, GA 30332 (404-407-6339).

“The Determination of Radium-226 and Radium-228 in Drinking Water by Gamma-ray Spectrometry Using HPGE or Ge(Li) Detectors,” Revision 1.2, December 2004 (called “Georgia Radium Method”), referenced in Section 611.720.

Great Lakes Instruments, Inc., 8855 North 55th Street, Milwaukee, WI 53223.

GLI Method 2, “Turbidity,” Nov. 2, 1992, referenced in Section 611.531.

H&E Testing Laboratory, 221 State Street, Augusta, ME 04333 (207-287-2727).

Method ME355.01, Revision 1, “Determination of Cyanide in Drinking Water by GC/MS Headspace Analysis,” May 2009, referenced in Section 611.611. See also NEMI.

The Hach Company, P.O. Box 389, Loveland, CO 80539-0389 (800-227-4224/Internet address: [www.hach.com](http://www.hach.com)).

“Lead in Drinking Water by Differential Pulse Anodic Stripping Voltammetry,” Method 1001, August 1999, referenced in Section 611.611.

“Determination of Turbidity by Laser Nephelometry,” January 2000, Revision 2.0 (referred to as “Hach FilterTrak Method 10133”), referenced in Section 611.531.

“Total Coliforms and E. coli Membrane Filtration Method with m-ColiBlue24® Broth,” Method No. 10029, Revision 2, August 17, 1999 (referred to as “m-ColiBlue24 Test”), referenced in Sections 611.802 and 611.1052 (also available from USEPA, Water Resource Center).

“Fluoride, USEPA SPADNS 2 Method 10225,” revision 2.0, January 2011 (referred to as “Hach SPADNS 2 Method 10225”), referenced in Section 611.611.

“Hach Company TNTplus 835/836 Nitrate Method 10206—Spectrophotometric Measurement of Nitrate in Water and Wastewater,” revision 2.0, January 2011 (referred to as “Hach TNTplus 835/836 Method 10206”), referenced in Section 611.611.

“Hach Method 10260—Determination of Chlorinated Oxidants (Free and Total) in Water Using Disposable Planar Reagent-filled Cuvettes and Mesofluic Channel Colorimetry,” April 2013 (referred to as “Hach Method 10260”), referenced in Sections 611.381 and 611.531.

IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, Maine 04092 (800-321-0207).

“Colisure Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia Coli in Drinking Water,” February 28, 1994 (referred to as “Colisure™ Test”), referenced in Section 611.526.

“IDEXX SimPlate™ HPC Test Method for Heterotrophs in Water,” November 2000 (referred to as “SimPlate method”), referenced in Section 611.531.

Industrial Test Systems, Inc., 1875 Langston St., Rock Hill, SC 29730.

Method D99-003, Revision 3.0, “Free Chlorine Species ( $\text{HOCl}^-$  and  $\text{OCl}^-$ ) by Test Strip,” November 21, 2003 (referred to as “ITS Method D99-003”), referenced in Section 611.381.

Lachat Instruments, 6645 W. Mill Rd., Milwaukee, WI 53218 (414-358-4200).

“Digestion and distillation of total cyanide in drinking and wastewaters using MICRO DIST and determination of cyanide by flow injection analysis,” Revision 2.1, November 30, 2000 (referred to as “QuikChem Method 10-204-00-1-X”), referenced in Section 611.611.

Leck Mitchell, PhD, PE, 656 Independence Valley Dr., Grand Junction, CO 81507. See also NEMI.

Mitchell Method M5271, “Determination of Turbidity by Laser Nephelometry,” March 2009, referenced in Section 611.531.

Mitchell Method M5331, “Determination of Turbidity by LED Nephelometry,” March 2009, referenced in Section 611.531.

NCRP. National Council on Radiation Protection, 7910 Woodmont Ave., Bethesda, MD (301-657-2652).

NCRP Report Number 22, “Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and in Water for Occupational Exposure,” NCRP Report Number

22, June 5, 1959, referenced in Section 611.101.

NEMI. National Environmental Method Index (on-line at [www.nemi.gov](http://www.nemi.gov)).

AMI Turbiwell Method, “Continuous Measurement of Turbidity Using a SWAN AMI Turbiwell Turbidimeter,” August 2009. See also SWAN Analytische Instrumente AG.

Method ME355.01, Revision 1, “Determination of Cyanide in Drinking Water by GC/MS Headspace Analysis,” May 2009, referenced in Section 611.611. See also H&E Testing Laboratory.

Mitchell Method M5271, “Determination of Turbidity by Laser Nephelometry,” March 2009, referenced in Section 611.531. See also Leck Mitchell, PhD, PE.

Mitchell Method M5331, “Determination of Turbidity by LED Nephelometry,” March 2009, referenced in Section 611.531. See also Leck Mitchell, PhD, PE

Modified Colitag™ Method, “Modified Colitag™ Test Method for Simultaneous Detection of E. coli and other Total Coliforms in Water (ATP D05-0035),” August 2009, referenced in Sections 611.526 and 611.802. See also CPI International, Inc.

Orion Method AQ4500, “Determination of Turbidity by LED Nephelometry,” May 2009, referenced in Section 611.531. See also Thermo Scientific.

Palintest ChloroSense, “Measurement of Free and Total Chlorine in Drinking Water by Palintest ChloroSense,” September 2009 (referred to as “Palintest ChloroSense”), referenced in Sections 611.381 and 611.531. See also Palintest.

“Systea Easy (1-Reagent) Nitrate Method,” February 2009, referenced in Section 611.611. See also Systea Scientific, LLC.

NSF. National Sanitation Foundation International, 3475 Plymouth Road, PO Box 130140, Ann Arbor, Michigan 48113-0140 (734-769-8010).

NSF Standard 61, section 9, November 1998, referenced in Sections 611.126 and 611.356.

NTIS. National Technical Information Service, U.S. Department of Commerce, 5301 Shawnee Road, Alexandria, VA 22312 (703-605-6000 or 800-553-6847, [www.ntis.gov](http://www.ntis.gov)).

Dioxin and Furan Method 1613, Revision B, "Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution HRGC/HRMS," October 1994, Revision B, EPA 821/B-94/005, Doc. No. 94-104774, referenced in Section 611.645. See also USEPA, NSCEP.

Kelada 01, "Kelada Automated Test Methods for Total Cyanide, Acid Dissociable Cyanide, and Thiocyanate," Revision 1.2, August 2001, EPA 821/B-01-009, referenced in Section 611.611.

"Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and in Water for Occupational Exposure," NBS (National Bureau of Standards) Handbook 69, as amended August 1963, U.S. Department of Commerce, referenced in Section 611.330.

"Procedures for Radiochemical Analysis of Nuclear Reactor Aqueous Solutions," H.L. Krieger and S. Gold, EPA-R4-73-014, May 1973, Doc. No. PB222-154/7BA, referenced in Section 611.720.

USEPA Asbestos Method 100.1, "Analytical Method for Determination of Asbestos Fibers in Water," EPA 600/4-83-043, September 1983, Doc. No. PB83-260471, referenced in Section 611.611. See also USEPA, NSCEP.

USEPA Asbestos Method 100.2, "Determination of Asbestos Structures over 10-mm in Length in Drinking Water," EPA 600/R-94-134, June 1994, Doc. No. PB94-201902, referenced in Section 611.611. See also USEPA, NSCEP.

USEPA Environmental Inorganic Methods, "Methods for the Determination of Inorganic Substances in Environmental Samples," August 1993, EPA 600/R-93-100, Doc. No. PB94-121811, referenced in Sections 611.381, 611.531, and 611.611. (Methods 180.1 (rev. 2.0), 300.0 (rev. 2.1), 335.4 (rev. 1.0), 353.2 (rev. 2.0), and 365.1 (rev. 2.0) only.) See also USEPA, NSCEP.

USEPA Environmental Metals Methods, "Methods for the Determination of Metals in Environmental Samples—Supplement I," May 1994, EPA 600/R-94-111, Doc. No. PB95-125472, referenced in Sections 611.611, 611.612, and 611.720. (Methods 200.7 (rev. 4.4), 200.8 (rev. 5.3), 200.9 (rev. 2.2), and 245.1 (rev. 3.0) only.) See also USEPA, NSCEP.

USEPA Inorganic Methods, "Methods for Chemical Analysis of Water and Wastes," March 1983, EPA 600/4-79-020, Doc. No. PB84-128677, referenced in Section 611.611. (Methods 150.1,

150.2, and 245.2 only.) See also USEPA, NSCEP.

USEPA Interim Radiochemical Methods, “Interim Radiochemical Methodology for Drinking Water,” EPA 600/4-75-008 (revised), Doc. No. PB253258, March 1976, referenced in Section 611.720.

USEPA OGWDW Methods, Method 326.0, Revision 1.0, “Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography Incorporating the Addition of a Suppressor Acidified Postcolumn Reagent for Trace Bromate Analysis,” June 2002, EPA 815/R-03/007, Doc. No. PB2003-107402, referenced in Sections 611.381 and 611.382. See also USEPA, NSCEP and USEPA, OGWDW.

USEPA Organic and Inorganic Methods, “Methods for the Determination of Organic and Inorganic Compounds in Drinking Water, Volume 1,” August 2000, EPA 815/R-00/014, Doc. No. PB2000-106981, referenced in Section 611.381. (For methods 300.1 (rev. 1.0), 321.8 (rev. 1.0), and 515.3 (rev. 1.0).) See also USEPA, NSCEP.

USEPA Organic Methods, “Methods for the Determination of Organic Compounds in Drinking Water,” December 1988 (revised July 1991), EPA 600/4-88/039, Doc. No. PB91-231480, referenced in Sections 611.645 and 611.648 (Methods 508A (rev. 1.0) and 515.1 (rev. 4.0) only); “Methods for the Determination of Organic Compounds in Drinking Water—Supplement I,” July 1990, EPA 600/4-90/020, Doc. No. PB91-146027, referenced in Section 611.645 (Methods 547, 550, and 550.1 only); “Methods for the Determination of Organic Compounds in Drinking Water—Supplement II,” August 1992, EPA 600/R-92/129, Doc. No. PB92-207703, referenced in Sections 611.381 and 611.645. (Methods 548.1 (rev. 1.0), 552.1 (rev. 1.0), and 555 (rev. 1.0) only); and “Methods for the Determination of Organic Compounds in Drinking Water—Supplement III,” August 1995, EPA 600/R-95/131, Doc. No. PB95-261616, referenced in Sections 611.381, 611.645, and 611.648 (Methods 502.2 (rev. 2.1), 504.1 (rev. 1.1), 505 (rev. 2.1), 506 (rev. 1.1), 507 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 515.2 (rev. 1.1), 524.2 (rev. 4.1), 525.2 (rev. 2.0), 531.1 (rev. 3.1), 551.1 (rev. 1.0), and 552.2 (rev. 1.0) only.) See also USEPA, EMSL and USEPA, NSCEP.

USEPA Radioactivity Methods, “Prescribed Procedures for Measurement of Radioactivity in Drinking Water,” EPA 600/4-80/032, August 1980, Doc. No. PB80-224744, referenced in Section 611.720 (Methods 900.0, 901.0, 901.1, 902.0, 903.0, 903.1, 904.0, 905.0, 906.0, 908.0, 908.1). See also USEPA,

NSCEP.

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

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

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

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

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

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

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

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

Palintest, Ltd., 24-1455 Jamike Avenue, Suite 100, Erlanger, KY (800-835-9629).

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

Palintest Method 1001, "Lead in Drinking Water by Differential

Pulse Anodic Stripping Voltammetry,” Method 1001, August 1999, referenced in Section 611.611.

Palintest ChloroSense, “Measurement of Free and Total Chlorine in Drinking Water by Palintest ChloroSense,” September 2009 (referred to as “Palintest ChloroSense”), referenced in Sections 611.381 and 611.531. See also NEMI.

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

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

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

BOARD NOTE: Where, in appendix A to subpart C of 40 CFR 141 (2014), USEPA has authorized use of an approved alternative method from Standard Methods Online, and that version of the method appears also in Standard Methods, 21st or 22nd ed., the Board cites only to Standard Methods, 21st or 22nd ed. for that method. The methods that USEPA listed as available from Standard Methods Online, and which are listed above as in Standard Methods, 21st or 22nd edition, are the following: 2320 B-97 (for alkalinity), 3112 B-09 (for mercury), 3114 B-09 (for arsenic and selenium), 4500-P E-99 and 4500-P F-99; (for orthophosphate); 4500-SO<sub>4</sub><sup>-2</sup> C-97, 4500-SO<sub>4</sub><sup>-2</sup> D-97, 4500-SO<sub>4</sub><sup>-2</sup> E-97, and 4500-SO<sub>4</sub><sup>-2</sup> F-97 (for sulfate); 6640 B-01 (for 2,4-D, 2,4,5-TP (silvex), dalapon, dinoseb, pentachlorophenol, and picloram); 5561 B-00 (for glyphosate); and 9223 B-97 (for E. coli). Since each method is the same version from both sources, the Board views a copy from Standard Methods Online as equivalent to a copy from Standard Methods Online, even though the Board does not also cite to Standard Methods Online. The Board intends that use of the version of the method that is incorporated by reference is acceptable from either source.

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

AMI Turbiwell Method, “Continuous Measurement of Turbidity Using a SWAN AMI Turbiwell Turbidimeter,” August 2009, referenced in Section 611.531. See also NEMI.

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

“Atrazine in Drinking Water by Immunoassay,” February 2001 (referred to as “Syngenta AG-625”), referenced in Section 611.645.

Systema Scientific LLC, 900 Jorie Blvd., Suite 35, Oak Brook, IL 60523.

Systema Easy (1-Reagent), “Systema Easy (1-Reagent) Nitrate Method,” February 2009, referenced in Section 611.611. See also NEMI.

Thermo Scientific, 166 Cummings Center, Beverly, MA 01915 (800-225-1480 or [www.thermo.com](http://www.thermo.com)).

Orion Method AQ4500, “Determination of Turbidity by LED Nephelometry,” May 2009, referenced in Section 611.531. See also NEMI.

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

USDHS, STD. United States Department of Homeland Security, Science and Technology Directorate (formerly United States Department of Energy, Environmental Measurements Laboratory), currently available on-line in the 28th edition only, at [www.nbl.doe.gov/EML\\_Legacy\\_Website/procman.htm](http://www.nbl.doe.gov/EML_Legacy_Website/procman.htm). “EML Procedures Manual,” HASL 300, 27th Edition, Volume 1, 1990 (referred to as “EML Procedures Manual (27th ed.)”), referenced in Section 611.720.

“EML Procedures Manual,” HASL 300, 28th ed., 1997 (referred to as “EML Procedures Manual (28th ed.)”), referenced in Section 611.720.

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).

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

USEPA Organic Methods, “Methods for the Determination of Organic Compounds in Drinking Water,” December 1988 (revised

July 1991), EPA 600/4-88/039, referenced in Sections 611.645 and 611.648 (Methods 508A (rev. 1.0) and 515.1 (rev. 4.0) only); “Methods for the Determination of Organic Compounds in Drinking Water—Supplement I,” July 1990, EPA 600/4-90/020, referenced in Sections 611.645 and 611.648 (Methods 547, 550, and 550.1 only); “Methods for the Determination of Organic Compounds in Drinking Water—Supplement II,” August 1992, EPA 600/R-92/129, referenced in Sections 611.381 and 611.645 (Methods 548.1 (rev. 1.0), 552.1 (rev. 1.0), and 555 (rev. 1.0) only); “Methods for the Determination of Organic Compounds in Drinking Water—Supplement III,” August 1995, EPA 600/R-95/131, referenced in Sections 611.381, 611.645, and 611.648 (Methods 502.2 (rev. 2.1), 504.1 (rev. 1.1), 505 (rev. 2.1), 506 (rev. 1.1), 507 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 515.2 (rev. 4.1), 524.2 (rev. 4.1), 525.2 (rev. 2.0), 551.1 (rev. 1.0), and 552.2 (rev. 1.0) only). See also NTIS and USEPA, NSCEP.

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

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

Dioxin and Furan Method 1613, Revision B, “Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution HRGC/HRMS,” October 1994, EPA 821/B-94/005, referenced in Section 611.645. See also NTIS.

Guidance Manual for Filtration and Disinfection, “Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems Using Surface Water Sources,” March 1991, EPA 570/3-91-001, referenced in Section 611.111.

USEPA Asbestos Method 100.1, “Analytical Method for Determination of Asbestos Fibers in Water,” September 1983, EPA 600/4-83-043, referenced in Section 611.611. See also NTIS.

USEPA Asbestos Method 100.2, “Determination of Asbestos Structures over 10-mm in Length in Drinking Water,” June 1994, EPA 600/R-94-134, referenced in Section 611.611. See also NTIS.

USEPA Environmental Inorganic Methods, “Methods for the

Determination of Inorganic Substances in Environmental Samples,” August 1993, EPA 600/R-93-100, referenced in Sections 611.381, 611.531, and 611.611. (Methods 180.1 (rev. 2.0), 300.0 (rev. 2.1), 335.4 (rev. 1.0), 353.2 (rev. 2.0), and 365.1 (rev. 2.0) only.) See also NTIS.

USEPA Environmental Metals Methods, “Methods for the Determination of Metals in Environmental Samples—Supplement I,” May 1994, EPA 600/R-94-111, referenced in Sections 611.611, 611.612, and 611.720. (Methods 200.7 (rev. 4.4), 200.8 (rev. 5.3), 200.9 (rev. 2.2), and 245.1 (rev. 3.0) only.) See also NTIS.

USEPA Inorganic Methods, “Methods for Chemical Analysis of Water and Wastes,” March 1983, EPA 600/4-79-020, referenced in Section 611.611. (Methods 150.1, 150.2, and 245.2 only.) See also NTIS.

USEPA OGWDW Methods, Method 302.0, “Determination of Bromate in Drinking Water Using Two-Dimensional Ion Chromatography with Suppressed Conductivity Detection,” September 2009, EPA 815/B-09/014, referenced in Sections 611.381 and 611.382. See also USEPA, OGWDW.

USEPA OGWDW Methods, Method 317.0, rev. 2.0, “Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography with the Addition of a Postcolumn Reagent for Trace Bromate Analysis,” July 2001, EPA 815/B-01/001, referenced in Sections 611.381 and 611.382. See also USEPA, OGWDW.

USEPA OGWDW Methods, Method 326.0, rev. 1.0, “Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography Incorporating the Addition of a Suppressor Acidified Postcolumn Reagent for Trace Bromate Analysis,” June 2002, EPA 815/R-03/007, referenced in Sections 611.381 and 611.382. See also NTIS and USEPA, OGWDW.

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

USEPA OGWDW Methods, Method 334.0, “Determination of Residual in Drinking Water Using an On-line Chlorine Analyzer,”

August 2009, EPA 815/B-09/013, referenced in Section 611.531. See also USEPA, OGWDW.

USEPA OGWDW Methods, Method 523, ver. 1.0, “Determination of Triazine Pesticides and Other Degradates in Drinking Water by Gas Chromatography/Mass Spectrometry (GC/MS),” February 2011, EPA 815/R-11/002, referenced in Section 611.645. See also USEPA, OGWDW.

USEPA OGWDW Methods, Method 531.2, rev. 1.0, “Measurement of N-methylcarbamoyloximes and N-methylcarbamates in Water by Direct Aqueous Injection HPLC with Postcolumn Derivatization,” September 2001, EPA 815/B-01/002 (document file name “met531\_2.pdf”), referenced in Section 611.645. See also USEPA, OGWDW.

USEPA OGWDW Methods, Method 552.3, rev. 1.0, “Determination of Haloacetic Acids and Dalapon in Drinking Water by Liquid-Liquid Microextraction, Derivatization, and Gas Chromatography with Electron Capture Detection,” July 2003, EPA 815/B-03/002, referenced in Sections 611.381 and 611.645.

USEPA OGWDW Methods, Method 557, “Determination of Haloacetic Acids, Bromate, and Dalapon in Drinking Water by Ion Chromatography Electrospray Ionization Tandem Mass Spectrometry,” July 2003, EPA 815/B-03/002, referenced in Sections 611.381, 611.382, and 611.645. See also USEPA, OGWDW.

USEPA OGWDW Methods, Method 1622 (01), “Cryptosporidium in Water by Filtration/IMS/FA,” April 2001, EPA 821/R-01/026, referenced in Section 611.1007. See also USEPA, OGWDW.

USEPA Organic and Inorganic Methods, “Methods for the Determination of Organic and Inorganic Compounds in Drinking Water, Volume 1,” August 2000, EPA 815/R-00/014, referenced in Section 611.381. (Methods 300.1 (rev. 1.0), 321.8 (rev. 1.0), and 515.3 (rev. 1.0) only.) See also NTIS.

USEPA Organic Methods, “Methods for the Determination of Organic Compounds in Drinking Water,” December 1988, revised July 1991, EPA 600/4-88/039, referenced in Sections 611.645 and 611.648 (Methods 508A (rev. 1.0) and 515.1 (rev. 4.0) only); “Methods for the Determination of Organic Compounds in Drinking Water—Supplement I,” July 1990, EPA 600/4-90/020, referenced in Section 611.645 and 611.648 (Methods 547, 550, and 550.1 only); “Methods for the Determination of Organic

Compounds in Drinking Water—Supplement II,” August 1992, EPA 600/R-92/129, referenced in Sections 611.381 and 611.645 (Methods 548.1 (rev. 1.0), 552.1 (rev. 1.0), and 555 (rev. 1.0) only); “Methods for the Determination of Organic Compounds in Drinking Water—Supplement III,” August 1995, EPA 600/R-95/131, referenced in Sections 611.381, 611.645, and 611.648 (Methods 502.2 (rev. 2.1), 504.1 (rev. 1.1), 505 (rev. 2.1), 506 (rev. 1.1), 507 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 515.2 (rev. 4.1), 524.2 (rev. 4.1), 525.2 (rev. 2.0), 531.1 (rev. 3.1), 551.1 (rev. 1.0), and 552.2 (rev. 1.0) only). See also NTIS and USEPA, EMSL.

USEPA Radioactivity Methods, “Prescribed Procedures for Measurement of Radioactivity in Drinking Water,” August 1980, EPA 600/4-80/032, referenced in Section 611.720. (For methods 900.0, 901, 901.1, 902, 903, 903.1, 904, 905, 906, 908, 908.1 only.) See also NTIS.

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

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

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

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

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

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

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

USEPA OGWDW Methods, Method 334.0, "Determination of Residual in Drinking Water Using an On-line Chlorine Analyzer," USEPA, August 2009, EPA 815/B-09/013, referenced in Section 611.531. See also USEPA, NSCEP.

USEPA OGWDW Methods, Method 515.4, rev. 1.0, "Determination of Chlorinated Acids in Drinking Water by Liquid-Liquid Microextraction, Derivatization and Fast Gas Chromatography with Electron Capture Detection," April 2000, EPA 815/B-00/001 (document file name "met515\_4.pdf"), referenced in Section 611.645.

USEPA OGWDW Methods, Method 523, ver. 1.0, "Determination of Triazine Pesticides and Other Degradates in Drinking Water by Gas Chromatography/Mass Spectrometry (GC/MS)," February 2011, EPA 815/R-11/002, referenced in Section 611.645. See also USEPA, NSCEP.

USEPA OGWDW Methods, Method 524.3, rev. 1.0, "Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/Mass Spectrometry," June 2009, EPA 815/B-09/009, referenced in Sections 611.381 and 611.645.

USEPA OGWDW Methods, Method 524.4, "Measurement of Purgeable Organic Compounds in Water by Gas Chromatography/Mass Spectrometry Using Nitrogen Purge Gas," May 2013, EPA 815/R-13/002, referenced in Sections 611.381 and 611.645.

USEPA OGWDW Methods, Method 531.2, rev. 1.0, "Measurement of N-methylcarbamoyloximes and N-methylcarbamates in Water by Direct Aqueous Injection HPLC

with Postcolumn Derivatization,” September 2001, EPA 815/B-01/002 (document file name “met531\_2.pdf”), referenced in Section 611.645. See also USEPA, NSCEP.

USEPA OGWDW Methods, Method 536, ver. 1.0, “Determination of Triazine Pesticides and Other Degradates in Drinking Water by Liquid Chromatography Electrospray Ionization Tandem Mass Spectrometry (LC/ESI-MS/MS),” October 2007, EPA 815/R-07/002, referenced in Section 611.645.

USEPA OGWDW Methods, Method 552.3, rev. 1.0, “Determination of Haloacetic Acids and Dalapon in Drinking Water by Liquid-liquid Microextraction, Derivatization, and Gas Chromatography with Electron Capture Detection,” USEPA, July 2003, EPA 815/B-03/002, referenced in Sections 611.381 and 611.645.

USEPA OGWDW Methods, Method 557, “Determination of Haloacetic Acids, Bromate, and Dalapon in Drinking Water by Ion Chromatography Electrospray Ionization Tandem Mass Spectrometry,” July 2003, EPA 815/B-03/002, referenced in Sections 611.381 and 611.645. See also USEPA, NSCEP.

USEPA OGWDW Methods, Method 1622 (05), “Method 1622: Cryptosporidium in Water by Filtration/IMS/FA,” December 2005, EPA 815/R-05/001, referenced in Sections 611.1004 and 611.1007.

USEPA OGWDW Methods, Method 1622 (01), “Method 1622: Cryptosporidium in Water by Filtration/IMS/FA,” April 2001, EPA 821/R-01/026, referenced in Section 611.1007. See also USEPA, NSCEP.

USEPA OGWDW Methods, Method 1622 (99), “Method 1622: Cryptosporidium in Water by Filtration/IMS/FA,” April 1999, EPA 821/R-99/001, referenced in Section 611.1007.

USEPA OGWDW Methods, Method 1623 (05), “Method 1623: Cryptosporidium and Giardia in Water by Filtration/IMS/FA,” December 2005, EPA 815/R-05/002, referenced in Sections 611.1004 and 611.1007.

USEPA OGWDW Methods, Method 1623 (01), “Method 1623: Cryptosporidium and Giardia in Water by Filtration/IMS/FA,” April 2001, EPA 821/R-01/025, referenced in Section 611.1007.

USEPA OGWDW Methods, Method 1623 (99), “Method 1623: Cryptosporidium and Giardia in Water by Filtration/IMS/FA,”

January 1999, EPA 821/R-99/006, referenced in Section 611.1007.

USEPA OGWDW Methods, Method 1623.1, "Method 1623.1: Cryptosporidium and Giardia in Water by Filtration/IMS/FA," January 2012, EPA 816/R-12/001, referenced in Section 611.1004.

BOARD NOTE: Many of the above-listed documents available from the USEPA, Office of Ground Water and Drinking Water are also listed as available from NTIS.

USEPA, ORD. USEPA, Office of Research and Development, National Exposure Research Laboratory, Microbiological & Chemical Exposure Assessment Research Division (accessible on-line and available by download from <http://www.epa.gov/nerlcwww/ordmeth.htm>).

USEPA NERL Method 200.5, rev. 4.2, "Determination of Trace Elements in Drinking Water by Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry," October 2003, EPA 600/R-06/115, referenced in Sections 611.611 and 611.612.

USEPA NERL Method 415.3, rev. 1.1, "Determination of Total Organic Carbon and Specific UV Absorbance at 254 nm in Source Water and Drinking Water," February 2005, EPA 600/R-05/055, referenced in Section 611.381.

USEPA NERL Method 415.3, rev. 1.2, "Determination of Total Organic Carbon and Specific UV Absorbance at 254 nm in Source Water and Drinking Water," September 2009, EPA 600/R-09/122, referenced in Section 611.381.

USEPA NERL Method 525.3, ver. 1.0, "Determination of Total Semivolatile Organic Chemicals in Drinking Water by Solid Phase Extraction and Capillary Column Gas Chromatography/Mass Spectrometry (GC/MS)," February 2012, EPA 600/R-12/010, referenced in Section 611.645.

USEPA NERL Method 549.2, rev. 1.0, "Determination of Diquat and Paraquat in Drinking Water by Liquid-Solid Extraction and High Performance Liquid Chromatography with Ultraviolet Detection," June 1997, referenced in Section 611.645.

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

E\*Colite Test, "Charm E\*Colite Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia coli in Drinking Water," January 9, 1998, referenced in Sections 611.802 and 611.1052. See also Charm Sciences, Inc.

m-ColiBlue24 Test, “Total Coliforms and *E. coli* Membrane Filtration Method with m-ColiBlue24® Broth,” Method No. 10029, rev. 2, August 17, 1999, referenced in Sections 611.802 and 611.1052. See also The Hach Company.

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

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

USEPA Method 1602, “Method 1602: Male-specific (F<sup>+</sup>) and Somatic Coliphage in Water by Single Agar Layer (SAL) Procedure,” April 2001, EPA 821/R-01/029 (accessible on-line and available by download from <http://www.epa.gov/nerlcwww/1602ap01.pdf>), referenced in Section 611.802.

USEPA Method 1604, “Method 1604: Total Coliforms and *Escherichia coli* in Water by Membrane Filtration Using a Simultaneous Detection Technique (MI Medium),” September 2002, EPA 821/R-02/024 (accessible on-line and available by download from <http://www.epa.gov/nerlcwww/1604sp02.pdf>), referenced in Sections 611.802 and 611.1052.

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

Method available upon request by method number from “Methods for Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of Inorganic and Organic Constituents in Water and Fluvial Sediments,” Open File Report 93-125, 1993 (referred to as “USGS Methods”).

I-2601-90, referenced in Section 611.611.

Methods available upon request by method number from Book 5, Chapter A-1, “Methods for Determination of Inorganic Substances

in Water and Fluvial Sediments,” 3rd ed., USGS Techniques of Water-Resource Investigation: 05-A1, 1989 (referred to as “USGS Methods”).

I-1030-85, referenced in Section 611.611.

I-1601-85, referenced in Section 611.611.

I-1700-85, referenced in Section 611.611.

I-2598-85, referenced in Section 611.611.

I-2700-85, referenced in Section 611.611.

I-3300-85, referenced in Section 611.611.

Methods available upon request by method number from “Methods for Determination of Radioactive Substances in Water and Fluvial Sediments,” Chapter A5 in Book 5 of “Techniques of Water-Resources Investigations of the United States Geological Survey,” 1977.

R-1110-76, referenced in Section 611.720.

R-1111-76, referenced in Section 611.720.

R-1120-76, referenced in Section 611.720.

R-1140-76, referenced in Section 611.720.

R-1141-76, referenced in Section 611.720.

R-1142-76, referenced in Section 611.720.

R-1160-76, referenced in Section 611.720.

R-1171-76, referenced in Section 611.720.

R-1180-76, referenced in Section 611.720.

R-1181-76, referenced in Section 611.720.

R-1182-76, referenced in Section 611.720.

BOARD NOTE: USGS methods are freely available for download in an electronic format from the USGS Publications Warehouse, at [pubs.er.usgs.gov/](https://pubs.er.usgs.gov/). Sections 611.611 and 611.720 do not distinguish the volume in which each USGS method appears. The distinction as to which volume where a particular method appears

is made in this incorporation by reference.

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

“Tecta EC/TC P-A Test, “TECTA™ EC/TC medium and the TECTA™ Instrument: a Presence/Absence Method for Simultaneous Detection of Total Coliforms and Escherichia coli (E.coli) in Drinking Water,” April 2014, referenced in Section 611.526.

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

“Waters Test Method for Determination of Nitrite/Nitrate in Water Using Single Column Ion Chromatography,” Method B-1011, August 1987 (referred to as “Waters Method B-1011”), referenced in Section 611.611.

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

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

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

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

40 CFR 3.2000 (2014) (What Are the Requirements Authorized State, Tribe, and Local Programs’ Reporting Systems Must Meet?), referenced in Section 611.105.

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

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

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

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

d) This Part incorporates no later amendments or editions.

(Source: Amended at 39 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

**SUBPART B: FILTRATION AND DISINFECTION****Section 611.261 Unfiltered PWSs: Reporting and Recordkeeping**

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

- a) Source water quality information must be reported to the Agency within ten days after the end of each month the system serves water to the public. Information that must be reported includes the following:
  - 1) The cumulative number of months for which results are reported.
  - 2) The number of fecal or total coliform samples, whichever are analyzed during the month (if a system monitors for both, only fecal coliforms must be reported), the dates of sample collection, and the dates when the turbidity level exceeded 1 NTU.
  - 3) The number of samples during the month that had equal to or fewer than 20/100 ml fecal coliforms or equal to or fewer than 100/100 ml total coliforms, whichever are analyzed.
  - 4) The cumulative number of fecal or total coliform samples, whichever are analyzed, during the previous six months the system served water to the public.
  - 5) The cumulative number of samples that had equal to or fewer than 20/100 ml fecal coliforms or equal to or fewer than 100/100 ml total coliforms, whichever are analyzed, during the previous six months the system served water to the public.
  - 6) The percentage of samples that had equal to or fewer than 20/100 ml fecal coliforms or equal to or fewer than 100/100 ml total coliforms, whichever are analyzed, during the previous six months the system served water to the public.
  - 7) The maximum turbidity level measured during the month, the dates of occurrence for any measurements that exceeded 5 NTU and the dates the occurrences were reported to the Agency.

- 8) For the first 12 months of recordkeeping, the dates and cumulative number of events during which the turbidity exceeded 5 NTU, and after one year of recordkeeping for turbidity measurements, the dates and cumulative number of events during which the turbidity exceeded 5 NTU in the previous 12 months the system served water to the public.
  - 9) For the first 120 months of recordkeeping, the dates and cumulative number of events during which the turbidity exceeded 5 NTU, and after ten years of recordkeeping for turbidity measurements, the dates and cumulative number of events during which the turbidity exceeded 5 NTU in the previous 120 months the system served water to the public.
- b) Disinfection information specified in Section 611.532 must be reported to the Agency within ten days after the end of each month the system serves water to the public. Information that must be reported includes the following:
- 1) For each day, the lowest measurement of RDC in mg/ℓ in water entering the distribution system.
  - 2) The date and duration of each period when the RDC in water entering the distribution system fell below 0.2 mg/ℓ and when the Agency was notified of the occurrence.
  - 3) The daily RDCs (in mg/ℓ) and disinfectant contact times (in minutes) used for calculating the CT values.
  - 4) If chlorine is used, the daily measurements of pH of disinfected water following each point of chlorine disinfection.
  - 5) The daily measurements of water temperature in degrees C following each point of disinfection.
  - 6) The daily CT<sub>calc</sub> and A<sub>i</sub> values for each disinfectant measurement or sequence and the sum of all A<sub>i</sub> 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<sub>i</sub> 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:

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

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.

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

BOARD NOTE: Derived from 40 CFR 141.75(a) ~~(2003)~~ (2014).

(Source: Amended at 39 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

### **Section 611.262 Filtered PWSs: Reporting and Recordkeeping**

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

- a) Turbidity measurements as required by Section 611.533(a) must be reported within ten days after the end of each month the supplier serves water to the public. Information that must be reported includes the following:
  - 1) The total number of filtered water turbidity measurements taken during the month.

- 2) The number and percentage of filtered water turbidity measurements taken during the month that are less than or equal to the turbidity limits specified in Section 611.250 for the filtration technology being used.
  - 3) The date and value of any turbidity measurements taken during the month that exceed 5 NTU.
- b) Disinfection information specified in Section 611.533 must be reported to the Agency within ten days after the end of each month the supplier serves water to the public. Information that must be reported includes the following:
- 1) For each day, the lowest measurement of RDC in mg/ℓ in water entering the distribution system.
  - 2) The date and duration of each period when the RDC in water entering the distribution system fell below 0.2 mg/ℓ and when the Agency was notified of the occurrence.
  - 3) The following information on the samples taken in the distribution system in conjunction with total coliform monitoring pursuant to Sections 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 supplier serves water to the public, the value of “V” in the following formula:

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

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.

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.
- 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 ~~exceedence~~ 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.

BOARD NOTE: Derived from 40 CFR 141.75(b)-(2003) (2014).

(Source: Amended at 39 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

## SUBPART G: LEAD AND COPPER

**Section 611.351 Applicability of Corrosion Control**

- a) Corrosion control required. Suppliers must complete the applicable corrosion control treatment requirements described in Section 611.352 on or before the deadlines set forth in this Section.
  - 1) Large systems. Each large system supplier (one regularly serving more than 50,000 persons) must complete the corrosion control treatment steps specified in subsection (d) of this Section, unless it is deemed to have optimized corrosion control under subsection (b)(2) or (b)(3) of this Section.
  - 2) Medium-sized and small systems. Each small system supplier (one regularly serving 3,300 or fewer persons) and each medium-sized system (one regularly serving more than 3,300 up to 50,000 persons) must complete the corrosion control treatment steps specified in subsection (e) of this Section, unless it is deemed to have optimized corrosion control under one of subsections (b)(1), (b)(2), or (b)(3) of this Section.
- b) Suppliers deemed to have optimized corrosion control. A supplier is deemed to have optimized corrosion control, and is not required to complete the applicable corrosion control treatment steps identified in this Section, if the supplier satisfies one of the criteria specified in subsections (b)(1) through (b)(3) of this Section. Any such system deemed to have optimized corrosion control under this subsection, and which has treatment in place, must continue to operate and maintain optimal corrosion control treatment and meet any requirements that the Agency determines are appropriate to ensure optimal corrosion control treatment is maintained.
  - 1) Small- or medium-sized system meeting action levels. A small system or medium-sized system supplier is deemed to have optimized corrosion control if the system meets the lead and copper action levels during each of two consecutive six-month monitoring periods with monitoring conducted in accordance with Section 611.356.
  - 2) SEP for equivalent activities to corrosion control. The Agency must, by a SEP issued pursuant to Section 611.110, deem any supplier to have optimized corrosion control treatment if it determines that the supplier has conducted activities equivalent to the corrosion control steps applicable under this Section. In making this determination, the Agency must specify the water quality control parameters representing optimal corrosion control in accordance with Section 611.352(f). A water supplier that is deemed to have optimized corrosion control under this subsection (b)(2) must operate in compliance with the Agency-designated optimal water quality control parameters in accordance with Section 611.352(g) and

must continue to conduct lead and copper tap and water quality parameter sampling in accordance with Sections 611.356(d)(3) and 611.357(d), respectively. A supplier must provide the Agency with the following information in order to support an Agency SEP determination under this subsection (b)(2):

- A) The results of all test samples collected for each of the water quality parameters in Section 611.352(c)(3);
  - B) A report explaining the test methods the supplier used to evaluate the corrosion control treatments listed in Section 611.352(c)(1), the results of all tests conducted, and the basis for the supplier's selection of optimal corrosion control treatment;
  - C) A report explaining how the supplier has installed corrosion control and how the supplier maintains it to insure minimal lead and copper concentrations at consumer's taps; and
  - D) The results of tap water samples collected in accordance with Section 611.356 at least once every six months for one year after corrosion control has been installed.
- 3) Results less than practical quantitation level (PQL) for lead. Any supplier is deemed to have optimized corrosion control if it submits results of tap water monitoring conducted in accordance with Section 611.356 and source water monitoring conducted in accordance with Section 611.358 that demonstrate that for two consecutive six-month monitoring periods the difference between the 90th percentile tap water lead level, computed pursuant to Section 611.350(c)(3), and the highest source water lead concentration is less than the practical quantitation level for lead specified in Section 611.359(a)(1)(B)(i).
- A) Those systems whose highest source water lead level is below the method detection limit (MDL) may also be deemed to have optimized corrosion control under this subsection (b) if the 90th percentile tap water lead level is less than or equal to the PQL for lead for two consecutive six-month monitoring periods.
  - B) Any water system deemed to have optimized corrosion control in accordance with this subsection (b) must continue monitoring for lead and copper at the tap no less frequently than once every three calendar years using the reduced number of sites specified in Section 611.356(c) and collecting the samples at times and locations specified in Section 611.356(d)(4)(D). Any such system that has not conducted a round of monitoring pursuant to Section 611.356(d) since September 30, 1997, must have completed a

round of monitoring pursuant to this subsection (b) no later than September 30, 2000.

- C) Any water system deemed to have optimized corrosion control pursuant to this subsection (b) must notify the Agency in writing pursuant to Section 611.360(a)(3) of any upcoming long-term change in treatment or the addition of a new source, as described in that Section. The Agency must review and approve the addition of a new source or any long-term change in water treatment before the addition or long-term change is implemented by the water system.
  - D) A supplier is not deemed to have optimized corrosion control under this subsection (b), and must implement corrosion control treatment pursuant to subsection (b)(3)(E) of this Section, unless it meets the copper action level.
  - E) Any supplier triggered into corrosion control because it is no longer deemed to have optimized corrosion control under this subsection must implement corrosion control treatment in accordance with the deadlines in subsection (e) of this Section. Any such large system supplier must adhere to the schedule specified in that subsection (e) for a medium-sized system supplier, with the time periods for completing each step being triggered by the date the supplier is no longer deemed to have optimized corrosion control under this subsection (b).
- c) Suppliers not required to complete corrosion control steps for having met both action levels.
- 1) Any small system or medium-sized system supplier, otherwise required to complete the corrosion control steps due to its ~~exceedence~~ exceedance of the lead or copper action level, may cease completing the treatment steps after the supplier has fulfilled both of the following conditions:
    - A) It has met both the copper action level and the lead action level during each of two consecutive six-month monitoring periods conducted pursuant to Section 611.356; and
    - B) The supplier has submitted the results for those two consecutive six-month monitoring periods to the Agency.
  - 2) A supplier that has ceased completing the corrosion control steps pursuant to subsection (c)(1) of this Section (or the Agency, if appropriate) must resume completion of the applicable treatment steps, beginning with the first treatment step that the supplier previously did not complete in its entirety, if the supplier thereafter exceeds the lead or copper action level during any monitoring period.

- 3) The Agency may, by SEP, require a supplier to repeat treatment steps previously completed by the supplier where it determines that this is necessary to properly implement the treatment requirements of this Section. Any such SEP must explain the basis for this decision.
  - 4) The requirement for any small- or medium-sized system supplier to implement corrosion control treatment steps in accordance with subsection (e) of this Section (including systems deemed to have optimized corrosion control under subsection (b)(1) of this Section) is triggered whenever any small- or medium-sized system supplier exceeds the lead or copper action level.
- d) Treatment steps and deadlines for large systems. Except as provided in subsections (b)(2) and (b)(3) of this Section, large system suppliers must complete the following corrosion control treatment steps (described in the referenced portions of Sections 611.352, 611.356, and 611.357) on or before the indicated dates.
- 1) Step 1: The supplier must have conducted initial monitoring (Sections 611.356(d)(1) and 611.357(b)) during two consecutive six-month monitoring periods on or before January 1, 1993.
  - 2) Step 2: The supplier must have completed corrosion control studies (Section 611.352(c)) on or before July 1, 1994.
  - 3) Step 3: The Agency must have approved optimal corrosion control treatment (Section 611.352(d)) by a SEP issued pursuant to Section 611.110 on or before January 1, 1995.
  - 4) Step 4: The supplier must have installed optimal corrosion control treatment (Section 611.352(e)) by January 1, 1997.
  - 5) Step 5: The supplier must have completed follow-up sampling (Sections 611.356(d)(2) and 611.357(c)) by January 1, 1998.
  - 6) Step 6: The Agency must have reviewed installation of treatment and approve optimal water quality control parameters (Section 611.352(f)) by July 1, 1998.
  - 7) Step 7: The supplier must operate in compliance with the Agency-specified optimal water quality control parameters (Section 611.352(g)) and continue to conduct tap sampling (Sections 611.356(d)(3) and 611.357(d)).
- e) Treatment steps and deadlines for small- and medium-sized system suppliers. Except as provided in subsection (b) of this Section, small- and medium-sized system suppliers must complete the following corrosion control treatment steps

(described in the referenced portions of Sections 611.352, 611.356, and 611.357) by the indicated time periods.

- 1) Step 1: The supplier must conduct initial tap sampling (Sections 611.356(d)(1) and 611.357(b)) until the supplier either exceeds the lead action level or the copper action level or it becomes eligible for reduced monitoring under Section 611.356(d)(4). A supplier exceeding the lead action level or the copper action level must recommend optimal corrosion control treatment (Section 611.352(a)) within six months after the end of the monitoring period during which it exceeds one of the action levels.
- 2) Step 2: Within 12 months after the end of the monitoring period during which a supplier exceeds the lead action level or the copper action level, the Agency may require the supplier to perform corrosion control studies (Section 611.352(b)). If the Agency does not require the supplier to perform such studies, the Agency must, by a SEP issued pursuant to Section 611.110, specify optimal corrosion control treatment (Section 611.352(d)) within the appropriate of the following timeframes:
  - A) For medium-sized systems, within 18 months after the end of the monitoring period during which such supplier exceeds the lead action level or the copper action level; or
  - B) For small systems, within 24 months after the end of the monitoring period during which such supplier exceeds the lead action level or the copper action level.
- 3) Step 3: If the Agency requires a supplier to perform corrosion control studies under step 2 (subsection (e)(2) of this Section), the supplier must complete the studies (Section 611.352(c)) within 18 months after the Agency requires that such studies be conducted.
- 4) Step 4: If the supplier has performed corrosion control studies under step 2 (subsection (e)(2) of this Section), the Agency must, by a SEP issued pursuant to Section 611.110, approve optimal corrosion control treatment (Section 611.352(d)) within six months after completion of step 3 (subsection (e)(3) of this Section).
- 5) Step 5: The supplier must install optimal corrosion control treatment (Section 611.352(e)) within 24 months after the Agency approves such treatment.
- 6) Step 6: The supplier must complete follow-up sampling (Sections 611.356(d)(2) and 611.357(c)) within 36 months after the Agency approves optimal corrosion control treatment.
- 7) Step 7: The Agency must review the supplier's installation of treatment and, by a SEP issued pursuant to Section 611.110, approve optimal water

quality control parameters (Section 611.352(f)) within six months after completion of step 6 (subsection (e)(6) of this Section).

- 8) Step 8: The supplier must operate in compliance with the Agency-approved optimal water quality control parameters (Section 611.352(g)) and continue to conduct tap sampling (Sections 611.356(d)(3) and 611.357(d)).

BOARD NOTE: Derived from 40 CFR 141.81 ~~(2013)~~ (2014).

(Source: Amended at 39 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).
  - 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;
    - C) Orthophosphate, when an inhibitor containing a phosphate compound is used;
    - D) Silica, when an inhibitor containing a silicate compound is used;
    - E) Calcium;
    - F) Conductivity; and
    - G) Water temperature.

- c) Monitoring after installation of corrosion control.
- 1) Large systems. Each large system supplier that installs optimal corrosion control treatment pursuant to Section 611.351(d)(4) must measure the water quality parameters at the locations and frequencies specified in subsections (c)(4) and (c)(5) of this Section during each six-month monitoring period specified in Section 611.356(d)(2)(A).
  - 2) Small- and medium-sized systems. Each small- or medium-sized system that installs optimal corrosion control treatment pursuant to Section 611.351(e)(5) must measure the water quality parameters at the locations and frequencies specified in subsections (c)(4) and (c)(5) of this Section during each six-month monitoring period specified in Section 611.356(d)(2)(B) in which the supplier exceeds the lead action level or the copper action level.
  - 3) Any groundwater system can limit entry point sampling described in subsection (c)(2) of this Section to those entry points that are representative of water quality and treatment conditions throughout the system. If water from untreated groundwater sources mixes with water from treated groundwater sources, the system must monitor for water quality parameters both at representative entry points receiving treatment and representative entry points receiving no treatment. Prior to the start of any monitoring under this subsection, the system must provide to the Agency written information identifying the selected entry points and documentation, including information on seasonal variability, sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system.
  - 4) Tap water samples, two samples at each tap for each of the following water quality parameters:
    - A) pH;
    - B) Alkalinity;
    - C) Orthophosphate, when an inhibitor containing a phosphate compound is used;
    - D) Silica, when an inhibitor containing a silicate compound is used; and
    - E) Calcium, when calcium carbonate stabilization is used as part of corrosion control.
  - 5) Entry point samples, except as provided in subsection (c)(3) of this Section, one sample at each entry point to the distribution system every two weeks (bi-weekly) for each of the following water quality parameters:

- A) pH;
  - B) When alkalinity is adjusted as part of optimal corrosion control, a reading of the dosage rate of the chemical used to adjust alkalinity, and the alkalinity concentration; and
  - C) When a corrosion inhibitor is used as part of optimal corrosion control, a reading of the dosage rate of the inhibitor used, and the concentration of orthophosphate or silica (whichever is applicable).
- d) Monitoring after the Agency specifies water quality parameter values for optimal corrosion control.
- 1) Large system suppliers. After the Agency has specified the values for applicable water quality control parameters reflecting optimal corrosion control treatment pursuant to Section 611.352(f), each large system supplier must measure the applicable water quality parameters in accordance with subsection (c) of this Section and determine compliance with the requirements of Section 611.352(g) every six months with the first six-month period to begin on either January 1 or July 1, whichever comes first, after the Agency specifies the optimal values under Section 611.352(f).
  - 2) Small- and medium-sized system suppliers. Each small- or medium-sized system supplier must conduct such monitoring during each six-month monitoring period specified in this subsection (d) in which the supplier exceeds the lead action level or the copper action level. For any such small and medium-size system that is subject to a reduced monitoring frequency pursuant to Section 611.356(d)(4) at the time of the action level ~~exceedence~~ exceedance, the start of the applicable six-month monitoring period under this subsection (d) must coincide with the start of the applicable monitoring period under Section 611.356(d)(4).
  - 3) Compliance with Agency-designated optimal water quality parameter values must be determined as specified under Section 611.352(g).
- e) Reduced monitoring.
- 1) Reduction in tap monitoring. A supplier that has maintained the range of values for the water quality parameters reflecting optimal corrosion control treatment during each of two consecutive six-month monitoring periods under subsection (d) of this Section must continue monitoring at the entry points to the distribution system as specified in subsection (c)(4) of this Section. Such a supplier may collect two samples from each tap for applicable water quality parameters from the reduced number of sites indicated in the second column of Table E of this Part during each subsequent six-month monitoring period.

- 2) Reduction in monitoring frequency.
  - A) Staged reductions in monitoring frequency.
    - i) Annual monitoring. A supplier that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified pursuant to Section 611.352(f) during three consecutive years of monitoring may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in subsection (e)(1) of this Section from every six months to annually. This reduced sampling may only begin during the calendar year immediately following the end of the monitoring period in which the third consecutive year of six-month monitoring occurs.
    - ii) Triennial monitoring. A supplier that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified pursuant to Section 611.352(f) during three consecutive years of annual monitoring under subsection (e)(2)(A)(i) of this Section may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in subsection (e)(1) of this Section from annually to once every three years. This reduced sampling may only begin no later than the third calendar year following the end of the monitoring period in which the third consecutive year of monitoring occurs.
  - B) A water supplier may reduce the frequency with which it collects tap samples for applicable water quality parameters specified in subsection (e)(1) of this Section to every three years if it demonstrates that it has fulfilled the conditions set forth in subsections (e)(2)(B)(i) through (e)(2)(B)(iii) of this Section during two consecutive monitoring periods, subject to the limitation of subsection (e)(2)(B)(iv) of this Section.
    - i) The supplier must demonstrate that its tap water lead level at the 90th percentile is less than or equal to the PQL for lead specified in Section 611.359(a)(1)(B);
    - ii) The supplier must demonstrate that its tap water copper level at the 90th percentile is less than or equal to 0.65 mg/ℓ for copper in Section 611.350(c)(2); and
    - iii) The supplier must demonstrate that it also has maintained the range of values for the water quality parameters

reflecting optimal corrosion control treatment specified by the Agency under Section 611.352(f).

- iv) Monitoring conducted every three years must be done no later than every third calendar year.
- 3) A supplier that conducts sampling annually or every three years must collect these samples evenly throughout the calendar year so as to reflect seasonal variability.
  - 4) Any supplier subject to a reduced monitoring frequency pursuant to this subsection that fails to operate at or above the minimum value or within the range of values for the water quality parameters specified pursuant to Section 611.352(f) for more than nine days in any six-month period specified in Section 611.352(g) must resume tap water sampling in accordance with the number and frequency requirements of subsection (d) of this Section. Such a system may resume annual monitoring for water quality parameters at the tap at the reduced number of sites specified in subsection (e)(1) of this Section after it has completed two subsequent consecutive six-month rounds of monitoring that meet the criteria of that subsection or may resume monitoring once every three years for water quality parameters 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 (e)(2)(A) or (e)(2)(B) of this Section.
  - f) Additional monitoring by suppliers. 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., determining concentrations of water quality parameters) under this Section or Section 611.352.

BOARD NOTE: Derived from 40 CFR 141.87 ~~(2007)~~, as amended at 72 Fed. Reg. 57782 ~~(October 10, 2007)~~ (2014).

(Source: Amended at 39 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

### **Section 611.358 Monitoring for Lead and Copper in Source Water**

- a) Sample location, collection methods, and number of samples.
  - 1) A supplier that fails to meet the lead action level or the copper action level on the basis of tap samples collected in accordance with Section 611.356 must collect lead and copper source water samples in accordance with the following requirements regarding sample location, number of samples, and collection methods:
    - A) A groundwater supplier must take a minimum of one sample at every entry point to the distribution system that is representative of each well after treatment (hereafter called a sampling point). The

supplier must take one sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

- B) A surface water supplier must take a minimum of one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point that is representative of each source after treatment (hereafter called a sampling point). The system must take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

BOARD NOTE: For the purposes of this subsection (a)(1)(B), surface water systems include systems with a combination of surface and ground sources.

- C) 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).
- D) The Agency may, by a SEP issued pursuant to Section 611.110, reduce the total number of samples that must be analyzed by allowing the use of compositing. Compositing of samples must be done by certified laboratory personnel. Composite samples from a maximum of five samples are allowed, provided that if the lead concentration in the composite sample is greater than or equal to 0.001 mg/ℓ or the copper concentration is greater than or equal to 0.160 mg/ℓ, then the supplier must do either of the following:
- i) The supplier must take and analyze a follow-up sample within 14 days at each sampling point included in the composite; or
  - ii) If duplicates of or sufficient quantities from the original samples from each sampling point used in the composite are available, the supplier may use these instead of resampling.

- 2) SEP requiring an additional sample.

- A) When the Agency determines that the results of sampling indicate an ~~exceedence~~ exceedance of the lead or copper MPC established under Section 611.353(b)(4), it must, by a SEP issued pursuant to Section 611.110, require the supplier to collect one additional sample as soon as possible after the initial sample at the same

sampling point, but no later than two weeks after the supplier took the initial sample.

- B) If a supplier takes an Agency-required confirmation sample for lead or copper, the supplier must average the results obtained from the initial sample with the results obtained from the confirmation sample in determining compliance with the Agency-specified lead and copper MPCs.
  - 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.
    - 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 distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the

Agency under Section 611.353(b)(4) for at least three consecutive years; or

- B) The Agency has determined, by a SEP issued pursuant to Section 611.110, that source water treatment is not needed and the supplier demonstrates that, during at least three consecutive years, 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.
- 3) A supplier that uses a new source of water is not eligible for reduced monitoring for lead or copper until it demonstrates by samples collected from the new source during three consecutive monitoring periods, of the appropriate duration provided by subsection (d)(1) of this Section, that lead or copper concentrations are below the MPC as specified by the Agency pursuant to Section 611.353(a)(4).

BOARD NOTE: Derived from 40 CFR 141.88-(2007), as amended at 72 Fed. Reg. 57782 (October 10, 2007) (2014).

(Source: Amended at 39 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

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

##### **Section 611.383 Compliance Requirements**

- a) General requirements.
- 1) Where compliance is based on a running annual average of monthly or quarterly samples or averages and the supplier fails to monitor for TTHM, HAA5, or bromate, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average. Where compliance is based on a running annual average of monthly or quarterly samples or averages and the supplier's failure to monitor makes it impossible to determine compliance with the MRDL for chlorine or chloramines, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average.
  - 2) All samples taken and analyzed under the provisions of this Subpart I must be included in determining compliance, even if that number is greater than the minimum required.
  - 3) If, during the first year of monitoring under Section 611.382, any individual quarter's average will cause the running annual average of that supplier to exceed the MCL for total trihalomethanes, haloacetic acids (five), or bromate or the MRDL for chlorine or chloramine, the supplier is out of compliance at the end of that quarter.

- b) Disinfection byproducts (DBPs).
- 1) TTHMs and HAA5.
    - A) For a supplier monitoring quarterly, compliance with MCLs in Section 611.312 must be based on a running annual arithmetic average, computed quarterly, of quarterly arithmetic averages of all samples collected by the supplier as prescribed by Section 611.382(b)(1).
    - B) For a supplier monitoring less frequently than quarterly, the supplier demonstrates MCL compliance if the average of samples taken that year under the provisions of Section 611.382(b)(1) does not exceed the MCLs in Section 611.312. If the average of these samples exceeds the MCL, the supplier must increase monitoring to once per quarter per treatment plant, and such a system is not in violation of the MCL until it has completed one year of quarterly monitoring, unless the result of fewer than four quarters of monitoring will cause the running annual average to exceed the MCL, in which case the supplier is in violation at the end of that quarter. A supplier required to increase to quarterly monitoring must calculate compliance by including the sample that triggered the increased monitoring plus the following three quarters of monitoring.
    - C) If the running annual arithmetic average of quarterly averages covering any consecutive four-quarter period exceeds the MCL, the supplier is in violation of the MCL and must notify the public pursuant to Subpart V of this Part in addition to reporting to the Agency pursuant to Section 611.384.
    - D) If a PWS fails to complete four consecutive quarter's monitoring, compliance with the MCL for the last four-quarter compliance period must be based on an average of the available data.
  - 2) Bromate. Compliance must be based on a running annual arithmetic average, computed quarterly, of monthly samples (or, for months in which the supplier takes more than one sample, the average of all samples taken during the month) collected by the supplier, as prescribed by Section 611.382(b)(3). If the average of samples covering any consecutive four-quarter period exceeds the MCL, the supplier is in violation of the MCL and must notify the public pursuant to Subpart V of this Part, in addition to reporting to the Agency pursuant to Section 611.384. If a PWS supplier fails to complete 12 consecutive months' monitoring, compliance with the MCL for the last four-quarter compliance period must be based on an average of the available data.

- 3) Chlorite. Compliance must be based on an arithmetic average of each three sample set taken in the distribution system as prescribed by Section 611.382(b)(2)(A)(ii) and Section 611.382(b)(2)(B). If the arithmetic average of any three sample set exceeds the MCL, the supplier is in violation of the MCL and must notify the public pursuant to Subpart V of this Part, in addition to reporting to the Agency pursuant to Section 611.384.
- c) Disinfectant residuals.
- 1) Chlorine and chloramines.
    - A) Compliance must be based on a running annual arithmetic average, computed quarterly, of monthly averages of all samples collected by the supplier under Section 611.382(c)(1). If the average of quarterly averages covering any consecutive four-quarter period exceeds the MRDL, the supplier is in violation of the MRDL and must notify the public pursuant to Subpart V of this Part, in addition to reporting to the Agency pursuant to Section 611.384.
    - B) In cases where a supplier switches between the use of chlorine and chloramines for residual disinfection during the year, compliance must be determined by including together all monitoring results of both chlorine and chloramines in calculating compliance. Reports submitted pursuant to Section 611.384 must clearly indicate that residual disinfectant was analyzed for each sample.
  - 2) Chlorine dioxide.
    - A) Acute violations. Compliance must be based on consecutive daily samples collected by the supplier under Section 611.382(c)(2). If any daily sample taken at the entrance to the distribution system exceeds the MRDL, and on the following day one (or more) of the three samples taken in the distribution system exceeds the MRDL, the supplier is in violation of the MRDL and must take immediate corrective action to lower the level of chlorine dioxide below the MRDL and must notify the public pursuant to the procedures for acute health risks in Subpart V of this Part, in addition to reporting to the Agency pursuant to Section 611.384. Failure to take samples in the distribution system the day following an ~~exceedence~~ exceedance of the chlorine dioxide MRDL at the entrance to the distribution system will also be considered an MRDL violation and the supplier must notify the public of the violation in accordance with the provisions for acute violations under Subpart V of this Part, in addition to reporting to the Agency pursuant to Section 611.384.

- B) Nonacute violations. Compliance must be based on consecutive daily samples collected by the supplier under Section 611.382(c)(2). If any two consecutive daily samples taken at the entrance to the distribution system exceed the MRDL and all distribution system samples taken are below the MRDL, the supplier is in violation of the MRDL and must take corrective action to lower the level of chlorine dioxide below the MRDL at the point of sampling and must notify the public pursuant to the procedures for nonacute health risks in Subpart V of this Part, in addition to reporting to the Agency pursuant to Section 611.384. Failure to monitor at the entrance to the distribution system the day following an ~~exceedence~~ exceedance of the chlorine dioxide MRDL at the entrance to the distribution system is also an MRDL violation and the supplier must notify the public of the violation in accordance with the provisions for nonacute violations under Subpart V of this Part, in addition to reporting to the Agency pursuant to Section 611.384.
- d) Disinfection byproduct (DBP) precursors. Compliance must be determined as specified by Section 611.385(c). A supplier may begin monitoring to determine whether Step 1 TOC removals can be met 12 months prior to the compliance date for the supplier. This monitoring is not required and failure to monitor during this period is not a violation. However, any supplier that does not monitor during this period, and then determines in the first 12 months after the compliance date that it is not able to meet the Step 1 requirements in Section 611.141(b)(2) and must therefore apply for alternate minimum TOC removal (Step 2) requirements, is not eligible for retroactive approval of alternate minimum TOC removal (Step 2) requirements as allowed pursuant to Section 611.385(b)(3) and is in violation of an NPDWR. A supplier may apply for alternate minimum TOC removal (Step 2) requirements any time after the compliance date. For a supplier required to meet Step 1 TOC removals, if the value calculated under Section 611.385(c)(1)(D) is less than 1.00, the supplier is in violation of the treatment technique requirements and must notify the public pursuant to Subpart V of this Part, in addition to reporting to the Agency pursuant to Subpart V of this Part.

BOARD NOTE: Derived from 40 CFR 141.133-~~(2006)~~ (2014).

(Source: Amended at 39 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

## SUBPART N: INORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

### **Section 611.609 Determining Compliance**

Compliance with the MCLs of Section 611.300 or 611.301 (as appropriate) must be determined based on the analytical results obtained at each sampling point.

- a) For suppliers that monitor at a frequency greater than annual, compliance with the MCLs for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, or thallium is determined by a running annual average at each sampling point.
- 1) If the average at any sampling point is greater than the MCL, then the supplier is out of compliance.
  - 2) If any one sample would cause the annual average to be exceeded, then the supplier is out of compliance immediately.
  - 3) Any sample below the method detection limit must be calculated at zero for the purpose of determining the annual average.
- BOARD NOTE: The “method detection limit” is different from the “detection limit, “ as set forth in Section 611.600. The “method detection limit” is the level of contaminant that can be determined by a particular method with a 95 percent degree of confidence, as determined by the method outlined in appendix B to 40 CFR 136, incorporated by reference at Section 611.102.
- 4) If a system fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.
- b) For suppliers that monitor annually or less frequently, compliance with the MCLs for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, or thallium is determined by the level of the contaminant at any sampling point. If confirmation samples are required by the Agency, the determination of compliance will be based on the average of the annual average of the initial MCL ~~exceedence~~ exceedance and any Agency-required confirmation samples. If a supplier fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.
- c) Compliance with the MCLs for nitrate and nitrite is determined based on one sample if the levels of these contaminants are below the MCLs. If the levels of nitrate or nitrite in the initial sample exceed the MCLs, Section 611.606 requires confirmation sampling, and compliance is determined based on the average of the initial and confirmation samples.
- d) Arsenic sampling results must be reported to the nearest 0.001 mg/ℓ.

BOARD NOTE: Derived from 40 CFR 141.23(i) ~~(2012)~~ (2014).

(Source: Amended at 39 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

SUBPART Q: RADIOLOGICAL MONITORING AND ANALYTICAL  
REQUIREMENTS

**Section 611.732 Beta Particle and Photon Radioactivity**

Monitoring and compliance requirements for manmade radioactivity. To determine compliance with the maximum contaminant levels in Section 611.330(d) for beta particle and photon radioactivity, a supplier must monitor at a frequency as follows:

- 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.

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 factor of 0.82.

- e) If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity exceeds the appropriate screening level, an analysis of the sample must be performed to identify the major radioactive constituents present in the sample and the appropriate doses must be calculated and summed to determine compliance with Section 611.330(d)(1), using the formula in Section 611.330(d)(2). Doses must also be calculated and combined for measured levels of tritium and strontium to determine compliance.
- f) A supplier must monitor monthly at the sampling points that exceeds the maximum contaminant level in Section 611.330(d) beginning the month after the ~~exceedence~~ exceedance occurs. A supplier must continue monthly monitoring until the supplier has established, by a rolling average of three monthly samples, that the MCL is being met. A supplier that establishes that the MCL is being met must return to quarterly monitoring until it meets the requirements set forth in subsection (a)(1) or (b)(4) of this Section.

BOARD NOTE: Derived from 40 CFR 141.26(b) (2014).

(Source: Amended at 39 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

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

**Section 611.745 Reporting and Recordkeeping Requirements**

In addition to the reporting and recordkeeping requirements in Sections 611.261 and 611.262, a PWS supplier subject to the requirements of this Subpart R that provides conventional filtration treatment or direct filtration must report monthly to the Agency the information specified in subsections (a) and (b) of this Section. In addition to the reporting and recordkeeping requirements in Sections 611.261 and 611.262, a PWS supplier subject to the requirements of this Subpart R that provides filtration approved under Section 611.743(b) must report monthly to the Agency the information specified in subsection (a) of this Section. The reporting in subsection (a) of this Section is in lieu of the reporting specified in Section 611.262(a).

- a) Turbidity measurements, as required by Section 611.743, must be reported within ten days after the end of each month the system serves water to the public. Information that must be reported is the following:
- 1) The total number of filtered water turbidity measurements taken during the month.
  - 2) The number and percentage of filtered water turbidity measurements taken during the month that are less than or equal to the turbidity limits specified in Section 611.743(a) or (b).
  - 3) The date and value of any turbidity measurements taken during the month that exceed 1 NTU for a supplier using conventional filtration treatment or

direct filtration, or that exceed the maximum level under Section 611.743(b).

- 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 ~~exceedence~~ 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 ~~exceedence~~ exceedance occurred. In addition, the supplier must either produce a filter profile for the filter within seven days after the ~~exceedence~~ 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 ~~exceedence~~ 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 ~~exceedence~~ exceedance occurred. In addition, the supplier must either produce a filter profile for the filter within seven days after the ~~exceedence~~ 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 ~~exceedence~~ 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 ~~exceedence~~ exceedance occurred. In addition, the supplier must conduct a self-assessment of the filter within 14 days after the ~~exceedence~~ exceedance and report that the self-assessment was conducted. 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.

- 4) For any individual filter that has a measured turbidity level of greater than 2.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each of two consecutive months, the supplier must report the filter number, the turbidity measurement, and the dates on which the ~~exceedence~~ exceedance occurred. In addition, the supplier must arrange for the conduct of a comprehensive performance evaluation by the Agency or a third party approved by the Agency no later than 30 days following the ~~exceedence~~ exceedance and have the evaluation completed and submitted to the Agency no later than 90 days following the ~~exceedence~~ exceedance.
- c) Additional reporting requirements.
- 1) If at any time the turbidity exceeds 1 NTU in representative samples of filtered water in a system using conventional filtration treatment or direct filtration, the supplier must consult with the Agency as soon as possible, but no later than the end of the next business day.
  - 2) If at any time the turbidity in representative samples of filtered water exceeds the maximum level set by the Agency under Section 611.743(b) for filtration technologies other than conventional filtration treatment, direct filtration, slow sand filtration, or diatomaceous earth filtration, the supplier must inform the Agency as soon as possible, but no later than the end of the next business day.

BOARD NOTE: Derived from 40 CFR 141.175 ~~(2002)~~ (2014).

(Source: Amended at 39 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

## SUBPART V: PUBLIC NOTIFICATION OF DRINKING WATER VIOLATIONS

### **Section 611.901 General Public Notification Requirements**

The requirements of this Subpart V replace former notice requirements.

- a) Who must give public notice. Each owner or operator of a public water system (a CWS, an NTNCWS, or a transient non-CWS) must give notice for all violations of an NPDWR and for other situations, as listed in this subsection (a). The term “NPDWR violation” is used in this Subpart V to include violations of an MCL, an MRDL, a treatment technique, monitoring requirements, or a testing procedure set forth in this Part. Appendix G to this Part identifies the tier assignment for each specific violation or situation requiring a public notice.
  - 1) NPDWR violations.

- A) A failure to comply with an applicable MCL or MRDL.
  - B) A failure to comply with a prescribed treatment technique.
  - C) A failure to perform water quality monitoring, as required by this Part.
  - D) A failure to comply with testing procedures as prescribed by this Part.
- 2) Relief equivalent to a variance and exemptions under sections 1415 and 1416 of SDWA.
- 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 ~~exceedence~~-exceedance of the nitrate MCL by a non-CWS, where granted permission by the Agency under Section 611.300(d).
  - C) ~~An exceedence~~-The notice required by Section 611.908 for an exceedance of 2 mg/l fluoride (the federal secondary MCL for fluoride standard of Section 611.858 (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.
  - 2) Tier 2 public notice: required for all other NPDWR violations and situations with potential to have serious adverse effects on human health.
  - 3) Tier 3 public notice: required for all other NPDWR violations and situations not included in Tier 1 and Tier 2.
- c) Who must receive notice.
- 1) Each PWS supplier must provide public notice to persons served by the water supplier, in accordance with this Subpart V. A PWS supplier that sells or otherwise provides drinking water to another PWS supplier (i.e., to a consecutive system) is required to give public notice to the owner or operator of the consecutive system; the consecutive system supplier is responsible for providing public notice to the persons it serves.
  - 2) If a PWS supplier has a violation in a portion of the distribution system that is physically or hydraulically isolated from other parts of the distribution system, the Agency may allow the system to limit distribution of the public notice to only persons served by that portion of the system that is out of compliance. Permission by the Agency for limiting distribution of the notice must be granted in writing, by a SEP issued pursuant to Section 611.110.
  - 3) A copy of the notice must also be sent to the Agency, in accordance with the requirements under Section 611.840(d).

BOARD NOTE: Derived from 40 CFR 141.201 (2014).

(Source: Amended at 39 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

### **Section 611.902 Tier 1 Public Notice: Form, Manner, and Frequency of Notice**

- a) Violations or situations that require a Tier 1 public notice. This subsection (a) lists the violation categories and other situations requiring a Tier 1 public notice. Appendix G of this Part identifies the tier assignment for each specific violation or situation. The violation categories include:

- 1) Until March 31, 2016, violation of the MCL for total coliforms when fecal coliform or E. coli are present in the water distribution system (as specified in Section 611.325(b)), or when the water supplier fails to test for fecal coliforms or E. coli when any repeat sample tests positive for coliform (as specified in Section 611.525). Beginning April 1, 2016, violation of the MCL for E. coli (as specified in Section 611.325(c)).
- 2) Violation of the MCL for nitrate, nitrite, or total nitrate and nitrite, as defined in Section 611.301, or when the water supplier fails to take a confirmation sample within 24 hours after the supplier's receipt of the results from the first sample showing an ~~exceedence~~exceedance of the nitrate or nitrite MCL, as specified in Section 611.606(b).
- 3) ~~Exceedence~~Exceedance of the nitrate MCL by a non-CWS supplier, where permitted to exceed the MCL by the Agency under Section 611.300(d), as required under Section 611.909.
- 4) Violation of the MRDL for chlorine dioxide, as defined in Section 611.313(a), when one or more samples taken in the distribution system the day following an ~~exceedence~~exceedance of the MRDL at the entrance of the distribution system exceed the MRDL, or when the water supplier does not take the required samples in the distribution system, as specified in Section 611.383(c)(2)(A).
- 5) This subsection (a)(5) refers to a violation of the former turbidity standard of Section 611.320, which the Board repealed because it applied to no suppliers in Illinois. This statement maintains structural consistency with the federal regulations.
- 6) Violation of the Surface Water Treatment Rule (SWTR), Interim Enhanced Surface Water Treatment Rule (IESWTR), or Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR) treatment technique requirement resulting from a single ~~exceedence~~exceedance of the maximum allowable turbidity limit (as identified in Appendix G), where the Agency determines after consultation that a Tier 1 notice is required or where consultation does not take place within 24 hours after the supplier learns of the violation.
- 7) Occurrence of a waterborne disease outbreak, as defined in Section 611.101, or other waterborne emergency (such as a failure or significant interruption in key water treatment processes, a natural disaster that disrupts the water supply or distribution system, or a chemical spill or unexpected loading of possible pathogens into the source water that significantly increases the potential for drinking water contamination).
- 8) Detection of E. coli, enterococci, or coliphage in source water samples, as specified in Section 611.802(a) and (b).

- 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-~~(2013)~~ (2014).

(Source: Amended at 39 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

### **Section 611.903 Tier 2 Public Notice: Form, Manner, and Frequency of Notice**

- 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 no circumstance may the repeat notice be given less frequently than once per year. It is not appropriate for the Agency to allow less frequent repeat notice for an MCL or treatment technique violation under the Total Coliform Rule or Subpart AA of this Part or a treatment technique violation under the Surface Water Treatment Rule or Interim Enhanced Surface Water Treatment Rule. It is also not appropriate for the Agency to allow across-the-board reductions in the repeat notice frequency for other ongoing violations requiring a Tier 2 repeat notice. An Agency determination allowing repeat notices to be given less frequently than once every three months must be in writing.

- 3) For the turbidity violations specified in this subsection (b)(3), a PWS supplier must consult with the Agency as soon as practical but no later than 24 hours after the supplier learns of the violation, to determine whether a Tier 1 public notice under Section 611.902(a) is required to protect public health. When consultation does not take place within the 24-hour period, the water system must distribute a Tier 1 notice of the violation within the next 24 hours (i.e., no later than 48 hours after the supplier learns of the violation), following the requirements under Section 611.902(b) and (c). Consultation with the Agency is required for the following:
  - A) Violation of the turbidity MCL under Section 611.320(b); or
  - B) Violation of the SWTR, IESWTR, or treatment technique requirement resulting from a single ~~exceedence~~ exceedance of the maximum allowable turbidity limit.
- c) The form and manner of Tier 2 public notice. A PWS supplier must provide the initial public notice and any repeat notices in a form and manner that is reasonably calculated to reach persons served in the required time period. The form and manner of the public notice may vary based on the specific situation and type of water system, but it must at a minimum meet the following requirements:
  - 1) Unless directed otherwise by the Agency in writing, by a SEP issued pursuant to Section 611.110, a CWS supplier must provide notice by the following:
    - A) Mail or other direct delivery to each customer receiving a bill and to other service connections to which water is delivered by the PWS supplier; and
    - B) Any other method reasonably calculated to reach other persons regularly served by the supplier, if they would not normally be reached by the notice required in subsection (c)(1)(A) of this Section. Such persons may include those who do not pay water bills or do not have service connection addresses (e.g., house renters, apartment dwellers, university students, nursing home patients, prison inmates, etc.). Other methods may include: Publication in a local newspaper; delivery of multiple copies for distribution by customers that provide their drinking water to others (e.g., apartment building owners or large private employers); posting in public places served by the supplier or on the Internet; or delivery to community organizations.
  - 2) Unless directed otherwise by the Agency in writing, by a SEP issued pursuant to Section 611.110, a non-CWS supplier must provide notice by the following means:

- A) Posting the notice in conspicuous locations throughout the distribution system frequented by persons served by the supplier, or by mail or direct delivery to each customer and service connection (where known); and
- B) Any other method reasonably calculated to reach other persons served by the system if they would not normally be reached by the notice required in subsection (c)(2)(A) of this Section. Such persons may include those served who may not see a posted notice because the posted notice is not in a location they routinely pass by. Other methods may include the following: Publication in a local newspaper or newsletter distributed to customers; use of E-mail to notify employees or students; or delivery of multiple copies in central locations (e.g., community centers).

BOARD NOTE: Derived from 40 CFR 141.203 ~~(2013)~~ (2014).

(Source: Amended at 39 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

#### **Section 611.904 Tier 3 Public Notice: Form, Manner, and Frequency of Notice**

- a) Violations or situations that require a Tier 3 public notice. This subsection (a) lists the violation categories and other situations requiring a Tier 3 public notice. Appendix G of this Part identifies the tier assignment for each specific violation or situation.
  - 1) Monitoring violations under this Part, 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 2 notice is required;
  - 2) Failure to comply with a testing procedure established in this Part, 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 2 notice is required;
  - 3) Operation under relief equivalent to a SDWA section 1415 variance granted under Section 611.111 or relief equivalent to a SDWA section 1416 exemption granted under Section 611.112;
  - 4) Availability of unregulated contaminant monitoring results, as required under Section 611.907;
  - 5) ~~Exceedence~~ The notice for an exceedance of 2 mg/l fluoride (the federal secondary standard MCL for fluoride under Section 611.858 (see 40 CFR 143.3)), as required under Section 611.908; and

BOARD NOTE: See the Board note appended to Section 611.908 for explanation.

- 6) Reporting and recordkeeping violations under Subpart AA of this Part.
- b) When the Tier 3 public notice is to be provided.
    - 1) A PWS supplier must provide the public notice not later than one year after the supplier learns of the violation or situation or begins operating under relief equivalent to a SDWA section 1415 variance or section 1416 exemption. Following the initial notice, the supplier must repeat the notice annually for as long as the violation, relief equivalent to a SDWA section 1415 variance or section 1416 exemption, or other situation persists. If the public notice is posted, the notice must remain in place for as long as the violation, relief equivalent to a SDWA section 1415 variance or section 1416 exemption, or other situation persists, but in no case less than seven days (even if the violation or situation is resolved).
    - 2) Instead of individual Tier 3 public notices, a PWS supplier may use an annual report detailing all violations and situations that occurred during the previous twelve months, as long as the timing requirements of subsection (b)(1) of this Section are met.
  - c) The form and manner of the Tier 3 public notice. A PWS supplier must provide the initial notice and any repeat notices in a form and manner that is reasonably calculated to reach persons served in the required time period. The form and manner of the public notice may vary based on the specific situation and type of water system, but it must at a minimum meet the following requirements:
    - 1) Unless directed otherwise by the Agency by a SEP issued pursuant to Section 611.110 in writing, a CWS supplier must provide notice by the following:
      - A) Mail or other direct delivery to each customer receiving a bill and to other service connections to which water is delivered by the supplier; and
      - B) Any other method reasonably calculated to reach other persons regularly served by the supplier, if they would not normally be reached by the notice required in subsection (c)(1)(A) of this Section. Such persons may include those who do not pay water bills or do not have service connection addresses (e.g., house renters, apartment dwellers, university students, nursing home patients, prison inmates, etc.). Other methods may include the following: publication in a local newspaper; delivery of multiple copies for distribution by customers that provide their drinking water to others (e.g., apartment building owners or large private employers); posting in public places or on the Internet; or delivery to community organizations.

- 2) Unless directed otherwise by the Agency by a SEP issued pursuant to Section 611.110 in writing, a non-CWS supplier must provide notice by the following:
  - A) Posting the notice in conspicuous locations throughout the distribution system frequented by persons served by the supplier, or by mail or direct delivery to each customer and service connection (where known); and
  - B) Any other method reasonably calculated to reach other persons served by the supplier, if they would not normally be reached by the notice required in subsection (c)(2)(A) of this Section. Such persons may include those who may not see a posted notice because the notice is not in a location they routinely pass by. Other methods may include the following: publication in a local newspaper or newsletter distributed to customers; use of E-mail to notify employees or students; or delivery of multiple copies in central locations (e.g., community centers).
- 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).

BOARD NOTE: Derived from 40 CFR 141.204 ~~(2013)~~ (2014).

(Source: Amended at 39 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

**Section 611.908 Special Notice for ~~Exceedence~~ Exceedance of the Fluoride Secondary Standard**

- a) When to give special notice. A CWS supplier that exceeds the federal fluoride secondary standard ~~(SMCL) MCL~~ of 2 mg/l, ~~as specified in Section 611.858 (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 ~~exceedence~~ 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 ~~exceedence~~ 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.

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.

BOARD NOTE: Derived from 40 CFR 141.208 ~~(2002)~~ (2014).

(Source: Amended at 39 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

**Section 611.909 Special Notice for Nitrate ~~Exceedences~~ Exceedances above the MCL by a Non-Community Water System**

- a) When the special notice is to be given. The owner or operator of a non-CWS supplier granted permission by the Agency under Section 611.300(d) to exceed the nitrate MCL must provide notice to persons served according to the requirements for a Tier 1 notice under Section 611.902(a) and (b).
- b) The form and manner of the special notice. A non-CWS supplier granted permission by the Agency to exceed the nitrate MCL under Section 611.300(d) must provide continuous posting of the fact that nitrate levels exceed 10 mg/l and the potential health effects of exposure, according to the requirements for Tier 1 notice delivery under Section 611.902(c) and the content requirements under Section 611.905.

BOARD NOTE: Derived from 40 CFR 141.209 ~~(2002)~~ (2014).

(Source: Amended at 39 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

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

**Section 611.956 Individual Filter Turbidity Requirements**

- 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 ~~exceedences~~ exceedances.
  - 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 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 ~~exceedence~~ 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.

BOARD NOTE: Derived from 40 CFR 141.560 through 141.564 ~~(2014)~~ (2014).

(Source: Amended at 39 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

#### SUBPART Y: STAGE 2 DISINFECTION BYPRODUCTS REQUIREMENTS

##### 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 ~~exceedences~~ exceedances.

- A) A supplier may request and the Agency may allow the supplier to limit the scope of its evaluation if the supplier is able to identify the cause of the operational evaluation level-~~exceedence~~ exceedance.
- B) A supplier’s request to limit the scope of the evaluation does not extend the schedule in subsection (b)(1) of this Section for submitting the written report. The Agency must approve this limited scope of evaluation in writing, and the supplier must keep that approval with the completed report.

BOARD NOTE: Derived from 40 CFR 141.626 ~~(2006)~~ (2014).

(Source: Amended at 39 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

**Section 611.APPENDIX G NPDWR Violations and Situations Requiring Public Notice**

See note 1 at the end of this Appendix G for an explanation of the Agency’s authority to alter the magnitude of a violation from that set forth in the following table.

Contaminant	MCL/MRDL/TT violations <sup>2</sup>		Monitoring & testing procedure violations	
	Tier of public notice required	Citation	Tier of public notice required	Citation

I. Violations of National Primary Drinking Water Regulations (NPDWR):<sup>3</sup>

A. Microbiological Contaminants

1a. Total coliform bacteria, until March 31, 2016	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)
2a. Fecal coliform/E. coli, until March 31, 2016	1	611.325(b)	<sup>4</sup> 1, 3	611.525
2b. E. coli (MCL, monitoring, and reporting violations), beginning April 1, 2016	1	611.1060(a)	3	611.1060(c)611.1060(d)(2)
2c. E.coli (TT violations resulting from failure to perform Level 2 assessments or corrective action), beginning April 1, 2016	2	611.1060(b)(1)		
3. Turbidity MCL	2	611.320(a)	3	611.560
4. Turbidity MCL (average of two days' samples greater than 5 NTU)	<sup>5</sup> 2, 1	611.320(b)	3	611.560
5. Turbidity (for TT violations resulting from a single <del>exceedence</del> exceedance of maximum allowable turbidity level)	<sup>6</sup> 2, 1	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)	3	611.531(a), 611.532(b), 611.533(a), 611.744, 611.956(a)(1)- (a)(3), 611.956(b)
6. Surface Water Treatment Rule violations, other than violations resulting from single <del>exceedence</del> exceedance of max. allowable turbidity level (TT)	2	611.211, 611.213, 611.220, 611.230- 611.233, 611.240- 611.242, 611.250	3	611.531- 611.533

7. Interim Enhanced Surface Water Treatment Rule violations, other than violations resulting from single <del>exceedence</del> <u>exceedance</u> of max. turbidity level (TT)	2	<sup>7</sup> 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	<sup>19</sup> 2, 3	611.1001-611.1005 and 611.1008-611.1009
11. Groundwater Rule violations	2	611.804	3	611.802(h)

#### 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)	<sup>8</sup> 1, 3	611.600, 611.601, 611.604, 611.606
12. Nitrite	1	611.301(b)	<sup>8</sup> 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

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	611.310(c)	3	611.648
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2. 2,4,5-TP (silvex)	2	611.310(c)	3	611.648
3. Alachlor	2	611.310(c)	3	611.648
4. Atrazine	2	611.310(c)	3	611.648
5. Benzo(a)pyrene (PAHs)	2	611.310(c)	3	611.648
6. Carbofuran	2	611.310(c)	3	611.648
7. Chlordane	2	611.310(c)	3	611.648
8. Dalapon	2	611.310(c)	3	611.648
9. Di(2-ethylhexyl)adipate	2	611.310(c)	3	611.648
10. Di(2-ethylhexyl)phthalate	2	611.310(c)	3	611.648
11. Dibromochloropropane (DBCP)	2	611.310(c)	3	611.648
12. Dinoseb	2	611.310(c)	3	611.648
13. Dioxin (2,3,7,8-TCDD)	2	611.310(c)	3	611.648
14. Diquat	2	611.310(c)	3	611.648
15. Endothall	2	611.310(c)	3	611.648
16. Endrin	2	611.310(c)	3	611.648
17. Ethylene dibromide	2	611.310(c)	3	611.648
18. Glyphosate	2	611.310(c)	3	611.648
19. Heptachlor	2	611.310(c)	3	611.648
20. Heptachlor epoxide	2	611.310(c)	3	611.648
21. Hexachlorobenzene	2	611.310(c)	3	611.648
22. Hexachlorocyclopentadiene	2	611.310(c)	3	611.648
23. Lindane	2	611.310(c)	3	611.648
24. Methoxychlor	2	611.310(c)	3	611.648
25. Oxamyl (Vydate)	2	611.310(c)	3	611.648

26. Pentachlorophenol	2	611.310(c)	3	611.648
27. Picloram	2	611.310(c)	3	611.648
28. Polychlorinated biphenyls (PCBs)	2	611.310(c)	3	611.648
29. Simazine	2	611.310(c)	3	611.648
30. Toxaphene	2	611.310(c)	3	611.648

## E. Volatile Organic Chemicals (VOCs)

1. Benzene	2	611.310(a)	3	611.646
2. Carbon tetrachloride	2	611.310(a)	3	611.646
3. Chlorobenzene (monochlorobenzene)	2	611.310(a)	3	611.646
4. o-Dichlorobenzene	2	611.310(a)	3	611.646
5. p-Dichlorobenzene	2	611.310(a)	3	611.646
6. 1,2-Dichloroethane	2	611.310(a)	3	611.646
7. 1,1-Dichloroethylene	2	611.310(a)	3	611.646
8. cis-1,2-Dichloroethylene	2	611.310(a)	3	611.646
9. trans-1,2-Dichloroethylene	2	611.310(a)	3	611.646
10. Dichloromethane	2	611.310(a)	3	611.646
11. 1,2-Dichloropropane	2	611.310(a)	3	611.646
12. Ethylbenzene	2	611.310(a)	3	611.646
13. Styrene	2	611.310(a)	3	611.646
14. Tetrachloroethylene	2	611.310(a)	3	611.646
15. Toluene	2	611.310(a)	3	611.646
16. 1,2,4-Trichlorobenzene	2	611.310(a)	3	611.646
17. 1,1,1-Trichloroethane	2	611.310(a)	3	611.646

18. 1,1,2-Trichloroethane	2	611.310(a)	3	611.646
19. Trichloroethylene	2	611.310(a)	3	611.646
20. Vinyl chloride	2	611.310(a)	3	611.646
21. Xylenes (total)	2	611.310(a)	3	611.646

#### 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

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).<sup>13</sup>

1. Total trihalomethanes (TTHMs)	2	<sup>11</sup> 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 <sup>12</sup> , 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	<sup>13</sup> 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)

#### H. Other Treatment Techniques

1. Acrylamide (TT)	2	611.296	N/A	N/A
2. Epichlorohydrin (TT)	2	611.296	N/A	N/A

#### II. Unregulated Contaminant Monitoring:<sup>14</sup>

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

#### 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	<sup>15</sup> 1415, 1416	N/A	N/A
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B. Violation of conditions of relief equivalent to a SDWA section 1415 variance or a section 1416 exemption	2	1415, 1416, <sup>16</sup> 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)- <del>exceedence</del> <u>exceedance</u>	3	611.858	N/A	N/A
B. <del>Exceedence</del> - <u>Exceedance</u> 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 <sup>17</sup>	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	<sup>18</sup> 1, 2, 3	N/A	N/A	N/A

#### Appendix G—Endnotes

- 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).

2. Definition of the abbreviations used: “MCL” means maximum contaminant level, “MRDL” means maximum residual disinfectant level, and “TT” means treatment technique.
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.
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.
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.
6. A supplier with a treatment technique violation involving a single ~~exceedence~~ exceedance of a maximum turbidity limit under the Surface Water Treatment Rule (SWTR), the Interim Enhanced Surface Water Treatment Rule (IESWTR), or the Long Term 1 Enhanced Surface Water Treatment Rule are required to 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.
7. The Surface Water Treatment Rule (SWTR) remains in effect for a supplier that serves at least 10,000 persons; the Interim Enhanced Surface Water Treatment Rule adds additional requirements and does not in many cases supercede the SWTR.
8. Failure to take a confirmation sample within 24 hours for nitrate or nitrite after an initial sample exceeds the MCL is a Tier 1 violation. Other monitoring violations for nitrate are Tier 3.
9. Failure to take a confirmation sample within 24 hours for nitrate or nitrite after an initial sample exceeds the MCL is a Tier 1 violation. Other monitoring violations for nitrate are Tier 3.
10. A Subpart B community or non-transient non-community system supplier must comply with new DBP MCLs, disinfectant MRDLs, and related monitoring requirements. A Subpart B transient non-community system supplier that serves 10,000 or more persons that uses chlorine dioxide as a disinfectant or oxidant or a Subpart B transient non-community system supplier that serves fewer than 10,000 persons, which uses only groundwater not under the direct influence of surface water, and which uses chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL.
11. Sections 611.312(b)(1) and 611.382(a) and (b) apply until Subpart Y of this Part takes effect

under the schedule set forth in Section 611.970(c).

12. Failure to monitor for chlorine dioxide at the entrance to the distribution system the day after exceeding the MRDL at the entrance to the distribution system is a Tier 2 violation.
13. If any daily sample taken at the entrance to the distribution system exceeds the MRDL for chlorine dioxide and one or more samples taken in the distribution system the next day exceed the MRDL, Tier 1 notification is required. A failure to take the required samples in the distribution system after the MRDL is exceeded at the entry point also triggers Tier 1 notification.
14. Some water suppliers must monitor for certain unregulated contaminants as required by USEPA pursuant to 40 CFR 141.40.
15. This citation refers to sections 1415 and 1416 of the federal Safe Drinking Water Act. sections 1415 and 1416 require that “a schedule prescribed . . . for a public water system granted relief equivalent to a SDWA section 1415 variance or a section 1416 exemption must require compliance by the system . . .”
16. In addition to sections 1415 and 1416 of the federal Safe Drinking Water Act, 40 CFR 142.307 specifies the items and schedule milestones that must be included in relief equivalent to a SDWA section 1415 small system variance. In granting any form of relief from an NPDWR, the Board will consider all applicable federal requirements for and limitations on the State’s ability to grant relief consistent with federal law.
17. Other waterborne emergencies require a Tier 1 public notice under Section 611.902(a) for situations that do not meet the definition of a waterborne disease outbreak given in Section 611.101, but which still have the potential to have serious adverse effects on health as a result of short-term exposure. These could include outbreaks not related to treatment deficiencies, as well as situations that have the potential to cause outbreaks, such as failures or significant interruption in water treatment processes, natural disasters that disrupt the water supply or distribution system, chemical spills, or unexpected loading of possible pathogens into the source water.
18. The Agency may place any other situation in any tier it deems appropriate in writing, based on the prospective threat which it determines that the situation poses to public health, and subject to Board review pursuant to Section 40 of the Act [415 ILCS 5/40].
19. A failure to collect three or more samples for Cryptosporidium analysis is a Tier 2 violation requiring special notice, as specified in Section 611.911. All other monitoring and testing procedure violations are Tier 3.

BOARD NOTE: Derived from Appendix A to Subpart Q to 40 CFR 141 (2014).

(Source: Amended at 39 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

**Section 611.APPENDIX H Standard Health Effects Language for Public Notification**

Contaminant	MCLG <sup>1</sup> mg/ℓ	MCL <sup>2</sup> mg/ℓ	Standard health effects language for public notification
National Primary Drinking Water Regulations (NPDWR):			
A. Microbiological Contaminants			
1a. Total coliform, until March 31, 2016	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. Fecal coliform/E. coli, until March 31, 2016	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.

1d. Groundwater Rule TT violations	None	TT	Inadequately treated or inadequately protected water may contain disease-causing organisms. These organisms can cause symptoms such as diarrhea, nausea, cramps, and associated headaches.
1e. Subpart Y Coliform Assessment and/or Corrective Action Violations, beginning April 1, 2016	N/A	TT	<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.</p> <p>(The system must use the following applicable sentences:)</p> <p>We failed to conduct the required assessment.</p> <p>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>

1h. Subpart Y Seasonal System TT Violations, beginning April 1, 2016	N/A	TT	<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.</p> <p>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>
2a. Turbidity (MCL) <sup>4</sup>	None	1 NTU <sup>5</sup> / 5 NTU	<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>
2b. Turbidity (SWTR TT)	None	TT <sup>7</sup>	<p>Turbidity has no health effects. However,<sup>6</sup> 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>
2c. Turbidity (IESWTR TT and LT1ESWTR TT)	None	TT	<p>Turbidity has no health effects. However,<sup>8</sup> 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. <i>Giardia lamblia</i> (SWTR/IESWTR/ LT1ESWTR)	Zero	TT <sup>10</sup>	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 <sup>9</sup> (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. <i>Legionella</i> (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. <i>Cryptosporidium</i> (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 <sup>11</sup>	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 <sup>12</sup>	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 <sup>13</sup>	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	$3 \times 10^{-8}$	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.
<b>G. Radioactive Contaminants</b>			
76. Beta/photon emitters	Zero	4 mrem/yr <sup>14</sup>	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 <sup>15</sup>	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)<sup>16</sup></p>			
80. Total trihalomethanes (TTHMs)	N/A	0.080 <sup>17, 18</sup>	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 <sup>19</sup>	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) <sup>20</sup>	4.0 (MRDL) <sup>21</sup>	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.
85. Chloramines	4 (MRDLG)	4.0 (MRDL)	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.
85a. Chlorine dioxide, where any two consecutive daily samples taken at the entrance to the distribution system are above the MRDL	0.8 (MRDLG)	0.8 (MRDL)	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>Add for public notification only: The chlorine dioxide violations reported today are the result of <del>exceedences</del><u>exceedances</u> 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 <del>exceedences</del><u>exceedances</u> 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>

87. Control of DBP precursors (TOC)	None	TT	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.
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.

#### Appendix H—Endnotes

1. “MCLG” means maximum contaminant level goal.
2. “MCL” means maximum contaminant level.
3. 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 exceed 1 NTU in systems using slow sand or diatomaceous earth filtration or other filtration technologies approved by the Agency.
7. “TT” means treatment technique.
8. 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. For a supplier subject to the IESWTR (a supplier that serves at least 10,000 people, using surface water or groundwater under the direct influence of surface water), that use conventional filtration or direct filtration, the turbidity level of a system’s combined filter effluent may not exceed 0.3 NTU in at least 95 percent of monthly measurements, and the turbidity level of a system’s combined filter effluent must not exceed 1 NTU at any time. A supplier subject to the IESWTR using technologies other than conventional, direct, slow sand, or diatomaceous earth filtration must meet turbidity limits set by the Agency. For a supplier subject to the LT1ESWTR (a supplier that serves fewer than 10,000 people, using surface water or groundwater under the direct influence of surface water) that uses conventional filtration or direct filtration, after January 1, 2005, the turbidity level of the supplier’s combined filter effluent may not exceed 0.3 NTU in at least 95 percent of monthly measurements, and the turbidity level of the supplier’s combined filter effluent must not exceed 1 NTU at any time. A supplier subject to the LT1ESWTR using technologies other than conventional, direct, slow sand, or diatomaceous earth filtration must meet turbidity limits set by the Agency.
9. The bacteria detected by heterotrophic plate count (HPC) are not necessarily harmful. HPC is simply an alternative method of determining disinfectant residual levels. The number of such bacteria is an indicator of whether there is enough disinfectant in the distribution system.
10. SWTR, IESWTR, and LT1ESWTR treatment technique violations that involve turbidity ~~exceedences~~ exceedances may use the health effects language for turbidity instead.
11. Millions of fibers per liter.
12. Action Level = 0.015 mg/ℓ.
13. Action Level = 1.3 mg/ℓ.
14. Millirems per year.

15. Picocuries per liter.
16. A surface water system supplier or a groundwater system supplier under the direct influence of surface water is regulated under Subpart B of this Part. A Subpart B community water system supplier or a non-transient non-community system supplier must comply with Subpart I DBP MCLs and disinfectant maximum residual disinfectant levels (MRDLs). A Subpart B transient non-community system supplier that uses chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL.
17. Community and non-transient non-community systems must comply with Subpart Y TTHM and HAA5 MCLs of 0.080 mg/l and 0.060 mg/l, respectively (with compliance calculated as a locational running annual average) on the schedule in Section 611.970.
18. The MCL for total trihalomethanes is the sum of the concentrations of the individual trihalomethanes.
19. The MCL for haloacetic acids is the sum of the concentrations of the individual haloacetic acids.
20. "MRDLG" means maximum residual disinfectant level goal.
21. "MRDL" means maximum residual disinfectant level.
22. The supplier is in compliance unless one of the following conditions occurs: (1) the supplier's system has an E. coli-positive repeat sample following a total coliform- positive routine sample; (2) the supplier's system has a total coliform-positive repeat sample following an E. coli-positive routine sample; (3) the supplier fails to take all required repeat samples following an E. colipositive routine sample; or (4) the supplier fails to test for E. coli when any repeat sample tests positive for total coliform.

BOARD NOTE: Derived from appendix B to subpart Q to 40 CFR 141-(2013) (2014).

(Source: Amended at 39 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

I, John T. Therriault, Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above opinion on August 20, 2015, by a vote of 5-0.




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John T. Therriault, Clerk  
Illinois Pollution Control Board