ILLINOIS POLLUTION CONTROL BOARD
January 20, 2005

IN THE MATTER OF:	)	
	)	
SDWA UPDATE, USEPA AMENDMENTS	)	R05-6
(January 1, 2004 though June 30, 2004,	)	(Identical-in-Substance
August 25, 2004)	)	Rulemaking - Public Water Supply)

Adopted Rule. Final Order.

OPINION AND ORDER OF THE BOARD (by T.E. Johnson):

The Board today adopts amendments to the Illinois regulations that are “identical in substance” to drinking water regulations adopted by the United States Environmental Protection Agency (USEPA). The USEPA rules 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) (1994)).

This docket includes federal SDWA amendments that USEPA adopted in the period January 1, 2004 though June 30, 2004, and on August 25, 2004. The amendments approve one new analytical method for analysis of total coliforms and *E. coli* and three new methods for analysis of uranium in drinking water. Another amendment makes a number of minor corrections to various federal rules, including the Long Term 1 Enhanced Surface Water Treatment Rule, the Surface Water Treatment Rule, and the Lead and Copper Rule.

Sections 7.2 and 17.5 of the Environmental Protection Act (Act) (415 ILCS 5/7.2 and 17.5 (2002)) 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 SDWA. Section 17.5 also provides that Title VII of the Act and Section 5 of the Administrative Procedure Act (APA) (5 ILCS 100/5-35 and 5-40 (2002)) do not apply to the Board’s adoption of identical-in-substance regulations. The federal SDWA regulations are found at 40 C.F.R. 141 through 143.

A Notice of Proposed Amendments appeared in the October 29, 2004 issue of the *Illinois Register*, at 28 Ill. Reg. 13954. The Board received three public comments during the public comment period, and these are reflected in the adopted amendments. The Board will immediately file the adopted rules with the Office of the Secretary of State.

FEDERAL ACTIONS CONSIDERED IN THIS RULEMAKING

This docket includes federal SDWA amendments that USEPA adopted in the period January 1, 2004 though June 30, 2004. Also included are amendments adopted by USEPA on August 25, 2004. The Board included the August 25, 2004 amendments because they directly affect amendments undertaken during the period January 1, 2004 though June 30, 2004.

The amendments involved in this docket approve one new analytical method for analysis of total coliforms and *E. coli* and three new methods for analysis of uranium in drinking water. Another amendment makes a number of minor corrections to various federal rules, including the Long Term 1 Enhanced Surface Water Treatment Rule, the Surface Water Treatment Rule, and the Lead and Copper Rule.

The following briefly summarizes the federal actions considered in this rulemaking.

Docket R05-6: January 1, 2004 though June 30, 2004 SDWA Amendments

USEPA amended the federal SDWA regulations three times during the period January 1, 2004 though June 30, 2004. These actions are summarized below:

February 13, 2004 (69 Fed. Reg. 7156)
USEPA approved an additional analytical method for coliforms and *E. coli* in drinking water.

June 2, 2004 (69 Fed. Reg. 31008)
By a direct final rule, USEPA approved three additional analytical methods for uranium in drinking water. (This rule was withdrawn on August 25, 2004, as described below.)

June 29, 2004 (69 Fed. Reg. 38850)
USEPA adopted a number of minor corrections to various rules, including the Long Term 1 Enhanced Surface Water Treatment Rule, the Surface Water Treatment Rule, and the Lead and Copper Rule.

Two Later SDWA (Drinking Water) Amendments of Interest: August 25, 2004

When the Board observes an action outside the timeframe of a docket that would require expedited consideration in the pending docket, the Board will expedite consideration of those amendments. Federal actions that could warrant expedited consideration include those that directly affect the amendments involved in this docket, those for which compelling reasons would warrant consideration as soon as possible, and those for which the Board has received a request for expedited consideration.

In the course of ongoing monitoring of federal actions, the Board has identified two simultaneous and related USEPA actions since June 30, 2004, that further amend the SDWA rules. Both actions relate directly to the subject matter of the June 2, 2004 amendments that are involved in this docket. Those two actions are described as follows:

August 25, 2004 (69 Fed. Reg. 52176)
By a final rule, USEPA approved the three additional analytical methods for uranium in drinking water that it had approved on June 2, 2004, by a direct final rule. (Note the June 2, 2004 notice of proposed rule at 69 Fed. Reg. 31068.)

August 25, 2004 (69 Fed. Reg. 52181)
In response to adverse public comments, USEPA withdrew its June 2, 2004 direct final rule that approved three additional analytical methods for uranium in drinking water.

The actions of August 25, 2004, directly affect the subject matter of the June 2, 2004 amendments. One August 25, 2004 action nullifies the June 2, 2004 action, and the other August 25, 2004 adopts the June 2, 2004 amendments based on the notice of proposed rule published on June 2, 2004 in conjunction with the direct final rule.[1] The ultimate August 25, 2004 rule adopted was identical to the direct final rule adopted on June 2, 2004 and withdrawn on August 25, 2004.

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

In addition to the amendments to the federal SDWA regulations, amendments to certain other federal regulations occasionally have an effect on the Illinois drinking water rules. Most notably, 35 Ill. Adm. Code 611.102 includes the incorporation of Appendices B and C of 40 C.F.R. 136 by reference. These are federal Clean Water Act methods for analysis of contaminants in water.

As of the date of this opinion and order, the Board has found no amendments to the pertinent segments of 40 C.F.R. 136 in the current update period. No Board action will be required at this time to update the version of 40 C.F.R. 136 incorporated by reference in to include the amendments.

Summary Tabulation of the Federal Actions Included in This Docket

February 13, 2004 (69 Fed. Reg. 7156)	Additional analytical method for coliforms and *E. coli* in drinking water.
June 2, 2004 (69 Fed. Reg. 31008)	(Direct final rule.) Approval of three additional analytical methods for uranium in drinking water.
June 29, 2004 (69 Fed. Reg. 38850)	Minor corrections to various rules, including the Long Term 1 Enhanced Surface Water Treatment Rule, the Surface Water Treatment Rule, and the Lead and Copper Rule.

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[1] USEPA uses a direct final rule for actions that it believes will be non-controversial. USEPA simultaneously publishes a notice of proposed amendments and a notice of direct final rule. The direct final rule will take effect about 60 days after publication, unless USEPA publishes a notice of withdrawal prior to the effective date. USEPA will withdraw a direct final rule in response to adverse comments filed within 30 days of the date of publication of the rule. *See, e.g.,* 69 Fed. Reg. 31008 (notice of direct final rule); 69 Fed. Reg. 31068 (simultaneous notice of proposed rule); 69 Fed. Reg. 52181 (notice of withdrawal of direct final rule).

August 25, 2004 (69 Fed. Reg. 52176)	Approval of three additional analytical methods for uranium in drinking water. (The same approved by direct final rule on June 2, 2004.)
August 25, 2004 (69 Fed. Reg. 52181)	Withdrawal of the June 2, 2004 direct final rule.

PUBLIC COMMENTS

The Board adopted a proposal for public comment in this matter on October 7, 2004. A Notice of Proposed Amendments appeared in the October 29, 2004 issue of the *Illinois Register*, at 28 Ill. Reg. 13954. The Board received public comments on this proposal for 45 days following its publication, until December 13, 2004. The Board received the following comments during the comment period:

PC 1 E-mail message from JCAR to Erin Conley forwarded to the hearing officer on October 27, 2004.

PC 2 E-mail message from JCAR to Erin Conley forwarded to the hearing officer on October 28, 2004.

PC 3 Illinois Environmental Protection Agency's Comments on Proposed SDWA Amendments, by Scott Phillips, Manager, Regulatory Section, Division of Legal Counsel, Illinois EPA (Agency), dated December 8, 2004 (received December 10, 2004).

In addition to the public comments received, the Board received a document from JCAR entitled "Identical Line Number Version," which is a copy of the text of the amendments as it appeared in the October 29, 2004 *Illinois Register* notice. JCAR usually uses highlighting in the line-numbered version of proposed amendments to indicate miscellaneous corrections to the text of the amendments. There were no corrections indicated in the line-numbered text for this proposal.

In PC 1 and PC 2, JCAR asked questions about the proposal for public comment. By the question in PC 1, JCAR indicated that "Doliform" was misspelled and should have appeared as "Coliform" in Section 611.526(f)(9). The Board has made that correction. In PC 2, JCAR raised a small number of questions relative to the federal corrective amendments of June 29, 2004. The JCAR questions in PC 2 are considered in the segment of this discussion that considers the June 29 corrections.

In PC 3, the Agency points out that the Board deleted too much language from Section 611.956(d)(2) when incorporating the USEPA corrections to 40 C.F.R. 141.563(b). The Agency comments are considered in the segment of this discussion that considers the June 29, 2004 federal corrections.

DISCUSSION

The following discussion begins with a description of the types of deviations the Board makes from the literal text of federal regulations in adopting identical-in-substance rules. It is followed by a discussion of the amendments and actions undertaken in direct response to the federal actions involved in this proceeding. This first series of discussions is organized by federal subject matter, generally appearing in chronological order of the relevant *Federal Register* notices involved. Finally, this discussion closes with a description of the amendments and actions that are not directly derived from the federal actions.

Discussion of the Federal Action

Newly-Added Analytical Method for Coliforms—Section 611.526

On February 13, 2004 (69 Fed. Reg. 7156), USEPA approved use of the Colitag® method for monitoring compliance with the total coliforms and *E. coli* standards for drinking water. The Colitag® method is a proprietary method available for purchase from CPI International, Inc. The USEPA action includes the Colitag method among the reference and proprietary methods already approved and available for demonstrating compliance with the total coliform and *E. coli* standards.

The Board incorporated the February 13, 2004 federal amendments without deviation from the substance of the federal amendments. References to the Colitag® method for testing total coliforms and *E. coli* are added to Section 611.526(c)(10) and (f)(10), respectively. The Board has also added the trademark marking "®" to each appearance of the proprietary name "Colitag®." Anyone interested in the substantive aspects of the federal addition of the new method should refer to the February 13, 2004 issue of the *Federal Register* for further information.

The Board requests comment on incorporation of the Colitag® method into the Illinois regulations to incorporate the USEPA amendments of February 13, 2004.

Newly-Added Analytical Methods for Uranium—Section 611.720

On June 2, 2004 (69 Fed. Reg. 31008), USEPA adopted a direct final rule approving three newly approved analytical methods for monitoring compliance with the uranium standard for drinking water. The methods were inductively coupled plasma-mass spectrometric methods in three sources: the 20th edition of "Standard Methods for the Examination of Water and Wastes," Method 3125; ASTM Method D5673-03; and Method 200.8 in "Methods for the Determination of Metals in Environmental Samples."

On August 25, 2004 (at 69 Fed. Reg. 52181), USEPA withdrew the June 2, 2004 direct final rule in response to a "somewhat ambiguous comment letter." 69 Fed. Reg. at 52181. In a separate notice of final rule, USEPA simultaneously addressed the comment letter and adopted amendments substantively identical to those withdrawn. 69 Fed. Reg. 52176 (Aug. 25, 2004).[2]

The Board incorporated the August 25, 2004 federal amendments without substantive deviation. References to the three newly approved methods for analysis of uranium were added to Section 611.720(a)(5). The only differences between the Illinois amendments and the underlying federal amendments are stylistic. The primary differences relate to differences in the format of the respective rules: the federal rules appear in tabular form, and the corresponding Illinois rules appear in the standard paragraph format. This required the addition of the text from federal end note 13 as a Board note appended to subsection (a)(5). A stylistic difference not based on format is the designation of uranium isotopes as "^{234}U" and "^{238}U," rather than as "U-234" and "U-238." The table that begins on page 8 of this opinion itemizes all differences between the federal and State amendments. Anyone interested in the substantive aspects of the federal addition of the new method should refer to the August 25, 2004 issue of the *Federal Register* for further information.

The Board requested comments on incorporation of the uranium methods into the Illinois regulations to incorporate the USEPA amendments of August 25, 2004. The Board received no comments on this aspect of the proposed amendments.

Miscellaneous Federal Corrections—Sections 611.231, 611.233, 611.241, 611.242, 611.250, 611.261, 611.262, 611.301, 611.382, 611.383, 611.532, 611.533, 611.720, 611.732, 611.953, 611.955, 611.956, and Appendices G and H to Part 611

On June 29, 2004 (69 Fed. Reg. 38850), USEPA adopted a series of corrections to its rules. USEPA described the corrections as clarifying typographic errors, inadvertent omissions, editorial errors, and outdated language in various rules. The rules affected included the following:

1. The Surface Water Treatment Rule (SWTR), adopted by USEPA on June 29, 1989 (54 Fed. Reg. 27486), (correcting cross-references);

2. The Lead and Copper Rule (LCR), adopted by USEPA on June 7, 1991 (at 56 Fed. Reg. 26460), and corrected on January 12, 2000 (at 65 Fed. Reg. 1950), (correcting the list of facilities that must receive public education brochures in the event of an exceedence of the action level);

3. The Phase V Rule, adopted by USEPA on July 17, 1992 (at 57 Fed. Reg. 31776), (clarifying a Best Available Technology for removal of cyanide from water)

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[2] The effective date is the only difference between the withdrawn rule of June 2, 2004, and that adopted on August 25, 2004. The withdrawn rule would have become effective on August 31, 2004, and the August 25, 2004 rule became effective on the date of publication.

4. Bottled Water Requirements (changing the reference to bottled requirements to reflect their movement by the Food and Drug Administration (FDA) from 20 C.F.R. 103.35 to 21 C.F.R. 165.110 on November 13, 1995 (at 60 Fed. Reg. 57076));

5. The Information Collection Rule (ICR), adopted by USEPA on May 14, 1996 (at 61 Fed. Reg. 24345), (removing obsolete references to data collected under rules that expired on December 31, 2000);

6. The Stage 1 Disinfectants and Disinfection Byproducts Rule (Stage 1 D-DBPR), adopted by USEPA on December 16, 1998 (at 63 Fed. Reg. 69390), (adding compliance with the maximum residual disinfectant level (MRDL) to the compliance requirements; correcting a cross-reference);

7. The Radionuclides Rule, adopted by USEPA on December 7, 2000 (at 65 Fed. Reg. 76708), (adding a detection limit for uranium; correcting typographic errors; clarifying screening levels);

8. The Filter Backwash Recycling Rule (FBWR), adopted by USEPA on June 8, 2001 (at 66 Fed. Reg. 31086), (correcting cross-references; clarifying the public notice requirements); and

9. The Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR), adopted by USEPA on January 14, 2002 (67 Fed. Reg. 1812), (changing the compliance date from January 14, 2005 to January 1, 2005; adding clarification that the states may approve more representative data sets to avoid disinfection profile monitoring; correcting typographic errors, omissions, and cross-references).

The Board incorporated the June 29, 2004 federal amendments without substantive deviation. It was not necessary, however, to make a small number of the federal corrections because the Board made the corrections when incorporating the original federal rules into the Illinois rules. The following table indicates the federal provisions affected by the corrections and the disposition of the corrections, indicating where applicable the corrections previously made by the Board:

40 C.F.R. Provision/Federal Rule Affected	35 Ill. Adm. Code Provision	Disposition of Correction
141.25(c)(1)/Radionuclide Rule	611.720(c)(1)	Corrected in this docket
141.26(b)(2)/Radionuclide Rule	611.732	Corrected in this docket
141.62(c)/Phase V Rule	611.301	Corrected in this docket
141.62(g)/Reference to FDA Bottled Water Requirements	611.301	Corrected in this docket
141.71(a)/SWTR	611.231	Corrected in this docket
141.71(c)/SWTR	611.233	Corrected in this docket
141.72(a)/SWTR	611.241	Corrected in this docket

141.72(b)/SWTR	611.242	Corrected in this docket
141.73(a)(1), (a)(2), (b), and (c)/SWTR	611.250	Corrected in this docket
141.73(a)(4)/LT1ESWTR	611.250	Corrected in this docket
141.74(b)/SWTR	611.532	Corrected in this docket
141.74(c)/SWTR	611.533	Corrected in this docket
141.75(a)/SWTR	611.261	Corrected in this docket
141.75(b)/SWTR	611.262	Corrected in this docket
141.85/LCR	611.355	USEPA omission not adopted in docket R01-7
141.132/ICR	611.382	Corrected in this docket
141.133/Stage 1 D-DBPR	611.383	Corrected in this docket
141.170(d)/LT1ESWTR	611.740	Corrected in docket R03-4
141, Appendix A to Subpart Q/ FBWR	Appendix G to Part 611	Corrected in this docket
141, Appendix B to Subpart Q/ LT1ESWTR	Appendix H to Part 611	Corrected in docket R03-4
141.502/LT1ESWTR	611.950(c)	Corrected in docket R03-4
141.530/LT1ESWTR	611.953(a)	Corrected in docket R03-4
141.531/LT1ESWTR	611.953(b)	Corrected in docket R03-4
141.534/LT1ESWTR	611.953(e)	Corrected in docket R03-4
141.551/LT1ESWTR	611.955(b)	Corrected in docket R03-4
141.563/LT1ESWTR	611.956(d)	Partially corrected in docket R03-4, completed in this docket
141.570/LT1ESWTR	611.957(a)	Corrected in docket R03-4

The following are the two dockets cited in the above table:

> <u>SDWA Update, USEPA Amendments (January 1, 2000 through June 30, 2000; LT1ESWTR)</u>, R01-7 (Jan. 4, 2001) and
>
> <u>SDWA Update, USEPA Amendments (January 1, 2002 through June 30, 2002; LT1ESWTR)</u>, R03-4 (Dec. 19, 2002)

The table that begins on page 8 of this opinion itemizes all differences between the federal and State amendments. Anyone interested in the substantive aspects of the federal addition of the new method should refer to the June 29, 2004 issue of the *Federal Register* for further information.

The Board requested comments on incorporation of the June 29, 2004 federal corrections into the Illinois regulations. The Board received two comments: PC 2 from JCAR and PC 3 from the Agency.

In PC 2, JCAR initially questioned the locations in the Illinois rules of 40 C.F.R. 141.563(b), (c), and (d). Those appear as 35 Ill. Adm. Code 611.956(d)(2), (d)(3), and (d)(4), respectively. While these provisions appear in tables in the federal regulations, the Board has codified each in the standard subsection format in the Illinois regulations.

In PC 2, JCAR asked the source of the text added to Section 611.242(c)(2). That text, relating to the use of a certified laboratory for HPC analyses, was derived from 40 C.F.R. 141.72(b)(3)(ii). The added text was inadvertently omitted from Section 611.242 in the original adoption of that provision in Safe Drinking Water Act Rules, R88-26 (Aug. 9, 1990). The Board used the opportunity of this proceeding to correct the omission.

The language questioned by JCAR in Section 611.242(c)(2) was also inadvertently omitted from the original adoption of other provisions in R88-26. The requirement for use of a certified laboratory for HPC analyses was inadvertently omitted from Section 611.241(d)(2) (derived from 40 C.F.R. 141.72(a)(4)(ii)), 611.261(b)(8)(G) (derived from 40 C.F.R. 141.75(a)(2)(viii)(G)), 611.262(b)(3)(G) (derived from 40 C.F.R. 141.75(b)(2)(iii)(G)), and 611.533(c)(2) (derived from 40 C.F.R. 141.74(c)(3)(ii)). The Board has restored the language to each of these provisions in this proceeding.

JCAR also asked about the use of alternative TTHM and HAA5 data in Section 611.953(b). JCAR asked the location of the standards by which the Agency will determine whether data are representative. Section 611.953(b) deems certain data generally acceptable, as follows: "samples must have been collected after January 1, 1998, during the month with the warmest water temperature, and at the point of maximum residence time in the distribution system." Thus, USEPA has deemed that recent data which is most likely to indicate TTHM and HAA5 contamination is acceptable (due to an increased reaction rate and time).

The Board believes that no written standard for evaluation of alternative data is necessary, since USEPA has indicated the nature of the data sought. The Agency may accept alternative data that is most likely to show TTHM and HAA5 contamination. The Board believes that the determination whether data are representative is an engineering judgment of a type routinely made by the Agency. In response to the JCAR question, however, the Board has revised the language of the amendment to Section 611.953(b). The Board has added a statement to Section 611/953(b) that any Agency determination to accept or reject data is to be made by a special exception permit. This will make it clear that a supplier may seek Board review of any Agency determination to accept or reject data.

Finally, JCAR asked whether a change is warranted to clarify the federal language added to Section 611.953(b). JCAR asked whether the language should appear as "is representative of

TTHM and HAA5 data" instead of "is representative TTHM and HAA5 data." The alternative data approved by the Agency must be representative TTHM and HAA5 data, not representative of TTHM and HAA5 data. No change is warranted.

In PC 3, the Agency noted an error in the proposal. The June 29, 2004 corrections deleted the final sentence of 40 C.F.R. 141.563(b). The Board's October 7, 2004 proposal for public comment inadvertently marked the final two sentences for deletion. That error is corrected in this opinion and order.

Discussion of Miscellaneous Housekeeping Amendments

The tables below list numerous corrections and amendments that are not based on current federal amendments. The first table (beginning immediately below) includes deviations made in this Proposal for Public Comment from the verbatim text of the federal amendments. The second table (beginning immediately after Table 1 below) contains corrections and clarifications that the Board made in the base text involved in this proposal. The amendments listed in this second table are not directly derived from the current federal amendments. Some of the entries in these tables are discussed further in appropriate segments of the general discussion beginning at page 4 of this opinion. Table 3 (beginning on page 13 below) is a listing of revisions made to the text of the amendments from that proposed and set forth in the Board's opinion and order of October 7, 2004. Table 3 indicates the changes made, as well as the source that suggested each of the changes.

Table 1:
Deviations from the Text of the Federal Amendments

Illinois Section	40 C.F.R. Section	Revision(s)
611.301(c) table and key	141.62(c) table and key	Changed "alkaline chlorination" to "ALK Cl_2"
611.383(a)(3)	141.133(a)(3)	Removed the unnecessary semicolon after "bromate" that separated elements of a two-element series
611.526(f)(10)	141.21(f)(6)(x)	Changed "Colitag®" to "Colitag® Test"
611.720(a)(5) Board note	141.25(a) note 12 to the table	Added the note as a Board note due to structural differences; changed "a 0.67 pCi/µg of uranium conversion factor" to "a conversion factor of 0.67 pCi/µg of uranium"; changed "U-234" to "^{234}U"; changed "U-238" to "^{238}U"

611.953(b)	141.531	Changed “your state” to “the Agency”; added “by a SEP . . . Section 611.110” as a parenthetical offset by commas; added “the use of . . . if it determines that the data set is” for enhanced clarity; moved “to determine these levels” to follow “data set” for enhanced clarity; changed the final “data set” to “data”
611.953(e)	141.534	Changed “use the tables . . . to determine” to “the tables . . . must be used to determine”; changed “CT99.9” to “$CT_{99.9}$”

Table2 :
Board Housekeeping Amendments

Section	Source	Revision(s)
611.102(b) “ASTM Method D1253-86”	Board	Moved method into appropriate alphabetical order
611.231(b) Board note	Board	Updated the *Code of Federal Regulations* reference to the most recent version available
611.233 Board note	Board	Updated the *Code of Federal Regulations* reference to the most recent version available
611.241(d)(2)	Board	Restored the missing federal text “by a certified laboratory . . . distribution system”
611.242(c)(2)	Board	Restored the missing federal text “by a certified laboratory . . . distribution system”
611.250(a)(1)	Board	Added the missing parenthetical offset by a comma “measured as . . . 611.533(a)” to restore missing federal text (twice)
611.250(b)(1)	Board	Added the missing parenthetical offset by a comma “measured as . . . 611.533(a)” to restore missing federal text
611.250(b)(2)	Board	Added the missing parenthetical offset by a comma “measured as . . . 611.533(a)” to restore missing federal text
611.250(c)(1)	Board	Added the missing parenthetical offset by a comma “measured as . . . 611.533(a)” to restore missing federal text
611.250(c)(2)	Board	Added the missing parenthetical offset by a comma “measured as . . . 611.533(a)” to restore missing federal text
611.261(b)(8)(G)	Board	Restored the missing federal text “by a certified laboratory . . . distribution system”
611.261 Board note	Board	Updated the *Code of Federal Regulations* reference to the most recent version available

Section	Source	Revision(s)
611.262(b)(3)(G)	Board	Restored the missing federal text “by a certified laboratory . . . distribution system”
611.262 Board note	Board	Updated the *Code of Federal Regulations* reference to the most recent version available
611.301(c) key	Board	Moved “CC corrosion control” into alphabetical order; moved “Cl_2 oxidation (chlorine)” into alphabetical order; moved “ED electrodialysis” into alphabetical order; moved “O/F oxidation/filtration” into alphabetical order
611.382 Board note	Board	Updated the *Code of Federal Regulations* reference to the most recent version available
611.383 Board note	Board	Updated the *Code of Federal Regulations* reference to the most recent version available
611.526(c)(9)	Board	Corrected the spelling “Doliform” to “Coliform”
611.526(d)	Board	Moved the ending period after “reserved” inside the closing quotation mark
611.526(f)(2)	Board	Changed numeric “4” to written “four”
611.526(f)(3)	Board	Changed numeric “6-watt” to written “six-watt”
611.526(f)(9)	JCAR	Corrected the spelling “Doliform” to “Coliform”
611.531 Board note	Board	Updated the *Code of Federal Regulations* reference to the most recent version available
611.532(f)(2)	Board	Added “that” before “a supplier” for a restrictive relative clause; restored “measured as specified . . . this Section” as missing federal text offset by a comma as a parenthetical
611.532 Board note	Board	Updated the *Code of Federal Regulations* reference to the most recent version available
611.533(c)(1)	Board	Changed the cross-reference “611.521 et seq.” to “Sections 611.521 through 611.527”; restored “measured as specified . . . this Section” as missing federal text offset by a comma as a parenthetical
611.533(c)(2)	Board	Changed “subsection (c)(1)” to “subsection (c)(1) of this Section”; restored the missing federal text “by a certified laboratory . . . distribution system”
611.533 Board note	Board	Updated the *Code of Federal Regulations* reference to the most recent version available
611.720(c)(1) Board note	Board	Updated the *Code of Federal Regulations* reference to the most recent version available
611.720(c)(2) Board note	Board	Updated the *Code of Federal Regulations* reference to the most recent version available
611.720 Board note	Board	Updated the *Code of Federal Regulations* reference to the most recent version available
611.953 Board note	Board	Updated the *Code of Federal Regulations* reference to the most recent version available

Section	Source	Revision(s)
611.956 Board note	Board	Updated the *Code of Federal Regulations* reference to the most recent version available
Appendix H, note 4	Board	Added the abbreviated name for the rule in parentheses "(SWTR)"; added the abbreviated name for the rule in parentheses "(IESWTR)"; added the abbreviated name for the rule in parentheses "(LT1SWTR)"
Appendix H, note 6	Board	Removed the rule name "Surface Water Treatment Rule" and removed the parentheses from the abbreviated name for the rule "SWTR"; removed the rule name "Interim Enhanced Surface Water Treatment Rule" and removed the parentheses from the abbreviated name for the rule "(IESWTR)"; removed the rule name "Long Term 1 Enhanced Surface Water Treatment Rule" and added the abbreviated name for the rule "(LT1SWTR)"; removed the rule name "Surface Water Treatment Rule" and added the abbreviated name for the rule "(SWTR)"
Appendix H, note 8	Board	Removed the rule name "Surface Water Treatment Rule" and removed the parentheses from the abbreviated name for the rule "SWTR"; removed the rule name "Interim Enhanced Surface Water Treatment Rule" and removed the parentheses from the abbreviated name for the rule "(IESWTR)"; removed the rule name "Long Term 1 Enhanced Surface Water Treatment Rule" and added the abbreviated name for the rule "(LT1SWTR)"

Table 3:
Revisions to the Text of the Proposed Amendments in Final Adoption

Section Revised	Source	Revision(s)
611.526(f)(2)	Board	Changed numeric "4" to written "four"
611.526(f)(3)	Board	Changed numeric "6-watt" to written "six-watt"
611.526(f)(9)	JCAR	Corrected the spelling "Doliform" to "Coliform"
611.953(b)	Board, JCAR	Added "by a SEP . . . 611.110" as a parenthetical offset by commas
611.956(d)(2)	Agency	Removed the overstrike to retain the erroneously deleted sentence "The self-assessment . . . self-assessment report."

ORDER

The Board proposes the following amendments for public comment:

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

PART 611
PRIMARY DRINKING WATER STANDARDS

SUBPART A: GENERAL

SUBPART B: FILTRATION AND DISINFECTION

SUBPART C: USE OF NON-CENTRALIZED TREATMENT DEVICES

Section

SUBPART D: TREATMENT TECHNIQUES

Section

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

Section

SUBPART G: LEAD AND COPPER

Section

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

SUBPART K: GENERAL MONITORING AND ANALYTICAL REQUIREMENTS

SUBPART L: MICROBIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

SUBPART M: TURBIDITY MONITORING AND ANALYTICAL REQUIREMENTS

SUBPART N: INORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

SUBPART O: ORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

Section

SUBPART P: THM MONITORING AND ANALYTICAL REQUIREMENTS

Section

SUBPART Q: RADIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

Section

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

SUBPART T: REPORTING AND RECORDKEEPING

SUBPART U: CONSUMER CONFIDENCE REPORTS

SUBPART V: PUBLIC NOTIFICATION OF DRINKING WATER VIOLATIONS

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

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. ________, 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:

“Amco-AEPA-1 Polymer” is available from Advanced Polymer Systems.

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

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

“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.

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

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

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

“HASL Procedure Manual” means HASL Procedure Manual, HASL 300, available from ERDA Health and Safety Laboratory.

“Kelada 01” means “Kelada Automated Test Methods for Total Cyanide, Acid Dissociable Cyanide, And Thiocyanate,” Revision 1.2, August 2001, EPA # 821–B–01–009, available from the National Technical Information Service (NTIS).

“Membrane Filter Technique using Chromocult Doliform Agar” 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 Chemicals Inc.

“NCRP” means “National Council on Radiation Protection.”

“NTIS” means “National Technical Information Service.”

“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.

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

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

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

“Readycult Coliforms 100 Presence/Absence Test” means “Readycult Coliforms 100 Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia coli in Finished Waters,” available from EMD Chemicals Inc.

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

"Radiochemical Methods" means "Interim Radiochemical Methodology for Drinking Water," available from NTIS.

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

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

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

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

"USDOE Manual" means "EML Procedures Manual," available from the United State Department of Energy.

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

"USEPA Asbestos Methods-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 Inorganics 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 Organic Methods" means "Methods for the Determination of Organic Compounds in Drinking Water," July 1991, for Methods 502.2, 505, 507, 508, 508A, 515.1, and 531.1; “Methods for the Determination of Organic Compounds in Drinking Water--Supplement I,” July 1990, for Methods 506, 547, 550, 550.1, and 551; and “Methods for the Determination of Organic Compounds in Drinking Water--Supplement II,” August 1992, for Methods 515.2, 524.2, 548.1, 549.1, 552.1, and 555, available from NTIS. Methods 504.1, 508.1, and 525.2 are available from EPA EMSL; “Methods for the Determination of Organic Compounds” in Drinking Water--Supplement II, August 1992, for Method 552.1; “Methods for the Determination of Organic Compounds in Drinking Water--Supplement III,” August 1995, for Methods 502.2, 524.2, 551.1, and 552.2. Method 515.4, “Determination of Chlorinated Acids in Drinking Water by Liquid-Liquid Microextraction, Derivatization and Fast Gas Chromatography with Electron Capture Detection,” Revision 1.0, April 2000, EPA 815/B–00/001, and Method 531.2, “Measurement of N-methylcarbamoyloximes and N-methylcarbamates in Water by Direct Aqueous Injection HPLC with Postcolumn Derivatization,” Revision 1.0, September 2001, EPA 815/B/01/002, are both available on-line from USEPA, Office of Ground Water and Drinking Water.

“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 Methods” 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.

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

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

b) The Board incorporates the following publications by reference:

Advanced Polymer Systems, 3696 Haven Avenue, Redwood City, CA

94063 415-366-2626.

Amco-AEPA-1 Polymer. See 40 CFR 141.22(a) (2003). Also, as referenced in ASTM D1889.

American Public Health Association, 1015 Fifteenth Street NW, Washington, DC 20005 800-645-5476.

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

"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.").

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

American Waterworks 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).

"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).

Method 303, Total Radioactive Strontium and Strontium 90 in Water.

Method 304, Radium in Water by Precipitation.

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

Method 306, Tritium in Water.

“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).

Method 7500-Cs B, Radioactive Cesium, Precipitation Method.

Method 7500-^{3}H B, Tritium in Water.

Method 7500-I B, Radioactive Iodine, Precipitation Method.

Method 7500-I C, Radioactive Iodine, Ion-Exchange Method.

Method 7500-I D, Radioactive Iodine, Distillation Method.

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

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

Method 7500-Ra D, Radium, Sequential Precipitation Method (Proposed).

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

Method 7500-U B, Uranium, Radiochemical Method (Proposed).

Method 7500-U C, Uranium, Isotopic Method (Proposed).

“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.

Method 2320 B, Alkalinity, Titration Method.

Method 2510 B, Conductivity, Laboratory Method.

Method 2550, Temperature, Laboratory and Field Methods.

Method 3111 B, Metals by Flame Atomic Absorption Spectrometry, Direct Air-Acetylene Flame Method.

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

Method 3112 B, Metals by Cold-Vapor Atomic Absorption Spectrometry, Cold-Vapor Atomic Absorption Spectrometric Method.

Method 3113 B, Metals by Electrothermal Atomic Absorption Spectrometry, Electrothermal Atomic Absorption Spectrometric Method.

Method 3114 B, Metals by Hydride Generation/Atomic Absorption Spectrometry, Manual Hydride Generation/Atomic Absorption Spectrometric Method.

Method 3120 B, Metals by Plasma Emission Spectroscopy, Inductively Coupled Plasma (ICP) Method.

Method 3500-Ca D, Calcium, EDTA Titrimetric Method.

Method 3500-Mg E, Magnesium, Calculation Method.

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

Method 4500-CN^- C, Cyanide, Total Cyanide after Distillation.

Method 4500-CN^- E, Cyanide, Colorimetric Method.

Method 4500-CN^- F, Cyanide, Cyanide-Selective Electrode

Method.

Method 4500-CN^- G, Cyanide, Cyanides Amenable to Chlorination after Distillation.

Method 4500-Cl D, Chlorine, Amperometric Titration Method.

Method 4500-Cl E, Chlorine, Low-Level Amperometric Titration Method.

Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric Method.

Method 4500-Cl G, Chlorine, DPD Colorimetric Method.

Method 4500-Cl H, Chlorine, Syringaldazine (FACTS) Method.

Method 4500-Cl I, Chlorine, Iodometric Electrode Method.

Method 4500-ClO_2 C, Chlorine Dioxide, Amperometric Method I.

Method 4500-ClO_2 D, Chlorine Dioxide, DPD Method.

Method 4500-ClO_2 E, Chlorine Dioxide, Amperometric Method II (Proposed).

Method 4500-F^- B, Fluoride, Preliminary Distillation Step.

Method 4500-F^- C, Fluoride, Ion-Selective Electrode Method.

Method 4500-F^- D, Fluoride, SPADNS Method.

Method 4500-F^- E, Fluoride, Complexone Method.

Method 4500-H^+ B, pH Value, Electrometric Method.

Method 4500-NO_2^- B, Nitrogen (Nitrite), Colorimetric Method.

Method 4500-NO_3^- D, Nitrogen (Nitrate), Nitrate Electrode Method.

Method 4500-NO_3^- E, Nitrogen (Nitrate), Cadmium Reduction Method.

Method 4500-NO_3^- F, Nitrogen (Nitrate), Automated Cadmium Reduction Method.

Method 4500-O_3 B, Ozone (Residual) (Proposed), Indigo Colorimetric Method.

Method 4500-P E, Phosphorus, Ascorbic Acid Method.

Method 4500-P F, Phosphorus, Automated Ascorbic Acid Reduction Method.

Method 4500-Si D, Silica, Molybdosilicate Method.

Method 4500-Si E, Silica, Heteropoly Blue Method.

Method 4500-Si F, Silica, Automated Method for Molybdate-Reactive Silica.

Method 6651, Glyphosate Herbicide (Proposed).

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

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

Method 7500-Cs B, Radioactive Cesium, Precipitation Method.

Method 7500-^3H B, Tritium, Liquid Scintillation Spectrometric Method.

Method 7500-I B, Radioactive Iodine, Precipitation Method.

Method 7500-I C, Radioactive Iodine, Ion-Exchange Method.

Method 7500-I D, Radioactive Iodine, Distillation Method.

Method 7500-Ra B, Radium, Precipitation Method.

Method 7500-Ra C, Radium, Emanation Method.

Method 7500-Ra D, Radium, Sequential Precipitation Method (Proposed).

Method 7500-Sr B, Total Radioactive Strontium and Strontium 90, Precipitation Method.

Method 7500-U B, Uranium, Radiochemical Method (Proposed).

Method 7500-U C, Uranium, Isotopic Method (Proposed).

Method 9215 B, Heterotrophic Plate Count, Pour Plate Method.

Method 9221 A, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Introduction.

Method 9221 B, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Standard Total Coliform Fermentation Technique.

Method 9221 C, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Estimation of Bacterial Density.

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

Method 9221 E, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Fecal Coliform Procedure.

Method 9222 A, Membrane Filter Technique for Members of the Coliform Group, Introduction.

Method 9222 B, Membrane Filter Technique for Members of the Coliform Group, Standard Total Coliform Membrane Filter Procedure.

Method 9222 C, Membrane Filter Technique for Members of the Coliform Group, Delayed-Incubation Total Coliform

Procedure.

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

Method 9223, Chromogenic Substrate Coliform Test (Proposed).

“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.

“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.

Method 2320 B, Alkalinity, Titration Method.

Method 2510 B, Conductivity, Laboratory Method.

Method 2550, Temperature, Laboratory, and Field Methods.

Method 3111 B, Metals by Flame Atomic Absorption Spectrometry, Direct Air-Acetylene Flame Method.

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

Method 3112 B, Metals by Cold-Vapor Atomic Absorption Spectrometry, Cold-Vapor Atomic Absorption Spectrometric Method.

Method 3113 B, Metals by Electrothermal Atomic Absorption Spectrometry, Electrothermal Atomic Absorption Spectrometric Method.

Method 3114 B, Metals by Hydride Generation/Atomic Absorption Spectrometry, Manual Hydride Generation/Atomic Absorption Spectrometric Method.

Method 3120 B, Metals by Plasma Emission Spectroscopy, Inductively Coupled Plasma (ICP) Method.

Method 3500-Ca D, Calcium, EDTA Titrimetric Method.

Method 3500-Mg E, Magnesium, Calculation Method.

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

Method 4500-Cl D, Chlorine, Amperometric Titration Method.

Method 4500-Cl E, Chlorine, Low-Level Amperometric Titration Method.

Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric Method.

Method 4500-Cl G, Chlorine, DPD Colorimetric Method.

Method 4500-Cl H, Chlorine, Syringaldazine (FACTS) Method.

Method 4500-Cl I, Chlorine, Iodometric Electrode Method.

Method 4500-ClO_2 C, Chlorine Dioxide, Amperometric Method I.

Method 4500-ClO_2 D, Chlorine Dioxide, DPD Method.

Method 4500-ClO_2 E, Chlorine Dioxide, Amperometric Method II (Proposed).

Method 4500-CN^- C, Cyanide, Total Cyanide after Distillation.

Method 4500-CN^- E, Cyanide, Colorimetric Method.

Method 4500-CN^- F, Cyanide, Cyanide-Selective Electrode Method.

Method 4500-CN^- G, Cyanide, Cyanides Amenable to Chlorination after Distillation.

Method 4500-F^- B, Fluoride, Preliminary Distillation Step.

Method 4500-F^- C, Fluoride, Ion-Selective Electrode Method.

Method 4500-F^- D, Fluoride, SPADNS Method.

Method 4500-F^- E, Fluoride, Complexone Method.

Method 4500-H^+ B, pH Value, Electrometric Method.

Method 4500-NO_2^- B, Nitrogen (Nitrite), Colorimetric Method.

Method 4500-NO_3^- D, Nitrogen (Nitrate), Nitrate Electrode Method.

Method 4500-NO_3^- E, Nitrogen (Nitrate), Cadmium Reduction Method.

Method 4500-NO_3^- F, Nitrogen (Nitrate), Automated Cadmium Reduction Method.

Method 4500-O_3 B, Ozone (Residual) (Proposed), Indigo Colorimetric Method.

Method 4500-P E, Phosphorus, Ascorbic Acid Method.

Method 4500-P F, Phosphorus, Automated Ascorbic Acid Reduction Method.

Method 4500-Si D, Silica, Molybdosilicate Method.

Method 4500-Si E, Silica, Heteropoly Blue Method.

Method 4500-Si F, Silica, Automated Method for Molybdate-Reactive Silica.

Method 5910 B, UV Absorbing Organic Constituents, Ultraviolet Absorption Method.

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

Method 6651, Glyphosate Herbicide (Proposed).

Method 7110 B, Gross Alpha and Gross Beta Radioactivity, Evaporation Method for Gross Alpha-Beta.

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

Method 7120 B, Gamma-Emitting Radionuclides, Gamma Spectrometric Method.

Method 7500-Cs B, Radioactive Cesium, Precipitation Method.

Method 7500-3H B, Tritium, Liquid Scintillation Spectrometric Method.

Method 7500-I B, Radioactive Iodine, Precipitation Method.

Method 7500-I C, Radioactive Iodine, Ion-Exchange Method.

Method 7500-I D, Radioactive Iodine, Distillation Method.

Method 7500-Ra B, Radium, Precipitation Method.

Method 7500-Ra C, Radium, Emanation Method.

Method 7500-Ra D, Radium, Sequential Precipitation Method.

Method 7500-Sr B, Total Radiactive Strontium and Strontium 90, Precipitation Method.

Method 7500-U B, Uranium, Radiochemical Method.

Method 7500-U C, Uranium, Isotopic Method.

Method 9215 B, Heterotrophic Plate Count, Pour Plate Method.

Method 9221 A, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Introduction.

Method 9221 B, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Standard Total Coliform Fermentation Technique.

Method 9221 C, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Estimation of Bacterial Density.

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

Method 9221 E, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Fecal Coliform Procedure.

Method 9222 A, Membrane Filter Technique for Members of the Coliform Group, Introduction.

Method 9222 B, Membrane Filter Technique for Members of the Coliform Group, Standard Total Coliform Membrane Filter Procedure.

Method 9222 C, Membrane Filter Technique for Members of the Coliform Group, Delayed-Incubation Total Coliform Procedure.

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

Method 9223, Chromogenic Substrate Coliform Test (Proposed).

"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.

Method 5310 C, TOC, Persulfate-Ultraviolet Oxidation Method.

Method 5310 D, TOC, Wet-Oxidation Method.

"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.

Method 2320 B, Alkalinity, Titration Method.

Method 2510 B, Conductivity, Laboratory Method.

Method 2550, Temperature, Laboratory, and Field Methods.

Method 3120 B, Metals by Plasma Emission Spectroscopy, Inductively Coupled Plasma (ICP) Method.

Method 3500-Ca B, Calcium, EDTA Titrimetric Method.

Method 3500-Mg B, Magnesium, EDTA Titrimetric Method.

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

Method 4500-CN^- C, Cyanide, Total Cyanide after Distillation.

Method 4500-CN^- E, Cyanide, Colorimetric Method.

Method 4500-CN^- F, Cyanide, Cyanide-Selective Electrode Method.

Method 4500-CN^- G, Cyanide, Cyanides Amenable to Chlorination after Distillation.

Method 4500-Cl D, Chlorine, Amperometric Titration Method.

Method 4500-Cl E, Chlorine, Low-Level Amperometric Titration Method.

Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric Method.

Method 4500-Cl G, Chlorine, DPD Colorimetric Method.

Method 4500-Cl H, Chlorine, Syringaldazine (FACTS) Method.

Method 4500-Cl I, Chlorine, Iodometric Electrode Method.

Method 4500-ClO2 C, Chlorine Dioxide, Amperometric Method I.

Method 4500-ClO2 D, Chlorine Dioxide, DPD Method.

Method 4500-ClO2 E, Chlorine Dioxide, Amperometric Method II (Proposed).

Method 4500-F^- B, Fluoride, Preliminary Distillation Step.

Method 4500-F^- C, Fluoride, Ion-Selective Electrode Method.

Method 4500-F^- D, Fluoride, SPADNS Method.

Method 4500-F^- E, Fluoride, Complexone Method.

Method 4500-H^+ B, pH Value, Electrometric Method.

Method 4500-NO_2^- B, Nitrogen (Nitrite), Colorimetric Method.

Method 4500-NO_3^- D, Nitrogen (Nitrate), Nitrate Electrode Method.

Method 4500-NO_3^- E, Nitrogen (Nitrate), Cadmium Reduction Method.

Method 4500-NO_3^- F, Nitrogen (Nitrate), Automated Cadmium Reduction Method.

Method 4500-O3 B, Ozone (Residual) (Proposed), Indigo Colorimetric Method.

Method 4500-P E, Phosphorus, Ascorbic Acid Method.

Method 4500-P F, Phosphorus, Automated Ascorbic Acid Reduction Method.

Method 4500-Si C, Silica, Molybdosilicate Method.

Method 4500-Si D, Silica, Heteropoly Blue Method.

Method 4500-Si E, Silica, Automated Method for Molybdate-Reactive Silica.

Method 4500-Cl E, Chlorine (Residual), Low-Level Amperometric Titration Method.

Method 4500-Cl F, Chlorine (Residual), DPD Ferrous Titrimetric Method.

Method 4500-Cl G, Chlorine (Residual), DPD Colorimetric Method.

Method 4500-Cl H, Chlorine (Residual), Syringaldazine (FACTS) Method.

Method 4500-Cl I, Chlorine (Residual), Iodometric Electrode Technique.

Method 4500-ClO_2 D, Chlorine Dioxide, DPD Method.

Method 4500-ClO_2 E, Chlorine Dioxide, Amperometric Method II.

Method 6651, Glyphosate Herbicide (Proposed).

Method 7110-B, Gross Alpha and Gross Beta Radioactivity, Evaporation Method for Gross Alpha-Beta.

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

Method 7120-B, Gamma-Emitting Radionuclides, Gamma Spectrometric Method.

Method 7500-Cs B, Radioactive Cesium, Precipitation Method.

Method 7500-3H B, Tritium, Liquid Scintillation Spectrometric Method.

Method 7500-I B, Radioactive Iodine, Precipitation

Method.

Method 7500-I C, Radioactive Iodine, Ion-Exchange Method.

Method 7500-I D, Radioactive Iodine, Distillation Method.

Method 7500-Ra B, Radium, Precipitation Method.

Method 7500-Ra C, Radium, Emanation Method.

Method 7500-Sr B, Total Radiactive Strontium and Strontium 90, Precipitation Method.

Method 7500-U B, Uranium, Radiochemical Method.

Method 7500-U C, Uranium, Isotopic Method.

Method 9215 B, Heterotrophic Plate Count, Pour Plate Method.

Method 9221 A, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Introduction.

Method 9221 B, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Standard Total Coliform Fermentation Technique.

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

40 CFR 136, Appendices B and C (2003).

d) This Part incorporates no later amendments or editions.

(Source: Amended at 29 Ill. Reg. ________, effective ______________________)

SUBPART B: FILTRATION AND DISINFECTION

Section 611.231 Source Water Quality Conditions

The Agency must consider the following source water quality conditions in determining whether to require filtration pursuant to Section 611.211:

a) The fecal coliform concentration must be equal to or less than 20/100 ml, or the total coliform concentration must be equal to or less than 100/100 ml (measured as specified in Section 611.531(a) or (b) and 611.532(a)) in representative samples of the source water immediately prior to the first or only point of disinfectant application in at least 90 percent of the measurements made for the 6 previous months that the system served water to the public on an ongoing basis. If a system measures both fecal and total coliforms, the fecal coliform criterion, but not the total coliform criterion, in this subsection, must be met.

b) The turbidity level cannot exceed 5 NTU (measured as specified in Section ~~611.531(d)~~ 611.531(a) and 611.532(b) in representative samples of the source water immediately prior to the first or only point of disinfectant application unless the following are true:

1) The Agency determines that any such event was caused by circumstances that were unusual and unpredictable; and

2) As a result of any such event there have not been more than two events in the past 12 months the system served water to the public, or more than five events in the past 120 months the system served water to the public, in which the turbidity level exceeded 5 NTU. An "event" is a series of consecutive days during which at least one turbidity measurement each day exceeds 5 NTU.

BOARD NOTE: Derived from 40 CFR 141.71(a) ~~(2002)~~ (2003).

c) Each CWS must take its raw water from the best available source that is economically reasonable and technically possible.

BOARD NOTE: This is an additional State requirement.

d) Use of recycled sewage treatment plant effluent by a CWS on a routine basis must not be permitted.

BOARD NOTE: This is an additional State requirement.

(Source: Amended at 29 Ill. Reg. ________, effective ______________________)

Section 611.233 Treatment Technique Violations

a) A supplier is in violation of a treatment technique requirement if the following is true:

1) Filtration is required because either of the following:

A) The supplier fails to meet any one of the criteria in Section 611.231 and 611.232; or

B) The Agency has determined, pursuant to Section 611.211, that filtration is required; and

2) The supplier fails to install filtration by the date specified in Section 611.230.

b) A supplier that has not installed filtration is in violation of a treatment technique requirement if either of the following is true:

1) The turbidity level (measured as specified in Section ~~611.531(d)~~ 611.531(a) and 611.532(b)) in a representative sample of the source water immediately prior to the first or only point of disinfection application exceeds 5 NTU; or

2) The system is identified as a source of a waterborne disease outbreak.

BOARD NOTE: Derived from 40 CFR 141.71(c) ~~(2002)~~ (2003).

(Source: Amended at 29 Ill. Reg. ________, effective ______________________)

Section 611.241 Unfiltered PWSs

Each supplier that does not provide filtration treatment must provide disinfection treatment as follows:

a) The disinfection treatment must be sufficient to ensure at least 99.9 percent (3-log) inactivation of Giardia lamblia cysts and 99.99 percent (4-log) inactivation of viruses, every day the system serves water to the public, except any one day each month. Each day a system serves water to the public, the supplier must calculate the CT$_{99.9}$ value from the system's treatment parameters using the procedure specified in Section 611.532(c) and determine whether this value is sufficient to achieve the specified inactivation rates for Giardia lamblia cysts and viruses.

1) If a system uses a disinfectant other than chlorine, the system may demonstrate to the Agency, through the use of an Agency-approved protocol for on-site disinfection challenge studies or other information, that CT$_{99.9}$ values other than those specified in Appendix B of this Part, Tables 2.1 and 3.1 or other operational parameters are adequate to demonstrate that the system is achieving minimum inactivation rates required by this subsection.

2) The demonstration must be made by way of a SEP application pursuant to Section 611.110.

b) The disinfection system must have either of the following:

1) Redundant components, including an auxiliary power supply with

automatic start-up and alarm to ensure that disinfectant application is maintained continuously while water is being delivered to the distribution system; or

2) Automatic shut-off of delivery of water to the distribution system whenever there is less than 0.2 mg/ℓ of RDC in the water. If the Agency determines, by a SEP issued pursuant to Section 611.110, that automatic shut-off would cause unreasonable risk to health or interfere with fire protection, the system must comply with subsection (b)(1).

c) The RDC in the water entering the distribution system, measured as specified in Sections ~~611.531(e)~~ 611.531(b) and 611.532(e), cannot be less than 0.2 mg/ℓ for more than 4 hours.

d) RDC in the distribution system.

1) The RDC in the distribution system, measured as total chlorine, combined chlorine or chlorine dioxide, as specified in Sections ~~611.531(e)~~ 611.531(b) and 611.532(f), cannot be undetectable in more than 5 percent of the samples each month for any two consecutive months that the system serves water to the public. Water in the distribution system with HPC less than or equal to 500/ml, measured as specified in Section ~~611.531(c)~~ 611.531(a), is deemed to have a detectable RDC for purposes of determining compliance with this requirement. Thus, the value "V" in the following formula cannot exceed 5 percent in one month, for any two consecutive months.

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

where the terms mean the following:

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 the RDC is measured but not detected, and where the HPC is greater than 500/ml; and

e = Number of instances where the RDC is not measured and HPC is greater than 500/ml.

2) Subsection (d)(1) does 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.

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

(Source: Amended at 29 Ill. Reg. ________, effective ______________________)

Section 611.242 Filtered PWSs

Each supplier that provides filtration treatment must provide disinfection treatment as follows:

a) The disinfection treatment must be sufficient to ensure that the total treatment processes of that system achieve at least 99.9 percent (3-log) inactivation or removal of Giardia lamblia cysts and at least 99.99 percent (4-log) inactivation or removal of viruses.

b) The RDC in the water entering the distribution system, measured as specified in Section ~~611.531(e)~~ 611.531(b) and 611.533(b), cannot be less than 0.2 mg/ℓ for more than 4 hours.

c) RDC in the distribution system.

1) The RDC in the distribution system, measured as total chlorine, combined chlorine, or chlorine dioxide, as specified in Section ~~611.531(e)~~ 611.531(b) and 611.533(c), cannot be undetectable in more than 5 percent of the samples each month, for any two consecutive months that the system serves water to the public. Water in the distribution system with HPC less than or equal to 500/ml, measured as specified in Section ~~611.531(c)~~ 611.531(a), is deemed to have a detectable RDC for purposes of determining compliance with this requirement. Thus, the value “V” in the following formula cannot exceed 5 percent in one month, for any two consecutive months.

$$V = 100(c + d + e) / (a + b)$$

where the terms mean the following:

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 the RDC is measured but not detected, and where HPC is greater than 500/ml; and

e = Number of instances where the RDC is not measured and HPC is greater than 500/ml.

2) Subsection (c)(1) does 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.

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

(Source: Amended at 29 Ill. Reg. ________, effective ______________________)

Section 611.250 Filtration

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

a) Conventional filtration treatment or direct filtration.

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

    2) The turbidity level of representative samples of a system's filtered water must at no time exceed 5 NTU.

    3) Beginning January 1, 2001, a supplier serving at least 10,000 or more persons must meet the turbidity requirements of Section 611.743(a).

    4) Beginning January 1, 2005, a supplier that serves fewer than 10,000 people must meet the turbidity requirements in Section 611.955.

b) Slow sand filtration.

    1) For a system using slow sand filtration, the turbidity level of representative samples of the system's filtered water must be less than or equal to 1 NTU in at least 95 percent of the measurements taken each month, measured as specified in Section 611.531(a) and 611.533(a), except that if the Agency determines, by a SEP issued pursuant to Section 611.110, that there is no significant interference with disinfection at a higher level, the Agency must substitute the higher turbidity limit for that system.

    2) The turbidity level of representative samples of a system's filtered water must at no time exceed 5 NTU, measured as specified in Section 611.531(a) and 611.533(a).

c) Diatomaceous earth filtration.

    1) For a system using diatomaceous earth filtration, the turbidity level of representative samples of the system's filtered water must be less than or equal to 1 NTU in at least 95 percent of the measurements taken each month, measured as specified in Section 611.531(a) and 611.533(a).

    2) The turbidity level of representative samples of a system's filtered water must at no time exceed 5 NTU, measured as specified in Section 611.531(a) and 611.533(a).

d) Other filtration technologies. A supplier may use a filtration technology not listed in subsections (a) through (c) if it demonstrates, by a SEP application pursuant to Section 611.110, to the Agency, using pilot plant studies or other means, that the alternative filtration technology, in combination with disinfection treatment that meets the requirements of Section 611.242, consistently achieves 99.9 percent removal or inactivation of Giardia lamblia cysts and 99.99 percent removal or inactivation of viruses. For a supplier that makes this demonstration, the requirements of subsection (b) apply. Beginning January 1, 2002, a supplier serving 10,000 or more persons must meet the requirements for other filtration technologies in Section 611.743(b). Beginning January 1, 2005, a supplier that serves fewer than 10,000 people must meet the requirements for other filtration technologies in Section 611.955.

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

(Source: Amended at 29 Ill. Reg. ________, effective ______________________)

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 CTcalc and Ai values for each disinfectant measurement or sequence and the sum of all Ai 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 Ai 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 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) ~~(2002)~~ (2003).

(Source: Amended at 29 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 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) ~~(2002)~~ (2003).

(Source: Amended at 29 Ill. Reg. ________, effective ______________________)

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

Section 611.301 Revised MCLs for Inorganic Chemical Contaminants

a) This subsection corresponds with 40 CFR 141.62(a), reserved by USEPA. This statement maintains structural consistency with USEPA rules.

b) The MCLs in the following table apply to CWSs. Except for fluoride, the MCLs also apply to NTNCWSs. The MCLs for nitrate, nitrite, and total nitrate and nitrite also apply to transient non-CWSs.

Contaminant	MCL	Units
Antimony	0.006	mg/ℓ
Arsenic (effective January 23, 2006)	0.010	mg/ℓ
Asbestos	7	MFL
Barium	2	mg/ℓ
Beryllium	0.004	mg/ℓ
Cadmium	0.005	mg/ℓ
Chromium	0.1	mg/ℓ
Cyanide (as free CN^-)	0.2	mg/ℓ
Fluoride	4.0	mg/ℓ
Mercury	0.002	mg/ℓ
Nitrate (as N)	10	mg/ℓ
Nitrite (as N)	1	mg/ℓ
Total Nitrate and Nitrite (as N)	10	mg/ℓ
Selenium	0.05	mg/ℓ
Thallium	0.002	mg/ℓ

BOARD NOTE: See Section 611.300(d) for an elevated nitrate level for non-CWSs. USEPA removed and reserved the MCL for nickel on June 29, 1995, at 60 Fed. Reg. 33932, as a result of a judicial order in Nickel Development Institute v. EPA, No. 92-1407, and Specialty Steel Industry of the U.S. v. Browner, No. 92-1410 (D.C. Cir. Feb. 23 & Mar. 6, 1995), while retaining the contaminant, analytical methodology, and detection limit listings for this contaminant.

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

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

Cyanide	IX
	RO
	ALK Cl_2
Mercury	C/F, BAT only if influent Hg concentrations less than or equal to 10 µg/ℓ
	GAC
	LIME, BAT only if influent Hg concentrations less than or equal to 10 µg/ℓ
	RO, BAT only if influent Hg concentrations less than or equal to 10 µg/ℓ
Nickel	IX
	LIME
	RO
Nitrate	IX
	RO
	ED
Nitrite	IX
	RO
Selenium	AAL
	C/F, BAT for Se^{IV} only
	LIME
	RO
	ED
Thallium	AAL
	IX

Abbreviations

AAL	Activated alumina
ALK Cl_2	Alkaline chlorination (pH ≥ 8.5)
C/F	Coagulation/filtration (not BAT for a system that has fewer than 500 service connections)
CC	Corrosion control
Cl_2	Oxidation (chlorine)
DDF	Direct and diatomite filtration
ED	Electrodialysis
GAC	Granular activated carbon
IX	Ion exchange
LIME	Lime softening
O/F	Oxidation/filtration

RO	Reverse osmosis
~~CC~~	~~Corrosion control~~
~~ED~~	~~Electrodialysis~~
~~Cl2~~	~~Oxidation (chlorine)~~
UV	Ultraviolet irradiation
~~O/F~~	~~Oxidation/filtration~~

d) At 40 CFR 141.62(d) (2003), USEPA identified the following as the affordable technology, treatment technique, or other means available to systems serving 10,000 persons or fewer for achieving compliance with the maximum contaminant level for arsenic:

Small System Compliance Technologies (SSCTs)[1] for Arsenic[2]

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

[1] Section 1412(b)(4)(E)(ii) of the federal SDWA (42 USC 300g-1(b)(4)(E)(ii)) specifies that SSCTs must be affordable and technically feasible for a small system supplier.

[2] SSCTs for As^{V}. Pre-oxidation may be required to convert As^{III} to As^{V}.

[3] The federal SDWA specifies three categories of small system suppliers: (1) those serving 25 or more, but fewer than 501 persons, (2) those serving more than 500 but fewer than 3,301 persons, and (3) those serving more than 3,300 but fewer than 10,001 persons.

[4] When POU or POE devices are used for compliance, programs to ensure proper long-term operation, maintenance, and monitoring must be provided by the water supplier to ensure adequate performance.

[5] Unlikely to be installed solely for arsenic removal. May require pH adjustment to optimal range if high removals are needed.

[6] Technologies reject a large volume of water--may not be appropriate for areas where water quantity may be an issue.

[7] To obtain high removals, iron to arsenic ratio must be at least 20:1.

BOARD NOTE: Derived from 40 CFR 141.62 (2003).

(Source: Amended at 29 Ill. Reg. ________, effective ______________________)

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

Section 611.382 Monitoring Requirements

a) General requirements.

1) A supplier must take all samples during normal operating conditions.

2) A supplier may consider multiple wells drawing water from a single aquifer as one treatment plant for determining the minimum number of TTHM and HAA5 samples required with Agency approval.

3) Failure to monitor in accordance with the monitoring plan required under subsection (f) of this Section is a monitoring violation.

4) 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 MCLs or MRDLs, this failure to monitor will be treated as a violation for the entire period covered by the annual average.

5) A supplier must use only data collected under the provisions of this Subpart I ~~or under the Information Collection Rule (40 CFR 141, Subpart M)~~ to qualify for reduced monitoring.

b) Monitoring requirements for disinfection byproducts (DBPs).

1) TTHMs and HAA5.

A) Routine monitoring. A supplier must monitor at the following frequency:

i) A Subpart B system supplier that serves 10,000 or more persons must collect four water samples per quarter per treatment plant. At least 25 percent of all samples collected each quarter must be collected at locations representing maximum residence time. The remaining samples may be taken at locations representative of at least average residence time in the distribution system and representing the entire distribution system, taking into account the number of persons served, the different sources of water, and the different treatment methods.

ii) A Subpart B system supplier that serves from 500 to 9,999 persons must collect one water sample per quarter per treatment plant. The samples must be collected from locations representing maximum residence time.

iii) A Subpart B system supplier that serves fewer than 500 persons must collect one sample per year per treatment plant during month of warmest water temperature. The samples must be collected from locations representing maximum residence time. If the sample (or average of annual samples, if more than one sample is taken) exceeds the MCL, the supplier must increase the monitoring frequency to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until the supplier meets the standards in subsection (b)(1)(D) of this Section.

iv) A supplier that uses only groundwater not under direct influence of surface water, which uses chemical disinfectant, and which serves 10,000 or more persons must collect one water sample per quarter per treatment plant. The samples must be collected from locations representing maximum residence time.

v) A supplier that uses only groundwater not under direct influence of surface water, which uses chemical disinfectant, and which serves fewer than 10,000 persons must collect one sample per year per treatment plant during month of warmest water temperature. The samples must be collected from locations representing maximum residence time. If the sample (or average of annual samples, if more than one sample is taken) exceeds MCL, the supplier must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until the supplier meets standards in subsection (b)(1)(D) of this Section.

BOARD NOTE: If a supplier elects to sample more frequently than the minimum required, at least 25 percent of all samples collected each quarter (including those taken in excess of the required frequency) must be taken at locations that represent the maximum residence time of the water in the distribution system. The remaining samples must be taken at locations representative of at least average residence time in the distribution system. For a supplier using groundwater not under the direct influence of surface water, multiple wells drawing water from a single aquifer may be considered one treatment plant for determining the minimum number of samples required, with Agency approval.

B) A supplier may reduce monitoring, except as otherwise provided, in accordance with the following:

i) A Subpart B system supplier that serves 10,000 or more persons and which has a source water annual average TOC level, before any treatment, of less than or equal to 4.0 mg/ℓ may reduce monitoring if it has monitored for at least one year and its TTHM annual average is less than or equal to 0.040 mg/ℓ and HAA5 annual average is less than or equal to 0.030 mg/ℓ. The reduced monitoring allowed is a minimum of one sample per treatment plant per quarter at a distribution system location reflecting maximum residence time.

ii) A Subpart B system supplier that serves from 500 to 9,999 persons and which has a source water annual average TOC level, before any treatment, of less than or equal to 4.0 mg/ℓ may reduce monitoring if it has monitored at least one year and its TTHM annual average is less than or equal to 0.040 mg/ℓ and HAA5 annual average is less than or equal to 0.030 mg/ℓ. The reduced monitoring allowed is a minimum of one sample per treatment plant per year at a distribution system location reflecting maximum residence time during month of warmest water temperature.

BOARD NOTE: Any Subpart B system supplier serving fewer than 500 persons may not reduce its monitoring to less than one sample per treatment plant per year.

iii) A supplier using only groundwater not under direct influence of surface water using chemical disinfectant and serving 10,000 or more persons may reduce monitoring if it has monitored at least one year and its TTHM annual average is less than or equal to 0.040 mg/ℓ and HAA5 annual average is less than or equal to 0.030 mg/ℓ. The reduced monitoring allowed is a minimum of one sample per treatment plant per year at a distribution system location reflecting maximum residence time during month of warmest water temperature.

iv) A supplier using only groundwater not under direct influence of surface water using chemical disinfectant and serving fewer than 10,000 persons may reduce monitoring if it has monitored at least one year and its TTHM annual average is less than or equal to 0.040 mg/ℓ and HAA5 annual average is less than or equal to 0.030 mg/ℓ for two consecutive years or TTHM annual average is less than or equal to 0.020 mg/ℓ and HAA5 annual average is less than or equal to 0.015 mg/ℓ for one year. The reduced monitoring allowed is a minimum of one sample per treatment plant per three year monitoring cycle at a distribution system location reflecting maximum residence time during month of warmest water temperature, with the three-year cycle beginning on January 1 following the quarter in which the supplier qualifies for reduced monitoring.

C) A supplier on a reduced monitoring schedule may remain on that reduced schedule as long as the average of all samples taken in the year (for a supplier that must monitor quarterly) or the result of the sample (for a supplier that must monitor no more frequently than annually) is no more than 0.060 mg/ℓ and 0.045 mg/ℓ for TTHMs and HAA5, respectively. A supplier that does not meet these levels must resume monitoring at the frequency identified in subsection (b)(1)(A) of this Section (minimum monitoring frequency column) in the quarter immediately following the monitoring period in which the supplier exceeds 0.060 mg/ℓ for TTHMs or 0.045 mg/ℓ for HAA5. For a supplier using only groundwater not under the direct influence of surface water and serving fewer than 10,000 persons, if either the TTHM annual average is greater than 0.080 mg/ℓ or the HAA5 annual average is greater than 0.060 mg/ℓ, the supplier must go to increased monitoring identified in subsection (b)(1)(A) of this Section (sample location column) in the quarter immediately following the monitoring period in which the supplier exceeds 0.080 mg/ℓ for TTHMs or 0.060 mg/ℓ for HAA5.

D) A supplier on increased monitoring may return to routine monitoring if, after at least one year of monitoring, its TTHM annual average is less than or equal to 0.060 mg/ℓ and its HAA5 annual average is less than or equal to 0.045 mg/ℓ.

E) The Agency may return a supplier to routine monitoring.

2) Chlorite. A CWS or NTNCWS supplier using chlorine dioxide, for disinfection or oxidation, must conduct monitoring for chlorite.

A) Routine monitoring.

i) Daily monitoring. A supplier must take daily samples at the entrance to the distribution system. For any daily sample that exceeds the chlorite MCL, the supplier must take additional samples in the distribution system the following day at the locations required by subsection (b)(2)(B) of this Section, in addition to the sample required at the entrance to the distribution system.

ii) Monthly monitoring. A supplier must take a three-sample set each month in the distribution system. The supplier must take one sample at each of the following locations: near the first customer, at a location representative of average residence time, and at a location reflecting maximum residence time in the distribution system. Any additional routine sampling must be conducted in the same manner (as three-sample sets, at the specified locations). The supplier may use the results of additional monitoring conducted under subsection (b)(2)(B) of this Section to meet the requirement for monitoring in this subsection (b)(2)(A)(ii).

B) Additional monitoring. On each day following a routine sample monitoring result that exceeds the chlorite MCL at the entrance to the distribution system, the supplier must take three chlorite distribution system samples at the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).

C) Reduced monitoring.

i) Chlorite monitoring at the entrance to the distribution system required by subsection (b)(2)(A)(i) of this Section may not be reduced.

ii) Chlorite monitoring in the distribution system required by subsection (b)(2)(A)(ii) of this Section may be reduced to one three-sample set per quarter after one year of monitoring where no individual chlorite sample taken in the distribution system under subsection (b)(2)(A)(ii) of this Section has exceeded the chlorite MCL and the supplier has not been required to conduct monitoring under subsection (b)(2)(B) of this Section. The supplier may remain on the reduced monitoring schedule until either any of the three individual chlorite samples taken quarterly in the distribution system under subsection (b)(2)(A)(ii) of this Section exceeds the chlorite MCL or the supplier is required to conduct monitoring under subsection (b)(2)(B) of this Section, at which time the supplier must revert to routine monitoring.

3) Bromate.

A) Routine monitoring. A CWS or NTNCWS supplier using ozone, for disinfection or oxidation, must take one sample per month for each treatment plant in the system using ozone. A supplier must take samples monthly at the entrance to the distribution system while the ozonation system is operating under normal conditions.

B) Reduced monitoring. A supplier required to analyze for bromate may reduce monitoring from monthly to once per quarter, if the supplier demonstrates that the average source water bromide concentration is less than 0.05 mg/ℓ based upon representative monthly bromide measurements for one year. The supplier may remain on reduced bromate monitoring until the running annual average source water bromide concentration, computed quarterly, is equal to or greater than 0.05 mg/ℓ based upon representative monthly measurements. If the running annual average source water bromide concentration is equal to or greater than 0.05 mg/ℓ, the supplier must resume routine monitoring required by subsection (b)(3)(A) of this Section.

c) Monitoring requirements for disinfectant residuals.

1) Chlorine and chloramines.

A) Routine monitoring. A CWS or NTNCWS supplier that uses chlorine or chloramines must measure the residual disinfectant level in the distribution system at the same point in the distribution system and at the same time as total coliforms are sampled, as specified in Section 611.521. A Subpart B system supplier may use the results of residual disinfectant concentration sampling conducted under Section 611.532 for unfiltered systems or Section 611.533 for systems that filter, in lieu of taking separate samples.

B) Reduced monitoring. Monitoring may not be reduced.

2) Chlorine dioxide.

A) Routine monitoring. A CWS, an NTNCWS, or a transient non-CWS supplier that uses chlorine dioxide for disinfection or oxidation must take daily samples at the entrance to the distribution system. For any daily sample that exceeds the MRDL, the supplier must take samples in the distribution system the following day at the locations required by subsection (c)(2)(B) of this Section, in addition to the sample required at the entrance to the distribution system.

B) Additional monitoring. On each day following a routine sample monitoring result that exceeds the MRDL, the supplier must take three chlorine dioxide distribution system samples. If chlorine dioxide or chloramines are used to maintain a disinfectant residual in the distribution system, or if chlorine is used to maintain a disinfectant residual in the distribution system and there are no disinfection addition points after the entrance to the distribution system (i.e., no booster chlorination), the supplier must take three samples as close to the first customer as possible, at intervals of at least six hours. If chlorine is used to maintain a disinfectant residual in the distribution system and there are one or more disinfection addition points after the entrance to the distribution system (i.e., booster chlorination), the supplier must take one sample at each of the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).

C) Reduced monitoring. Monitoring may not be reduced.

d) Monitoring requirements for disinfection byproduct (DBP) precursors.

1) Routine monitoring. A Subpart B system supplier that uses conventional filtration treatment (as defined in Section 611.101) must monitor each treatment plant for TOC not past the point of combined filter effluent turbidity monitoring and representative of the treated water. A supplier required to monitor under this subsection (d)(1) must also monitor for TOC in the source water prior to any treatment at the same time as monitoring for TOC in the treated water. These samples (source water and treated water) are referred to as paired samples. At the same time as the source water sample is taken, a system must monitor for alkalinity in the source water prior to any treatment. A supplier must take one paired sample and one source water alkalinity sample per month per plant at a time representative of normal operating conditions and influent water quality.

2) Reduced monitoring. A Subpart B system supplier with an average treated

water TOC of less than 2.0 mg/ℓ for two consecutive years, or less than 1.0 mg/ℓ for one year, may reduce monitoring for both TOC and alkalinity to one paired sample and one source water alkalinity sample per plant per quarter. The supplier must revert to routine monitoring in the month following the quarter when the annual average treated water TOC greater than or equal to 2.0 mg/ℓ.

e) Bromide. A supplier required to analyze for bromate may reduce bromate monitoring from monthly to once per quarter, if the supplier demonstrates that the average source water bromide concentration is less than 0.05 mg/ℓ based upon representative monthly measurements for one year. The supplier must continue bromide monitoring to remain on reduced bromate monitoring.

f) Monitoring plans. Each supplier required to monitor under this Subpart I must develop and implement a monitoring plan. The supplier must maintain the plan and make it available for inspection by the Agency and the general public no later than 30 days following the applicable compliance dates in Section 611.380(b). A Subpart B system supplier serving more than 3,300 persons must submit a copy of the monitoring plan to the Agency no later than the date of the first report required under Section 611.384. After review, the Agency may require changes in any plan elements. The plan must include at least the following elements:

1) Specific locations and schedules for collecting samples for any parameters included in this Subpart I;

2) How the supplier will calculate compliance with MCLs, MRDLs, and treatment techniques; and

3) If approved for monitoring as a consecutive system, or if providing water to a consecutive system, under the provisions of Section 611.500, the sampling plan must reflect the entire distribution system.

BOARD NOTE: Derived from 40 CFR 141.132 ~~(2002)~~ (2003).

(Source: Amended at 29 Ill. Reg. ________, effective ______________________)

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 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 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 Section 611.384.

BOARD NOTE: Derived from 40 CFR 141.133 ~~(2002)~~ (2003).

(Source: Amended at 29 Ill. Reg. ________, effective ______________________)

SUBPART L: MICROBIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.526 Analytical Methodology

a) The standard sample volume required for total coliform analysis, regardless of analytical method used, is 100 mℓ.

b) Suppliers need only determine the presence or absence of total coliforms; a determination of total coliform density is not required.

c) Suppliers must conduct total coliform analyses in accordance with one of the following analytical methods, incorporated by reference in Section 611.102 (the time from sample collection to initiation of analysis may not exceed 30 hours, and the supplier is encouraged but not required to hold samples below 10° C during transit):

1) Total Coliform Fermentation Technique, as set forth in Standard Methods, 18th, 19th, or 20th ed.: Methods 9221 A and B, as follows:

A) Lactose broth, as commercially available, may be used in lieu of lauryl tryptose broth if the supplier conducts at least 25 parallel tests between this medium and lauryl tryptose broth using the water normally tested and this comparison demonstrates that the false-positive rate and false-negative rate for total coliforms, using lactose broth, is less than 10 percent;

B) If inverted tubes are used to detect gas production, the media should cover these tubes at least one-half to two-thirds after the sample is added; and

C) No requirement exists to run the completed phase on 10 percent of all total coliform-positive confirmed tubes.

2) Total Coliform Membrane Filter Technique, as set forth in Standard Methods, 18th, 19th, or 20th ed.: Methods 9222 A, B, and C.

3) Presence-Absence (P-A) Coliform Test, as set forth in: Standard Methods, 18th, 19th, or 20th ed.: Method 9221 D, as follows:

A) No requirement exists to run the completed phase on 10 percent of all total coliform-positive confirmed tubes; and

B) Six-times formulation strength may be used if the medium is filter-sterilized rather than autoclaved.

4) ONPG-MUG test: Standard Methods, 18th, 19th, or 20th ed.: Method 9223. (The ONPG-MUG test is also known as the Autoanalysis Colilert System).

5) Colisure Test (Autoanalysis Colilert System). (The Colisure Test may be read after an incubation time of 24 hours.)

BOARD NOTE: USEPA included the P-A Coliform and Colisure Tests for testing finished water under the coliform rule, but did not include them for the purposes of the surface water treatment rule, under Section 611.531, for which quantitation of total coliforms is necessary. For these reasons, USEPA included Standard Methods: Method 9221 C for the surface water treatment rule, but did not include it for the purposes of the total coliform rule, under this Section.

6) E*Colite® Test (Charm Sciences, Inc.).

7) m-ColiBlue24® Test (Hatch Company).

8) Readycult Coliforms 100 Presence/Absence Test.

9) Membrane Filter Technique using Chromocult ~~Doliform~~ Coliform Agar.

10) Colitag® Test.

d) This subsection corresponds with 40 CFR 141.21(f)(4), which USEPA has marked “reserved.”~~.~~ This statement maintains structural consistency with the federal regulations.

e) Suppliers must conduct fecal coliform analysis in accordance with the following procedure:

1) When the MTF Technique or P-A Coliform Test is used to test for total coliforms, shake the lactose-positive presumptive tube or P-A vigorously and transfer the growth with a sterile 3-mm loop or sterile applicator stick into brilliant green lactose bile broth and EC medium, defined below, to determine the presence of total and fecal coliforms, respectively.

2) For approved methods that use a membrane filter, transfer the total coliform-positive culture by one of the following methods: remove the membrane containing the total coliform colonies from the substrate with

sterile forceps and carefully curl and insert the membrane into a tube of EC medium; (the laboratory may first remove a small portion of selected colonies for verification); swab the entire membrane filter surface with a sterile cotton swab and transfer the inoculum to EC medium (do not leave the cotton swab in the EC medium); or inoculate individual total coliform-positive colonies into EC medium. Gently shake the inoculated tubes of EC medium to insure adequate mixing and incubate in a waterbath at 44.5±0.2° C for 24±2 hours. Gas production of any amount in the inner fermentation tube of the EC medium indicates a positive fecal coliform test.

3) EC medium is described in Standard Methods, 18th ed., 19th ed., and 20th ed.: Method 9221 E.

4) Suppliers need only determine the presence or absence of fecal coliforms; a determination of fecal coliform density is not required.

f) Suppliers must conduct analysis of E. coli in accordance with one of the following analytical methods, incorporated by reference in Section 611.102:

1) EC medium supplemented with 50 µg/ℓ of MUG (final concentration). EC medium is as described in subsection (e) of this Section. MUG may be added to EC medium before autoclaving. EC medium supplemented with 50 µg/ℓ MUG is commercially available. At least 10 mℓ of EC medium supplemented with MUG must be used. The inner inverted fermentation tube may be omitted. The procedure for transferring a total coliform-positive culture to EC medium supplemented with MUG is as in subsection (e) of this Section for transferring a total coliform-positive culture to EC medium. Observe fluorescence with an ultraviolet light (366 nm) in the dark after incubating tube at 44.5±2° C for 24±2 hours; or

2) Nutrient agar supplemented with 100 µg/ℓ MUG (final concentration), as described in Standard Methods, 19th ed. and 20th ed.: Method 9222 G. This test is used to determine if a total coliform-positive sample, as determined by the MF technique, contains E. coli. Alternatively, Standard Methods, 18th ed.: Method 9221 B may be used if the membrane filter containing a total coliform-positive colony or colonies is transferred to nutrient agar, as described in Method 9221 B (paragraph 3), supplemented with 100 µg/ℓ MUG. If Method 9221 B is used, incubate the agar plate at 35° Celsius for ~~4~~ four hours, then observe the colony or colonies under ultraviolet light (366-nm) in the dark for fluorescence. If fluorescence is visible, E. coli are present.

3) Minimal Medium ONPG-MUG (MMO-MUG) Test, as set forth in Appendix D of this Part. (The Autoanalysis Colilert System is a MMO-MUG test.) If the MMO-MUG test is total coliform positive after a 24-

hour incubation, test the medium for fluorescence with a 366-nm ultraviolet light (preferably with a ~~6-watt~~ six-watt lamp) in the dark. If fluorescence is observed, the sample is E. coli-positive. If fluorescence is questionable (cannot be definitively read) after 24 hours incubation, incubate the culture for an additional four hours (but not to exceed 28 hours total), and again test the medium for fluorescence. The MMO-MUG test with hepes buffer is the only approved formulation for the detection of E. coli.

4) The Colisure Test (Autoanalysis Colilert System).

5) The membrane filter method with MI agar.

6) The E*Colite® Test.

7) The m-ColiBlue24® Test.

8) Readycult Coliforms 100 Presence/Absence Test.

9) Membrane Filter Technique using Chromocult ~~Doliform~~ Coliform Agar.

10) Colitag® Test.

g) As an option to the method set forth in subsection (f)(3) of this Section, a supplier with a total coliform-positive, MUG-negative, MMO-MUG test may further analyze the culture for the presence of E. coli by transferring a 0.1 mℓ, 28-hour MMO-MUG culture to EC medium + MUG with a pipet. The formulation and incubation conditions of the EC medium + MUG, and observation of the results, are described in subsection (f)(1) of this Section.

h) This subsection corresponds with 40 CFR 141.21(f)(8), a central listing of all documents incorporated by reference into the federal microbiological analytical methods. The corresponding Illinois incorporations by reference are located at Section 611.102. This statement maintains structural parity with USEPA regulations.

BOARD NOTE: Derived from 40 CFR 141.21(f) ~~(2002)~~ (2003).

(Source: Amended at 29 Ill. Reg. ________, effective ______________________)

Section 611.532 Unfiltered PWSs

A supplier that uses a surface water source and does not provide filtration treatment must monitor, unless the Agency has determined, pursuant to Section 611.211, that filtration is required. If the Agency determines that filtration is required, it must specify alternative monitoring requirements, as appropriate, until filtration is in place. A supplier that uses a groundwater source under the direct influence of surface water and which does not provide filtration treatment must monitor within six months after the Agency has determined, pursuant to Section 611.212, that the groundwater source is under the direct influence of surface water unless the Agency has determined that filtration is required, in which case the Agency must specify alternative monitoring requirements, as appropriate, until filtration is in place.

a) Fecal coliform or total coliform density measurements as required by Section 611.231(a) must be performed on representative source water samples immediately prior to the first or only point of disinfectant application. The supplier must sample for fecal or total coliforms at the minimum frequency specified in Table B of this Part each week the supplier serves water to the public. Also, one fecal or total coliform density measurement must be made every day the supplier serves water to the public and the turbidity of the source water exceeds 1 NTU (these samples count towards the weekly coliform sampling requirement) unless the Agency determines that the supplier, for logistical reasons outside the supplier's control cannot have the sample analyzed within 30 hours of collection.

b) Turbidity measurements as required by Section 611.231(b) must be performed on representative grab samples of source water immediately prior to the first or only point of disinfectant application every four hours (or more frequently) that the supplier serves water to the public. A supplier may substitute continuous turbidity monitoring for grab sample monitoring if it validates the continuous measurement for accuracy on a regular basis using a protocol approved by a SEP issued pursuant to Section 611.110.

c) The total inactivation ratio for each day that the supplier is in operation must be determined based on the $CT_{99.9}$ values in Appendix B of this Part, as appropriate. The parameters necessary to determine the total inactivation ratio must be monitored as follows:

1) The temperature of the disinfected water must be measured at least once per day at each RDC sampling point.

2) If the supplier uses chlorine, the pH of the disinfected water must be measured at least once per day at each chlorine RDC sampling point.

3) The disinfectant contact times ("T") must be determined for each day during peak hourly flow.

4) The RDCs ("C") of the water before or at the first customer must be measured each day during peak hourly flow.

5) If a supplier uses a disinfectant other than chlorine, the supplier may monitor by other methods approved pursuant to Section 611.241(a)(1) and (a)(2).

d) The total inactivation ratio must be calculated as follows:

1) If the supplier uses only one point of disinfectant application, the supplier may determine the total inactivation ratio based on either of the following two methods:

A) One inactivation ratio ($Ai = CT_{calc}/CT_{99.9}$) is determined before or at the first customer during peak hourly flow and, if the Ai is greater than 1.0, the 99.9 percent Giardia lamblia inactivation requirement has been achieved; or

B) Successive Ai values, representing sequential inactivation ratios, are determined between the point of disinfectant application and a point before or at the first customer during peak hourly flow. Under this alternative, the following method must be used to calculate the total inactivation ratio:

i) Determine the following, for each sequence:

$$Ai = CT_{calc}/CT_{99.9}$$

ii) Add the Ai values together, as follows:

$$B = \sum(Ai)$$

iii) If B is greater than 1.0, the 99.9 percent Giardia lamblia inactivation requirement has been achieved.

2) If the supplier uses more than one point of disinfectant application before or at the first customer, the supplier must determine the CT value of each disinfection sequence immediately prior to the next point of disinfectant application during peak hourly flow. The Ai value of each sequence and B must be calculated using the method in subsection (d)(1)(B) of this Section to determine if the supplier is in compliance with Section 611.241.

3) Although not required, the total percent inactivation (PI) for a supplier with one or more points of RDC monitoring may be calculated as follows:

$$PI = 100 - \frac{100}{10^{3B}}$$

e) The RDC of the water entering the distribution system must be monitored continuously, and the lowest value must be recorded each day, except that if there is a failure in the continuous monitoring equipment, grab sampling every four hours may be conducted in lieu of continuous monitoring, but for no more than five working days following the failure of the equipment, and suppliers serving

3,300 or fewer persons may take grab samples in lieu of providing continuous monitoring on an ongoing basis at the frequencies prescribed in Table C of this Part. If at any time the RDC falls below 0.2 mg/ℓ in a system using grab sampling in lieu of continuous monitoring, the supplier must take a grab sample every four hours until the RDC is equal to or greater than 0.2 mg/ℓ.

f) Points of measurement.

1) The RDC must be measured at least at the same points in the distribution system and at the same time as total coliforms are sampled, as specified in Subpart L of this Section, except that the Agency must allow a supplier that uses both a surface water source or a groundwater source under direct influence of surface water, and a groundwater source to take disinfectant residual samples at points other than the total coliform sampling points if the Agency determines, by a SEP issued pursuant to Section 611.110, that such points are more representative of treated (disinfected) water quality within the distribution system. HPC may be measured in lieu of RDC.

2) If the Agency determines, pursuant to Section 611.213, that a supplier has no means for having a sample analyzed for HPC, measured as specified in subsection (a) of this Section, the requirements of subsection (f)(1) of this Section do not apply to that supplier.

BOARD NOTE: Derived from 40 CFR 141.74(b) ~~(2002)~~ (2003).

(Source: Amended at 29 Ill. Reg. ________, effective ______________________)

Section 611.533 Filtered PWSs

A supplier that uses a surface water source or a groundwater source under the influence of surface water and provides filtration treatment must monitor in accordance with this Section.

a) Turbidity measurements as required by Section 611.250 must be performed on representative samples of the PWS's filtered water every four hours (or more frequently) that the supplier serves water to the public. A supplier may substitute continuous turbidity monitoring for grab sample monitoring if it validates the continuous measurement for accuracy on a regular basis using a protocol approved by a SEP issued pursuant to Section 611.110. For any suppliers using slow sand filtration or filtration treatment other than conventional treatment, direct filtration, or diatomaceous earth filtration, the Agency shall, by special exception permit condition, reduce the sampling frequency to once per day if it determines that less frequent monitoring is sufficient to indicate effective filtration performance. For suppliers serving 500 or fewer persons, the Agency shall, by a SEP issued pursuant to Section 611.110, reduce the turbidity sampling frequency to once per day, regardless of the type of filtration treatment used, if the Agency determines that less frequent monitoring is sufficient to indicate effective filtration performance.

b) RDC entering distribution system.

1) Suppliers serving more than 3300 persons. The RDC of the water entering the distribution system must be monitored continuously, and the lowest value must be recorded each day, except that, if there is a failure in the continuous monitoring equipment, grab sampling every four hours may be conducted in lieu of continuous monitoring, but for no more than five working days following the failure of the equipment.

2) Suppliers serving 3,300 or fewer persons may take grab samples in lieu of providing continuous monitoring on an ongoing basis at the frequencies each day prescribed in Table C. If at any time the RDC falls below 0.2 mg/ℓ in a system using grab sampling in lieu of continuous monitoring, the supplier must take a grab sample every four hours until RDC is equal to or greater than 0.2 mg/ℓ.

c) Points of measurement.

1) The RDC must be measured at least at the same points in the distribution system and at the same time as total coliforms are sampled, as specified in Sections 611.521 ~~et seq.~~ through 611.527, except that the Agency must allow a supplier that uses both a surface water source or a groundwater source under direct influence of surface water, and a groundwater source, to take RDC samples at points other than the total coliform sampling points if the Agency determines that such points are more representative of treated (disinfected) water quality within the distribution system. HPC, measured as specified in Section 611.531(a), may be measured in lieu of RDC.

2) Subsection (c)(1) of this Section does not apply if the Agency determines, pursuant to Section 611.213(c), 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.

BOARD NOTE: Derived from 40 CFR 141.74(c) ~~(2002)~~ (2003).

(Source: Amended at 29 Ill. Reg. ________, effective ______________________)

SUBPART Q: RADIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.720 Analytical Methods

a) The methods specified below, incorporated by reference in Section 611.102, are to be used to determine compliance with Section 611.330, except in cases where alternative methods have been approved in accordance with Section 611.480.

1) Gross Alpha and Beta.

A) Standard Methods.

i) Method 302, 13th ed.; or

ii) Method 7110 B, 17th, 18th, 19th, or 20th ed.;

B) USEPA Interim Radiochemical Methods: page 1;

C) USEPA Radioactivity Methods: Method 900.0;

D) USEPA Radiochemical Analyses: page 1;

E) USEPA Radiochemistry Methods: Method 00-01; or

F) USGS Methods: Method R-1120-76.

2) Gross Alpha.

A) Standard Methods, 18th, 19th, or 20th ed.: Method 7110 C; or

B) USEPA Radiochemistry Methods: Method 00-02.

3) Radium-226.

A) ASTM Methods.

i) Method D2460-90; or

ii) Method D3454-97;

B) New York Radium Method;

C) Standard Methods.

i) Method 304, 13th ed.;

    - ii) Method 305, 13th ed.;
    - iii) Method 7500-Ra B, 17th, 18th, 19th, or 20th ed.; or
    - iv) Method 7500-Ra C, 17th, 18th, 19th, or 20th ed.;
  - D) USDOE Methods: Method Ra-04;
  - E) USEPA Interim Radiochemical Methods: pages 13 and 16;
  - F) USEPA Radioactivity Methods: Methods 903.0, 903.1;
  - G) USEPA Radiochemical Analyses: page 19;
  - H) USEPA Radiochemistry Methods: Methods Ra-03, Ra-04; or
  - I) USGS Methods.
    - i) Method R-1140-76; or
    - ii) Method R-1141-76.
- 4) Radium-228.
  - A) Standard Methods, 17th, 18th, 19th, or 20th ed.: Method 7500-Ra D;
  - B) New York Radium Method;
  - C) USEPA Interim Radiochemical Methods: page 24;
  - D) USEPA Radioactivity Methods: Method 904.0;
  - E) USEPA Radiochemical Analyses: page 19;
  - F) USEPA Radiochemistry Methods: Method Ra-05;
  - G) USGS Methods: Method R-1142-76; or
  - H) New Jersey Radium Method.
- 5) Uranium.
  - A) Standard Methods, 17th, 18th, 19th, or 20th ed.: Method 7500-U C;

B) Standard Methods, 20th ed.: Method 3125;

~~B~~C) ASTM Methods.

i) Method D2907-97;

ii) Method D3972-97;~~ or~~

iii) Method D5174-97; or

iv) Method D5673-03;

~~C~~D) USEPA Radioactivity Methods: Methods 908.0, 908.1;

E) USEPA Environmental Metals Methods: Method 200.8;

~~D~~F) USEPA Radiochemical Analyses: page 33;

~~E~~G) USEPA Radiochemistry Methods: Method 00-07;

~~F~~H) USDOE Methods: Method U-02 or U-04; or

~~G~~I) USGS Methods.

i) Method R-1180-76;

ii) Method R-1181-76; or

iii) Method R-1182-76.

BOARD NOTE: If uranium (U) is determined by mass, a conversion factor of 0.67 pCi/µg of uranium must be used. This conversion factor is based on the 1:1 activity ratio of ^{234}U and ^{238}U that is characteristic of naturally occurring uranium.

6) Radioactive Cesium.

A) ASTM Methods.

i) Method D2459-72; or

ii) Method D3649-91;

B) Standard Methods.

        - i) Method 7120, 19th or 20th ed.; or
        - ii) Method 7500-Cs B, 17th, 18th, 19th, or 20th ed.;
    - C) USDOE Methods: Method 4.5.2.3;
    - D) USEPA Interim Radiochemical Methods: page 4;
    - E) USEPA Radioactivity Methods: Methods 901.0, 901.1;
    - F) USEPA Radiochemical Analyses: page 92; or
    - G) USGS Methods.
        - i) Method R-1110-76; or
        - ii) Method R-1111-76.
- 7) Radioactive Iodine.
    - A) ASTM Methods.
        - i) D3649-91; or
        - ii) D4785-93;
    - B) Standard Methods.
        - i) Method 7120, 19th or 20th ed.;
        - ii) Method 7500-I B, 17th, 18th, 19th, or 20th ed.;
        - iii) Method 7500-I C, 17th, 18th, 19th, or 20th ed.; or
        - iv) Method 7500-I D, 17th, 18th, 19th, or 20th ed.;
    - C) USDOE Methods: Method 4.5.2.3;
    - D) USEPA Interim Radiochemical Methods: pages 6, 9;
    - E) USEPA Radiochemical Analyses: page 92; or
    - F) USEPA Radioactivity Methods: Methods 901.1, 902.0.
- 8) Radioactive Strontium-89 & 90.

- A) Standard Methods.
  - i) Method 303, 13th ed.; or
  - ii) Method 7500-Sr B, 17th, 18th, 19th, or 20th ed.;
- B) USDOE Methods.
  - i) Method Sr-01; or
  - ii) Method Sr-02;
- C) USEPA Interim Radiochemical Methods: page 29;
- D) USEPA Radioactivity Methods: Method 905.0;
- E) USEPA Radiochemical Analyses: page 65;
- F) USEPA Radiochemistry Methods: Method Sr-04; or
- G) USGS Methods: Method R-1160-76.

9) Tritium.

- A) ASTM Methods: Method D4107-91;
- B) Standard Methods.
  - i) Method 306, 13th ed.; or
  - ii) Method 7500-3H B, 17th, 18th, 19th, or 20th ed.;
- C) USEPA Interim Radiochemical Methods: page 34;
- D) USEPA Radioactivity Methods: Method 906.0;
- E) USEPA Radiochemical Analyses: page 87;
- F) USEPA Radiochemistry Methods: Method H-02; or
- G) USGS Methods: Method R-1171-76.

10) Gamma Emitters.

- A) ASTM Methods.

i) Method D3649-91; or

ii) Method D4785-93;

B) Standard Methods.

i) Method 7120, 19th or 20th ed.;

ii) Method 7500-Cs B, 17th, 18th, 19th, or 20th ed.; or

iii) Method 7500-I B, 17th, 18th, 19th, or 20th ed.;

C) USDOE Method: Method Ga-01-R;

D) USEPA Radioactivity Methods: Methods 901.0, 901.1, or 902.0;

E) USEPA Radiochemical Analyses: page 92; or

F) USGS Methods: Method R-1110-76.

b) When the identification and measurement of radionuclides other than those listed in subsection (a) of this Section are required, the following methods, incorporated by reference in Section 611.102, are to be used, except in cases where alternative methods have been approved in accordance with Section 611.480:

1) "Procedures for Radiochemical Analysis of Nuclear Reactor Aqueous Solutions," available from NTIS.

2) HASL Procedure Manual, HASL 300, available from ERDA Health and Safety Laboratory.

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

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

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

Uranium	~~None~~1 μg/ℓ

BOARD NOTE: Derived from 40 CFR 141.25(c) Table B ~~(2002)~~ (2003).

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

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

BOARD NOTE: Derived from 40 CFR 141.25(c) Table C ~~(2002)~~ (2003).

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

BOARD NOTE: Derived from 40 CFR 141.25 ~~(2002)~~ (2003).

(Source: Amended at 29 Ill. Reg. ________, effective ______________________)

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) Effective December 8, 2003, 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) Effective December 8, 2003, 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 may, by a SEP issued pursuant to Section 611.110, order more frequent monitoring for iodine-131 where it 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 ~~all~~ 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) Effective December 8, 2003, 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) Effective December 8, 2003, 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) Effective December 8, 2003, 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) Effective December 8, 2003, 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 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)(2)~~ (a)(1) or ~~(b)(1)~~ (b)(4) of this Section.

g) Until December 8, 2003, CWSs using surface water sources and serving more than 100,000 persons and such other CWSs as the Agency, by a SEP issued pursuant to Section 611.110, requires must monitor for compliance with Section 611.331 by analysis of a composite of four consecutive quarterly samples or analysis of four quarterly samples. Compliance with Section 611.331 is assumed without further analysis if the average annual concentration of gross beta particle activity is less than 50 pCi/ℓ and if the average annual concentrations of tritium and strontium-90 are less than those listed in Section 611.331, provided that if both radionuclides are present the sum of their annual dose equivalents to bone marrow must not exceed 4 millirem/year.

1) If the gross beta particle activity exceeds 50 pCi/ℓ, an analysis of the sample must be performed to identify the major radioactive constituents present and the appropriate organ and total body doses must be calculated to determine compliance with Section 611.331.

2) If the MCLs are exceeded, the Agency shall, by a SEP issued pursuant to Section 611.110, require the supplier to conduct additional monitoring to determine the concentration of man-made radioactivity in principal watersheds.

3) The Agency shall, pursuant to subsection (j) of this Section, by a SEP issued pursuant to Section 611.110, require suppliers of water utilizing only groundwater to monitor for man-made radioactivity.

h) Until December 8, 2003, CWS suppliers must monitor at least every four years following the procedure in subsection (g) of this Section.

i) Until December 8, 2003, the Agency must, by a SEP issued pursuant to Section 611.110, require any CWS supplier utilizing waters contaminated by effluents from nuclear facilities to initiate quarterly monitoring for gross beta particle and iodine-131 radioactivity and annual monitoring for strontium-90 and tritium.

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. If the gross beta particle activity in a sample exceeds 15 pCi/ℓ, the same or an equivalent sample must be analyzed for strontium-89 and cesium-134. If the gross beta particle activity exceeds 50 pCi/ℓ, an analysis of the sample must be performed to identify the major radioactive constituents present and the appropriate organ and total body doses must be calculated to determine compliance with Section 611.331.

2) For iodine-131, a composite of five consecutive daily samples must be analyzed once each quarter. The Agency shall, by a SEP issued pursuant to Section 611.110, require more frequent monitoring when iodine-131 is identified in the finished water.

3) The Agency shall, by a SEP issued pursuant to Section 611.110, require

annual monitoring for strontium-90 and tritium by means of the analysis of a composite of four consecutive quarterly samples or analysis of four quarterly samples.

4) The Agency shall, by a SEP issued pursuant to Section 611.110, allow the substitution of environmental surveillance data taken in conjunction with a nuclear facility for direct monitoring of manmade radioactivity by the supplier where the Agency determines such data is applicable to the CWS.

j) Until December 8, 2003, if the average annual MCL for man-made radioactivity set forth in Section 611.331 is exceeded, the CWS supplier must give notice to the Agency and to the public as required by Subpart T. Monitoring at monthly intervals must be continued until the concentration no longer exceeds the MCL or until a monitoring schedule as a condition to a variance, adjusted standard, or enforcement action becomes effective.

BOARD NOTE: Subsections (a) through (f) derive from 40 CFR 141.26(b) (2003).

(Source: Amended at 29 Ill. Reg. ________, effective ______________________)

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

Section 611.953 Disinfection Profile

a) Applicability. A disinfection profile is a graphical representation of a system's level of Giardia lamblia or virus inactivation measured during the course of a year. A Subpart B community or non-transient non-community water system that serves fewer than 10,000 persons must develop a disinfection profile unless the Agency, by a SEP issued pursuant to Section 611.110, determines that a profile is unnecessary. The Agency may approve the use of a more representative data set for disinfection profiling than the data set required under subsections (c) through (g) of this Section.

b) Determination that a disinfection profile is not necessary. The Agency may only determine that a disinfection profile is not necessary if the system's TTHM and HAA5 levels are below 0.064 mg/ℓ and 0.048 mg/ℓ, respectively. To determine these levels, TTHM and HAA5 samples must have been collected after January 1, 1998, during the month with the warmest water temperature, and at the point of maximum residence time in the distribution system. The Agency may, by a SEP issued pursuant to Section 611.110, approve the use of a different data set to determine these levels if it determines that the data set is representative TTHM and HAA5 data.

c) Development of a disinfection profile. A disinfection profile consists of the following three steps:

1) First, the supplier must collect data for several parameters from the plant, as discussed in subsection (d) of this Section, over the course of 12 months. If the supplier serves between 500 and 9,999 persons it must have begun to collect data no later than July 1, 2003. If the supplier serves fewer than 500 persons, it must begin to collect data no later than January 1, 2004.

2) Second, the supplier must use this data to calculate weekly log inactivation as discussed in subsections (e) and (f) of this Section; and

3) Third, the supplier must use these weekly log inactivations to develop a disinfection profile as specified in subsection (g) of this Section.

d) Data required for a disinfection profile. A supplier must monitor the following parameters to determine the total log inactivation using the analytical methods in Section 611.231, once per week on the same calendar day, over 12 consecutive months:

1) The temperature of the disinfected water at each residual disinfectant concentration sampling point during peak hourly flow;

2) If a supplier uses chlorine, the pH of the disinfected water at each residual disinfectant concentration sampling point during peak hourly flow;

3) The disinfectant contact times (“T”) during peak hourly flow; and

4) The residual disinfectant concentrations (“C”) of the water before or at the first customer and prior to each additional point of disinfection during peak hourly flow.

e) Calculations based on the data collected. The tables in Appendix B of this Part must be used to determine the appropriate $CT_{99.9}$ value. The supplier must calculate the total inactivation ratio as follows, and multiply the value by 3.0 to determine log inactivation of Giardia lamblia:

1) If the supplier uses only one point of disinfectant application, it must determine either of the following:

A) One inactivation ratio ($CT_{calc}/CT_{99.9}$) before or at the first customer during peak hourly flow; or

B) Successive $CT_{calc}/CT_{99.9}$ values, representing sequential inactivation ratios, between the point of disinfectant application and a point before or at the first customer during peak hourly flow. Under this alternative, the supplier must calculate the total inactivation ratio by determining $CT_{calc}/CT_{99.9}$ for each sequence and then adding the $CT_{calc}/CT_{99.9}$ values together to determine $\sum CT_{calc}/CT_{99.9}$.

2) If the supplier uses more than one point of disinfectant application before the first customer, it must determine the $CT_{calc}/CT_{99.9}$ value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow using the procedure specified in subsection (e)(1)(B) of this Section.

f) Use of chloramines, ozone, or chlorine dioxide as a primary disinfectant. If a supplier uses chloramines, ozone, or chlorine dioxide for primary disinfection, the supplier must also calculate the logs of inactivation for viruses and develop an additional disinfection profile for viruses using methods approved by the Agency.

g) Development and maintenance of the disinfection profile in graphic form. Each log inactivation serves as a data point in the supplier's disinfection profile. A supplier will have obtained 52 measurements (one for every week of the year). This will allow the supplier and the Agency the opportunity to evaluate how microbial inactivation varied over the course of the year by looking at all 52 measurements (the supplier's disinfection profile). The supplier must retain the disinfection profile data in graphic form, such as a spreadsheet, which must be available for review by the Agency as part of a sanitary survey. The supplier must use this data to calculate a benchmark if the supplier is considering changes to disinfection practices.

BOARD NOTE: Derived from 40 CFR 141.530 through 141.536 ~~(2002)~~ (2003).

(Source: Amended at 29 Ill. Reg. ________, effective ______________________)

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 611.231;

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.

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. ~~If a self-assessment is required, the date that it was triggered and the date that it was completed.~~

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 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 ~~(2002)~~ (2003).

(Source: Amended at 29 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.

	MCL/MRDL/TT violations[2]		Monitoring & testing procedure violations	
Contaminant	Tier of public notice required	Citation	Tier of public notice required	Citation

I. Violations of National Primary Drinking Water Regulations (NPDWR):[3]

A. Microbiological Contaminants

1. Total coliform	2	611.325(a)	3	611.521-611.525
2. Fecal coliform/E. coli	1	611.325(b)	[4] 1, 3	611.525
3. Turbidity MCL	2	611.320(a)	3	611.560

4. Turbidity MCL (average of two days' samples greater than 5 NTU)	[5] 2, 1	611.320(b)	3	611.560
5. Turbidity (for TT violations resulting from a single exceedence of maximum allowable turbidity level)	[6] 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 exceedence 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 exceedence of max. turbidity level (TT)	2	[7] 611.740-611.743, 611.950-611.955	3	611.742, 611.744, 611.953, 611.954, 611.956
8. Filter Backwash Recycling Rule violations	2	611.276(c)	3	611.276(b), (d)
9. Long Term 1 Enhanced Surface Water Treatment Rule violations	2	611.950-611.955	3	611.953, 611.954, 611.956

B. Inorganic Chemicals (IOCs)

1. Antimony	2	611.301(b)	3	611.600, 611.601, 611.603
2. Arsenic	2	[10] 611.301(b)	3	[9] 611.601, 611.612(a), 611.612(b)
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)	[10] 1, 3	611.600, 611.601, 611.604, 611.606
12. Nitrite	1	611.301(b)	[10] 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

D. Synthetic Organic Chemicals (SOCs)

1. 2,4-D	2	611.310(c)	3	611.648
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).[13]

1. Total trihalomethanes (TTHMs)	2	611.312(a)	3	611.382(a)-(b)
2. Haloacetic Acids (HAA5)	2	611.312(a)	3	611.382(a)-(b)
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 [15], 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	[16] 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: [17]

A. Unregulated contaminants	N/A	N/A	3	611.510
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	[18] 1415, 1416	N/A	N/A
B. Violation of conditions of relief equivalent to a SDWA section 1415 variance or a section 1416 exemption	2	1415, 1416, [19] 611.111, 611.112	N/A	N/A

IV. Other Situations Requiring Public Notification.

A. Fluoride secondary maximum contaminant level (SMCL) exceedence	3	611.858	N/A	N/A
B. Exceedence 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	611.510	N/A	N/A
D. Waterborne disease outbreak	1	611.101, 611.233(b)(2)	N/A	N/A
E. Other waterborne emergency[20]	1	N/A	N/A	N/A
F. Other situations as determined by the Agency by a SEP issued pursuant to Section 611.110	1, 2, 3	N/A	N/A	N/A

Appendix G--Endnotes

1. Violations and other situations not listed in this table (e.g., ~~reporting violations and~~ 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 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 serving 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. The arsenic MCL citations are effective January 23, 2006. Until then, the citations are Sections 611.330(b) and 611.612(c).

9. The arsenic Tier 3 violation MCL citations are effective January 23, 2006. Until then, the citations are Sections 611.100, 611.101, and 611.612.

10. 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.

11. This endnote 11 corresponds with the endnote to the table in Appendix A to Subpart Q of 40

CFR 141 (2003), which stated a past effective date. This statement maintains structural consistency with the federal regulations.

12. This endnote 12 corresponds with the endnote to the table in Appendix A to Subpart Q of 40 CFR 141 (2003), which stated a past effective date. This statement maintains structural consistency with the federal regulations.

13. 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 serving 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.

14. This endnote 14 corresponds with the endnote to the table in Appendix A to Subpart Q of 40 CFR 141 (2003), which stated a past effective date. This statement maintains structural consistency with the federal regulations.

15. 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.

16. 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.

17. Some water suppliers must monitor for certain unregulated contaminants listed in Section 611.510.

18. 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 . . ..”

19. 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.

20. 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.

BOARD NOTE: Derived from Appendix A to Subpart Q to 40 CFR 141 (2003).

(Source: Amended at 29 Ill. Reg. ________, effective ______________________)

Section 611.Appendix H Standard Health Effects Language for Public Notification

Contaminant	MCLG[1] mg/ℓ	MCL[2] mg/ℓ	Standard health effects language for public notification
National Primary Drinking Water Regulations (NPDWR):			
A. Microbiological Contaminants			
1a. Total coliform	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	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.
2a. Turbidity (MCL) [4]	None	1 NTU[5]/ 5 NTU	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.

2b. Turbidity (SWTR TT)	None	TT[7]	Turbidity has no health effects. However,[6] turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
2c. Turbidity (IESWTR TT and LT1ESWTR TT)	None	TT	Turbidity has no health effects. However,[8] turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
B. Surface Water Treatment Rule (SWTR), Interim Enhanced Surface Water Treatment Rule (IESWTR), Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR), and Filter Backwash Recycling Rule (FBRR) violations:			
3. Giardia lamblia (SWTR/IESWTR/ LT1ESWTR)	Zero	TT[10]	Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
4. Viruses (SWTR/IESWTR/ LT1ESWTR)			Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

5. Heterotrophic plate count (HPC) bacteria[9] (SWTR/IESWTR/ LT1ESWTR)			Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
6. Legionella (SWTR/IESWTR/ LT1ESWTR)			Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
7. Cryptosporidium (IESWTR/FBRR/ LT1ESWTR)			Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
C. Inorganic Chemicals (IOCs)			
8. Antimony	0.006	0.006	Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.
9. Arsenic[11]	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[12]	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[13]	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[14]	Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson’s Disease should consult their personal doctor.
E. Synthetic Organic Chemicals (SOCs)			
25. 2,4-D	0.07	0.07	Some people who drink water containing the weed killer 2,4-D well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands.
26. 2,4,5-TP (silvex)	0.05	0.05	Some people who drink water containing silvex in excess of the MCL over many years could experience liver problems.
27. Alachlor	Zero	0.002	Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer.
28. Atrazine	0.003	0.003	Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties.
29. Benzo(a)pyrene (PAHs).	Zero	0.0002	Some people who drink water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.

30. Carbofuran	0.04	0.04	Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood, or nervous or reproductive systems.
31. Chlordane	Zero	0.002	Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver or nervous system, and may have an increased risk of getting cancer.
32. Dalapon	0.2	0.2	Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.
33. Di(2-ethylhexyl)adipate	0.4	0.4	Some people who drink water containing di(2-ethylhexyl)adipate well in excess of the MCL over many years could experience toxic effects, such as weight loss, liver enlargement, or possible reproductive difficulties.
34. Di(2-ethylhexyl)-phthalate	Zero	0.006	Some people who drink water containing di(2-ethylhexyl)phthalate well in excess of the MCL over many years may have problems with their liver or experience reproductive difficulties, and they may have an increased risk of getting cancer.
35. Dibromochloropropane (DBCP)	Zero	0.0002	Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
36. Dinoseb	0.007	0.007	Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties.

37. Dioxin (2,3,7,8-TCDD)	Zero	3×10^{-8}	Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
38. Diquat	0.02	0.02	Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.
39. Endothall	0.1	0.1	Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines.
40. Endrin	0.002	0.002	Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.
41. Ethylene dibromide	Zero	0.00005	Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive system, or kidneys, and may have an increased risk of getting cancer.
42. Glyphosate	0.7	0.7	Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties.
43. Heptachlor	Zero	0.0004	Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer.
44. Heptachlor epoxide	Zero	0.0002	Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer.

45. Hexachlorobenzene	Zero	0.001	Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer.
46. Hexachlorocyclopentadiene	0.05	0.05	Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.
47. Lindane	0.0002	0.0002	Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.
48. Methoxychlor	0.04	0.04	Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties.
49. Oxamyl (Vydate)	0.2	0.2	Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.
50. Pentachlorophenol	Zero	0.001	Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and may have an increased risk of getting cancer.
51. Picloram	0.5	0.5	Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver.

52. Polychlorinated biphenyls (PCBs)	Zero	0.0005	Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer.
53. Simazine	0.004	0.004	Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.
54. Toxaphene	Zero	0.003	Some people who drink water containing toxaphene in excess of the MCL over many years could have problems with their kidneys, liver, or thyroid, and may have an increased risk of getting cancer.
F. Volatile Organic Chemicals (VOCs)			
55. Benzene	Zero	0.005	Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer.
56. Carbon tetrachloride	Zero	0.005	Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
57. Chlorobenzene (monochlorobenzene)	0.1	0.1	Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys.
58. o-Dichlorobenzene	0.6	0.6	Some people who drink water containing o-dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory systems.

59. p-Dichlorobenzene	0.075	0.075	Some people who drink water containing p-dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood.
60. 1,2-Dichloroethane	Zero	0.005	Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer.
61. 1,1-Dichloroethylene	0.007	0.007	Some people who drink water containing 1,1-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
62. cis-1,2-Dichloroethylene	0.07	0.07	Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
63. trans-1,2-Dichloroethylene	0.1	0.1	Some people who drink water containing trans-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver.
64. Dichloromethane	Zero	0.005	Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer.
65. 1,2-Dichloropropane	Zero	0.005	Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.
66. Ethylbenzene	0.7	0.7	Some people who drink water containing ethylbenzene well in excess of the MCL over many years could experience problems with their liver or kidneys.

67. Styrene	0.1	0.1	Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system.
68. Tetrachloroethylene	Zero	0.005	Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer.
69. Toluene	1	1	Some people who drink water containing toluene well in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver.
70. 1,2,4-Trichlorobenzene	0.07	0.07	Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands.
71. 1,1,1-Trichloroethane	0.2	0.2	Some people who drink water containing 1,1,1-trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system.
72. 1,1,2-Trichloroethane	0.003	0.005	Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune systems.
73. Trichloroethylene	Zero	0.005	Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
74. Vinyl chloride	Zero	0.002	Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.

75. Xylenes (total)	10	10	Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system.
G. Radioactive Contaminants			
76. Beta/photon emitters	Zero	4 mrem/yr[15]	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[16]	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.
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)[18]			
80. Total trihalomethanes (TTHMs)	N/A	0.080[20]	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[21]	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)[22]	4.0 (MRDL)[23]	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.

			Add for public notification only: The chlorine dioxide violations reported today are the result of exceedences 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.
86a. Chlorine dioxide, where one or more distribution system samples 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. Add for public notification only: The chlorine dioxide violations reported today include exceedences 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.

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 ~~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. A supplier subject to the ~~Surface Water Treatment Rule~~ 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 ~~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. For a supplier subject to the IESWTR (systems serving 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 may use the health effects language for turbidity instead.

11. These arsenic values are effective January 23, 2006. Until then, the MCL is 0.05 mg/ℓ and there is no MCLG.

12. Millions of fibers per liter.

13. Action Level = 0.015 mg/ℓ.

14. Action Level = 1.3 mg/ℓ.

15. Millirems per year.

16. Picocuries per liter.

17. This endnote 17 corresponds with the endnote to the table in Appendix B to Subpart Q of 40 CFR 141 (2003), which stated a past effective date. This statement maintains structural consistency with the federal regulations.

18. 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 Supbart B community water system supplier or a non-transient non-community system supplier that serves 10,000 or more persons must comply with DBP MCLs and disinfectant maximum residual disinfectant levels (MRDLs). All other community and non-transient non-community system suppliers must meet the MCLs and MRDLs beginning January 1, 2004. Subpart B transient non-community system suppliers serving 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL. Subpart B transient non-community system suppliers serving fewer than 10,000 persons and systems using only groundwater not under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning January 1, 2004.

19. This endnote 19 corresponds with the endnote to the table in Appendix B to Subpart Q of 40 CFR 141 (2003), which expired by its own terms on January 1, 2004. This statement maintains structural consistency with the federal regulations.

20. The MCL for total trihalomethanes is the sum of the concentrations of the individual trihalomethanes.

21. The MCL for haloacetic acids is the sum of the concentrations of the individual haloacetic acids.

22. “MRDLG” means maximum residual disinfectant level goal.

23. “MRDL” means maximum residual disinfectant level.

BOARD NOTE: Derived from Appendix B to Subpart Q to 40 CFR 141 (2003).

(Source: Amended at 29 Ill. Reg. ________, effective ______________________)

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above opinion and order on January 20, 2005, by a vote of 5-0.

Dorothy M. Gunn

Dorothy M. Gunn, Clerk
Illinois Pollution Control Board