ILLINOIS POLLUTION CONTROL BOARD
September 5, 1996

IN THE MATTER OF:	)	
	)	R95-17
SAFE DRINKING WATER ACT	)	(Identical-in-Substance Rules)
UPDATE, USEPA Amendments	)	(Public Water Supplies)
(January 1 through June, 30,	)	
1995)	)	

Adopted Rule. Final Order.

OPINION AND ORDER OF THE BOARD (by R.C. Flemal):

SUMMARY OF TODAY'S ACTION

Pursuant to Section 17.5 of the Environmental Protection Act (Act), the Board today adopts an update to its regulations that are identical in substance to USEPA regulations implementing the Safe Drinking Water Act (SDWA). The Board rules are contained in 35 Ill. Adm. Code 611. The text of the adopted rules appears in the order segment of this document, following the discussions.

Section 17.5 of the Act provides for quick adoption of regulations that are "identical in substance" to federal regulations. Section 17.5 provides that Title VII of the Act and Section 5 of the Illinois Administrative Procedure Act (APA) shall not apply. Because this rulemaking is not subject to Section 5 of the APA (5 ILCS 100/5-35 and 5-45), it is not subject to first notice requirements or second notice review by the Joint Committee on Administrative Rules (JCAR).

As discussed more fully below, this rulemaking involves revisions of the Illinois public water supply regulations. It includes the federal amendments to the SDWA analytical procedures corrections and the deletion of obsolete, redundant, and outdated rules adopted by USEPA on June 29, 1995. Further involved are several corrections to the base text of the regulations, as requested by the Illinois EPA (Agency).

PUBLIC COMMENTS

The Board requested public comments on the proposal of April 18, 1996. The Board accepted comments for more than 45 days after Notices of Proposed Amendments appeared in the Illinois Register on May 3, 1996, at 20 Ill. Reg. 6121 (Part 607) and 611 (Part 6133). The Board received the following three comments on the proposal:

PC 1 Illinois EPA (Agency), docketed June 17, 1996, by Connie L. Tonsor, Assistant Counsel, Division of Legal Counsel.

PC 2 Illinois EPA (Agency), docketed June 26, 1996, by Lou Allyn Byus, Assistant Manager, Field Operations, Division of Public Water Supplies (with attached letter to Charlene Denys, Chief, Safe Drinking Water Branch, USEPA Region V, including handwritten reply notes).

PC 3 U.S. Environmental Protection Agency (USEPA), docketed July 9, 1996, by Ronald W. Murawski, Minnesota/Illinois State Project Officer, Safe Drinking Water Branch.

By PC 1, the Agency expressed general agreement with the approach taken by the Board on the amendments. It included a small number of suggested revisions, and it requested that the Board open a general rulemaking docket to consider the Agency-suggested amendments not included in the April 18, 1996 proposal for public comment. (See discussion on pages 5 through 13 of this opinion and order.) The Board opened docket R96-18 in response to that request.

PC 2 highlighted an apparent error in the text of certain federal amendments of June 29, 1995 relating to analytical methods. The Agency requested in PC 2 that the Board correct the error in adopting these amendments. USEPA responded in PC 3 that there was no error. The Board considers the Agency-suggested correction below, beginning on page 14 of this opinion and order.

REASONS FOR DELAY

Section 7.2(b) of the Environmental Protection Act (415 ILCS 5/7.2(b) requires the Board to complete the present amendments within one year of the federal action upon which they are based. Since the date of the earliest federal amendments was June 29, 1995, the nominal due date for completion of this proceeding was June 29, 1996. The Board has been unable to complete this matter before that date due to the magnitude of the review of the Public Water Supplies rules prompted by a request filed by the Illinois EPA, the press of other matters before the Board, and the fact that the Board will seek additional comment before filing the amendments with the Secretary of State. Section 7.2(b) allows the Board to extend the deadline by publishing a notice of the reasons for delay in the Illinois Register. The Board presently anticipates filing these amendments within 35 days after the date of this order--i.e., by October 10, 1996.

The Board will cause a copy of the above segment of this opinion to be published in the Illinois Register, as required by Section 7.2(b) of the Act.

ROUTINE DISCUSSIONS

At the end of the opinion segment of this document are two routine discussions generally made as part of identical-in-substance opinions. The first is a summary of the history of the Illinois SDWA identical-in-substance proceedings. The second is a summary of some of the conventions the Board uses in deriving identical-in-substance rules. We present those discussions for general informational purposes.

FEDERAL ACTIONS COVERED BY THIS RULEMAKING AND GENERAL DISCUSSION OF THE PRESENT ISSUES

The SDWA program was drawn from 40 CFR 141 (national primary drinking water regulations or NPDWRs), 40 CFR 142 (NPDWRs implementation), and 40 CFR 143 (national secondary drinking water regulations or NSDWRs). The nominal update period of the R95-17 docket is from January 1, 1995 through June 30, 1995. USEPA amended its SDWA regulations three times during the update period; two sets of amendments require Board action, and the third does not. The federal actions during the time-frame of this docket were as follows:

60 Fed. Reg. 33658 (June 28, 1995)	(Revisions to State Primacy Provisions)
60 Fed. Reg. 33926 (June 29, 1995)	(Deletion of Obsolete, Redundant, and Out-Dated Rules)
60 Fed. Reg. 34084 (June 29, 1995)	(Analytical Methods Technical Corrections)

The amendments to the state primacy provisions, adopted by USEPA on June 28, 1995, amended the provisions for withdrawal of federal authorization of a state's SDWA program. None of the USEPA amendments affected the actual state program requirements, so no Board action is necessary beyond noting the federal action. The deletion of obsolete, redundant, and out-dated rules on June 29, 1995 included revisions to elements of the federal rules that have counterparts in the Illinois regulations. Amendments resulted to the Illinois rules from those federal amendments. The analytical methods amendments of June 29, 1995 corrected minor errors in the analytical methods amendments of December 5, 1994 (59 Fed. Reg. 1994), adopted by the Board in consolidated docket R94-24/R95-3 on June 15, 1995, and in the July 17, 1992 (57 Fed. Reg. 31776) federal Phase V rules, adopted by the Board in docket R93-1 on July 13, 1993. The June 29, 1993 analytical methods corrections also require Board action.

Board action is further required by a comment filed March 1, 1996 by the Agency. That comment highlights various errors and inconsistencies in the text of all of the Subtitle F regulations (including the groundwater protection and groundwater quality rules). The Agency requested numerous corrections to the text of the rules. Further discussion of this request and a detailed outline of the corrections appear below on pages 5 through 13 of this discussion.

DETAILED SECTION-BY-SECTION-ANALYSIS

The Board adopts amendments in response to these federal actions. The following detailed section-by-section discussion focuses on the details of the actions taken.

Routine, General and Housekeeping Amendments--All Sections

The Board has performed a number of standard revisions to the text of the federal rules. The single most common revision is a change in usage to "USEPA", reversing the changes begun in an earlier update docket. The Joint Committee on Administrative Rules requested that the Board standardize the usage, choosing either "USEPA" or "U.S. EPA" throughout the text of all regulations in all media (air, water, land, drinking water, etc.). The Agency Bureau of Air requested that the Board use "USEPA". After consideration of the Bureau of Air's request, the Board elected to begin the conversion to "USEPA", which commences in this docket as to the drinking water regulations and which will continue into the future. Other standard revisions are so minor as to warrant no explanation. The standard changes are as follows:

1. Where the federal rules require an action "by" a certain date, the Board renders that as "on or before" that date.

2. We have changed various subsections to the active voice, rather than following the federal use of the passive voice.

3. We have updated all Board Notes to reflect the 1995 version of the Code of Federal Regulations, where appropriate.

Agency-Requested Corrections to the Rules--Many Sections

The Board received a letter on March 4, 1996 from the Agency. The Agency has reviewed all of the Subtitle F regulations. The letter highlights a number of errors and format anomalies in the texts of Parts 601, 602, 603, 606, 607, 611, 615, 616, 617, and 620. The Agency uses the letter to suggest a number of corrective and conforming amendments that it wants the Board to ultimately make to the texts in Subtitle F. The Board is making a great number of the revisions suggested by the Agency, but we cannot make all the requested changes in the context of this proceeding. For a variety of reasons,[1] most

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[1] Most notably, many of the requested corrections relate to rules adopted by the Section 27 general rulemaking procedure, they do not affect identical-in-substance subject matter, and/or the amendments may require substantive review of the affected rule.

of the amendments the Board is not making in this proceeding are the proper subject of a Section 27 general rulemaking proceeding; those amendments are not the proper subject of a Section 17.5 identical-in-substance proceeding.

Parts 601 through 611 constitute the current Illinois drinking water rules. The primary emphasis of Parts 601, 602, 603, 606, and 607 is on regulations unique to Illinois; these Parts predate the advent of the current federal primary drinking water rules, and segments of those older rules survive in Parts 601, 602, 603, and 607. The Board ultimately repealed Parts 604 and 605 in the course of implement the federal primary drinking water regulations of 40 CFR 141 through 143, from which Part 611 is derived. The Board cannot "amend" the repealed Parts 604 and 605 so as to update the format of the Source Notes, as requested by the Agency. Further, most of the Agency-requested corrective and conforming amendments to Parts 601, 602, 603, 606, and 607 are not necessary to implementing the federal primary drinking water regulations, and some would require substantive review of the rules. Neither of these types of action is appropriate in the context of an identical-in-substance proceeding.

Parts 615 through 617 are the Illinois water well setback regulations, adopted using the general rulemaking procedure of Sections 14.4 and 27 of the Act in R89-5, effective January 10, 1992. The Board adopted Part 620 pursuant to Section 27 of the Act and Section 8 of the Illinois Groundwater Protection Act [415 ILCS 55/8] in R89-14, effective November 25, 1991. The subject matters of the setback and groundwater protection rules do not relate to the federal primary drinking water regulations. Amendment of these Parts is also inappropriate in the context of an identical-in-substance proceeding.

The Board has reviewed the entire list of over 100 suggested revisions submitted by the Agency. Numerous amendments have resulted to the texts of Parts 607 and 611. The Board made the recommended corrections and revisions within these Parts that were related to the Board's identical-in-substance mandate under Section 17.5 of the Act. The table indicates a summary response to each Agency suggestion, and notes at the end of the table give further explanation where necessary. The following summarizes the Agency's suggestions and indicates the Board's response to each:

<u>Agency-Recommended Corrections and Revisions</u>

Section	**Agency Request**	**Board Response/Action**
1. 601 Source Note	Update to ILCS citation	§ 27 subject matter
2. 601.101	Update to ILCS citation	§ 27 subject matter
3. 601.103	Section missing from SOS file	Call SOS and provide copy of filed rule
4. 601.105 "Act"	Update to ILCS citation	§ 27 subject matter
5. 601.105 "boil order"	Change "bacteriologically" to "microbiologically"	§ 27 subject matter

6. 601.105 "certified laboratory"	Add reference to Illinois Department of Nuclear Safety; Update to ILCS citation	§ 27 subject matters
7. 601.105 "persistent contamination"	Change "check samples" to "repeat samples"	See note 1 below
8. 601.105 "recurring contamination"	Change "calendar year" to "twelve consecutive month period"	See note 2 below
9. 601.105 "re-sell water"	Change to "sell water"	See note 3 below
10. 602 Source Note	Update to ILCS citation	§ 27 subject matter
11. 602.105	Update names of statutes cited; update to ILCS citations	§ 27 subject matters
12. 602.108	Repunctuate Section; correct cross-reference to Section 602.105(c)	§ 27 subject matters
13. 602.109(a)	Correct to "registered person"	§ 27 subject matter
14. 602.110(c)	Add definite article before "permittee"	§ 27 subject matter
15. 602.114	Add comma after "Part"	§ 27 subject matter
16. 602.115(b)	Update to ILCS citation	§ 27 subject matter
17. 602.120	Change to "this Part"	§ 27 subject matter
18. 603 Source Note	Update to ILCS citation	§ 27 subject matter
19. 603.102	Update statutory citations; update to ILCS citation	§ 27 subject matters
20. 603.103	Update statutory citations; update to ILCS citation	§ 27 subject matters
21. 603.103(a)	Change "for" to "of"	§ 27 subject matter
22. 603.104	Update statutory citations; update to ILCS citation	§ 27 subject matters
23. 603.104(c)	Change "for" to "of"	§ 27 subject matter
24. 604.401	Provision not shown as repealed in SOS filed copy	Call SOS to assure Section does not appear
25. 607 Source Note	Update to ILCS citation	See Note 4 below
26. 607.103(a)	Add requirement for boiling minimum specified time; add requirement for continuing notice until occurrence of specified event	§ 27 subject matter
27. 607.103(b)	Repunctuate subsection for enhanced clarity	§ 27 subject matter
28. 607.104(c)	Change reference to Part 611, to reflect repeal of Parts 605 and 606	Done in this docket; see note 4 below

29. 607.104(e)	Correct "35 Ill. Adm. Code 603.103 or 604.102" to "35 Ill. Adm. Code 104 or Section 17(b) of the Act	§ 27 subject matter
30. 611.100(a)	Correct ILCS citation to Section 17.5	Done in this docket
31. 611.100(b)	Add "to"	Done in this docket
32. 611.102(b) "Technical Bulletin 601"	Change "Test" to "Testing"	Done in this docket
33. 611.102(b) "ASTM Method D1688-90 A or C"	Change "Graphit" to "Graphite"	Done in this docket
34. 611.130(b)(2)(A)	Change "TTHM" to "Fluoride"	Done in this docket
35. 611.130(c)(1) Board Note	Change "PAT" to "PTA"	See note 5 below
36. 611.212(b)(3)(A)	Add "or"	Done in this docket
37. 611.212(d)(3)	Change "organism" to "organisms"	Done in this docket
38. 611.212(e)(1)	Correct "turbidity"	Done in this docket
39. 611.212(f)(2)	Add "surface"	Done in this docket
40. 611.212(g)	Correct "occurrence"	Done in this docket
41. 611.220 Board Note	Correct citation to Public Health Code	See note 6 below
42. 611.357(c)(1)	Correct cross-reference to "611.356(d)(2)(A)"	Done in this docket
43. 611.357(c)(2)	Correct cross-reference to "611.356(d)(2)(B)"	Done in this docket
44. 611.359(a)(2)(C)	Add reference to the Agency's future 35 Ill. Adm. Code 184 regulations	See note 7 below
45. 611.510(b)(11)	Correct dieldrin method to "525.2"	Done in this docket, see note 8 below
46. 611.531(a)(2)	Change "to" to "of"	See note 9 below
47. 611.591	Correct "result of analysis . . . indicates"	Done in this docket
48. 611.606(b)	Insert "a"	Done in this docket
49. 611.611(a)(22)(E)	Correct "discrete"	Done in this docket
50. 611.611(c)(1)	Add reference to the Agency's future 35 Ill. Adm. Code 184 regulations	See note 7 below
51. 611.611(c)(2)(G)	Correct "mg/L"	Done in this docket
52. 611.630(b)	Add comma	Done in this docket
53. 611.641(d)	Correct cross-reference to Section 611.648(k)	See note 10 below
54. 611.645 Board Note	Correct "alachlor"	Done in this docket

55. 611.646(k)(5)(C)	Add "the"	Done in this docket
56. 611.646(q)(1)(A), (q)(2)(A) & (s)(2)(A)	Add reference to the Agency's future 35 Ill. Adm. Code 184 regulations	See note 7 below
57. 611.648	A page (subsections (l) through (r)) is missing from the SOS filed copy of the text	Call SOS and provide copy of filed rule
58. 611.648(s)(2)(B)	Correct to "below"	Done in this docket
59. 611.683(a), (a)(4) & (b)(1)	Correct cross-references to Section 611.680(b)	Done in this docket
60. 611.684	Correct cross-reference to Section 611.680(b)	Done in this docket
61. 611.685	Delete references to methods deleted in R94-23/R95-3; the SOS filed copy has two versions of the text	References deleted in this docket; call SOS to assure only correct version appears
62. 611.720(b)	Correct to "are"	Done in this docket
63. 611.731(a)(1) & (c)(4)	Repunctuate proviso	Done in this docket
64. 611.731(c)(2)	Change to "processes"	Done in this docket
65. 611.732(a)(2)	Repunctuate proviso; correct to "dose"	Done in this docket
66. 611.831	Delete unnecessary comma	Done in this docket
67. 611.840(b)	Repunctuate for clarity	See note 11 below
68. 611.851(c)(3)	Delete cross-reference to Section 611.647	Done in this docket
69. 611.852(c)(1)	Correct to "within"	Done in this docket
70. 611.855	Missing from the SOS filed text	Call SOS and provide a copy if needed
71. 611.858	Correct cross-references to Sections 611.301(b) and 611.603	Done in this docket
72. 611.864	Provision not adopted by the Board appears in SOS text	Call JCAR
73. 611.870	Delete cross-references to repealed Section 611.650 or repeal whole Section	Section repealed in this docket
74. 611.App. A(16), (24), (53), (57), (58) & (70)	Correct usage to "groundwater"	See note 12 below
75. 611.App. A(20)	Correct punctuation	Done in this docket
76. 611.App. A(28)	Correct to "hearts"	Done in this docket
77. 611.App. A(36), (40) & (41)	Correct to "an"	Done in this docket

78. 611.App. B	Add Table headings used by USEPA; use "≤" and "≥"; delete ">"	Done in this docket, see note 13 below
79. 611.App. B, Table 1.1	Correct values to "376" and "298"	Done in this docket
80. 611.App. B, Table 1.3	Correct values to "218" and "226"	Done in this docket
81. 611.App. B, Table 1.4	Correct value to "98"	Done in this docket
82. 611.App. B, Tables 2.1 & 3.1	Remove decimal points from values; add missing footnotes from federal text	Done in this docket
83. 611.Table E	The SOS filed text includes two versions of this provision	Call SOS for deletion of improper version
84. 611.Table F	Correct alignment of text	Done in this docket
85. 615 Authority Note	Update to ILCS citation	§ 27 subject matter
86. 615.102 preamble, "groundwater standards" & "licensed water well contractor"	Update to ILCS citation	§ 27 subject matter
87. 615.102 "registered land surveyor" & "registered professional engineer"	Update to new statutory citation	§ 27 subject matter
88. 615.203(b)(1) & (b)(2)	Update to ILCS citation	§ 27 subject matter
89. 615.462	Correct cross-reference to "Subpart E"	§ 27 subject matter
90. 616 Authority Note	Update to ILCS citation	§ 27 subject matter
91. 616.101	Update to ILCS citation	§ 27 subject matter
92. 616.102	Update to ILCS citation	§ 27 subject matter
93. 616.104(g)	Correct statutory source reference to "Section 14.2(c) of the Act"	§ 27 subject matter
94. 616.447	Correct heading to "Section 616.447"	§ 27 subject matter
95. 617 Authority Note	Update to ILCS citation	§ 27 subject matter
96. 617.101	Update to ILCS citation	§ 27 subject matter
97. 617.102	Update to ILCS citation	§ 27 subject matter
98. 620 Authority Note	Update to ILCS citation	§ 27 subject matter
99. 620.110 preamble, "IGPA", "Private Sewage Disposal Act" & "previously mined area" Board Note	Update to ILCS citation	§ 27 subject matter

100. 620.110 "cumulative impact area"	Correct citation to "Surface Coal Mining Land Conservation and Reclamation Act" and update to ILCS citation	§ 27 subject matter
101. 620.110 "unit"	Correct format of statutory source reference	§ 27 subject matter
102. 620.260(k)(2)	Correct ILCS citation to "520 ILCS 10"	§ 27 subject matter
103. 620.301(c)	Use "Illinois Oil and Gas Act" in statutory citation and update to ILCS citation	§ 27 subject matter
104. 620.420(b)(2)	Update to ILCS citation	§ 27 subject matter
105. 620.450(b)(1)	Update to ILCS citation	§ 27 subject matter
106. 620.505(a)(5)(A) & (a)(5)(C)	Update to ILCS citations	§ 27 subject matter

Note 1: The term "check" sample is used in Sections 611.680(b)(3) and 611.683(b)(1) of the Board's rules (as it is in corresponding 40 CFR 141.30(b)(3) and (c)(2)), which relate to trihalomethanes, and in Section 611.860(a)(2) of the Board's rules (as it is in corresponding 40 CFR 141.33(a)(2)), which relates to bacteriological sampling. It also appears in Sections 654.301(c); 654.303(b); and 654.304(a), (b), and (e) of the Agency's rules, which relate to bacteriological sampling. The phrase "repeat" sample is used in Sections 611.325(b), 611.522, 611.523(a)(2) and (a)(3), and 611.525 of the Board's rules (as it is in corresponding 40 CFR 141.63(b) and 141.21(b), (c)(1)(ii), (c)(1)(iii), and (e)) in the context of microbiological monitoring. In Section 611.560(b) (and corresponding 40 CFR 141.22(b)), the term relates to turbidity monitoring. Although a federal transition in terminology could prompt identical-in-substance amendment of Illinois regulations not directly derived from federal regulations in order to maintain consistency in the rules, the Board will not amend this usage at this time. The term "check" is used as part of the definition of "persistent contamination" and is not defined here. That means that this is part of the mixed, interchangeable usage of "check" and "repeat" sampling, rather than the core source of possible confusion, and the suggested amendment would not add further clarity. Since alteration of the usage should consider the merits of the regulatory text on some basis other than consistency with the federal program, this is more appropriately a subject of a Section 27 proceeding.

Note 2: The phrase "recurrent contamination" appears only in Section 653.607(b)(3) of the Agency's regulations and nowhere else in Parts 601 through 603, 607, or 611 of the Board's rules. Therefore the requested amendment would not serve to conform the Board's rules to the federal SDWA program. Amendment or repeal of rules on any other basis is more appropriate in the context of a Section 27 proceeding.

Note 3: The phrase "re-sell water" appears only in this definition. The phrase "sell water" appears only in Section 611.100(d)(3) (as it is in corresponding 40 CFR 141.3(c)). Therefore the requested amendment would not serve to conform the Board's rules to the federal SDWA program. Amendment or repeal of rules on any other basis is more appropriate in the context of a Section 27 proceeding.

Note 4: The repeal of Part 605 occurred in docket R93-1, and the repeal of Part 606 occurred in docket R88-26. Since both dockets were identical-in-substance proceedings, and the Board did not correct the references at that those times, the amendment is the proper subject of this proceeding. Since this Part is open for this amendment, the Board will comply with the Agency's request and update the statutory citation in the authority note to the ILCS citation.

Note 5: The use of "PAT" indicated errors and discrepancies in the text of the federal rules. USEPA corrected these on July 1, 1994, at 59 Fed. Reg. 34324. The Board did not delete the discussion of the errors and discrepancies at that time, but is doing so in this docket.

Note 6: The Board cited 77 Ill. Adm. Code 900.40(e), which was the only provision relating to operator certification that our research revealed. This citation further appears by way of example, "e.g.". We cannot see that revision is necessary unless the Agency can indicate a more appropriate citation.

Note 7: The Board cannot cross-reference regulations that do not yet exist. In fact, our research reveals that the Agency had not proposed these rules as of the March 22, 1996 issue of the Illinois Register. Since it will take the Agency more time to complete its Part 184 rulemaking under Article V of the Administrative Procedure Act (5 ILCS 100/5) than for the Board to adopt these amendments using the identical-in-substance procedure, the Board will wait until at least after the Agency has acted with regard to Part 184 before we update the cross-references to Part 183 to reflect Part 184. That will likely occur in some future docket.

Note 8: In making the Agency-suggested correction, the Board notes that method 508.1 was also omitted for this contaminant. We add that correction to this docket as well.

Note 9: The Board prefers to substitute "for" and has done so.

Note 10: The Board makes the correction in the cross-reference, but since former Section 611.648(k) is now codified as Section 611.645, the Board used the new location.

Note 11: The Board uses "any" in place of "the" and "of" in place of "in".

Note 12: The term "groundwater" is already used in subsections (16) and (24), and subsection (56) is amended to delete its substantive language in this proceeding, so the Board made no change in those subsections. The Board converted all remaining occurrences to "groundwater" in subsections (53), (57), and (70), a search further revealed that this change was also necessary for subsection (54).

Note 13: USEPA uses "≤" for pH 9.0 and greater in Tables 1.1 through 1.6. The Board has corrected this to "≥", which is the correct scientific symbol.

The Board has three basic options in dealing with the Agency-requested amendments that we have determined are more appropriate in the context of a Section 27 general rulemaking proceeding:

1. The Board could wait until the Agency files a separate petition for amendments pursuant to Section 27, doing nothing more until that time, then initiate the requested proceeding; or

2. The Board could interpret the Agency's letter as a petition for amendments pursuant to Section 27, and immediately assign a separate docket number and initiate the rulemaking with the Agency as proponent.

The Board invited comment on our responses to the Agency-recommended corrections to the texts of Subtitle F Public Water Supplies regulations and on the approach we should take to consideration of the Agency-requested amendments to Subtitle F. The Agency responded in PC 3, asking that the Board consider its letters as the basis for opening a general rulemaking docket for consideration of the amendments. In PC 3, the Agency committed to filing a more complete petition for rulemaking to include these suggested amendments and possible others to the rules. The Board opened docket R96-18 on June 20, 1196 for consideration of the Agency's suggested amendments.

Corrections to Analytical Methods--Sections 611.102(c), 611.526, 611.531, 611.600, 611.648, 611.683, 611.685 & 611.687

USEPA corrected typographical errors and technical errors and omissions in the SDWA analytical methods on June 29, 1995, at 60 Fed. Reg. 34084. The Board has incorporated the federal corrections with minimal deviation in language as necessary to conform with the text and format of the existing Illinois regulations.

A correction to 40 CFR 141.21(f)(3) added a line about sample storage temperatures at footnote 1 to the table (corresponding with 35 Ill. Adm. Code 611.526(c)). The Board added this language as an independent clause, rather than as a separate sentence, and conformed with our existing "supplier" usage, rather than use "supply". Another correction to footnote 2 (corresponding with 35 Ill. Adm. Code 611.526(c)(1)(A)) added the omitted language "and false-negative rate".

USEPA corrected the Standard Method 2550B to 2550 for temperature at 40 CFR 141.23(k)(1) (corresponding with 35 Ill. Adm. Code 611.611(a)(24)), in order to reference the entire method. It further removed footnote 1 to the table at 40 CFR 141.23(k)(4) (corresponding with 35 Ill. Adm. Code 611.611(b)(1)(A), (b)(3)(A), (b)(4)(A), (b)(5)(A), (b)(6)(A), (b)(9)(A), (b)(10)(A), (b)(14)(A), and (b)(15)(A)) to remove language already included in the referenced analytical method. Another correction in the text of the table is in the proper format for "NaOH". It was not necessary for the Board to act on this latter correction, since we did not repeat it in the original adoption of this provision.

USEPA also corrected aspects of the synthetic and volatile organic chemical contaminant (SOC and VOC) and trihalomethanes (THM) analytical methods. A correction to the chemical name "1,2-dibromo-3-chloropropane" appeared in 40 CFR 141.24(h)(18) (corresponding with 35 Ill. Adm. Code 611.648(r)(2)). USEPA restored inadvertently-removed language from Part III of removed Appendix C to 40 CFR 141.30 at 40 CFR 141.30 (e) and (g) (corresponding with 35 Ill. Adm. Code 611.685 and new 611.687) relating to THM and total THM potential sampling. In incorporating the 40 CFR 141.30(e) language, the Board used this opportunity to correct two oversights from the prior R94-23/R95-3 docket: we deleted the incorporation of previously-removed 40 CFR 141, Subpart C, Appendix C from Section 611.102(c), and we restored language pertaining to total THM sampling erroneously deleted from Section 611.685 in that docket. In incorporating the newly-restored language of 40 CFR 141.30(g), the Board has divided new Section 611.687 language into subsections for enhanced clarity, altered the federal text to use "must" in subsection (a), and imposed the provisions of the subsections (b) and (c) as requirements on the "supplier". USEPA also removed references to USEPA methods 501.1 and 501.2 from 40 CFR 141.30(e) (corresponding with 35 Ill. Adm. Code 611.685), which USEPA had earlier removed as viable for use. No Board action is required to remove those references at this time because the Board earlier removed them in R94-24/R95-3, when we made the amendments necessary to centralize the methods in response to the December 5, 1994 (59 Fed. Reg. 62469) consolidation of analytical methods. Finally, USEPA added a reference at 40 CFR 141.30(c)(1) (corresponding with 35 Ill. Adm. Code 611.683(a)(1)) to the total THM potential sampling procedure of 40 CFR 141.30(g). The Board incorporated that amendment without revision.

USEPA also corrected 40 CFR 141.74(a)(1) (corresponding with 35 Ill. Adm. Code 611.531(a)(2)). USEPA deleted the reference to analysis for temperature, corrected the method name "fecal coliform procedure", added omitted language to footnote 2 to the table pertaining to sample storage temperatures, and corrected the omission from footnote 3 language referring to the "false-negative rate" for total coliforms. The Board has incorporated these federal corrections with only minor deviations from the federal text: we have retained our use of Board Notes to present the federal footnote material, and we used "the supplier" in place of "systems". Other federal corrections to 40 CFR 141.74(a)(1) were not necessary in the Illinois rules due to differences in the structures of the two sets of regulations. These include the use of superscript for marking the footnotes.

The Board invited comment on our responses to the federal corrections to the Phase V and analytical methods regulations. The Agency responded with PC 1, expressing general agreement with the amendments made. The corrections recommended by the Agency in PC 1 and accepted by the Board are tabulated as follows:

Agency-Prompted Revisions to the Text of the Proposed Rules

Section	Correction
611.100(a), (b) & (e)	Use "USEPA"
611.130(e)(6)	Add "BOARD NOTE:"
611.510(a)(2)	Correct spelling of "application"
611.526(c)	Correct spelling of "hold"
611.526(f)(2)	Use lower case for "agar"
611.526(h)	Correct spelling of "incorporations"
611.646(n), (p) & (q)	Use "USEPA"
611.687(c)(1)	Change "it" to "if"

The Board made no changes in response to a number of Agency recommendations asserting that there were too many spaces between sentences in a handful of provisions: Sections 611.357(a)(1)(A); 611.526(f)(1), (f)(2), and (f)(3); 611.851(a)(1); and 611.Appendix A(15), (21), (57), (59), (60), and (68). The Board could find no such errors in the text. However, the re-examination of the text prompted by the Agency suggestions did disclose a handful of additional necessary corrections that the Board has made. These are tabulated as follows:

Other Revisions to the Text of the Proposed Rules

Section	Correction
611.102(a) "Guidance Manual . . ."	Capitalize "Using" in title
611.102(a) "Guidance Manual . . .", "USEPA Asbestos Methods-100.1", "USEPA Asbestos Methods-100.2", "USEPA Environmental Inorganics Methods", "USEPA Environmental Metals Methods", "USEPA Organic Methods" & "USEPA Technical Notes"	Use "USEPA"

611.102(b) "NTIS" & "United States Environmental Protection Agency, EMSL" methods listings, "USEPA, Science and Technology Branch" heading	Use "USEPA"
611.641(d) Board note	Use "USEPA"
611.645 preamble	Use "USEPA"

In submitting PC 2, the Agency suggested further that USEPA made an error at 60 Fed. Reg. 34086 in adding footnote 2 to the entries for total coliforms and fecal coliforms in the table at 40 CFR 141.74(a)(1). The Agency requested that the Board correct the error in the text of the adopted amendments. Attached to PC 2 is a June 20, 1996 letter from the Agency to USEPA discussing the apparent error and requesting resolution. At the bottom of that letter is an hand-written note from USEPA acknowledging the problem and promising resolution.

The addition of footnote 2 to the two entries for total coliforms and fecal coliforms had the effect of significantly shortening the transit time formerly allowed for samples from 30 hours to eight hours. The Agency contended in its letter to USEPA that this eight-hour transit time will create hardship for public water supplies and laboratories in that many would be forced into prearranged direct transit of samples and immediate analysis, rather than on overnight shipment and analysis. The Agency correctly highlights that the preamble discussion at 60 Fed. Reg. 34084 considers adding a maximum sample transit temperature limitation, but does not discuss transit time. The preamble discussion states that the addition of the temperature limitation--i.e., the only correction relating to footnote 2--rectifies an error made on December 5, 1994, at 59 Fed. Reg. 62456. The Agency correctly highlights that the December 5, 1994 discussion at 59 Fed. Reg. 62460 declined to shorten the sample transit time to 24 hours because of the issues of hardship raised in public comments on such a reduction. USEPA stated that it would work with states to minimize any such hardships if it should decide to reduce the transit time from 30 hours to 24 hours.

PC 3, from USEPA Region V, relates a response to PC 2 from the Office of Ground Water and Drinking Water. The Office stated that there is an intended difference between 40 CFR 141.21(f)(3) (corresponding with 35 Ill. Adm. Code 611.526(c)), which allows a 30-hour transit time for finished water samples, and 40 CFR 141.74(a)(1) (corresponding with 35 Ill. Adm. Code 611.531(a)(1)), which was amended to eight hours for raw water samples from unfiltered supplies. The Office explained that coliform die-off is more rapid for raw water samples than for finished water samples, so the differences in the respective transit times "is no discrepancy". The Office proceeded to explain that there are no unfiltered supplies in Illinois, so the 8-hour transit time would not apply here.

In considering the Agency's request to remove the reference to an eight-hour transit time for total coliform and fecal coliform samples, we are inclined to agree with the Agency that an error has occurred at the federal level. Further, we find that the comments from USEPA Office of Ground Water and Drinking Water are not directly relevant to the issue whether USEPA erred in shortening the transit time requirements. First, USEPA chose not to shorten the transit time to 24 hours on December 5, 1994, instead committing itself to addressing the issues and problems raised by such an action at a future time. Nothing in the federal action of June 29, 1995 actually addresses the transit time. Rather, the June 29 action was a series of technical amendments intended to correct the December 5 actions. The only discussion relating to the corrections to footnote 2 relate to the maximum sample transit temperature. This does not indicate that USEPA intended to address the transit time issues. Second, section 4 of the federal Administrative Procedure Act (5 U.S.C. § 553) requires public notice for comment on amendments to regulations. USEPA did not subject the eight-hour transit time to such comment. Rather, USEPA made the express determination at 60 Fed. Reg. 34084 that public comment on its technical corrections was "not necessary or within the public interest". This is a finding allowed under APA section 4, but usually reserved to instances where the instant amendments do not raise new issues on which comment has not previously been sought.

Despite this, the Board feels constrained to retain the eight-hour sample transit time incorporated into the proposal for public comment. Our mandate under Sections 7.2 and 17.5 is to adopt regulations that are "identical-in-substance" to the federal SDWA regulations. The federal rules now provide an eight-hour transit time for fecal coliform and total coliform samples between the time of sampling and the time of analysis. Nothing in the record before the Board clearly and unequivocally indicates that USEPA did not intend this change. If the Board were to retain the 30-hour transit time requirement, we would risk a situation in which the Illinois regulations would become less stringent than the federal rules. This is a risk to federal authorization of the federal program that we are not willing to take without a very clear indication from USEPA that the change to eight hours was an error and correction of the error will not jeopardize state primacy.

For these reasons, the Board is retaining the eight-hour maximum sample retention time in this final opinion and order. Nevertheless, we do believe that USEPA erred in applying this time to total coliforms and fecal coliforms, so we will withhold filing these amendments for 30 days after the date of this order. This 30 days will allow the Agency additional time to elicit the comments of USEPA directly on this issue before the amendments would become effective. If the Board receives an indication from USEPA that an error has occurred, the Board will have an additional opportunity to amend the rules by a supplemental opinion and order.

The Board requests supplemental comment from USEPA on the issue of whether USEPA erred in changing the 30-hour sample retention time for total coliforms and fecal coliforms to eight hours. Specifically, the Board desires comment on whether we can retain the 30-hour requirement without rendering the Illinois regulations fatally less stringent than the federal rules on this point.

Deletion of Obsolete, Redundant, and Out-Dated Rules--Sections 611.300, 611.301, 611.600 & 611.Appendix A(56)

USEPA adopted the removal of obsolete, redundant, and out-dated rules on June 29, 1995 (60 Fed. Reg. 33926) in response to a March 4, 1995 Presidential order. The removal rulemakings on that date embraced several federal environmental programs, including those under the Safe Drinking Water Act. As to the SDWA primary drinking water regulations, USEPA removed seven segments of the rules.

An amendment to 40 CFR 141.11 (corresponding with 35 Ill. Adm. Code 611.300) removed all the old maximum contaminant levels (MCLs) except that for arsenic. Those MCLs appeared in the newer listing at 40 CFR 141.62 (corresponding with 35 Ill. Adm. Code 611.301). It was not necessary for the Board to make corresponding deletions, since the Board had already removed the duplicative MCLs from Section 611.300; however, review of subsections (b) through (d) revealed other outdated language that we deleted in this proceeding. This included an incorporation by reference in subsection (d) rendered superfluous by the incorporation of the actual language from the incorporated federal provision in prior docket R93-1.

Amendments to 40 CFR 141.23(a)(4)(i), 141.62(b)(14), and 141.32(e)(56) (corresponding with 35 Ill. Adm. Code 611.600(d), 611.301(b), and 611.Appendix A(56), respectively) removed the MCL and health effects warning for nickel from the table of MCLs, the methods table, and the health effects provision. It left the nickel entries pertaining to analytical methods, BAT, and detection limits intact. USEPA undertook this action in response to an agreed judicial remand in the consolidated litigation 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.). The Board adopted the federal deletions without significant deviation. We added an explanatory Board Note at Sections 611.301(b) and 611.600(d) relating to the deletion of the nickel MCL. We further used the opportunity to remove obsolete language from Section 611.301(b) and its Board Note. We also added our customary language at Section 611.Appendix A(56) to maintain structural parity with the federal rules.

An amendment to 40 CFR 141.23(k)(3)(ii) (corresponding with 35 Ill. Adm. Code 611.611(c)) corrected a typographical error. Since the Board corrected the error when adopting the original rule in R93-1, the Board need not directly respond to this federal action. Although no amendment of the corresponding Illinois rule is necessary based on this federal action, the Board deleted language in the Board Note at Section 611.611(c)(2)(A) that explained our correction of the federal error.

The Board does not need to respond to three other federal rules deletions. Illinois never adopted the MCL goals (MCLGs) for drinking water contaminants because these are not mandatory federal primary drinking water standards. This means that no amendment is necessary to remove the nickel MCLG entries as in 40 CFR 141.51(b). Similarly, it is not necessary for the Board to respond to the deletion of the one-time health effects notice for lead of 40 CFR 141.34. That requirement expired prior to the initial implementation of the federal primary drinking water standards when the Board adopted R88-26. The Board never incorporated that expired provision into the Illinois rules.

The Board invited comment on our responses to the federal deletion of obsolete, redundant, and out-dated regulations. The Agency responded generally that it agreed with the Board's approach to these actions.

SDWA REGULATORY HISTORICAL SUMMARY

The Board adopted the initial round of USEPA drinking water regulations, including the "Phase I" rules, adopted by USEPA prior to June 30, 1989, as follows:

R88-26	114 PCB 149, August 9, 1990 (14 Ill. Reg. 16517, effective September 20, 1990).

Subsequent dockets updated the regulations to include federal amendments since that time:

R90-4	112 PCB 317, dismissed June 21, 1990 (no USEPA amendments July 1 through December 31, 1989).
R90-13	117 PCB 687, December 20, 1990 (15 Ill. Reg. 1562, effective January 22, 1991) (January 1, 1990 through June 30, 1990).
R90-21	116 PCB 365, November 29, 1990 (14 Ill. Reg. 20448, effective December 11, 1990) (Corrections to R88-26).
R91-3	137 PCB 253, November 19, 1992 (16 Ill. Reg. 19010, effective December 1, 1992) (USEPA Phase II and Coliforms--consolidated with R92-9; July 1, 1990 through January 31, 1991).
R91-15	137 PCB 627, dismissed December 3, 1992 (no USEPA amendments February 1, 1991 through May 31, 1991).
R92-3	-- PCB --, May 6, 1993 (17 Ill. Reg. 7796, effective May 18, 1993) (USEPA Phase IIB and Lead and Copper rules; June 1, 1991 through December 31, 1991).
R92-9	137 PCB 253, November 19, 1992 (16 Ill. Reg. 19010, effective December 1, 1992) (Corrections to Phase I rules, R88-26--consolidated with R91-3).

R92-12	137 PCB 725, dismissed December 3, 1992 (no USEPA amendments June 1, 1992 through June 30, 1991).
R93-1	-- PCB --, July 14, 1993 (17 Ill. Reg. 12648, effective July 23, 1993) (USEPA Phase V rules; July 1, 1992 through December 31, 1992).
R93-19	-- PCB --, dismissed September 23, 1993 (no USEPA amendments January 1 through June 30, 1993).
R94-4	-- PCB --, July 21, 1994 (18 Ill. Reg. 12291, effective July 28, 1995) (TTHM analytical methods; July 1, 1993 through December 31, 1993).
R94-23	-- PCB --, June 15, 1995 (19 Ill. Reg. 8613, effective June 20, 1995) (Lead and Copper Corrections; January 1 through June 30, 1994) (Consolidated with R95-3).
R95-3	-- PCB --, June 15, 1995 (19 Ill. Reg. 8613, effective June 20, 1995) (Phase II, IIB & V Corrections & Analytical Methods Amendments; July 1 through December 31, 1994) (Consolidated with R94-23).
R95-17	This Docket, -- PCB --, September 5, 1996 (-- Ill. Reg. --, effective October --, 1996) (Corrections to analytical methods and deletion of obsolete, redundant, and outdated provisions; January 1 through June, 30, 1995).
R96-7	-- PCB --, dismissed March 7, 1996 (no USEPA amendments July 1 through December 31, 1995).
R97-2	Reserved docket. (January 1 through June 30, 1996).

AGENCY OR BOARD ACTION?

Section 7.2(a)(5) of the Act requires the Board to specify which decisions USEPA will retain. In addition, the Board is to specify which State agency is to make decisions based on the general division of functions within the Act and other Illinois statutes.

In situations where the Board has determined that USEPA will retain decision-making authority, the Board has replaced "Regional Administrator" with USEPA, so as to avoid specifying which office within USEPA is to make a decision.

In a few instances, decisions are not appropriate for Agency action pursuant to a permit application. Among the considerations in determining the general division of authority between the Agency and the Board are the following:

1. Is the person making the decision applying a Board regulation, or taking action contrary to ("waiving") a Board regulation? It generally takes some form of Board action to "waive" a Board regulation.

2. Is there a clear standard for action such that the Board can give meaningful review to an Agency decision?

3. Does the action result in exemption from the permit requirement itself? If so, Board action is generally required.

4. Does the decision amount to "determining, defining or implementing environmental control standards" within the meaning of Section 5(b) of the Act? If so, it must be made by the Board.

There are four common classes of Board decision: variance, adjusted standard, site specific rulemaking, and enforcement. The first three are methods by which a regulation can be temporarily postponed (variance) or adjusted to meet specific situations (adjusted standard or site specific rulemaking). Note that there often are differences in the nomenclature for these decisions between the USEPA and Board regulations.

EDITORIAL CONVENTIONS

As a final note, the federal rules have been edited to establish a uniform usage throughout the Board's regulations. For example, with respect to "shall", "will", and "may", "shall" is used when the subject of a sentence has to do something; "must" is used when someone has to do something, but that someone is not the subject of the sentence; "will" is used when the Board obliges itself to do something, and "may" is used when choice of a provision is optional. As to the conjunctions, "or" is used rather than "and/or", and denotes "one or both"; "either . . . or" denotes "one but not both"; and "and" denotes "both".

ORDER

The Board will delay 30 days submitting these amendments to the Secretary of State for filing and publication in the Illinois Register.

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

PART 607
OPERATION AND RECORD KEEPING

Section

AUTHORITY: Implementing Section 17 and authorized by Section 27 of the Environmental Protection Act ~~(Ill. Rev. Stat. 1985, ch. 111 1/2, pars. 1017 and 1027)~~[415 ILCS 5/17 & 27].

SOURCE: Filed with Secretary of State January 1, 1978; amended and codified at 6 Ill. Reg. 11497 effective September 14, 1982; amended in R88-26 at 14 Ill. Reg. 16512, effective September 20, 1990; amended in R95-17 at 20 Ill. Reg. ________, effective ______________________.

Section 607.104 Cross Connections

a) No physical connection shall be permitted between the potable portion of a supply and any other water supply not of equal or better bacteriological and chemical quality as determined by inspection and analysis by the Agency, except as provided for in subsection (d).

b) There shall be no arrangement or connection by which an unsafe substance may enter a supply.

c) Control of all cross-connections to a supply is the responsibility of the owner or official custodian of the supply. If a privately owned water supply source meets the applicable criteria, it may be connected to a water supply upon approval by the owner or official custodian and by the Agency. Where such connections are permitted, it is the responsibility of the public water supply officials to assure submission from such privately owned water supply source or sources samples and operating reports, as required by 35 Ill. Adm. Code ~~605 and 606~~611 as applicable to the cross-connected source.

d) The Agency may adopt specific conditions for control of unsafe cross-connections, which shall be complied with by the supplies of this State, as applicable. These conditions shall be adopted and/or changed by the Agency as prescribed in 35 Ill. Adm. Code 602.115.

e) Each community water supply exempted pursuant to 35 Ill. Adm. Code 603.103 or 604.402 shall provide an active program approved by the Agency to continually educate and inform water supply consumers regarding prevention of the entry or contaminants into the distribution system. Conditions under which the Agency will approve this active program shall be adopted or changed by the Agency as prescribed in 35 Ill. Adm. Code 602.115.

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

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 (MCL's)

Section

SUBPART G: LEAD AND COPPER

Section

SUBPART K: GENERAL MONITORING AND ANALYTICAL REQUIREMENTS

Section

SUBPART L: MICROBIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

Section

SUBPART M: TURBIDITY MONITORING AND ANALYTICAL REQUIREMENTS

Section

SUBPART N: INORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

Section

SUBPART O: ORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

Section

SUBPART P: THM MONITORING AND ANALYTICAL REQUIREMENTS

SUBPART Q: RADIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

SUBPART T: REPORTING, PUBLIC NOTIFICATION AND RECORDKEEPING

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

Note: Capitalization denotes statutory language.

SUBPART A: GENERAL

Section 611.100 Purpose, Scope and Applicability

a) This Part satisfies the requirement of Section 17.5 of the Environmental Protection Act (Act) [415 ILCS 5/17.5] that the Board adopt regulations which are identical in substance with federal regulations promulgated by the United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) pursuant to Sections 1412(b), 1414(c), 1417(a) and 1445(a) of the Safe Drinking Water Act (SDWA) (42 U.S.C. 300f et seq.)

b) This Part establishes primary drinking water regulations (NPDWRs) pursuant to the SDWA, and also includes additional, related State requirements which are consistent with and more stringent than the U~~.~~S~~.~~ EPA regulations (Section 7.2(a)(6) of the Act). The latter provisions are specifically marked as "additional State requirements". They apply only to community water systems (CWSs).

c) This Part applies to "suppliers", owners and operators of "public water systems" ("PWSs"). PWSs include CWSs, "non-community water systems ("non-CWSs") and "non-transient non-community water systems ("NTNCWSs"), as these terms are defined in Section 611.101.

1) CWS suppliers are required to obtain permits from the Illinois Environmental Protection Agency (Agency) pursuant to 35 Ill. Adm. Code 602.

2) Non-CWS suppliers are subject to additional regulations promulgated by the Illinois Department of Public Health (Public Health) pursuant to Section 9 of the Illinois

Groundwater Protection Act [415 ILCS 55/9], including 77 Ill. Adm. Code 900.

3) Non-CWS suppliers are not required to obtain permits or other approvals from the Agency, or to file reports or other documents with the Agency. Any provision in this Part so providing is to be understood as requiring the non-CWS supplier to obtain the comparable form of approval from, or to file the comparable report or other document with Public Health.

BOARD NOTE: Derived from 40 CFR 141.1 (1994).

d) This Part applies to each PWS, unless the PWS meets all of the following conditions:

1) Consists only of distribution and storage facilities (and does not have any collection and treatment facilities);

2) Obtains all of its water from, but is not owned or operated by, a supplier to which such regulations apply;

3) Does not sell water to any person; and

4) Is not a carrier which conveys passengers in interstate commerce.

BOARD NOTE: Derived from 40 CFR 141.3 (1994).

e) Some subsection labels have been omitted in order to maintain local consistency between U~~.~~S~~. ~~EPA subsection labels and the subsection labels in this Part.

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

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.

"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.

"Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems ~~u~~Using Surface Water Sources", available from U~~.~~S~~. ~~EPA Science and Technology Branch.

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

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

"NCRP" means "National Council on Radiation Protection".

"NTIS" means "National Technical Information Service".

"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.

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

"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.

"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 Technicon.

"U~~.~~S~~. ~~EPA Asbestos Methods-100.1" means Method 100.1, "Analytical Method for Determination of Asbestos Fibers in Water", available from NTIS.

"U~~.~~S~~. ~~EPA Asbestos Methods-100.2" means Method 100.2, "Determination of Asbestos Structures over 10-µm in Length in Drinking Water", available from NTIS.

"U~~.~~S~~. ~~EPA Environmental Inorganics Methods" means "Methods for the Determination of Inorganic Substances in Environmental Samples", available from NTIS.

"U~~.~~S~~. ~~EPA Environmental Metals Methods" means "Methods for the Determination of Metals in Environmental Samples", available from NTIS.

~~"U.S. EPA Inorganic Methods" means "Methods for Chemical Analysis of Water and Wastes", available from NTIS. (Methods 150.1, 150.2, and 245.2, which formerly appeared in this reference, are available from U.S. EPA EMSL.)~~

"U~~.~~S~~. ~~EPA 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.

"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.

"U~~.~~S~~. ~~EPA Technical Notes" means "Technical Notes on Drinking Water Methods", available from NTIS.

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

b) The Board incorporates the following publications by reference:

Access Analytical Systems, Inc., See Environetics, Inc.

Advanced Polymer Systems, 3696 Haven Avenue, Redwood City, CA 94063 415-366-2626:

Amco-AEPA-1 Polymer. See 40 CFR 141.22(a) (1995). 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", 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 Water Works Association.

~~Analytical Technology, Inc. ATI Orion, 529 Main Street, Boston, MA 02129:~~

~~Technical Bulletin 601, "Standard Method of Test for Nitrate in Drinking Water", July, 1994, PN 221890-001 (referred to as "Technical Bulletin 601").~~

~~ASTM. American Society for Testing and Materials, 1976 Race Street, Philadelphia, PA 19103 215-299-5585:~~

~~ASTM Method D511-93 A and B, "Standard Test Methods for Calcium and Magnesium in Water", "Test Method A--complexometric Titration" & "Test Method B--Atomic Absorption Spectrophotometric", approved 1993.~~

~~ASTM Method D515-88 A, "Standard Test Methods for Phosphorus in Water", "Test Method A--Colorimetric Ascorbic Acid Reduction", approved August 19, 1988.~~

~~ASTM Method D859-88, "Standard Test Method for Silica in Water", approved August 19, 1988.~~

~~ASTM Method D1067-92 B, "Standard Test Methods for Acidity or Alkalinity in Water", "Test Method B--Electrometric or Color-Change Titration", approved May 15, 1992.~~

~~ASTM Method D1125-91 A, "Standard Test Methods for Electrical Conductivity and Resistivity of Water", "Test Method A--Field and Routine Laboratory Measurement of Static (Non-Flowing) Samples", approved June 15, 1991.~~

~~ASTM Method D1179-93 B "Standard Test Methods for Fluoride in Water", "Test Method B--Ion Selective Electrode", approved 1993.~~

~~ASTM Method D1293-84 "Standard Test Methods for pH of Water", "Test Method A--Precise Laboratory Measurement" & "Test Method B--Routine or Continuous Measurement", approved October 26, 1984.~~

~~ASTM Method D1688-90 A or C, "Standard Test Methods for Copper in Water", "Test Method A--Atomic Absorption, Direct" & "Test Method C--Atomic Absorbtion, Graphit Furnace", approved March 15, 1990.~~

~~ASTM Method D2036-91 A or B, "Standard Test Methods for Cyanide in Water", "Test Method A--Total Cyanides after Distillation" & "Test Method B--Cyanides Amenable to Chlorination by Difference", approved September 15, 1991.~~

~~ASTM Method D2459-72, "Standard Test Method for Gamma Spectrometry in Water," approved July 28, 1972, discontinued 1988.~~

~~ASTM Method D2907-91, "Standard Test Methods for Microquantities of Uranium in Water by Fluorometry", "Test Method A--Direct Fluorometric" & "Test Method B--Extraction", approved June 15, 1991.~~

~~ASTM Method D2972-93 B or C, "Standard Test Methods for Arsenic in Water", "Test Method B--Atomic Absorption, Hydride Generation" & "Test Method C--Atomic Absorption, Graphite Furnace", approved 1993.~~

~~ASTM Method D3223-91, "Standard Test Method for Total Mercury in Water", approved September 23, 1991.~~

~~ASTM Method D3559-90 D, "Standard Test Methods for Lead in Water", "Test Method D--Atomic Absorption, Graphite Furnace", approved August 6, 1990.~~

~~ASTM Method D3645-93 B, "Standard Test Methods for Beryllium in Water", "Method B--Atomic Absorption, Graphite Furnace", approved 1993.~~

~~ASTM Method D3697-92, "Standard Test Method for Antimony in Water", approved June 15, 1992.~~

~~ASTM Method D3859-93 A, "Standard Test Methods for Selenium in Water", "Method A--Atomic Absorption, Hydride Method", approved 1993.~~

~~ASTM Method D3867-90 A and B, "Standard Test Methods for Nitrite-Nitrate in Water", "Test Method A--~~

~~Automated Cadmium Reduction" & "Test Method B--Manual Cadmium Reduction", approved January 10, 1990.~~

~~ASTM Method D4327-91, "Standard Test Method for Anions in Water by Ion Chromatography", approved October 15, 1991.~~

American Waterworks Association et al., 6666 West Quincy Ave., Denver, CO 80235 303-794-7711:

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

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Method 304, Radium in Water by Precipitation.

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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 (Residual), Amperometric Titration Method.

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.

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

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

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

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ASTM Method D859-88, "Standard Test Method for Silica in Water", approved August 19, 1988.

ASTM Method D1067-92 B, "Standard Test Methods for Acidity or Alkalinity in Water", "Test Method B--Electrometric or Color-Change Titration", approved May 15, 1992.

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Millipore Corporation, Technical Services Department, 80 Ashby Road, Milford, MA 01730 800-654-5476:

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Millipore Corporation, Waters Chromatography Division, 34 Maple St., Milford, MA 01757 800-252-4752:

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BOARD NOTE: U~~.~~S~~. ~~EPA made the following assertion with regard to this reference at 40 CFR 141.23(k)(1) and 141.24(e) and (n)(11) (19945): This document contains other analytical test procedures and approved analytical methods that remain available for compliance monitoring until July 1, 1996.

"Tetra- through Octa- Chlorinated Dioxins and Furans by Isotope Dilution HRGC/HRMS", October, 1994, EPA-821-B-94-005 (referred to as "Dioxin and Furan Method 1613").

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~~"Methods for Chemical Analysis of Water and Wastes" (referred to as "U.S. EPA Inorganic Methods"). See NTIS. (Methods 150.1, 150.2, and 245.2 only)~~

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I-1062-85

I-1601-85

I-1700-85

I-2598-85

I-2601-90

I-2700-85

I-3300-85

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

40 CFR 136, Appendix B and C (19945).

~~40 CFR 141, Subpart C, Appendix C (1994).~~

d) This Part incorporates no later amendments or editions.

(Source: Amended at 19 Ill. Reg. 8613, effective June 20, 1995)

Section 611.130 Special Requirements for Certain Variances and Adjusted Standards

a) Relief from the TTHM MCL.

1) In granting any variance or adjusted standard to a supplier that is a CWS that adds a disinfectant at any part of treatment and which provides water to 10,000 or more persons on a regular basis from the maximum contaminant level for TTHM listed in Section 611.310(c), the Board will require application of the best available technology (BAT) identified at subsection (a)(4) below for that constituent as a condition to the relief, unless the supplier has demonstrated through comprehensive engineering assessments that application of BAT is not technically appropriate and technically feasible for that system, or it would only result in a marginal reduction in TTHM for that supplier.

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

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

i) introduction of off-line water storage for THM precursor reduction;

ii) aeration for TTHM reduction, where geography and climate allow;

iii) introduction of clarification, where not presently practiced;

iv) use of alternative sources of raw water; and

v) use of ozone as an alternative or supplemental disinfectant or oxidant, and

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

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

4) Best available technology for TTHM reduction:

A) use of chloramines as an alternative or supplemental disinfectant,

B) use of chlorine dioxide as an alternative or supplemental disinfectant, or

C) improved existing clarification for THM precursor reduction.

BOARD NOTE: Derived from 40 CFR 142.60 (1994). The restrictions of this subsection do not apply to suppliers regulated for TTHM as an additional state requirement. See the Board Note to Section 611.301(c).

b) Relief from the fluoride MCL.

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

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

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

i) modification of lime softening;

ii) alum coagulation;

iii) electrodialysis;

iv) anion exchange resins;

v) well field management;

vi) use of alternative sources of raw water; and

vii) regionalization, and

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

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

4) Best available technology for fluoride reduction:

A) activated alumina absorption centrally applied, and

B) reverse osmosis centrally applied.

BOARD NOTE: Derived from 40 CFR 142.61 (1994).

c) Relief from an inorganic chemical contaminant, VOC, or SOC MCL.

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

BOARD NOTE: U~~.~~S~~. ~~EPA lists BAT for each SOC and VOC at 40 CFR 142.62(a) (19945), for the purposes of variances and exemptions (adjusted standards). That list is identical to the list at 40 CFR 141.61(b) (1995).~~, with three exceptions: the section 142.62 listing adds PTA ("PAT") for alachlor; lists OX for hexachlorobenzene, instead of GAC; and omits PTA for toxaphene. The Board has chosen to use the section 141.61(a) (Section 611.311) BAT listing because we believe that this leads to greater consistency.~~

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

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

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

3) The Agency shall petition the Board to reconsider or modify a variance or adjusted standard, pursuant to 35 Ill. Adm. Code 101.Subpart K, if it determines that an alternative method identified by the supplier pursuant to subsection (c)(2) above is technically feasible.

BOARD NOTE: Derived from 40 CFR 142.62(a) through (e) (1994).

d) Conditions requiring use of bottled water or point-of-use or point-of-entry devices. In granting any variance or adjusted standard from the maximum contaminant levels for organic and inorganic chemicals or an adjusted standard from the treatment technique for lead and copper, the Board may impose certain conditions requiring the use of bottled water, point-of-entry devices, or point-of-use devices to avoid an unreasonable risk to health, limited as provided in subsections (e) and (f) below.

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

2) Relief from corrosion control treatment. The Board may, when granting an adjusted standard from the corrosion control treatment requirements for lead and copper of Sections 611.351 and 611.352, impose a condition that requires a supplier to use bottled water and point-of-use

devices or other means, but not point-of-entry devices, to avoid an unreasonable risk to health.

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

BOARD NOTE: Derived from 40 CFR 142.62(f) (1994).

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

1) The supplier must develop a monitoring program for Board approval that provides reasonable assurances that the bottled water meets all MCLs of Sections 611.301 and 611.311 and submit a description of this program as part of its petition. The proposed program must describe how the supplier will comply with each requirement of this subsection.

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

3) The supplier shall annually provide the results of the monitoring program to the Agency.

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

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

B) that the approved source of bottled water has conducted monitoring in accordance with 21 CFR 129.80(g)(1) through (3);

C) and that the bottled water does not exceed any MCLs or quality limits as set out in 21 CFR 103.35, 110, and 129.

5) The supplier shall provide the certification required by subsection (e)(4) above to the Agency during the first quarter after it begins supplying bottled water and annually thereafter.

6) The supplier shall assure the provision of sufficient quantities of bottled water to every affected person supplied by the supplier via door-to-door bottled water delivery.

BOARD NOTE: Derived from 40 CFR 142.62(g) (1994).

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

1) that the supplier will operate and maintain the device;

2) that the device provides health protection equivalent to that provided by central treatment;

3) that the supplier will maintain the microbiological safety of the water at all times;

4) that the supplier has established standards for performance, conducted a rigorous engineering design review, and field tested the device;

5) that the operation and maintenance of the device will account for any potential for increased concentrations of heterotrophic bacteria resulting through the use of activated carbon, by backwashing, post-contactor disinfection, and heterotrophic plate count monitoring;

6) that buildings connected to the supplier's distribution system have sufficient devices properly installed, maintained, and monitored to assure that all consumers are protected; and

7) that the use of the device will not cause increased corrosion of lead and copper bearing materials located between the device and the tap that could increase contaminant levels at the tap.

BOARD NOTE: Derived from 40 CFR 142.62(h) (1994).

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

SUBPART B: FILTRATION AND DISINFECTION

Section 611.212 Groundwater under Direct Influence of Surface Water

The Agency shall, pursuant to Section 611.201, require all CWSs to demonstrate whether they are using "groundwater under the direct influence of surface water"~~ by June 29, 1994~~. The Agency shall determine with information provided by the supplier whether a PWS uses "groundwater under the direct influence of surface water" on an individual basis. The Agency shall determine that a groundwater source is under the direct influence of surface water based upon:

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

b) Well construction characteristics and geology with field evaluation.

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

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

3) Wells greater than 50 feet in depth are likely to be under the influence of surface water, unless they include:

A) A surface sanitary seal using bentonite clay, concrete or similar material,

B) A well casing that penetrates consolidated (slowly permeable) material, and

C) A well casing that is only perforated or screened below consolidated (slowly permeable) material.

4) A source which is less than 200 feet from any surface water is likely to be under the influence of surface water.

c) Any structural modifications to prevent the direct influence of surface water and eliminate the potential for Giardia lamblia cyst contamination.

d) Source water quality records. The following are indicative that a source is under the influence of surface water:

1) A record of total coliform or fecal coliform contamination in untreated samples collected over the past three years,

2) A history of turbidity problems associated with the source, or

3) A history of known or suspected outbreaks of Giardia lamblia or other pathogenic organisms associated with surface water (e.g. cryptosporidium)~~, which~~that has been attributed to that source.

e) Significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity or pH.

1) A variation in turbidity of 0.5 NTU or more over one year is indicative of surface influence.

2) A variation in temperature of 9 Fahrenheit degrees or more over one year is indicative of surface influence.

f) Significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity or pH which closely correlate to climatological or surface water conditions are indicative of surface water influence.

1) Evidence of particulate matter associated with the surface water. or,

2) Turbidity or temperature data which correlates to that of a nearby surface water source.

g) Particulate analysis: Significant occurre~~a~~nce of insects or other macroorganisms, algae or large diameter pathogens such as Giardia lamblia is indicative of surface influence.

1) "Large diameter" particulates are those over 7 micrometers.

2) Particulates must be measured as specified in the "Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems using Surface Water Sources", incorporated by reference in Section 611.102.

h) The potential for contamination by small-diameter pathogens, such as bacteria or viruses, does not alone render the source "under the direct influence of surface water".

BOARD NOTE: Derived from the definition of "groundwater under the direct influence of surface water" in 40 CFR 141.2 (19945); from the Preamble at 54 Fed. Reg. 27489 (June 29, 1989); and from the ~~U.S.~~ EPA "Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems using Surface Water Sources", incorporated by reference in Section 611.102.

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

Section 611.220 General Requirements

a) The requirements of this Subpart constitute NPDWRs. This Subpart establishes criteria under which filtration is required as a treatment technique for PWSs supplied by a surface water source and PWSs supplied by a groundwater source under the direct influence of surface water. In addition, these regulations establish treatment technique requirements in lieu of MCLs for the following contaminants: Giardia lamblia, viruses, HPC bacteria, Legionella and turbidity. Each supplier with a surface water source or a groundwater source under the direct influence of surface water shall provide treatment of that source water that complies with these treatment technique requirements. The treatment technique requirements consist of installing and properly operating water treatment processes which reliably achieve:

1) At least 99.9 percent (3-log) removal or inactivation of Giardia lamblia cysts between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer; and

2) At least 99.99 percent (4-log) removal or inactivation of viruses between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer.

b) A supplier using a surface water source or a groundwater source under the direct influence of surface water is considered to be in compliance with the requirements of subsection (a) if:

1) It meets the requirements for avoiding filtration in Sections 611.230 through 611.232 and the disinfection requirements in Section 611.241; or

2) It meets the filtration requirements in Section 611.250 and the disinfection requirements in Section 611.242.

c) Each supplier using a surface water source or a groundwater source under the direct influence of surface water shall have a certified operator pursuant to 35 Ill. Adm. Code 603.103 and the Public Water Supply Operations Act [415 ILCS 45].

BOARD NOTE: Derived from 40 CFR 141.70 (19945). The Public Water Supply Operations Act applies only to CWSs, which are regulated by the Agency. It does not apply to non-CWSs, which are regulated by Public Health. Public Health has its own requirements for personnel operating water supplies that it regulates, e.g., 77 Ill. Adm. Code 900.40(e).

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

SUBPART F: MAXIMUM CONTAMINANT LEVELS (MCL'S)

Section 611.300 Old MCLs for Inorganic Chemicals

a) The old MCLs listed in subsection (b) below for inorganic chemicals apply only to CWS suppliers. Compliance with old MCLs for inorganic chemicals is calculated pursuant to Section 611.612, except that analyses for arsenic are to be performed pursuant to Section 611.611.

BOARD NOTE: Derived from 40 CFR 141.11(a) (19945).

b) The following are the old MCL's for inorganic chemicals~~, with the old MCL for cyanide effective only until the revised MCL for cyanide at Section 611.301(a) becomes effective~~:

Contaminant	Level, mg/L	Additional State Requirement (*)
Arsenic	0.05	
Iron	1.0	*
Manganese	0.15	*
Zinc	5.	*

BOARD NOTE: Derived from 40 CFR 141.11(b) & (c) (19945). This provision, which corresponds with 40 CFR 141.11, was formerly the only listing of MCLs for inorganic parameters. However, U~~.S.~~ EPA added another listing of inorganic MCLs at 40 CFR 141.62 at 56 Fed. Reg. 3594 (Jan. 30, 1991), which corresponds with Section 611.301. ~~Following the changing U.S. EPA codification scheme creates two listings of MCLs: one at this Section and one at Section 611.301. This causes fluoride to appear in both the 40 CFR 141.11(b) and 141.62(b) listings with the same MCL. The Board has deleted the corresponding fluoride MCL from this Section in favor of that which appears at Section 611.301(b).~~

c) This subsection corresponds with 40 CFR 141.11(c) (1995), ~~the substance of which the Board has codified in subsection (b)~~

~~above~~marked as reserved by USEPA. This statement maintains structural parity with the federal rules.

d) Nitrate.

~~1) The Board incorporates by reference 40 CFR 141.11(d) (1994). This incorporation includes no later editions or amendments.~~

~~2)~~ Non-CWSs may exceed the MCL for nitrate under the following circumstances:

A) The nitrate level must not exceed 20 mg/L,

B) The water must not be available to children under six months of age,

C) There will be continuous posting of the fact that the nitrate level exceeds 10 mg/L together with the public health effects information set forth in paragraph (2) of Section 611.Appendix A,

D) The supplier will annually notify local public health authorities and Public Health of the nitrate levels that exceed 10 mg/L, and

E) No adverse public health effects result.

BOARD NOTE: Derived from 40 CFR 141.11(d) (19945). Public Health regulations may impose a nitrate limitation requirement. Those regulations are at 77 Ill. Adm. Code 900.50.

e) The following supplementary condition applies to the MCLs listed in subsection (b) above for iron and manganese:

1) CWS suppliers that serve a population of 1000 or less, or 300 service connections or less, are exempt from the standards for iron and manganese.

2) The Agency may, by special exception permit, allow iron and manganese in excess of the MCL if sequestration tried on an experimental basis proves to be effective. If sequestration is not effective, positive iron or manganese reduction treatment as applicable must be provided. Experimental use of a sequestering agent may be tried only if approved by special exception permit.

BOARD NOTE: This is an additional State requirement.

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

Section 611.301 Revised MCLs for Inorganic Chemicals

a) This subsection corresponds with 40 CFR 141.62(a), reserved by U~~.~~S~~. ~~EPA. This statement maintains structural consistency with U~~.~~S~~. ~~EPA 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. ~~The MCLs for antimony, beryllium, cyanide, nickel, and thallium are effective January 17, 1994.~~

Contaminant	MCL	Units
Antimony	0.006	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
~~Nickel~~	~~0.1~~	~~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 the definition of "initial compliance period" at Section 611.101. The federal secondary MCL for fluoride is 2.0 mg/L. The federal regulations require public notice when water exceeds this level. See 40 CFR 143.3 and 143.5 (1994). The Illinois notice requirement for fluoride above 2.0 mg/L appears at Section 611.858.~~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) U~~.~~S~~. ~~EPA has identified the following as BAT for achieving compliance with the MCL for the inorganic contaminants identified in subsection (b) above, except for fluoride:

Contaminant	BAT(s)
Antimony	C/F RO
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 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 ≤ 10 µg/L RO, BAT only if influent Hg concentrations ≤ 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
C/F	Coagulation/filtration
DDF	Direct and diatomite filtration
GAC	Granular activated carbon
IX	Ion exchange
LIME	Lime softening
RO	Reverse osmosis
CC	Corrosion control
ED	Electrodialysis
Cl_2	Oxidation (chlorine)
UV	Ultraviolet irradiation

BOARD NOTE: Derived from 40 CFR 141.62 (19945).

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

SUBPART G: LEAD AND COPPER

Section 611.357 Monitoring for Water Quality Parameters

All large system suppliers, and all small and medium-sized system suppliers that exceed the lead action level or the copper action level, shall monitor water quality parameters in addition to lead and copper in accordance with this Section. The requirements of this Section are summarized in Section 611.Table G.

a) General Requirements

1) Sample collection methods

A) Use of tap samples. The totality of all tap samples collected by a supplier shall be representative of water quality throughout the distribution system taking into account the number of persons served, the different sources of water, the different treatment methods employed by the supplier, and seasonal variability. Although a supplier may conveniently conduct tap sampling for water quality parameters at sites used for coliform sampling performed pursuant to Subpart L of this Part, it is not required to do so, and a supplier is not required to perform tap sampling pursuant to this Section at taps targeted for lead and copper sampling under Section 611.356(a).

B) Use of entry point samples. Each supplier shall collect samples at entry point(s) to the distribution system from locations representative of each source after treatment. If a supplier draws water from more than one source and the sources are combined before distribution, the supplier must sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water is representative of all sources being used).

2) Number of samples

A) Tap samples. Each supplier shall collect two tap samples for applicable water quality parameters during each six-month monitoring period specified under subsections (b) through (e) below from the number of sites indicated in the first column of Section 611.Table E.

B) Entry point samples.

i) Initial monitoring. Each supplier shall collect two samples for each applicable water quality parameter at each entry point to the distribution system during each six-month monitoring period specified in subsection (b) below.

ii) Subsequent monitoring. Each supplier shall collect one sample for each applicable water quality parameter at each entry point to the distribution system during each six-month monitoring period specified in subsections (c) through (e) below.

b) Initial Sampling.

1) Large systems. Each large system supplier shall measure the applicable water quality parameters specified in subsection (b)(3) below at taps and at each entry point to the distribution system during each six-month monitoring period specified in Section 611.356(d)(1).

2) Small and medium-sized systems. Each small and medium-sized system supplier shall measure the applicable water quality parameters specified in subsection (b)(3) below at the locations specified in this subsection during each six-month monitoring period specified in Section 611.356(d)(1) during which the supplier exceeds the lead action level or the copper action level.

3) Water quality parameters:

A) pH;

B) alkalinity;

C) orthophosphate, when an inhibitor containing a phosphate compound is used;

D) silica, when an inhibitor containing a silicate compound is used;

E) calcium;

F) conductivity; and

G) water temperature.

c) Monitoring after installation of corrosion control.

1) Large systems. Each large system supplier that installs optimal corrosion control treatment pursuant to Section 611.351(d)(4) shall measure the water quality parameters at the locations and frequencies specified in subsections (c)(3) and (c)(4) below during each six-month monitoring period specified in Section 611.356(d)(2)(~~i~~A).

2) Small and medium-sized systems. Each small or medium-sized system that installs optimal corrosion control treatment pursuant to Section 611.351(e)(5) shall measure the water quality parameters at the locations and frequencies specified in subsections (c)(3) and (c)(4) below during each six-month monitoring period specified in Section 611.356(d)(2)(~~ii~~B) in which the supplier exceeds the lead action level or the copper action level.

3) Tap water samples, two samples at each tap for each of the following water quality parameters:

A) pH;

B) alkalinity;

C) orthophosphate, when an inhibitor containing a phosphate compound is used;

D) silica, when an inhibitor containing a silicate compound is used; and

E) calcium, when calcium carbonate stabilization is used as part of corrosion control.

4) Entry point samples, one sample at each entry point to the distribution system every two weeks (bi-weekly) for each of the following water quality parameters:

A) pH;

B) when alkalinity is adjusted as part of optimal corrosion control, a reading of the dosage rate of the chemical used to adjust alkalinity, and the alkalinity concentration; and

C) when a corrosion inhibitor is used as part of optimal corrosion control, a reading of the dosage rate of the inhibitor used, and the concentration of orthophosphate or silica (whichever is applicable).

d) Monitoring after the Agency specifies water quality parameter values for optimal corrosion control.

1) Large systems. After the Agency has specified the values for applicable water quality control parameters reflecting optimal corrosion control treatment pursuant to Section 611.352(f), each large system supplier shall measure the applicable water quality parameters in accordance with subsection (c) above during each six-month monitoring period specified in Section 611.356(d)(3).

2) Small and medium-sized systems. Each small or medium-sized system supplier shall conduct such monitoring during each six-month monitoring period specified in Section 611.356(d)(3) in which the supplier exceeds the lead action level or the copper action level.

3) Confirmation sampling.

A) A supplier may take a confirmation sample for any water quality parameter value no later than 3 days after it took the original sample it seeks to confirm.

B) If a supplier takes a confirmation sample, it must average the result obtained from the confirmation sample with the result obtained from the original sample it seeks to confirm, and the supplier shall use the average of these two results for any compliance determinations under Section 611.352(g).

C) The Agency shall delete the results that it determines are due to obvious sampling errors from this calculation.

e) Reduced monitoring.

1) Reduction in tap monitoring. A supplier that has maintained the range of values for the water quality parameters reflecting optimal corrosion control treatment during each of two consecutive six-month monitoring periods under subsection (d) above shall continue monitoring at the entry point(s) to the distribution system as specified in subsection (c)(4) above. Such a supplier may collect two samples from each tap for applicable water quality parameters from the reduced number of sites indicated in the second column of Section 611.Table E during each subsequent six-month monitoring period.

2) Reduction in monitoring frequency.

A) Stages of reductions.

i) Annual monitoring. A supplier that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified pursuant to Section 611.352(f) during three consecutive years of monitoring may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in subsection (e)(1) above from every six months to annually.

ii) Triennial monitoring. A supplier that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified pursuant to Section 611.352(f) during three consecutive years of annual monitoring under subsection (e)(2)(A)(i) above may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in subsection (e)(1) above from annually to once every three years.

B) A supplier that conducts sampling annually or every three years shall collect these samples evenly throughout the calendar year so as to reflect seasonal variability.

C) Any supplier subject to a reduced monitoring frequency pursuant to this subsection that fails to operate within the range of values for the water quality parameters specified pursuant to Section 611.352(f) shall resume tap water sampling in accordance with the number and frequency requirements of subsection (d) above.

f) Additional monitoring by systems. The results of any monitoring conducted in addition to the minimum requirements of this section shall be considered by the supplier and the Agency in making any determinations (i.e., determining concentrations of water quality parameters) under this Section or Section 611.352.

BOARD NOTE: Derived from 40 CFR 141.87 (19945).

(Source: Amended at 20 Ill. Reg. ________, effective ________________________)

SUBPART K: GENERAL MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.510 Special Monitoring for Unregulated Contaminants

a) Monitoring for Phase I unregulated contaminants.

1) All CWS and NTNCWS suppliers shall begin monitoring for the contaminants listed in subsection (a)(5) no later than the the following dates:

A) Less than 3300 persons served: January 1, 1991.

B) 3300 to 10,000 persons served: January 1, 1989.

C) More than 10,000 persons served: January 1, 1988.

2) SWS and mixed system suppliers shall sample at points in the distribution system representative of each water source or at entry points to the distribution system after any applica~~i~~tion of treatment. The minimum number of samples is one year of quarterly samples per water source.

3) GWS suppliers shall sample at points of entry to the distribution system representative of each well after any application of treatment. The minimum number of samples is one sample per entry point to the distribution system.

4) The Agency may issue a SEP pursuant to Section 610.110 to require a supplier to use a confirmation sample for results

that it finds dubious for whatever reason. The Agency must state its reasons for issuing the SEP if the SEP is Agency-initiated.

5) List of Phase I unregulated chemical contaminants:

Bromobenzene
Bromodichloromethane
Bromoform
Bromomethane
Chlorobenzene
Chlorodibromomethane
Chloroethane
Chloroform
Chloromethane
o-Chlorotoluene
p-Chlorotoluene
Dibromomethane
m-Dichlorobenzene
1,1-Dichloroethane
1,3-Dichloropropane
2,2-Dichloropropane
1,1-Dichloropropene
1,3-Dichloropropene
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
1,2,3-Trichloropropane

6) This subsection corresponds with 40 CFR 141.40(f), reserved by U~~.~~S~~.~~ EPA. This statement maintains structural consistency with U~~.~~S~~.~~ EPA rules.

7) Analyses performed pursuant to subsection (a) shall be conducted using the following U~~.~~S~~.~~ EPA Organic Methods: Methods 502.2 or 524.2 or their equivalent as approved by the Agency, except that analyses for bromodichloromethane, bromoform, chlorodibromomethane, and chloroform may also be performed using U~~.~~S~~.~~ EPA Organic Methods: Method 551, and analyses for 1,2,3-trichloropropane may also be performed using U~~.~~S~~.~~ EPA Organic Methods: Method 504.1, all of which are incorporated by reference in Section 611.102.

BOARD NOTE: Subsection (b) derived from 40 CFR 141.40(a) through (m) (19945)~~, as amended at 59 Fed. Reg. 62469 (Dec. 5, 1994)~~. The Board has adopted no counterpart to 40 CFR 141.40(h), which the Board has codified at subsection (c) below; 141.40(i), which pertains to the ability of suppliers to grandfather data up until a date long since expired; 141.41(j), an optional U~~.~~S~~.~~ EPA provision relating to monitoring 15 additional contaminants that U~~.~~S~~.~~ EPA does not require for state programs; 141.40(k), which pertains to notice to the Agency by smaller suppliers up until a date long since expired in lieu of sampling; 141.40(l), which the Board has adopted at subsection (d) below; and 141.40(m), an optional provision that pertains to composite sampling. Otherwise, the structure of this Section directly corresponds with 40 CFR 141.40(a) through (m) (19945).

b) Monitoring for Phase V unregulated contaminants. Monitoring of the unregulated organic contaminants listed in subsection (b)(11) below and the unregulated inorganic contaminants listed in subsection (b)(12) below shall be conducted as follows:

1) Each CWS and NTNCWS supplier shall take four consecutive quarterly samples at each sampling point for each contaminant listed in subsection (b)(11) below and report the results to the Agency. Monitoring must be completed by December 31, 1995.

2) Each CWS and NTNCWS supplier shall take one sample at each sampling point for each contaminant listed in subsection (b)(12) below and report the results to the Agency. Monitoring must be completed by December 31, 1995.

3) Each CWS and NTNCWS supplier may apply to the Agency for a SEP pursuant to Section 611.110 that releases it from any of the requirements of subsections (b)(1) and (b)(2) above.

4) The Agency shall grant a SEP pursuant to Section 611.110 as follows:

A) From any requirement of subsection (b)(1) above based on consideration of the factors set forth at Section 611.110(e), and

B) From any requirement of subsection (b)(2) above if previous analytical results indicate contamination would not occur, provided this data was collected after January 1, 1990.

5) A GWS supplier shall take a minimum of one sample at every entry point to the distribution system that is representative of each well after treatment ("sampling point").

6) A SWS or mixed system supplier shall take a minimum of one sample at points in the distribution system that are representative of each source or at each entry point to the system after treatment ("sampling point").

7) If the system draws water from more than one source and sources are combined before distribution, the supplier shall

sample at an entry point during periods of normal operating conditions (when water representative of all sources is being used).

8) The Agency may issue a SEP pursuant to Section 610.110 to require a supplier to use a confirmation sample for results that it finds dubious for whatever reason. The Agency must state its reasons for issuing the SEP if the SEP is Agency-initiated.

9) Suppliers shall take samples at the same sampling point unless the Agency has granted a SEP allowing another sampling point because conditions make another sampling point more representative of the water from each source or treatment plant.

BOARD NOTE: Subsection (b)(9) above corresponds with duplicate segments of 40 CFR 141.40(n)(5) and (n)(6) (19945), which correspond with subsections (b)(5) and (b)(6) above. The Board has adopted no counterpart to 40 CFR 141.40(n)(9), an optional provision that pertains to composite sampling. Otherwise, the structure of this Section directly corresponds with 40 CFR 141.40(n) (19945).

10) Instead of performing the monitoring required by this subsection, a CWS and NTNCWS supplier serving fewer than 150 service connections may send a letter to the Agency stating that the PWS is available for sampling. This letter must be sent to the Agency by January 1, 1994. The supplier shall not send such samples to the Agency, unless requested to do so by the Agency.

11) List of Phase V unregulated organic contaminants with methods required for analysis (all methods are from U~~.~~S~~. ~~EPA Organic Methods unless otherwise noted; all are incorporated by reference in Section 611.102):

Contaminant	U~~.~~S~~. ~~EPA Organic Methods

Aldicarb	531.1, Standard Methods, 18th ed.: Method 6610
Aldicarb sulfone	531.1, Standard Methods, 18th ed.: Method 6610
Aldicarb sulfoxide	531.1, Standard Methods, 18th ed.: Method 6610
Aldrin	505, 508, 508.1, 525.2
Butachlor	507, 525.2
Carbaryl	531.1, Standard Methods, 18th ed.: Method 6610
Dicamba	515.1, 515.2, 555
Dieldrin	505, 508, 508.1, 525.2
3-Hydroxycarbofuran	531.1, Standard Methods, 18th ed.: Method 6610
Methomyl	531.1, Standard Methods, 18th ed.: Method 6610
Metolachlor	507, 508.1, 525.2
Metribuzin	507, 508.1, 525.2
Propachlor	508, 508.1, 525.2

12) List of unregulated inorganic contaminants (all methods indicated are incorporated by reference in Section 611.102):

Contaminant	Methods
Sulfate	U~~.~~S~~.~~ EPA Environmental Inorganic Methods: Methods 300.0, 375.2; ASTM Method D 4327-91; Standard Methods, 18th ed.: Methods 4110, 4500-SO_4^{2-} F, 4500-SO_4^{2-} C & 4500-SO_4^{2-} D

BOARD NOTE: Subsection (b) derived from 40 CFR 141.40(n) (19945)~~, as amended at 59 Fed. Reg. 62471 (Dec. 5, 1994)~~.

c) Analyses performed pursuant to this Section must be conducted by a laboratory certified pursuant to Section 611.646(q).

BOARD NOTE: Subsection (c) derived from 40 CFR 141.40 (h) (19945).

d) All CWS and NTNCWS suppliers shall repeat the monitoring required by this Section no less frequently than every five years, starting from the dates specified in subsections (a)(1) and (b)(2) above.

BOARD NOTE: Subsection (d) derived from 40 CFR 141.40 (l) (19945).

(Source: Amended at 20 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 shall 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) Multiple-Tube Fermentation (MTF) Technique, as set forth in Standard Methods, 18th ed.: Methods 9221 A and B:

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) Membrane Filter (MF) Technique, as set forth in Standard Methods, 18th ed.: Methods 9222 A, B, and C.

3) P-A Coliform Test, as set forth in: Standard Methods, 18th ed.: Method 9221 D:

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 ed.: Method 9223. (The ONPG-MUG test is also known as the autoanalysis colilert system.)

5) Colisure Test from Millipore Corporation, incorporated by reference in Section 611.102. (The Colisure Test must be incubated for 28 hours before examining results. If an examination of the results at 28 hours is not convenient, then results may be examined at any time between 28 hours and 48 hours.)

BOARD NOTE: U~~.~~S~~. ~~EPA 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, U~~.~~S~~. ~~EPA 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.

d) This subsection corresponds with 40 CFR 141.21(f)(4), which U~~.~~S~~.~~ EPA has marked "reserved". This statement maintains structural consistency with the federal regulations.

e) Suppliers shall 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 a 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.: 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 shall conduct analysis of E. coli in accordance with one of the following analytical methods:

1) EC medium supplemented with 50 μg/L of MUG (final concentration). EC medium is as described in subsection (e). 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) 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). Nutrient ~~A~~agar is described in Standard Methods, 18th ed.: Method 9221 B, at pages 9-47 to 9-48. This test is used to determine if a total coliform-positive sample, as determined by the MF technique or any other method in which a membrane filter is used, contains E. coli. Transfer the membrane filter containing a total coliform colony or colonies to nutrient agar supplemented with 100 μg/L MUG (final concentration). After incubating the agar plate at 35° Celsius for 4 hours, 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 Section 611.Appendix D. (The Autoanalysis Coliert 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 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, from Millipore Corporation, incorporated by reference in Section 611.102.

g) As an option to the method set forth in subsection (f)(3), 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).

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 incorpora~~ta~~tions by reference are located at Section 611.102. This statement maintains structural parity with U~~.~~S~~. ~~EPA regulations.

BOARD NOTE: Derived from 40 CFR 141.21(f) (19945)~~, as amended at 59 Fed. Reg. 62466 (Dec. 5, 1994)~~.

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

Section 611.531 Analytical Requirements

Only the analytical method(s) specified in this Section may be used to demonstrate compliance with the requirements of Subpart B. Measurements for pH, temperature, turbidity and RDCs must be conducted under the supervision of a certified operator. Measurements for total coliforms, fecal coliforms and HPC must be conducted by a laboratory certified by the Agency to do such analysis. The following procedures must be performed by the following methods, incorporated by reference in Section 611.102:

a) A supplier shall:

1) Conduct analysis of pH in accordance with one of the methods listed at Section 611.611; and

2) Conduct analyses ~~to~~of total coliforms, fecal coliforms, heterotrophic bacteria, and turbidity~~, and temperature~~ in accordance with one of the following methods, and by using analytical test procedures contained in U~~.~~S~~. ~~EPA Technical Notes, incorporated by reference in Section 611.102:

A) Total Coliforms:

BOARD NOTE: The time from sample collection to initiation of analysis must not exceed 8 hours. The supplier is encouraged but not required to hold samples below 10° C during transit.

i) Total coliform fermentation technique: Standard Methods, 18th ed.: Method 9221 A, B, and C.

BOARD NOTE: Lactose broth, as commercially available, may be used in lieu of lauryl tryptose broth if the supplier conducts at least 25 parallel tests between this medium and lauryl tryptose broth using the water normally tested and this comparison demonstrates that the false-positive rate and false-negative rate for total coliforms, using lactose broth, is less than 10 percent. If inverted tubes are used to detect gas production, the media should cover these tubes at least one-half to two-thirds after the sample is added. No requirement exists to run the completed phase on 10 percent of all total coliform-positive confirmed tubes.

ii) Total coliform membrane filter technique: Standard Methods, 18th ed.: Method 9222 A, B, and C.

iii) ONPG-MUG test (also known as the autoanalysis colilert system): Standard Methods, 18th ed.: Method 9223.

BOARD NOTE: U~~.~~S~~. ~~EPA included the P-A Coliform and Colisure Tests for testing finished water under the coliform rule, under Section 611.526, but did not include them for the purposes of the surface water treatment rule, under this Section, for which quantitation of total coliforms is necessary. For these reasons, U~~.~~S~~.~~ EPA included Standard Methods: Method 9221 C for the surface water treatment rule, but did not include it for the purposes of the total coliform rule, under Section 611.526.

B) Fecal Coliforms:

BOARD NOTE: The time from sample collection to initiation of analysis must not exceed 8 hours. The supplier is encouraged but not required to hold samples below 10° C during transit.

i) Fecal coliform ~~MPN~~ procedure: Standard Methods, 18th ed.: Method 9221 E.

BOARD NOTE: A-1 broth may be held up to three months in a tightly closed screwcap tube at 4° C (39° F).

ii) Fecal Coliform~~s~~ Membrane Filter Procedure: Standard Methods, 18th ed.: Method 9222 D.

C) Heterotrophic bacteria: Pour plate method: Standard Methods, 18th ed.: Method 9215 B.

BOARD NOTE: The time from sample collection to initiation of analysis must not exceed 8 hours. The supplier is encouraged but not required to hold samples below 10° C during transit.

D) Turbidity:

i) Nephelometric method: Standard Methods, 18th ed.: Method 2130 B.

ii) Nephelometric method: U~~.~~S~~.~~ EPA Environmental Inorganic Methods: Method 180.1

ii) GLI Method 2.

E) Temperature: Standard Methods, 18th ed.: Method 2550.

b) A supplier shall measure residual disinfectant concentrations with one of the following analytical methods from Standard Methods, 18th ed., and by using analytical test procedures contained in U~~.~~S~~.~~ EPA Technical Notes, incorporated by reference in Section 611.102:

1) Free chlorine:

A) Amperometric Titration: Method 4500-Cl D.

B) DPD Ferrous Titrimetric: Method 4500-Cl F.

C) DPD Colimetric: Method 4500-Cl G.

D) Syringaldazine (FACTS): Method 4500-Cl H.

2) Total chlorine:

A) Amperometric Titration: Method 4500-Cl D.

B) Amperometric Titration (low level measurement): Method 4500-Cl E.

C) DPD Ferrous Titrimetric: Method 4500-Cl F.

D) DPD Colimetric: Method 4500-Cl G.

E) Iodometric Electrode: Method 4500-Cl I.

3) Chlorine dioxide:

A) Amperometric Titration: Method 4500-ClO_2 C or E.

B) DPD Method: Method 4500-ClO_2 D.

4) Ozone: Indigo Method: Method 4500-O_3 B.

5) Alternative test methods: The Agency may grant a SEP pursuant to Section 611.110 that allows a supplier to use alternative chlorine test methods as follows:

A) DPD colorimetric test kits: Residual disinfectant concentrations for free chlorine and combined chlorine may also be measured by using DPD colorimetric test kits.

B) Continuous monitoring for free and total chlorine: Free and total chlorine residuals may be measured continuously by adapting a specified chlorine residual method for use with a continuous monitoring instrument, provided the chemistry, accuracy, and precision remain the same. Instruments used for continuous monitoring must be calibrated with a grab sample measurement at least every five days or as otherwise provided by the Agency.

BOARD NOTE: Suppliers may use a five-tube test or a ten-tube test.

BOARD NOTE: Derived from 40 CFR 141.74(a) (1994~~4~~5)~~, as amended at 59 Fed. Reg. 62470 (Dec. 5, 1994)~~.

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

SUBPART N: INORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.591 Violation of State MCL

This Section applies to old MCLs that are marked as "additional State requirements" at Section 611.300, and for which no specific monitoring, reporting or public notice requirements are specified below. If the result~~s~~ of analysis pursuant to this Part indicates that the level of any contaminant exceeds the old MCL, the CWS supplier shall:

a) Report to the Agency within seven days, and initiate three additional analyses at the same sampling point within one month;

b) Notify the Agency and give public notice as specified in Subpart T, when the average of four analyses, rounded to the same number of significant figures as the old MCL for the contaminant in question, exceeds the old MCL; and,

c) Monitor, after public notification, at a frequency designated by the Agency, and continue monitoring until the old MCL has not been exceeded in two consecutive samples, or until a monitoring schedule as a condition of a variance or enforcement action becomes effective.

BOARD NOTE: This is an additional State requirement.

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

Section 611.600 Applicability

The following types of suppliers shall conduct monitoring to determine compliance with the old MCLs in Section 611.300 and the revised MCLs in 611.301, as appropriate, in accordance with this Subpart:

a) CWS suppliers.

b) NTNCWS suppliers.

c) Transient non-CWS suppliers to determine compliance with the nitrate and nitrite MCLs.

BOARD NOTE: Derived from 40 CFR 141.23 (preamble) (19945).

d) Detection limits. The following are detection limits for purposes of this Subpart (MCLs from Section 611.301 are set forth for information purposes only):

Contaminant	MCL (mg/L, except asbestos)	Method	Detection Limit (mg/L)
Antimony	0.006	Atomic absorption-furnace technique	0.003
		Atomic absorption-furnace technique (stabilized	0.0008

		temperature)	
		Inductively-coupled plasma-mass spectrometry	0.0004
		Atomic absorption-gaseous hydride technique	0.001
Asbestos	7 MFL	Transmission electron microscopy	0.01 MFL
Barium	2	Atomic absorption- furnace technique	0.002
		Atomic absorption- direct aspiration technique	0.1
		Inductively-coupled plasma arc furnace	0.002
		Inductively-coupled plasma	0.001
Beryllium	0.004	Atomic absorption-furnace technique	0.0002
		Atomic absorption-furnace technique (stabilized temperature)	0.00002
		Inductively-coupled plasma (using a 2x preconcentration step; a lower MDL is possible using 4x preconcentration)	0.0003
		Inductively-coupled plasma-mass spectrometry	0.0003
Cadmium	0.005	Atomic absorption- furnace technique	0.0001
		Inductively-coupled plasma	0.001
Chromium	0.1	Atomic absorption- furnace technique	0.001
		Inductively-coupled plasma	0.007
		Inductively-coupled plasma	0.001
Cyanide	0.2	Distillation,	0.02

		spectrophotometric (screening method for total cyanides)	
		Automated distillation, spectrophotometric (screening method for total cyanides)	0.005
		Distillation, selective electrode (screening method for total cyanides)	0.05
		Distillation, amenable, spectrophotometric (for free cyanides)	0.02
Mercury	0.002	Manual cold vapor technique	0.0002
		Automated cold vapor technique	0.0002
Nickel	~~0.1~~No MCL	Atomic absorption-furnace technique	0.001
		Atomic absorption-furnace technique (stabilized temperature)	0.0006
		Inductively-coupled plasma (using a 2x preconcentration step; a lower MDL is possible using 4x preconcentration)	0.005
		Inductively-coupled plasma-mass spectrometry	0.0005
Nitrate (as N)	10	Manual cadmium reduction	0.01
		Automated hydrazine reduction	0.01
		Automated cadmium reduction	0.05
		Ion-selective electrode	1
		Ion chromatography	0.01
Nitrite (as N)	1	Spectrophotometric	0.01

		Automated cadmium reduction	0.05
		Manual cadmium reduction	0.01
		Ion chromatography	0.004
Selenium	0.05	Atomic absorption- furnace technique	0.002
		Atomic absorption- gaseous hydride technique	0.002
Thallium	0.002	Atomic absorption-furnace technique	0.001
		Atomic absorption-furnace technique (stabilized temperature)	0.0007
		Inductively-coupled plasma-mass spectrometry	0.0003

BOARD NOTE: Derived from 40 CFR 141.23 preamble and paragraph (a)(4)(i) (19945). See the Board Note at Section 611.301(b) relating to the MCL for nickel.

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

Section 611.601 Monitoring Frequency

Monitoring shall be conducted as follows:

a) Required sampling.

1) Each supplier shall take a minimum of one sample at each sampling point at the times required by Section 611.610 beginning in the initial compliance period.

2) Each sampling point must produce samples that are representative of the water from each source after treatment or from each treatment plant, as required by subsection (b) below. The total number of sampling points must be representative of the water delivered to users throughout the PWS.

3) The supplier shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant and the Agency has granted a SEP pursuant to subsection (b)(5) below.

b) Sampling points.

1) Sampling points for GWSs. Unless otherwise provided by SEP, a GWS supplier shall take at least one sample from each of the following points: each entry point that is representative of each well after treatment.

2) Sampling points for SWSs and mixed systems. Unless otherwise provided by SEP, a SWS or mixed system supplier shall take at least one sample from each of the following points:

A) Each entry point after the application of treatment; or

B) A point in the distribution system that is representative of each source after treatment.

3) If a system draws water from more than one source, and the sources are combined before distribution, the supplier shall sample at an entry point during periods of normal operating conditions when water is representative of all sources being used.

4) Additional sampling points. The Agency shall, by SEP, designate additional sampling points in the distribution system or at the consumer's tap if it determines that such samples are necessary to more accurately determine consumer exposure.

5) Alternative sampling points. The Agency shall, by SEP, approve alternate sampling points if the supplier demonstrates that the points are more representative than the generally required point.

c) This subsection corresponds with 40 CFR 141.23(a)(4), an optional U~~.~~S~~. ~~EPA provision relating to compositing of samples that U~~.~~S~~.~~ EPA does not require for state programs. This statement maintains structural consistency with U~~.~~S~~. ~~EPA rules.

d) The frequency of monitoring for the following contaminants must be in accordance with the following Sections:

1) Asbestos: Section 611.602;

2) Antimony, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, and thallium: Section 611.603;

3) Nitrate: Section 611.604; and

4) Nitrite: Section 611.605.

BOARD NOTE: Derived from 40 CFR 141.23(a) and (c) (19945).

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

Section 611.606 Confirmation Samples

a) Where the results of sampling for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, or thallium indicate a level in excess of the MCL, the supplier shall collect one additional sample as soon as possible after the supplier receives notification of the analytical result (but no later than two weeks after the initial sample was taken) at the same sampling point.

b) Where nitrate or nitrite sampling results indicate a level in excess of the MCL, the supplier shall take a confirmation sample within 24 hours after the supplier's receipt of notification of the analytical results of the first sample.

1) Suppliers unable to comply with the 24-hour sampling requirement must, based on the initial sample, notify the persons served in accordance with Section 611.851.

2) Suppliers exercising this option must take and analyze a confirmation sample within two weeks of notification of the analytical results of the first sample.

c) Averaging rules are specified in Section 611.609. The Agency shall delete the original or confirmation sample if it determines that a sampling error occurred, in which case the confirmation sample will replace the original sample.

BOARD NOTE: Derived from 40 CFR 141.23(f) (19945).

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

Section 611.611 Inorganic Analysis

Analytical methods are from documents incorporated by reference in Section 611.102. These are mostly referenced by a short name defined by Section 611.102(a). Other abbreviations are defined in Section 611.101.

a) Analysis for the following contaminants must be conducted using the following methods or an alternative approved pursuant to Section 611.480. Criteria for analyzing arsenic, chromium, copper, lead, nickel, selenium, sodium, and thallium with digestion or directly without digestion, and other analytical procedures, are contained in U~~.~~S~~. ~~EPA Technical Notes, incorporated by reference in Section 611.102. (This document also contains approved analytical test methods that remain available for compliance monitoring until July 1, 1996. These methods will not be available for use after July 1, 1996.)

1) Antimony:

  A) Inductively-coupled plasma-mass spectrometry: U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.8.

  B) Atomic absorption, hydride technique: ASTM Method D3697-92.

  C) Atomic absorption, platform furnace technique: U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.9.

  D) Atomic absorption, furnace technique: Standard Methods, 18th ed.: Method 3113 B.

2) Arsenic:

  A) Inductively-coupled Plasma:

    i) U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.7, or

    ii) Standard Methods, 18th ed.: Method 3120 B.

  B) Inductively-coupled plasma-mass spectrometry: U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.8.

  C) Atomic absorption, platform furnace technique: U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.9.

  D) Atomic Absorption, furnace technique:

    i) ASTM Method D2972-93 C, or

    ii) Standard Methods, 18th ed.: Method 3113 B.

  E) Atomic absorption, hydride technique:

    i) ASTM Method D2972-93 B, or

    ii) Standard Methods, 18th ed.: Method 3114 B.

3) Asbestos: Transmission electron microscopy: U~~.~~S~~.~~ EPA Asbestos Methods-100.1 and U~~.~~S~~.~~ EPA Asbestos Methods-100.2.

4) Barium:

  A) Inductively-coupled plasma:

i) U~~.~~S~~. ~~EPA Environmental Metals Methods: Method 200.7, or

ii) Standard Methods, 18th ed.: Method 3120 B.

B) Inductively-coupled plasma-mass spectrometry: U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.8.

C) Atomic absorption, direct aspiration technique: Standard Methods, 18th ed.: Method 3111 D.

D) Atomic absorption, furnace technique: Standard Methods, 18th ed.: Method 3113 B.

5) Beryllium:

A) Inductively-coupled plasma:

i) U~~.~~S~~. ~~EPA Environmental Metals Methods: Method 200.7, or

ii) Standard Methods, 18th ed.: Method 3120 B.

B) Inductively-coupled plasma-mass spectrometry: U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.8.

C) Atomic absorption, platform furnace technique: U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.9.

D) Atomic absorption, furnace technique:

i) ASTM Method D3645-93 B, or

ii) Standard Methods, 18th ed.: Method 3113 B.

6) Cadmium:

A) Inductively-coupled plasma arc furnace: U~~.~~S~~. ~~EPA Environmental Metals Methods: Method 200.7.

B) Inductively-coupled plasma-mass spectrometry: U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.8.

C) Atomic absorption, platform furnace technique: U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.9.

D) Atomic absorption, furnace technique: Standard Methods, 18th ed.: Method 3113 B.

7) Chromium:

A) Inductively-coupled plasma arc furnace:

i) U~~.~~S~~. ~~EPA Environmental Metals Methods: Method 200.7, or

ii) Standard Methods, 18th ed.: Method 3120 B.

B) Inductively-coupled plasma-mass spectrometry: U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.8.

C) Atomic absorption, platform furnace technique: U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.9.

D) Atomic absorption, furnace technique: Standard Methods, 18th ed.: Method 3113 B.

8) Cyanide:

A) Manual distillation (Standard Methods, 18th ed.: Method 4500-CN$^-$ C), followed by spectrophotometric, amenable:

i) ASTM Method D2036-91 B,

ii) Standard Methods, 18th ed.: Method 4500-CN$^-$ G.

B) Manual distillation (Standard Methods, 18th ed.: Method 4500-CN$^-$ C), followed by spectrophotometric, manual:

i) ASTM Method D2036-91 A,

ii) Standard Methods, 18th ed.: Method 4500-CN$^-$ E, or

iii) USGS Methods: Method I-3300-85.

C) Manual distillation (Standard Methods, 18th ed.: Method 4500-CN$^-$ C), followed by semiautomated spectrophotometric: U~~.~~S~~. ~~EPA Environmental Inorganic Methods: Method 335.4.

D) Selective electrode: Standard Methods, 18th ed.: Method 4500-CN$^-$ F.

9) Fluoride:

A) Ion Chromatography:

i) U~~.~~S~~. ~~EPA Environmental Inorganic Methods: Method 300.0,

ii) ASTM Method D4327-91, or

iii) Standard Methods, 18th ed.: Method 4110 B.

B) Manual distillation, colorimetric SPADNS: Standard Methods, 18th ed.: Method 4500-F^- B and D.

C) Manual electrode:

i) ASTM Method D1179-93B, or

ii) Standard Methods, 18th ed.: Method 4500-F^- C.

D) Automated electrode: Technicon Methods: Method 380-75WE.

E) Automated alizarin:

i) Standard Methods, 18th ed.: Method 4500-F^- E, or

ii) Technicon Methods: Method 129-71W.

10) Mercury:

A) Manual cold vapor technique:

i) U~~.~~S~~. ~~EPA Environmental Metals Methods: Method 245.1,

ii) ASTM Method D3223-91, or

iii) Standard Methods, 18th ed.: Method 3112 B.

B) Automated cold vapor technique: U~~.~~S~~. ~~EPA Inorganic Methods: Method 245.2.

C) Inductively-coupled plasma-mass spectrometry: U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.8.

11) Nickel:

A) Inductively-coupled plasma:

i) U~~.~~S~~. ~~EPA Environmental Metals Methods: Method 200.7, or

ii) Standard Methods, 18th ed.: Method 3120 B.

B) Inductively-coupled plasma-mass spectrometry: U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.8.

C) Atomic absorption, platform furnace technique: U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.9;

D) Atomic absorption, direct aspiration technique: Standard Methods, 18th ed.: Method 3111 B;

E) Atomic absorption, furnace technique: Standard Methods, 18th ed.: Method 3113 B;

12) Nitrate:

A) Ion chromatography:

i) U~~.~~S~~. ~~EPA Environmental Inorganic Methods: Method 300.0,

ii) ASTM Method D4327-91,

iii) Standard Methods, 18th ed.: Method 4110 B, or

iv) Waters Test Method B-1011, available from Millipore Corporation.

B) Automated cadmium reduction:

i) U~~.~~S~~. ~~EPA Environmental Inorganic Methods: Method 353.2,

ii) ASTM Method D3867-90 A, or

iii) Standard Methods, 18th ed.: Method 4500-NO_3^- F.

C) Ion selective electrode:

i) Standard Methods, 18th ed.: Method 4500-NO_3^- D, or

ii) Technical Bulletin 601.

D) Manual cadmium reduction:

i) ASTM Method D3867-90 B, or

ii) Standard Methods, 18th ed.: Method 4500-NO_3^- E.

13) Nitrite:

A) Ion chromatography:

i) U~~.~~S~~. ~~EPA Environmental Inorganic Methods: Method 300.0,

ii) ASTM Method D4327-91,

iii) Standard Methods, 18th ed.: Method 4110 B, or

iv) Waters Test Method Method B-1011, available from Millipore Corporation.

B) Automated cadmium reduction:

i) U~~.~~S~~. ~~EPA Environmental Inorganic Methods: Method 353.2,

ii) ASTM Method D3867-90 A, or

iii) Standard Methods, 18th ed.: Method 4500-NO_3^- F.

C) Manual cadmium reduction:

i) ASTM Method D3867-90 B, or

ii) Standard Methods, 18th ed.: Method 4500-NO_3^- E.

D) Spectrophotometric: Standard Methods, 18th ed.: Method 4500-NO_2^- B.

14) Selenium:

A) Atomic absorption, hydride:

i) ASTM Method D3859-93 A, or

ii) Standard Methods, 18th ed.: Method 3114 B.

B) Inductively-coupled plasma-mass spectrometry: U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.8.

C) Atomic absorption, platform furnace technique: U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.9.

D) Atomic absorption, furnace technique:

i) ASTM Method D3859-93 B, or

ii) Standard Methods, 18th ed.: Method 3113 B.

15) Thallium:

A) Inductively-coupled plasma-mass spectrometry: U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.8.

B) Atomic absorption, platform furnace technique: U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.9.

16) Lead:

A) Atomic absorption, furnace technique:

i) ASTM Method D3559-90 D, or

ii) Standard Methods, 18th ed.: Method 3113 B.

B) Inductively-coupled plasma-mass spectrometry: U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.8.

C) Atomic absorption, platform furnace technique: U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.9.

17) Copper:

A) Atomic absorption, furnace technique:

i) ASTM Method D1688-90 C, or

ii) Standard Methods, 18th ed.: Method 3113 B.

B) Atomic absorption, direct aspiration:

i) ASTM Method D1688-90 A, or

ii) Standard Methods, 18th ed.: Method 3111 B.

C) Inductively-coupled plasma:

i) U~~.~~S~~. ~~EPA Environmental Metals Methods: Method 200.7, or

ii) Standard Methods, 18th ed.: Method 3120 B.

D) Inductively-coupled plasma-mass spectrometry: U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.8.

E) Atomic absorption, platform furnace technique: U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.9.

18) pH:

A) Electrometric:

i) U~~.~~S~~. ~~EPA Inorganic Methods: Method 150.1,

ii) ASTM Method D1293-84, or

iii) Standard Methods, 18th ed.: Method 4500-H^+ B.

B) U~~.~~S~~. ~~EPA Inorganic Methods: Method 150.2.

19) Conductivity: Conductance:

A) ASTM Method D1125-91 A, or

B) Standard Methods, 18th ed.: Method 2510 B.

20) Calcium:

A) EDTA titrimetric:

i) ASTM Method D511-93 A, or

ii) Standard Methods, 18th ed.: Method 3500-Ca D.

B) Atomic absorption, direct aspiration:

i) ASTM Method D511-93 B, or

ii) Standard Methods, 18th ed.: Method 3111 B.

C) Inductively-coupled plasma:

i) U~~.~~S~~. ~~EPA Environmental Metals Methods: Method 200.7, or

ii) Standard Methods, 18th ed.: Method 3120 B.

21) Alkalinity:

A) Titrimetric:

i) ASTM Method D1067-92 B, or

ii) Standard Methods, 18th ed.: Method 2320 B.

B) Electrometric titration: USGS Methods: Method I-1030-85.

22) Orthophosphate (unfiltered, without digestion or hydrolysis):

A) Automated colorimetric, ascorbic acid:

i) U~~.~~S~~.~~ EPA Environmental Inorganic Methods: Method 365.1, or

ii) Standard Methods, 18th ed.: Method 4500-P F.

B) Single reagent colorimetric, ascorbic acid:

i) ASTM Method D515-88 A, or

ii) Standard Methods, 18th ed.: Method 4500-P E.

C) Colorimetric, phosphomolybdate: USGS Methods: Method I-1601-85.

D) Colorimetric, phosphomolybdate, automated-segmented flow: USGS Methods: Method I-2601-90.

E) Colorimetric, phosphomolybdate, automated discrete: USGS Methods: Method I-2598-85.

F) Ion Chromatography:

i) U~~.~~S~~.~~ EPA Environmental Inorganic Methods: Method 300.0,

ii) ASTM Method D4327-91, or

iii) Standard Methods, 18th ed.: Method 4110.

23) Silica:

A) Colorimetric, molybdate blue: USGS Methods: Method I-1700-85.

B) Colorimetric, molybdate blue, automated-segmented flow: USGS Methods: Method I-2700-85.

C) Colorimetric: ASTM Method D859-88.

D) Molybdosilicate: Standard Methods, 18th ed.: Method 4500-Si D.

E) Heteropoly blue: Standard Methods, 18th ed.: Method 4500-Si E.

F) Automated method for molybdate-reactive silica: Standard Methods, 18th ed.: Method 4500-Si F.

G) Inductively-coupled plasma:

i) U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.7, or

ii) Standard Methods, 18th ed.: Method 3120 B.

24) Temperature: thermometric: Standard Methods, 18th ed.: Method 2550~~ B~~.

25) Sodium:

A) Inductively-coupled plasma: U~~.~~S~~.~~ EPA Environmental Metals Methods: Method 200.7.

B) Atomic absorption, direct aspiration: Standard Methods, 18th ed.: Method 3111 B.

b) Sample collection for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, nitrate, nitrite, selenium, and thallium pursuant to Sections 611.600 through 611.604 must be conducted using the following sample preservation, container and maximum holding time procedures:

1) Antimony:

A) Preservative: Concentrated nitric acid to pH less than 2.~~ If nitric acid cannot be used because of shipping restrictions, the sample may initially be preserved by icing and immediately shipping it to the laboratory. Upon receipt in the laboratory, the sample must be acidified with concentrated nitric acid to pH less than 2. At the time of sample analysis, the sample container must be thoroughly rinsed with 1:1 nitric acid; washings must be added to the sample.~~

B) Plastic or glass (hard or soft).

C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 6 months.

2) Asbestos:

A) Preservative: Cool to 4° C.

B) Plastic or glass (hard or soft).

3) Barium:

A) Preservative: Concentrated nitric acid to pH less than 2.~~ If nitric acid cannot be used because of shipping restrictions, the sample may initially be~~

~~preserved by icing and immediately shipping it to the laboratory. Upon receipt in the laboratory, the sample must be acidified with concentrated nitric acid to pH less than 2. At the time of sample analysis, the sample container must be thoroughly rinsed with 1:1 nitric acid; washings must be added to the sample.~~

B) Plastic or glass (hard or soft).

C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 6 months.

4) Beryllium:

A) Preservative: Concentrated nitric acid to pH less than 2.~~ If nitric acid cannot be used because of shipping restrictions, the sample may initially be preserved by icing and immediately shipping it to the laboratory. Upon receipt in the laboratory, the sample must be acidified with concentrated nitric acid to pH less than 2. At the time of sample analysis, the sample container must be thoroughly rinsed with 1:1 nitric acid; washings must be added to the sample.~~

B) Plastic or glass (hard or soft).

C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 6 months.

5) Cadmium:

A) Preservative: Concentrated nitric acid to pH less than 2.~~ If nitric acid cannot be used because of shipping restrictions, the sample may initially be preserved by icing and immediately shipping it to the laboratory. Upon receipt in the laboratory, the sample must be acidified with concentrated nitric acid to pH less than 2. At the time of sample analysis, the sample container must be thoroughly rinsed with 1:1 nitric acid; washings must be added to the sample.~~

B) Plastic or glass (hard or soft).

C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 6 months.

6) Chromium:

A) Preservative: Concentrated nitric acid to pH less than 2.~~ If nitric acid cannot be used because of shipping restrictions, the sample may initially be preserved by icing and immediately shipping it to the laboratory. Upon receipt in the laboratory, the sample must be acidified with concentrated nitric acid to pH less than 2. At the time of sample analysis, the sample container must be thoroughly rinsed with 1:1 nitric acid; washings must be added to the sample.~~

B) Plastic or glass (hard or soft).

C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 6 months.

7) Cyanide:

A) Preservative: Cool to 4°C. Add sodium hydroxide to pH > 12. See the analytical methods for information on sample preservation.

B) Plastic or glass (hard or soft).

C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 14 days.

8) Fluoride:

A) Preservative: None.

B) Plastic or glass (hard or soft).

C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 1 month.

9) Mercury:

A) Preservative: Concentrated nitric acid to pH less than 2.~~ If nitric acid cannot be used because of shipping restrictions, the sample may initially be preserved by icing and immediately shipping it to the laboratory. Upon receipt in the laboratory, the sample must be acidified with concentrated nitric acid to pH less than 2. At the time of sample analysis, the sample container must be thoroughly rinsed with 1:1 nitric acid; washings must be added to the sample.~~

B) Plastic or glass (hard or soft).

C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 28 days.

10) Nickel:

A) Preservative: Concentrated nitric acid to pH less than 2.~~ If nitric acid cannot be used because of shipping restrictions, the sample may initially be preserved by icing and immediately shipping it to the laboratory. Upon receipt in the laboratory, the sample must be acidified with concentrated nitric acid to pH less than 2. At the time of sample analysis, the sample container must be thoroughly rinsed with 1:1 nitric acid; washings must be added to the sample.~~

B) Plastic or glass (hard or soft).

C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 6 months.

11) Nitrate, chlorinated:

A) Preservative: Cool to 4° C.

B) Plastic or glass (hard or soft).

C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 28 days.

12) Nitrate, non-chlorinated:

A) Preservative: Concentrated sulfuric acid to pH less than 2.

B) Plastic or glass (hard or soft).

C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 14 days.

13) Nitrite:

A) Preservative: Cool to 4° C.

B) Plastic or glass (hard or soft).

C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 48 hours.

14) Selenium:

A) Preservative: Concentrated nitric acid to pH less than 2.~~ If nitric acid cannot be used because of shipping restrictions, the sample may initially be preserved by icing and immediately shipping it to the laboratory. Upon receipt in the laboratory, the sample must be acidified with concentrated nitric acid to pH less than 2. At the time of sample analysis, the sample container must be thoroughly rinsed with 1:1 nitric acid; washings must be added to the sample.~~

B) Plastic or glass (hard or soft).

C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 6 months.

15) Thallium:

A) Preservative: Concentrated nitric acid to pH less than 2.~~ If nitric acid cannot be used because of shipping restrictions, the sample may initially be preserved by icing and immediately shipping it to the laboratory. Upon receipt in the laboratory, the sample must be acidified with concentrated nitric acid to pH less than 2. At the time of sample analysis, the sample container must be thoroughly rinsed with 1:1 nitric acid; washings must be added to the sample.~~

B) Plastic or glass (hard or soft).

C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 6 months.

c) Analyses under this Subpart must be conducted by laboratories that received approval from U~~.~~S~~. ~~EPA or the Agency. Laboratories may conduct sample analyses for antimony, beryllium, cyanide, nickel, and thallium under provisional certification granted by the Agency until January 1, 1996. The Agency shall certify laboratories to conduct analyses for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, nitrate, nitrite, selenium, and thallium if the laboratory:

1) Analyzes performance evaluation samples, provided by the Agency pursuant to 35 Ill. Adm. Code 183.125(c), that

include those substances at levels not in excess of levels expected in drinking water; and

2) Achieves quantitative results on the analyses within the following acceptance limits:

A) Antimony: ± 30% at greater than or equal to 0.006 mg/L.

~~BOARD NOTE: 40 CFR 141.23(k)(3) (1994), as renumbered, actually lists "6#30" as the acceptance limit for antimony. The Board corrected this to "± 30%" based on the discussion at 57 Fed. Reg. 31801 (July 17, 1992).~~

B) Asbestos: 2 standard deviations based on study statistics.

C) Barium: ± 15% at greater than or equal to 0.15 mg/L.

D) Beryllium: ± 15% at greater than or equal to 0.001 mg/L.

E) Cadmium: ± 20% at greater than or equal to 0.002 mg/L.

F) Chromium: ± 15% at greater than or equal to 0.01 mg/L.

G) Cyanide: ± 25% at greater than or equal to 0.1 mg/~~l~~L.

H) Fluoride: ± 10% at 1 to 10 mg/L.

I) Mercury: ± 30% at greater than or equal to 0.0005 mg/L.

J) Nickel: ± 15 % at greater than or equal to 0.01 mg/L.

K) Nitrate: ± 10% at greater than or equal to 0.4 mg/L.

L) Nitrite: ± 15% at greater than or equal to 0.4 mg/L.

M) Selenium: ± 20% at greater than or equal to 0.01 mg/L.

N) Thallium: ± 30% at greater than or equal to 0.002 mg/L.

BOARD NOTE: Subsection (e) is derived from the table to 40 CFR 141.23(k)(2) (19945)~~, as renumbered at 59 Fed. Reg. 62466 (Dec. 5, 1994),~~ and the discussion at

57 Fed. Reg. 31809 (July 17, 1992). Section 611.609 is derived from 40 CFR 141.23(k) (19945)~~, as amended at 59 Fed. Reg. 62466 (Dec. 5, 1994)~~.

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

Section 611.630 Special Monitoring for Sodium

a) CWS suppliers shall collect and analyze one sample per plant at the entry point of the distribution system for the determination of sodium concentration levels; samples must be collected and analyzed annually for CWSs utilizing surface water sources in whole or in part, and at least every three years for CWSs utilizing solely groundwater sources. The minimum number of samples required to be taken by the supplier is based on the number of treatment plants used by the supplier, except that multiple wells drawing raw water from a single aquifer may, with the Agency approval, be considered one treatment plant for determining the minimum number of samples. The Agency shall require the supplier to collect and analyze water samples for sodium more frequently in locations where the sodium content is variable.

b) The CWS supplier shall report to the Agency the results of the analyses for sodium within the first 10 days of the month following the month in which the sample results were received or within the first 10 days following the end of the required monitoring period as specified by SEP, whichever of these is first. If more than annual sampling is required, the supplier shall report the average sodium concentration within 10 days of the month following the month in which the analytical results of the last sample used for the annual average was received.

c) The CWS supplier shall notify the Agency and appropriate local public health officials of the sodium levels by written notice by direct mail within three months. A copy of each notice required to be provided by this subsection must be sent to the Agency within 10 days of its issuance.

d) Analyses for sodium must be conducted as directed in Section 611.611(a).

BOARD NOTE: Derived from 40 CFR 141.41 (1994), as amended at 59 Fed. Reg. 62470 (Dec. 5, 1994).

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

SUBPART O: ORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.641 Old MCLs

a) An analysis of substances for the purpose of determining compliance with the old MCLs of Section 611.310 must be made as follows:

1) The Agency shall, by SEP, require CWS suppliers utilizing surface water sources to collect samples during the period of the year when contamination by pesticides is most likely to occur. The Agency shall require the supplier to repeat these analyses at least annually.

2) The Agency shall, by SEP, require CWS suppliers utilizing only groundwater sources to collect samples at least once every three years.

b) If the result of an analysis made pursuant to subsection (a) indicates that the level of any contaminant exceeds its old MCL, the CWS supplier shall report to the Agency within 7 days and initiate three additional analyses within one month.

c) When the average of four analyses made pursuant to subsection (a), rounded to the same number of significant figures as the MCL for the substance in question, exceeds the old MCL, the CWS supplier shall report to the Agency and give notice to the public pursuant to Subpart T. Monitoring after public notification must be at a frequency designated by the Agency and must continue until the MCL has not been exceeded in two successive samples or until a monitoring schedule as a condition to a variance, adjusted standard or enforcement action becomes effective.

d) Analysis made to determine compliance with the old MCLs of Section 611.310 must be made in accordance with the appropriate methods specified in Section 611.64~~8(l)~~5.

BOARD NOTE: This provision now applies only to state-only MCLs. It was formerly derived from 40 CFR 141.24(a) through (e), which U~~.~~S~~. ~~EPA removed and reserved at 59 Fed. Reg. 34323 (July 1, 1994).

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

Section 611.645 Analytical Methods for Organic Chemical Contaminants

Analysis for the Section 611.311(a) VOCs under Section 611.646~~,~~; the Section 611.311(c) SOCs under Section 611.648~~,~~; ~~and ~~the Section 611.310 old organic MCLs under Section 611.641; and for THMs, TTHMs, and TTHM potential shall be conducted using the methods listed in this Section or by equivalent methods as approved by the Agency pursuant to Section 611.480. All methods are from U~~.~~S~~.~~ EPA Organic Methods unless otherwise indicated.

Volatile Organic Chemical Contaminants (VOCs):

Contaminant	Analytical Methods
Benzene	502.2, 524.2
Carbon tetrachloride	502.2, 524.2, 551
Chlorobenzene	502.2, 524.2
1,2-Dichlorobenzene	502.2, 524.2
1,4-Dichlorobenzene	502.2, 524.2
1,2-Dichloroethane	502.2, 524.2
cis-Dichloroethylene	502.2, 524.2
trans-Dichloroethylene	502.2, 524.2
Dichloromethane	502.2, 524.2
1,2-Dichloropropane	502.2, 524.2
Ethylbenzene	502.2, 524.2
Styrene	502.2, 524.2
Tetrachloroethylene	502.2, 524.2, 551
1,1,1-Trichloroethane	502.2, 524.2, 551
Trichloroethylene	502.2, 524.2, 551
Toluene	502.2, 524.2
1,2,4-Trichlorobenzene	502.2, 524.2
1,1-Dichloroethylene	502.2, 524.2
1,1,2-Trichloroethane	502.2, 524.2
Vinyl chloride	502.2, 524.2
Xylenes (total)	502.2, 524.2

Synthetic Organic Chemical Contaminants (SOCs):

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

2,4-D	515.1, 515.2, 555
2,4,5-TP (Silvex)	515.1, 515.2, 555
Alachlor	505*, 507, 508.1, 525.2
Atrazine	505*, 507, 508.1, 525.2
Benzo(a)pyrene	525.2, 550, 550.1
Carbofuran	531.1, Standard Methods, 18th ed.: Method 6610
Chlordane	505, 508, 508.1, 525.2
Dalapon	515.1, 552.1
Di(2-ethylhexyl)adipate	506, 525.2
Di(2-ethylhexyl)phthalate	506, 525.2
Dibromochloropropane (DBCP)	504.1, 551
Dinoseb	515.1, 515.2, 555
Diquat	549.1
Endothall	548.1
Endrin	505, 508, 508.1, 525.2
Ethylene Dibromide (EDB)	504.1, 551
Glyphosate	547, Standard Methods, 18th ed.: Method 6651
Heptachlor	505, 508, 508.1, 525.2
Heptachlor Epoxide	505, 508, 508.1, 525.2
Hexachlorobenzene	505, 508, 508.1, 525.2

Hexachlorocyclopentadiene	505, 508, 508.1, 525.2
Lindane	505, 508, 508.1, 525.2
Methoxychlor	505, 508, 508.1, 525.2
Oxamyl	531.1, Standard Methods, 18th ed.: Method 6610
PCBs (measured for compliance purposes as decchlorobiphenyl)	508A
PCBs (qualitatively identified as Araclors)	505, 508
Pentachlorophenol	515.1, 515.2, 525.2, 555
Picloram	515.1, 515.2, 555
Simazine	505*, 507, 508.1, 525.2
Toxaphene	505, 508, 525.2

Total Trihalomethanes (TTHMs):

Contaminant	Analytical Methods
Total Trihalomethanes (TTHMs), Trihalomethanes (THMs), and Maximum Total Trihalomethane Potential	502.2, 524.2, 551

State-Only MCLs (for which a method is not listed above):

Contaminant	Analytical Methods
Aldrin	505, 508, 508.1, 525.2
DDT	505, 508
Dieldrin	505, 508, 508.1, 525.2

* denotes that for the particular contaminant, a nitrogen-phosphorus detector should be substituted for the electron capture detector in method 505 (or

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

BOARD NOTE: Derived from 40 CFR 141.24(e) (19945)~~, as added at 59 Fed. Reg. 62469 (Dec. 5, 1994)~~.

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

Section 611.646 Phase I, Phase II, and Phase V Volatile Organic Contaminants

Monitoring of the Phase I, Phase II, and Phase V VOCs for the purpose of determining compliance with the MCL must be conducted as follows:

a) Definitions. As used in this Section:

"Detect" and "detection" means that the contaminant of interest is present at a level greater than or equal to the "detection limit".

"Detection limit" means 0.0005 mg/L.

BOARD NOTE: Derived from 40 CFR 141.24(f)(7), (f)(11), (f)(14)(i), and (f)(20) (1994). This is a "trigger level" for Phase I, Phase II, and Phase V VOCs inasmuch as it prompts further action. The use of the term "detect" in this section is not intended to include any analytical capability of quantifying lower levels of any contaminant, or the "method detection limit". Note, however that certain language at the end of federal paragraph (f)(20) is capable of meaning that the "method detection limit" is used to derive the "detection limit". The Board has chosen to disregard that language at the end of paragraph (f)(20) in favor of the more direct language of paragraphs (f)(7) and (f)(11).

"Method detection limit", as used in subsections (q) and (t) below means the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte.

BOARD NOTE: Derived from 40 CFR 136, Appendix B (1994). The method detection limit is determined by the procedure set forth in 40 CFR 136, Appendix B. See subsection (t) below.

b) Required sampling. Each supplier shall take a minimum of one sample at each sampling point at the times required in subsection (u) below.

c) Sampling points.

1) Sampling points for GWSs. Unless otherwise provided by SEP, a GWS supplier shall take at least one sample from each of the following points: each entry point that is representative of each well after treatment.

2) Sampling points for SWSs and mixed systems. Unless otherwise provided by SEP, a SWS or mixed system supplier shall sample from each of the following points:

A) Each entry point after treatment; or

B) Points in the distribution system that are representative of each source.

3) The supplier shall take each sample at the same sampling point unless the Agency has granted a SEP that designates another location as more representative of each source, treatment plant, or within the distribution system.

4) If a system draws water from more than one source, and the sources are combined before distribution, the supplier shall sample at an entry point during periods of normal operating conditions when water is representative of all sources being used.

BOARD NOTE: Subsections (b) and (c) above derived from 40 CFR 141.24(f)(1) through (f)(3) (1994).

d) Each CWS and NTNCWS supplier shall take four consecutive quarterly samples for each of the Phase I VOCs, excluding vinyl chloride, and Phase II VOCs during each compliance period, beginning in the compliance period starting in the initial compliance period.

e) Reduction to annual monitoring frequency. If the initial monitoring for the Phase I, Phase II, and Phase V VOCs as allowed in subsection (r)(1) below has been completed by December 31, 1992, and the supplier did not detect any of the Phase I VOCs, including vinyl chloride, Phase II, or Phase V VOCs, then the supplier shall take one sample annually beginning in the initial compliance period.

f) GWS reduction to triennial monitoring frequency. After a minimum of three years of annual sampling, GWS suppliers that have not previously detected any of the Phase I VOCs, including vinyl chloride, Phase II, or Phase V VOCs shall take one sample during each three-year compliance period.

g) A CWS or NTNCWS supplier that has completed the initial round of monitoring required by subsection (d) above and which did not detect any of the Phase I VOCs, including vinyl chloride, Phase II, and Phase V VOCs may apply to the Agency for a SEP pursuant to Section 611.110 that releases it from the requirements of subsection (e) or (f) above. A supplier that serves fewer than 3300 service connections may apply to the Agency for a SEP pursuant to Section 611.110 that releases it from the requirements of subsection (d) above as to 1,2,4-trichlorobenzene.

BOARD NOTE: Derived from 40 CFR 141.24(f)(7) and (f)(10) (1994), and the discussion at 57 Fed. Reg. 31825 (July 17, 1992). Provisions concerning the term of the waiver appear below in subsections (i) and (j) below. The definition of "detect", parenthetically added to the federal counterpart paragraph is in subsection (a) above.

h) Vulnerability Assessment. The Agency shall consider the factors of Section 611.110(e) in granting a SEP from the requirements of subsections (d), (e), or (f) above sought pursuant to subsection (g) above.

i) A SEP issued to a GWS pursuant to subsection (g) above is for a maximum of six years, except that a SEP as to the subsection (d) above monitoring for 1,2,4-trichlorobenzene shall apply only to the initial round of monitoring. As a condition of a SEP, except as to a SEP from the initial round of subsection (d) above monitoring for 1,2,4-trichlorobenzene, the supplier shall, within 30 months after the beginning of the period for which the waiver was issued, reconfirm its vulnerability assessment required by subsection (h) above and submitted pursuant to subsection (g) above, by taking one sample at each sampling point and reapplying for a SEP pursuant to subsection (g) above. Based on this application, the Agency shall either:

1) If it determines that the PWS meets the standard of Section 611.610(e), issue a SEP that reconfirms the prior SEP for the remaining three-year compliance period of the six-year maximum term; or,

2) Issue a new SEP requiring the supplier to sample annually.

BOARD NOTE: This provision does not apply to SWSs and mixed systems.

j) Special considerations for SEPs for SWS and mixed systems.

1) The Agency must determine that a SWS is not vulnerable before issuing a SEP pursuant to a SWS supplier. A SEP issued to a SWS or mixed system supplier pursuant to subsection (g) above is for a maximum of one compliance period; and

2) The Agency may require, as a condition to a SEP issued to a SWS or mixed supplier, that the supplier take such samples for Phase I, Phase II, and Phase V VOCs at such a frequency as the Agency determines are necessary, based on the vulnerability assessment.

BOARD NOTE: There is a great degree of similarity between 40 CFR 141.24(f)(7), the provision applicable to GWSs, and 40 CFR 141.24(f)(10), the provision for SWSs. The Board has consolidated the common requirements of both paragraphs into subsection (g) above. Subsection (j) above represents the elements unique to SWSs and mixed systems, and subsection (i) above relates to GWSs. Although 40 CFR 141.24(f)(7) and (f)(10) are silent as to mixed systems, the Board has included mixed systems with SWSs because this best follows the federal scheme for all other contaminants.

k) If one of the Phase I VOCs, excluding vinyl chloride, Phase II, or Phase V VOCs is detected in any sample, then:

1) The supplier shall monitor quarterly for that contaminant at each sampling point that resulted in a detection.

2) Annual monitoring.

A) The Agency shall grant a SEP pursuant to Section 611.110 that allows a supplier to reduce the monitoring frequency to annual at a sampling point if it determines that the sampling point is reliably and consistently below the MCL.

B) A request for a SEP must include the following minimal information:

i) For a GWS, two quarterly samples.

ii) For a SWS or mixed system, four quarterly samples.

C) In issuing a SEP, the Agency shall specify the level of the contaminant upon which the "reliably and consistently" determination was based. All SEPs that allow less frequent monitoring based on an Agency "reliably and consistently" determination shall include a condition requiring the supplier to resume quarterly monitoring pursuant to subsection (k)(1) above if it violates the MCL specified by Section 611.311.

3) Suppliers that monitor annually shall monitor during the quarter(s) that previously yielded the highest analytical result.

4) Suppliers that do not detect a contaminant at a sampling point in three consecutive annual samples may apply to the Agency for a SEP pursuant to Section 611.110 that allows it to discontinue monitoring for that contaminant at that point, as specified in subsection (g) above.

5) A GWS supplier that has detected one or more of the two-carbon contaminants listed in subsection (k)(5)(A) below shall monitor quarterly for vinyl chloride as described in subsection (k)(5)(B) below, subject to the limitation of subsection (k)(5)(C) below.

A) Two-carbon contaminants (Phase I or II VOC):

1,2-Dichloroethane (Phase I)
1,1-Dichloroethylene (Phase I)
cis-1,2-Dichloroethylene (Phase II)
trans-1,2-Dichloroethylene (Phase II)
Tetrachloroethylene (Phase II)
1,1,1-Trichloroethylene (Phase I)
Trichloroethylene (Phase I)

B) The supplier shall sample quarterly for vinyl chloride at each sampling point at which it detected one or more of the two-carbon contaminants listed in subsection (k)(5)(A) above.

C) The Agency shall grant a SEP pursuant to Section 611.110 that allows the supplier to reduce the monitoring frequency for vinyl chloride at any sampling point to once in each three-year compliance period if it determines that the supplier has not detected vinyl chloride in the first sample required by subsection (k)(5)(B) above.

l) Quarterly monitoring following MCL violations.

1) Suppliers that violate an MCL for one of the Phase I VOCs, including vinyl chloride, Phase II, or Phase V VOCs, as determined by subsection (o) below, shall monitor quarterly for that contaminant, at the sampling point where the violation occurred, beginning the next quarter after the violation.

2) Annual monitoring.

A) The Agency shall grant a SEP pursuant to Section 611.110 that allows a supplier to reduce the monitoring frequency to annually if it determines that the sampling point is reliably and consistently below the MCL.

B) A request for a SEP must include the following minimal information: four quarterly samples.

C) In issuing a SEP, the Agency shall specify the level of the contaminant upon which the "reliably and consistently" determination was based. All SEPs that allow less frequent monitoring based on an Agency "reliably and consistently" determination shall include a condition requiring the supplier to resume quarterly monitoring pursuant to subsection (l)(1) above if it violates the MCL specified by Section 611.311.

D) The supplier shall monitor during the quarter(s) that previously yielded the highest analytical result.

m) Confirmation samples. The Agency may issue a SEP pursuant to Section 610.110 to require a supplier to use a confirmation sample for results that it finds dubious for whatever reason. The Agency must state its reasons for issuing the SEP if the SEP is Agency-initiated.

1) If a supplier detects any of the Phase I, Phase II, or Phase V VOCs in a sample, the supplier shall take a confirmation sample as soon as possible, but no later than 14 days after the supplier receives notice of the detection.

2) Averaging is as specified in subsection (o) below.

3) The Agency shall delete the original or confirmation sample if it determines that a sampling error occurred, in which case the confirmation sample will replace the original or confirmation sample.

n) This subsection corresponds with 40 CFR 141.24(f)(14), an optional U~~.~~S~~.~~ EPA provision relating to compositing of samples that U~~.~~S~~.~~ EPA does not require for state programs. This statement maintains structural consistency with U~~.~~S~~.~~ EPA rules.

o) Compliance with the MCLs for the Phase I, Phase II, and Phase V VOCs must be determined based on the analytical results obtained at each sampling point.

1) For suppliers that conduct monitoring at a frequency greater than annual, compliance is determined by a running annual average of all samples taken at each sampling point.

   A) If the annual average of any sampling point is greater than the MCL, then the supplier is out of compliance.

   B) If the initial sample or a subsequent sample would cause the annual average to exceed the MCL, then the supplier is out of compliance immediately.

   C) Any samples below the detection limit shall be deemed as zero for purposes of determining the annual average.

2) If monitoring is conducted annually, or less frequently, the supplier is out of compliance if the level of a contaminant at any sampling point is greater than the MCL. If a confirmation sample is taken, the determination of compliance is based on the average of two samples.

3) When the portion of the distribution system that is out of compliance is separable from other parts of the distribution system and has no interconnections, the supplier may issue the public notice required by Subpart T of this Part only to persons served by that portion of the distribution system that is not in compliance.

p) This provision corresponds with 40 CFR 141.24(f)(16) (1994), which U~~.~~S~~. ~~EPA removed and reserved at 59 Fed. Reg. 62468 (Dec. 5, 1994). This statement maintains structural consistency with the federal regulations.

q) Analysis under this Section must only be conducted by laboratories that have received certification by U~~.~~S~~. ~~EPA or the Agency according to the following conditions:

1) To receive certification to conduct analyses for the Phase I VOCs, excluding vinyl chloride, Phase II VOCs, and Phase V VOCs, the laboratory must:

   A) Analyze performance evaluation samples that include these substances provided by the Agency pursuant to 35 Ill. Adm. Code 183.125(c);

   B) Achieve the quantitative acceptance limits under subsections (q)(1)(C) and (q)(1)(D) below for at least 80 percent of the Phase I VOCs, excluding vinyl chloride, Phase II VOCs, except vinyl chloride, or Phase V VOCs;

C) Achieve quantitative results on the analyses performed under subsection (q)(1)(A) above that are within ± 20 percent of the actual amount of the substances in the performance evaluation sample when the actual amount is greater than or equal to 0.010 mg/L;

D) Achieve quantitative results on the analyses performed under subsection (q)(1)(A) above that are within ± 40 percent of the actual amount of the substances in the performance evaluation sample when the actual amount is less than 0.010 mg/L; and

E) Achieve a method detection limit of 0.0005 mg/L, according to the procedures in 40 CFR 136, appendix B, incorporated by reference in Section 611.102.

2) To receive certification to conduct analyses for vinyl chloride the laboratory must:

A) Analyze performance evaluation samples provided by the Agency pursuant to 35 Ill. Adm. Code 183.125(c);

B) Achieve quantitative results on the analyses performed under subsection (q)(2)(A) above that are within ± 40 percent of the actual amount of vinyl chloride in the performance evaluation sample;

C) Achieve a method detection limit of 0.0005 mg/L, according to the procedures in 40 CFR 136, appendix B, incorporated by reference in Section 611.102; and

D) Obtain certification pursuant to subsection (q)(1) above for Phase I VOCs, excluding vinyl chloride, Phase II VOCs, and Phase V VOCs.

r) Use of existing data.

1) The Agency shall allow the use of data collected after January 1, 1988 but prior to the effective date of this Section, pursuant to Agency sample request letters, if it determines that the data are generally consistent with the requirements of this Section.

2) The Agency shall grant a SEP pursuant to Section 611.110 that allows a supplier to monitor annually beginning in the initial compliance period if it determines that the supplier did not detect any Phase I, Phase II, or Phase V VOC using existing data allowed pursuant to subsection (r)(1) above.

s) The Agency shall, by SEP, increase the number of sampling points or the frequency of monitoring if it determines that it is necessary to detect variations within the PWS.

t) Each laboratory certified for the analysis of Phase I, Phase II, or Phase V VOCs pursuant to subsection (q)(1) or (q)(2) above shall:

1) Determine the method detection limit (MDL), as defined in 40 CFR 136, Appendix B, incorporated by reference in Section 611.102, at which it is capable of detecting the Phase I, Phase II, and Phase V VOCs; and,

2) Achieve an MDL for each Phase I, Phase II, and Phase V VOC that is less than or equal to 0.0005 mg/L.

u) Each supplier shall monitor, within each compliance period, at the time designated by the Agency by SEP pursuant to Section 611.110.

BOARD NOTE: Derived from 40 CFR 141.24(f) (1994).

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

Section 611.648 Phase II, Phase IIB, and Phase V Synthetic Organic Contaminants

Analysis of the Phase II, Phase IIB, and Phase V SOCs for the purposes of determining compliance with the MCL must be conducted as follows:

a) Definitions. As used in this Section:

"Detect or detection" means that the contaminant of interest is present at a level greater than or equal to the "detection limit".

"Detection limit" means the level of the contaminant of interest that is specified in subsection (r) below.

BOARD NOTE: This is a "trigger level" for Phase II, Phase IIB, and Phase V SOCs inasmuch as it prompts further action. The use of the term "detect" or "detection" in this section is not intended to include any analytical capability of quantifying lower levels of any contaminant, or the "method detection limit".

b) Required sampling. Each supplier shall take a minimum of one sample at each sampling point at the times required in subsection (q) below.

BOARD NOTE: U~~.~~S~~.~~ EPA stayed the effective date of the MCLs for aldicarb, aldicarb sulfone, and aldicarb sulfoxide at 57 Fed. Reg.

22178 (May 27, 1991). Section 611.311(c) includes this stay. However, despite the stay of the effectiveness of the MCLs for these three SOCs, suppliers must monitor for them.

c) Sampling points.

1) Sampling points for GWSs. Unless otherwise provided by SEP, a GWS supplier shall take at least one sample from each of the following points: each entry point that is representative of each well after treatment.

2) Sampling points for SWSs and mixed systems. Unless otherwise provided by SEP, a SWS or mixed system supplier shall sample from each of the following points:

A) Each entry point after treatment; or

B) Points in the distribution system that are representative of each source.

3) The supplier shall take each sample at the same sampling point unless the Agency has granted a SEP that designates another location as more representative of each source, treatment plant, or within the distribution system.

4) If a system draws water from more than one source, and the sources are combined before distribution, the supplier shall sample at an entry point during periods of normal operating conditions when water is representative of all sources being used.

BOARD NOTE: Subsections (b) and (c) above derived from 40 CFR 141.24(h)(1) through (h)(3) (19945).

d) Monitoring frequency:

1) Each CWS and NTNCWS supplier shall take four consecutive quarterly samples for each of the Phase II, Phase IIB, and Phase V SOCs during each compliance period, beginning in the three-year compliance period starting in the initial compliance period.

2) Suppliers serving more than 3,300 persons that do not detect a contaminant in the initial compliance period, shall take a minimum of two quarterly samples in one year of each subsequent three-year compliance period.

3) Suppliers serving less than or equal to 3,300 persons that do not detect a contaminant in the initial compliance period, shall take a minimum of one sample during each subsequent three-year compliance period.

e) Reduction to annual monitoring frequency. A CWS or NTNCWS supplier may apply to the Agency for a SEP that releases it from the requirements of subsection (d) above. A SEP from the requirement of subsection (d) above shall last for only a single three-year compliance period.

f) Vulnerability Assessment. The Agency shall grant a SEP from the requirements of subsection (d) above based on consideration of the factors set forth at Section 611.110(e).

g) If one of the Phase II, Phase IIB, or Phase V SOCs is detected in any sample, then:

1) The supplier shall monitor quarterly for the contaminant at each sampling point that resulted in a detection.

2) Annual monitoring.

A) A supplier may request that the Agency grant a SEP pursuant to Section 610.110 that reduces the monitoring frequency to annual.

B) A request for a SEP must include the following minimal information:

i) For a GWS, two quarterly samples.

ii) For a SWS or mixed system, four quarterly samples.

C) The Agency shall grant a SEP that allows annual monitoring at a sampling point if it determines that the sampling point is reliably and consistently below the MCL.

D) In issuing the SEP, the Agency shall specify the level of the contaminant upon which the "reliably and consistently" determination was based All SEPs that allow less frequent monitoring based on an Agency "reliably and consistently" determination shall include a condition requiring the supplier to resume quarterly monitoring pursuant to subsection (g)(1) above if it detects any Phase II SOC.

3) Suppliers that monitor annually shall monitor during the quarter(s) that previously yielded the highest analytical result.

4) Suppliers that have three consecutive annual samples with no detection of a contaminant at a sampling point may apply to

the Agency for a SEP with respect to that point, as specified in subsections (e) and (f) above.

5) Monitoring for related contaminants.

A) If monitoring results in detection of one or more of the related contaminants listed in subsection (g)(5)(B) below, subsequent monitoring shall analyze for all the related compounds in the respective group.

B) Related contaminants:

i) first group:

aldicarb
aldicarb sulfone
aldicarb sulfoxide

ii) second group:

heptachlor
heptachlor epoxide.

h) Quarterly monitoring following MCL violations.

1) Suppliers that violate an MCL for one of the Phase II, Phase IIB, or Phase V SOCs, as determined by subsection (k) below, shall monitor quarterly for that contaminant at the sampling point where the violation occurred, beginning the next quarter after the violation.

2) Annual monitoring.

A) A supplier may request that the Agency grant a SEP pursuant to Section 611.110 that reduces the monitoring frequency to annual.

B) A request for a SEP must include, at a minimum, the results from four quarterly samples.

C) The Agency shall grant a SEP that allows annual monitoring at a sampling point if it determines that the sampling point is reliably and consistently below the MCL.

D) In issuing the SEP, the Agency shall specify the level of the contaminant upon which the "reliably and consistently" determination was based. All SEPs that allow less frequent monitoring based on an Agency "reliably and consistently" determination shall include a condition requiring the supplier to resume quarterly monitoring pursuant to subsection (h)(1) above if it detects any Phase II SOC.

E) The supplier shall monitor during the quarter(s) that previously yielded the highest analytical result.

i) Confirmation samples.

1) If any of the Phase II, Phase IIB, or Phase V SOCs are detected in a sample, the supplier shall take a confirmation sample as soon as possible, but no later than 14 days after the supplier receives notice of the detection.

2) Averaging is as specified in subsection (k) below.

3) The Agency shall delete the original or confirmation sample if it determines that a sampling error occurred, in which case the confirmation sample will replace the original or confirmation sample.

j) This subsection corresponds with 40 CFR 141.24(h)(10), an optional U~~.~~S~~. ~~EPA provision relating to compositing of samples that U~~.~~S~~.~~ EPA does not require for state programs. This statement maintains structural consistency with U~~.~~S~~. ~~EPA rules.

k) Compliance with the MCLs for the Phase II, Phase IIB, and Phase V SOCs shall be determined based on the analytical results obtained at each sampling point.

1) For suppliers that are conducting monitoring at a frequency greater than annual, compliance is determined by a running annual average of all samples taken at each sampling point.

A) If the annual average of any sampling point is greater than the MCL, then the supplier is out of compliance.

B) If the initial sample or a subsequent sample would cause the annual average to be exceeded, then the supplier is out of compliance immediately.

C) Any samples below the detection limit must be calculated as zero for purposes of determining the annual average.

2) If monitoring is conducted annually or less frequently, the supplier is out of compliance if the level of a contaminant at any sampling point is greater than the MCL. If a confirmation sample is taken, the determination of compliance is based on the average of two samples.

3) When the portion of the distribution system that is out of compliance is separable from other parts of the distribution system and has no interconnections, the supplier may issue the public notice required by Subpart T of this Part only to persons served by that portion of the distribution system that is not in compliance.

BOARD NOTE: Derived from 40 CFR 141.24(h)(11) (19945).

l) This provision corresponds with 40 CFR 141.24(h)(12) (19945), which U~~.~~S~~. ~~EPA removed and reserved at 59 Fed. Reg. 62468 (Dec. 5, 1994). This statement maintains structural consistency with the federal regulations.

m) Analysis for PCBs must be conducted as follows using the methods in Section 611.645:

1) Each supplier that monitors for PCBs shall analyze each sample using either U~~.~~S~~. ~~EPA Organic Methods, Method 505 or Method 508.

2) If PCBs are detected in any sample analyzed using U~~.~~S~~. ~~EPA Organic Methods, Methods 505 or 508, the supplier shall reanalyze the sample using Method 508A to quantitate the individual Aroclors (as decachlorobiphenyl).

3) Compliance with the PCB MCL must be determined based upon the quantitative results of analyses using U~~.~~S~~. ~~EPA Organic Methods, Method 508A.

n) Use of existing data.

1) The Agency shall allow the use of data collected after January 1, 1990 but prior to the effective date of this Section, pursuant to Agency sample request letters, if it determines that the data are generally consistent with the requirements of this Section.

2) The Agency shall grant a SEP pursuant to Section 611.110 that allows a supplier to monitor annually beginning in the initial compliance period if it determines that the supplier did not detect any Phase I VOC or Phase II VOC using existing data allowed pursuant to subsection (n)(1) above.

o) The Agency shall issue a SEP that increases the number of sampling points or the frequency of monitoring if it determines that this is necessary to detect variations within the PWS due to such factors as fluctuations in contaminant concentration due to seasonal use or changes in the water source.

BOARD NOTE: At 40 CFR 141.24(h)(15), U~~.~~S~~. ~~EPA uses the stated factors as non-limiting examples of circumstances that make additional monitoring necessary.

p) This subsection corresponds with 40 CFR 141.24(h)(16), a U~~.~~S~~. ~~EPA provision that the Board has not adopted because it reserves enforcement authority to the state and would serve no useful function as part of the state's rules. This statement maintains structural consistency with U~~.~~S~~. ~~EPA rules.

q) Each supplier shall monitor, within each compliance period, at the time designated by the Agency by SEP pursuant to Section 611.110.

r) "Detection" means greater than or equal to the following concentrations for each contaminant:

1) for PCBs (Aroclors):

Aroclor	Detection Limit (mg/L)
1016	0.00008
1221	0.02
1232	0.0005
1242	0.0003
1248	0.0001
1254	0.0001
1260	0.0002

2) for other Phase II, Phase IIB, and Phase V SOCs:

Contaminant	Detection Limit (mg/L)
Alachlor	0.0002
Aldicarb	0.0005
Aldicarb sulfoxide	0.0005
Aldicarb sulfone	0.0008
Atrazine	0.0001
Benzo(a)pyrene	0.00002
Carbofuran	0.0009
Chlordane	0.0002
2,4-D	0.0001
Dalapon	0.001
1,2-Dibromo-3-chloropropane (DBCP)	0.00002
Di(2-ethylhexyl)adipate	0.0006
Di(2-ethylhexyl)phthalate	0.0006
Dinoseb	0.0002
Diquat	0.0004
Endothall	0.009
Endrin	0.00001

Ethylene dibromide (EDB)	0.00001
Glyphosate	0.006
Heptachlor	0.00004
Heptachlor epoxide	0.00002
Hexachlorobenzene	0.0001
Hexachlorocyclopentadiene	0.0001
Lindane	0.00002
Methoxychlor	0.0001
Oxamyl	0.002
Picloram	0.0001
Polychlorinated biphenyls (PCBs) (as decachlorobiphenyl)	0.0001
Pentachlorophenol	0.00004
Simazine	0.00007
Toxaphene	0.001
2,3,7,8-TCDD (dioxin)	0.000000005
2,4,5-TP (Silvex)	0.0002

s) Laboratory Certification.

1) Analyses under this Section must only be conducted by laboratories that have received approval by U~~.~~S~~.~~EPA or the Agency according to the following conditions.

2) To receive certification to conduct analyses for the Phase II, Phase IIB, and Phase V SOCs the laboratory must:

A) Analyze performance evaluation samples provided by the Agency pursuant to 35 Ill. Adm. Code 183.125(c) that include these substances; and

B) Achieve quantitative results on the analyses performed under subsection (s)(2)(A) above that are within the acceptance limits set forth in subsection (s)(2)(C) ~~above~~below.

C) Acceptance limits:

SOC	Acceptance Limits
Alachlor	± 45%
Aldicarb	2 standard deviations
Aldicarb sulfone	2 standard deviations
Aldicarb sulfoxide	2 standard deviations
Atrazine	± 45%
Benzo(a)pyrene	2 standard deviations
Carbofuran	± 45%
Chlordane	± 45%
Dalapon	2 standard deviations
Di(2-ethylhexyl)adipate	2 standard deviations

Di(2-ethylhexyl)phthalate	2 standard deviations
Dinoseb	2 standard deviations
Diquat	2 standard deviations
Endothall	2 standard deviations
Endrin	± 30%
Glyphosate	2 standard deviations
Dibromochloropropane (DBCP)	± 40%
Ethylene dibromide (EDB)	± 40%
Heptachlor	± 45%
Heptachlor epoxide	± 45%
Hexachlorobenzene	2 standard deviations
Hexachlorocyclopentadiene	2 standard deviations
Lindane	± 45%
Methoxychlor	± 45%
Oxamyl	2 standard deviations
PCBs (as Decachlorobiphenyl)	0-200%
Pentachlorophenol	± 50%
Picloram	2 standard deviations
Simazine	2 standard deviations
Toxaphene	± 45%
2,4-D	± 50%
2,3,7,8-TCDD (dioxin)	2 standard deviations
2,4,5-TP (Silvex)	± 50%

BOARD NOTE: Derived from 40 CFR 141.24(h) (19945)~~, as amended at 59 Fed. Reg. 62468 (Dec. 5, 1994)~~.

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

SUBPART P: THM MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.683 Reduced Monitoring Frequency

a) A CWS supplier utilizing only groundwater sources may, by special exception permit application, seek to have the monitoring frequency required by Section 611.68~~1~~0(b)(1) reduced to a minimum of one sample for maximum TTHM potential per year for each treatment plant used by the supplier, taken at a point in the distribution system reflecting maximum residence time of the water in the system.

1) The CWS supplier shall submit to the Agency ~~the results of~~ at least one sample ~~analyzed~~ for maximum TTHM potential using the procedure specified in Section 611.687. A sample must be analyzed ~~for~~from each treatment plant used by the supplier, taken at a point in the distribution system

reflecting the maximum residence time of the water in the system.

2) The Agency shall reduce the supplier's monitoring frequency if it determines that, based upon the data submitted by the supplier, the supplier has a maximum TTHM potential of less than 0.10 mg/L and that, based upon an assessment of the local conditions of the CWS, the CWS is not likely to approach or exceed the MCL for TTHMs.

3) The results of all analyses must be reported to the Agency within 30 days of the supplier's receipt of such results.

4) All samples collected must be used for determining whether the supplier complies with the monitoring requirements of Section 611.68~~1~~0(b), unless the analytical results are invalidated for technical reasons.

5) Sampling and analyses must be conducted in accordance with the methods listed in Section 611.685.

b) Loss or modification of reduced monitoring frequency.

1) If the results from any analysis taken by the supplier for maximum TTHM potential are equal to or greater than 0.10 mg/L, and such results are confirmed by at least one check sample taken promptly after such results are received, the CWS supplier shall immediately begin monitoring in accordance with the requirements of Section 611.68~~1~~0(b), and such monitoring must continue for at least one year before the frequency may be reduced again.

2) In the event of any significant change to the CWS's raw water or treatment program, the supplier shall immediately analyze an additional sample for maximum TTHM potential taken at a point in the distribution system reflecting maximum residence time of the water in the system.

3) The Agency shall require increased monitoring frequencies above the minimum where necessary to detect variation of TTHM levels within the distribution system.

BOARD NOTE: Derived from 40 CFR 141.30 (c) (19~~89~~94).

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

Section 611.684 Averaging

Compliance with Section 611.310(c) is determined based on a running annual average of quarterly samples collected by the supplier as prescribed in Section 611.68~~1~~0(b)(1) or (2). If the average of samples covering any 12 month period exceeds the MCL, the CWS supplier shall report to the Agency and notify the public pursuant to Subpart T. Monitoring after public notification must be at a frequency designated by the Agency and must continue until a monitoring schedule as a condition to a variance, adjusted standard or enforcement action becomes effective.

BOARD NOTE: Derived from 40 CFR 141.30(d) (19~~89~~94).

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

Section 611.685 Analytical Methods

Sampling and analyses made pursuant to this Subpart must be conducted by one of the total trihalomethanes (TTHM) methods as directed in Section 611.645 and in U~~.S. ~~EPA Technical Notes, incorporated by reference in Section 611.102.~~ For the methods cited in subsections (a) and (b) above, see 40 CFR 141, subpart C, appendix C, incorporated by reference in Section 611.102.~~ Samples for TTHM must be dechlorinated upon collection to prevent further production of Trihalomethanes, according to the procedures described in the methods, except acidification is not required if only THMs or TTHMs are to be determined. Samples for maximum TTHM potential must not be dechlorinated or acidified, and should be held for seven days at 25° C (or above) prior to analysis.

BOARD NOTE: Derived from 40 CFR 141.30(e) (19945)~~, as amended at 59 Fed. Reg. 62469 (Dec. 5, 1994)~~.

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

Section 611.687 Sampling for Maximum THM Potential

a) The water sample for determination of maximum total trihalomethane potential must be taken from a point in the distribution system that reflects maximum residence time. Procedures for sample collection and handling are given in the methods.

b) The supplier taking samples shall not add reducing agent to "quench" the chemical reaction producing THMs at the time of sample collection. The intent is to permit the level of THM precursors to be depleted and the concentration of THMs to be maximized for the supply being tested.

c) Four experimental parameters affecting maximum THM production are pH, temperature, reaction time, and the presence of a disinfectant residual. The supplier taking the sample shall deal with these parameters as follows:

    1) Measure the disinfectant residual at the selected sampling point. Proceed only if a measurable disinfectant residual is present.

2) Collect triplicate 40 mL water samples at the pH prevailing at the time of sampling, and prepare a method blank according to the methods.

3) Seal and store these samples together for seven days at 25° C or above.

4) After this time period, open one of the sample containers and check for disinfectant residual. Absence of a disinfectant residual invalidates the sample for further analysis.

5) Once a disinfectant residual has been demonstrated, open another of the sealed samples and determine total THM concentration using an approved analytical method.

BOARD NOTE: Derived from 40 CFR 141.30(g) (1995).

(Source: Added at 20 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 Sections 611.330 and 611.331, except in cases where alternative methods have been approved in accordance with Section 611.480.

1) Radiochemical Methods;

2) Standard Methods, 13th Edition:

A) Gross Alpha and Beta: Method 302;

B) Total Radium: Method 304;

C) Radium-226: Method 305;

D) Strontium-89,90: Method 303;

E) Tritium: Method 306.

3) ASTM Methods:

A) Cesium-134: ASTM D-2459;

B) Uranium: ASTM D-2907.

b) When the identification and measurement of radionuclides other than those listed in subsection (a) ~~is~~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.

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 (1.96 sigma where sigma is the standard deviation of the net counting rate of the sample).

1) To determine compliance with Section 611.330(a) the detection limit must not exceed 1 pCi/L. To determine compliance with Section 611.330(b) the detection limit must not exceed 3 pCi/L.

2) To determine compliance with Section 611.331 the detection limits must not exceed the concentrations listed in that Section.

d) To judge compliance with the MCLs listed in Sections 611.330 and 611.331, 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 (19~~89~~95).

(Source: Amended at 20 Ill. Reg. ________, effective ________________________)

Section 611.731 Gross Alpha

Monitoring requirements for gross alpha particle activity, radium-226 and radium-228 are as follows:

a) Compliance must be based on the analysis of an annual composite of four consecutive quarterly samples or the average of the analyses of four samples obtained at quarterly intervals.

1) A gross alpha particle activity measurement may be substituted for the required radium-226 and radium-228 analysis~~;~~, provided~~,~~ that~~,~~ the measured gross alpha particle activity does not exceed 5 pCi/L at a confidence level of 95 percent (1.65 sigma where sigma is the standard deviation of

the net counting rate of the sample). In localities where radium-228 may be present in drinking water, the Agency may, by special exception permit, require radium-226 or radium-228 analyses if it determines that the gross alpha particle activity exceeds 2 pCi/L.

2) When the gross alpha particle activity exceeds 5 pCi/L, the same or an equivalent sample must be analyzed for radium-226. If the concentration of radium-226 exceeds 3 pCi/L the same or an equivalent sample must be analyzed for radium-228.

b) See Section 611.100(e).

c) CWS suppliers shall monitor at least once every four years following the procedure required by subsection (a). When an annual record taken in conformance with subsection (a) has established that the average annual concentration is less than half the MCLs established by Section 611.330, the Agency shall, by special exception permit, substitute analysis of a single sample for the quarterly sampling procedure required by subsection (a).

1) The Agency shall, by special exception permit, require more frequent monitoring in the vicinity of mining or other operations which may contribute alpha particle radioactivity to either surface or groundwater sources of drinking water.

2) A CWS supplier shall monitor in conformance with subsection (a) for one year after the introduction of a new water source. The Agency shall, by special exception permit, require more frequent monitoring in the event of possible contamination or when changes in the distribution system or treatment process~~ing~~ occur which may increase the concentration of radioactivity in finished water.

3) The Agency shall, by special exception permit, require a CWS supplier using two or more sources having different concentrations of radioactivity to monitor source water, in addition to water from a free-flowing tap.

4) The Agency shall not require monitoring for radium-228 to determine compliance with Section 611.330 after the initial period~~;~~, provided~~,~~ that the average annual concentration of radium-228 has been assayed at least once using the quarterly sampling procedure required by subsection (a).

5) The Agency shall require the CWS supplier to conduct annual monitoring if the radium-226 concentration exceeds 3 pCi/L.

d) If the average annual MCL for gross alpha particle activity or total radium as set forth in Section 611.330 is exceeded, the CWS supplier shall give notice to the Agency and notify the public as required by Subpart T. Monitoring at quarterly intervals must be continued until the annual average 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: Derived from 40 CFR 141.26(a) (19~~89~~95).

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

Section 611.732 Manmade Radioactivity

Monitoring requirements for manmade radioactivity in CWSs are as follows:

a) CWSs using surface water sources and serving more than 100,000 persons and such other CWSs as the Agency, by special exception permit, 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~~s~~ 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 special exception permit, 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 (d), by special exception permit, require suppliers of water utilizing only groundwater to monitor for man-made radioactivity.

b) See Section 611.100(e).

c) CWS suppliers shall monitor at least every four years following the procedure in subsection (a).

d) The Agency shall, by special exception permit, 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 constitutents 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 special exception permit, require more frequent monitoring when iodine-131 is identified in the finished water.

3) The Agency shall, by special exception permit, 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 special exception permit, 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.

e) If the average annual MCL for man-made radioactivity set forth in Section 611.331 is exceeded, the CWS supplier shall 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: Derived from 40 CFR 141.26(b) (19~~89~~95).

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

SUBPART T: REPORTING, PUBLIC NOTIFICATION AND RECORDKEEPING

Section 611.831 Monthly Operating Report

Within 30 days following the last day of the month, each CWS supplier shall submit a monthly operating report to the Agency~~,~~ on forms provided or approved by the Agency.

BOARD NOTE: This is an additional State requirement.

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

Section 611.840 Reporting

a) Except where a shorter period is specified in this Part, a supplier shall report to the Agency the results of any test measurement or analysis required by this Part within the following times, whichever is shortest:

1) The first ten days following the month in which the result is received; or

2) The first ten days following the end of the required monitoring period, as specified by special exception permit.

b) Except where a different reporting period is specified in this Part, the supplier shall report to the Agency within 48 hours~~:~~ ~~The~~any failure to comply with any provision (including failure to comply with monitoring requirements) ~~in~~of this Part.

c) The supplier is not required to report analytical results to the Agency in cases where an Agency laboratory performs the analysis.

d) The supplier, within ten days of completion of each public notification required pursuant to Section 611.851 et seq., shall submit to the Agency a representative copy of each type of notice distributed, published, posted or made available to the persons served by the supplier or to the media.

e) The supplier shall submit to the Agency within the time stated in the request copies of any records required to be maintained under Section 611.860 or copies of any documents then in existence which the Agency is entitled to inspect pursuant to the authority of Section 4 of the Act.

BOARD NOTE: Derived from 40 CFR 141.31 (1989), as amended at 54 Fed. Reg. 27562, June 29, 1989.

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

Section 611.851 Reporting MCL and other Violations

A supplier that fails to comply with an applicable MCL or treatment technique established by this Part or which fails to comply with the requirements of any schedule prescribed pursuant to a variance or adjusted standard shall notify persons served by the PWS as follows:

a) Except as provided in subsection (c), the supplier shall give notice:

1) By publication in a daily newspaper of general circulation in the area served by the PWS as soon as possible, but in no case later than 14 days after the violation or failure. If the area served by a PWS is not served by a daily newspaper of general circulation, notice must instead be given by publication in a weekly newspaper of general circulation serving the area; and

2) By mail delivery (by direct mail or with the water bill), or by hand delivery, not later than 45 days after the violation or failure. This is not required if the Agency determines by SEP that the supplier in violation has corrected the violation or failure within the 45-day period; and

3) For violations of the MCLs of contaminants that pose an acute risk to human health, by furnishing a copy of the notice to the radio and television stations serving the area served by the PWS as soon as possible but in no case later than 72 hours after the violation. The following violations are acute violations:

A) Any violations posing an acute risk to human health, as specified in this Part or as determined by the Agency on a case-by-case basis.

B) Violation of the MCL for nitrate or nitrite in Section 611.301.

C) Violation of the MCL for total coliforms, when fecal coliforms or E. coli are present in the water distribution system, as specified in Section 611.325(b).

D) Occurrence of a waterborne disease outbreak.

b) Except as provided in subsection (c), following the initial notice given under subsection (a), the supplier shall give notice at least once every three months by mail delivery (by direct mail or with the water bill) or by hand delivery, for as long as the violation or failure exists.

c) Alternative methods of notice.

1) In lieu of the requirements of subsections (a) and (b), a CWS supplier in an area that is not served by a daily or weekly newspaper of general circulation shall give notice by hand delivery or by continuous posting in conspicuous places within the area served by the CWS. Notice by hand delivery or posting must begin as soon as possible, but no later than 72 hours after the violation or failure for acute violations

(as defined in subsection (a)(3)) or 14 days after the violation or failure (for any other violation). Posting must continue for as long as the violation or failure exists. Notice by hand delivery must be repeated at least every three months for as long as the violation or failure exists.

2) In lieu of the requirements of subsections (a) and (b), a non-CWS supplier may give notice by hand delivery or by continuous posting in conspicuous places within the area served by the non-CWS. Notice by hand delivery or posting must begin as soon as possible, but no later than 72 hours after the violation or failure for acute violations (as defined in subsection (a)(3)), or 14 days after the violation or failure (for any other violation). Posting must continue for as long as the violation or failure exists. Notice by hand delivery must be repeated at least every three months for as long as the violation or failure exists.

3) Where allowed, pursuant to Section 611.609(d), 611.646(o)(3), ~~611.647(i),~~ or 611.648(k)(3) because it has a separable system, a supplier may issue public notice only to persons on that portion of its system that its out of compliance.

BOARD NOTE: Generally derived from 40 CFR 141.32(a) (1993). Subsection (c)(3) derived from 40 CFR 141.23(i)(4) & 141.24(f)(15)(iii), (g)(9) & (h)(11)(iii) (1993).

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

Section 611.852 Reporting other Violations

A supplier that fails to perform monitoring required by this Part, which fails to comply with a testing procedure established by this Part, or which is subject to a variance or adjusted standard under Section 611.111, 611.112 or 611.113 shall notify persons served by the PWS as follows:

a) Except as provided in subsection (c) or (d), the supplier shall give notice, within three months of the violation or granting of a variance or adjusted standard, by publication in a daily newspaper of general circulation in the area served by the PWS. If the area served by a PWS is not served by a daily newspaper of general circulation, notice must instead be given by publication in a weekly newspaper of general circulation serving the area.

b) Except as provided in subsection (c) or (d), following the initial notice given under subsection (a), the supplier shall give notice at least once every three months by mail delivery (by direct mail or with the water bill) or by hand delivery, for as long as the violation exists. Repeat notice of the existence of a variance or adjusted standard (Section 611.111 through 611.113) must be given every three months for as long as the variance or adjusted standard remains in effect.

c) Alternative methods of notice.

1) In lieu of the requirements of subsections (a) and (b), a CWS supplier in an area that is not served by a daily or weekly newspaper of general circulation shall give notice, within three months of the violation or granting of the variance or adjusted standard, by hand delivery or by continuous posting in conspicuous places within the area served by the CWS. Posting must continue for as long as the violation exists or a variance or adjusted standard remains in effect. The CWS supplier shall repeat the notice by hand delivery every three months for as long as the variance or adjusted standard remains in effect.

2) In lieu of the requirements of subsections (a) and (b), a non-CWS supplier may give notice, within three months of the violation or the granting of the variance or adjusted standard, by hand delivery or by continuous posting in conspicuous places within the area served by the non-CWS. Posting must continue for as long as the violation exists, or a variance or adjusted standard remains in effect. Notice by hand delivery must be repeated at least every three months for as long as the violation exists or a variance or adjusted standard remains in effect.

BOARD NOTE: Derived from 40 CFR 141.32(b) (199~~1~~5).

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

Section 611.858 Fluoride Secondary Standard

If a CWS exceeds the secondary standard for fluoride of 2.0 mg/L, as determined by the last single sample taken in accordance with Section 611.60~~7~~3, but does not exceed the MCL in Section 611.30~~0~~1(b), the supplier shall provide the fluoride notice in Section 611.Appendix A(9) to:

a) All billing units annually;

b) All billing units at the time service begins; and

c) The local public health department.

BOARD NOTE: Derived from 40 CFR 143.3 and 143.5 (1994).

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

Section 611.870 List of 36 Contaminants (Repealed)

~~a) This Section applies to only the contaminants listed in Section 611.650.~~

~~b) A CWS or NTNCWS supplier who is required to monitor under Section 611.650 shall send a copy of the results of such monitoring within 30 days of receipt and any public notice under subsection (d) to the Agency or, for non-CWSs, Public Health.~~

~~c) See Section 611.100(e).~~

~~d) The supplier shall notify persons served by the PWS of the availability of the results of sampling conducted under Section 611.650 by including a notice in the first set of water bills issued by the supplier after the receipt of the results or written notice within three months. The notice must identify a person and supply the telephone number to contact for information on the monitoring results. For surface water systems, public notification is required only after the first quarter's monitoring and must include a statement that additional monitoring will be conducted for three more quarters with the results available upon request.~~

~~BOARD NOTE: Derived from 40 CFR 141.35 (1989).~~

(Source: Repealed at 20 Ill. Reg. ________, effective ______________________)

Section 611.Appendix A Mandatory Health Effects Information

1) Trichloroethylene. The United States Environmental Protection Agency (U~~.~~S~~.~~EPA) sets drinking water standards and has determined that trichloroethylene is a health concern at certain levels of exposure. This chemical is a common metal cleaning and dry cleaning fluid. It generally gets into drinking water by improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. U~~.~~S~~.~~EPA has set forth the enforceable drinking water standard for trichloroethylene at 0.005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

2) Carbon tetrachloride. The United States Environmental Protection Agency (U~~.~~S~~.~~EPA) sets drinking water standards and has determined that carbon tetrachloride is a health concern at certain levels of

exposure. This chemical was once a popular household cleaning fluid. It generally gets into drinking water by improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. U~~.~~S~~. ~~EPA has set the enforceable drinking water standard for carbon tetrachloride at 0.005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

3) 1,2-Dichloroethane. The United States Environmental Protection Agency (U~~.~~S~~. ~~EPA) sets drinking water standards and has determined that 1,2-dichloroethane is a health concern at certain levels of exposure. This chemical is used as a cleaning fluid for fats, oils, waxes and resins. It generally gets into drinking water by improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. U~~.~~S~~. ~~EPA has set the enforceable drinking water standard for 1,2-dichloroethane at 0.005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

4) Vinyl chloride. The United States Environmental Protection Agency (U~~.~~S~~. ~~EPA) sets drinking water standards and has determined that vinyl chloride is a health concern at certain levels of exposure. This chemical is used in industry and is found in drinking water as a result of the breakdown of related solvents. The solvents are used as cleaners and degreasers of metals and generally get into drinking water by improper waste disposal. This chemical has been associated with significantly increased risks of cancer among certain industrial workers who were exposed to relatively large amounts of this chemical during their working careers. This chemical has also been shown to cause cancer in laboratory animals when the animals are exposed at high levels over their lifetimes. Chemicals that cause increased risk of cancer among exposed industrial workers and in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. U~~.~~S~~. ~~EPA has set the enforceable drinking water standard for vinyl chloride at 0.002 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which

meets this standard is associated with little to none of this risk and should be considered safe.

5) Benzene. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that benzene is a health concern at certain levels of exposure. This chemical is used as a solvent and degreaser of metals. It is also a major component of gasoline. Drinking water contamination generally results from leaking underground gasoline and petroleum tanks or improper waste disposal. This chemical has been associated with significantly increased risks of leukemia among certain industrial workers who were exposed to relatively large amounts of this chemical during their working careers. This chemical has been shown to cause cancer in laboratory animals when the animals are exposed at high levels over their lifetimes. Chemicals that cause increased risk of cancer among exposed industrial workers and in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. U~~.~~S~~.~~ EPA has set the enforceable drinking water standard for benzene at 0.005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in humans and laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

6) 1,1-Dichloroethylene. The United States Environmental Protection Agency (U~~.~~S~~.~~EPA) sets drinking water standards and has determined that 1,1-dichloroethylene is a health concern at certain levels of exposure. This chemical is used in industry and is found in drinking water as a result of the breakdown of related solvents. The solvents are used as cleaners and degreasers of metals and generally get into drinking water by improper waste disposal. This chemical has been shown to cause liver and kidney damage in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause adverse effects in laboratory animals also may cause adverse health effects in humans who are exposed at lower levels over long periods of time. U~~.~~S~~.~~EPA has set the enforceable drinking water standard for 1,1-dichloroethylene at 0.007 parts per million (ppm) to reduce the risk of these adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

7) Para-dichlorobenzene. The United States Environmental Protection Agency (U~~.~~S~~.~~EPA) sets drinking water standards and has determined that para-dichlorobenzene is a health concern at certain levels of exposure. This chemical is a component of deodorizers, moth balls and pesticides. It generally gets into drinking water by improper waste disposal. This chemical has been shown to cause liver and kidney damage in laboratory animals such as rats and mice when the

animals are exposed at high levels over their lifetimes. Chemicals which cause adverse effects in laboratory animals also may cause adverse health effects in humans who are exposed at lower levels over long periods of time. U~~.~~S~~. ~~EPA has set the enforceable drinking water standard for para-dichlorobenzene at 0.075 parts per million (ppm) to reduce the risk of these adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

8) 1,1,1-Trichloroethane. The United States Environmental Protection Agency (U~~.~~S~~. ~~EPA) sets drinking water standards and has determined that 1,1,1-trichloroethane is a health concern at certain levels of exposure. This chemical is used as a cleaner and degreaser of metals. It generally gets into drinking water by improper waste disposal. This chemical has been shown to damage the liver, nervous system and circulatory system of laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during their working careers also suffered damage to the liver, nervous system and circulatory system. Chemicals which cause adverse effects among exposed industrial workers and in laboratory animals also may cause adverse health effects in humans who are exposed at lower levels over long periods of time. U~~.~~S~~. ~~EPA has set the enforceable drinking water standard for 1,1,1-trichloroethane at 0.2 parts per million (ppm) to protect against the risk of these adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

9) Fluoride. The U.S. Environmental Protection Agency requires that we send you this notice on the level of fluoride in your drinking water. The drinking water in your community has a fluoride concentration of [concentration to be provided by supplier] milligrams per liter (mg/L).

Federal regulations require that fluoride, which occurs naturally in your water supply, not exceed a concentration of 4.0 mg/L in drinking water. This is an enforceable standard called a Maximum Contaminant Level (MCL), and it has been established to protect the public health. Exposure to drinking water levels above 4.0 mg/L for many years may result in some cases of crippling skeletal fluorosis, which is a serious bone disorder.

Federal law also requires that we notify you when monitoring indicates that the fluoride in your drinking water exceeds 2.0 mg/L. This is intended to alert families about dental problems that might affect children under nine years of age. The fluoride concentration of your water exceeds this federal guideline.

Fluoride in children's drinking water at levels of approximately 1 mg/L reduces the number of dental cavities. However, some children exposed to levels of fluoride greater than about 2.0 mg/L may develop dental fluorosis. Dental fluorosis, in its moderate and severe forms, is a brown staining and/or pitting of the permanent teeth.

Because dental fluorosis occurs only when developing teeth (before they erupt from the gums) are exposed to elevated fluoride levels, households without children are not expected to be affected by this level of fluoride. Families with children under the age of nine are encouraged to seek other sources of drinking water for their children to avoid the possibility of staining and pitting.

Your water supplier can lower the concentration of fluoride in your water so that you will still receive the benefits of cavity prevention while the possibility of stained and pitted teeth is minimized. Removal of fluoride may increase your water costs. Treatment systems are also commercially available for home use. Information on such systems is available at the address given below. Low fluoride bottled drinking water that would meet all standards is also commercially available.

For further information, contact [name of contact person to be provided by supplier] at your water system.

BOARD NOTE: Derived from 40 CFR 141.32(e)(9) and 143.5 (19945).

10) Microbiological contaminants (for use when there is a violation of the treatment technique requirements for filtration and disinfection in Subpart B of this Part). The United States Environmental Protection Agency (U~~.~~S~~. ~~EPA) sets drinking water standards and has determined that the presence of microbiological contaminants are a health concern at certain levels of exposure. If water is inadequately treated, microbiological contaminants in that water may cause disease. Disease symptoms may include diarrhea, cramps, nausea and possibly jaundice and any associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water, but also may be caused by a number of factors other than your drinking water. U~~.~~S~~. ~~EPA has set enforceable requirements for treating drinking water to reduce the risk of these adverse health effects. Treatment such as filtering and disinfecting the water removes or destroys microbiological contaminants. Drinking water which is treated to meet U~~.~~S~~. ~~EPA requirements is associated with little to none of this risk and should be considered safe.

11) Total coliforms. (To be used when there is a violation of Section 611.325(a) and not a violation of Section 611.325(b)). The United States Environmental Protection Agency (U~~.~~S~~. ~~EPA) sets drinking water standards and has determined that the presence of total

coliforms is a possible health concern. Total coliforms are common in the environment and are generally not harmful themselves. The presence of these bacteria in drinking water, however, generally is a result of a problem with water treatment or the pipes which distribute the water and indicates that the water may be contaminated with organisms that can cause disease. Disease symptoms may include diarrhea, cramps, nausea and possibly jaundice, and any associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water, but also may be caused by a number of factors other than your drinking water. U~~.~~S~~. ~~EPA has set an enforceable drinking water standard for total coliforms to reduce the risk of these adverse health effects. Under this standard, no more than 5.0 percent of the samples collected during a month can contain these bacteria, except that systems collecting fewer than 40 samples/month that have one total coliform-positive sample per month are not violating the standard. Drinking water which meets this standard is usually not associated with a health risk from disease-causing bacteria and should be considered safe.

12) Fecal Coliforms/E. coli. (To be used when there is a violation of Section 611.325(b) or both Section 611.325(a) and (b).) The United States Environmental Protection Agency (U~~.~~S~~. ~~EPA) sets drinking water standards and has determined that the presence of fecal coliforms or E. coli is a serious health concern. Fecal coliforms and E. coli are generally not harmful themselves, but their presence in drinking water is serious because they usually are associated with sewage or animal wastes. The presence of these bacteria in drinking water is generally a result of a problem with water treatment or the pipes which distribute the water and indicates that the water may be contaminated with organisms that can cause disease. Disease symptoms may include diarrhea, cramps, nausea and possibly jaundice, and associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water, but also may be caused by a number of factors other than your drinking water. U~~.~~S~~. ~~EPA has set an enforceable drinking water standard for fecal coliforms and E. coli to reduce the risk of these adverse health effects. Under this standard all drinking water samples must be free of these bacteria. Drinking water which meets this standard is associated with little or none of this risk and should be considered safe. State and local health authorities recommend that consumers take the following precautions: [To be inserted by the public water system, according to instruction from State or local authorities].

13) Lead. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that lead is a health concern at certain exposure levels. Materials that contain lead have frequently been used in the construction of water supply distribution systems, and plumbing systems in private

homes and other buildings. The most commonly found materials include service lines, pipes, brass and bronze fixtures, and solders and fluxes. Lead in these materials can contaminate drinking water as a result of the corrosion that takes place when water comes into contact with those materials. Lead can cause a variety of adverse health effects in humans. At relatively low levels of exposure, these effects may include interference with red blood cell chemistry, delays in normal physical and mental development in babies and young children, slight deficits in the attention span, hearing, and learning abilities of children, and slight increases in the blood pressure of some adults. U~~.~~S~~. ~~EPA's national primary drinking water regulation requires all public water systems to optimize corrosion control to minimize lead contamination resulting from the corrosion of plumbing materials. Public water systems serving 50,000 people or fewer that have lead concentrations below 15 parts per billion (ppb) in more than 90% of tap water samples (the U~~.~~S~~. ~~EPA "action level") have optimized their corrosion control treatment. Any water system that exceeds the action level must also monitor their source water to determine whether treatment to remove lead in source water is needed. Any water system that continues to exceed the action level after installation of corrosion control and/or source water treatment must eventually replace all lead service lines contributing in excess of 15 ppb of lead to drinking water. Any water system that exceeds the action level must also undertake a public education program to inform consumers of ways they can reduce their exposure to potentially high levels of lead in drinking water.

14) Copper. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that copper is a health concern at certain exposure levels. Copper, a reddish-brown metal, is often used to plumb residential and commercial structures that are connected to water distribution systems. Copper contaminating drinking water as a corrosion by-product occurs as the result of the corrosion of copper pipes that remain in contact with water for a prolonged period of time. Copper is an essential nutrient, but at high doses it has been shown to cause stomach and intestinal distress, liver and kidney damage, and anemia. Persons with Wilson's disease may be at a higher risk of health effects due to copper than the general public. U~~.~~S~~. ~~EPA's national primary drinking water regulation requires all public water systems to install optimal corrosion control to minimize copper contamination resulting from the corrosion of plumbing materials. Public water systems serving 50,000 people or fewer that have copper concentrations below 1.3 parts per million (ppm) in more than 90% of tap water samples (the U~~.~~S~~. ~~EPA "action level") are not required to install or improve their treatment. Any water system that exceeds the action level must also monitor their source water to determine whether treatment to remove copper in source water is needed.

15) Asbestos. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that asbestos fibers greater than 10 micrometers in length are a health concern at certain levels of exposure. Asbestos is a naturally occurring mineral. Most asbestos fibers in drinking water are less than 10 micrometers in length and occur in drinking water from natural sources and from corroded asbestos-cement pipes in the distribution system. The major uses of asbestos were in the production of cements, floor tiles, paper products, paint, and caulking; in transportation-related applications; and in the production of textiles and plastics. Asbestos was once a popular insulating and fire retardant material. Inhalation studies have shown that various forms of asbestos have produced lung tumors in laboratory animals. The available information on the risk of developing gastrointestinal tract cancer associated with the ingestion of asbestos from drinking water is limited. Ingestion of intermediate-range chrysolite asbestos fibers greater than 10 micrometers in length is associated with causing benign tumors in male rats. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. U~~.~~S~~.~~ EPA has set the drinking water standard for asbestos at 7 million long fibers per liter to reduce the potential risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets the U~~.~~S~~.~~ EPA standard is associated with little to none of this risk and should be considered safe with respect to asbestos.

16) Barium. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that barium is a health concern at certain levels of exposure. This inorganic chemical occurs naturally in some aquifers that serve as sources of groundwater. It is also used in oil and gas drilling muds, automotive paints, bricks, tiles, and jet fuels. It generally gets into drinking water after dissolving from naturally occurring minerals in the ground. This chemical may damage the heart and vascular system, and is associated with high blood pressure in laboratory animals such as rats exposed to high levels during their lifetimes. In humans, U~~.~~S~~.~~ EPA believes that effects from barium on blood pressure should not occur below 2 parts per million (ppm) in drinking water. U~~.~~S~~.~~ EPA has set the drinking water standard for barium at 2 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated with little to none of this risk and is considered safe with respect to barium.

17) Cadmium. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that cadmium is a health concern at certain levels of exposure. Food and the smoking of tobacco are common sources of general exposure. This inorganic metal is a contaminant in the metals used to galvanize

pipe. It generally gets into water by corrosion of galvanized pipes or by improper waste disposal. This chemical has been shown to damage the kidney in animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during working careers also suffered damage to the kidney. U~~.~~S~~.~~ EPA has set the drinking water standard for cadmium at 0.005 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated with little to none of this risk and is considered safe with respect to cadmium.

18) Chromium. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that chromium is a health concern at certain levels of exposure. This inorganic metal occurs naturally in the ground and is often used in the electroplating of metals. It generally gets into water from runoff from old mining operations and improper waste disposal from plating operations. This chemical has been shown to damage the kidney, nervous system, and the circulatory system of laboratory animals such as rats and mice when the animals are exposed at high levels. Some humans who were exposed to high levels of this chemical suffered liver and kidney damage, dermatitis and respiratory problems. U~~.~~S~~.~~ EPA has set the drinking water standard for chromium at 0.1 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated with little to none of this risk and is considered safe with respect to chromium.

19) Mercury. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that mercury is a health concern at certain levels of exposure. This inorganic metal is used in electrical equipment and some water pumps. It usually gets into water as a result of improper waste disposal. This chemical has been shown to damage the kidney of laboratory animals such as rats when the animals are exposed at high levels over their lifetimes. U~~.~~S~~.~~ EPA has set the drinking water standard for mercury at 0.002 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated with little to none of this risk and is considered safe with respect to mercury.

20) Nitrate. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that nitrate poses an acute health concern at certain levels of exposure. Nitrate is used in fertilizer and is found in sewage and wastes from human and/or farm animals and generally gets into drinking water from those activities. Excessive levels of nitrate in drinking water have caused serious illness and sometimes death in infants under six months of age. The serious illness in infants

is caused because nitrate is converted to nitrite in the body. Nitrite interferes with the oxygen carrying capacity of the child's blood. This is an acute disease in that symptoms can develop rapidly in infants. In most cases, health deteriorates over a period of days. Symptoms include shortness of breath and blueness of the skin. Clearly, expert medical advice should be sought immediately if these symptoms occur. The purpose of this notice is to encourage parents and other responsible parties to provide infants with an alternate source of drinking water. Local and State health authorities are the best source for information concerning alternate sources of drinking water for infants. U~~.~~S~~.~~ EPA has set the drinking water standard at 10 parts per million (ppm) for nitrate to protect against the risk of these adverse effects. U~~.~~S~~.~~ EPA has also set a drinking water standard for nitrite at 1 ppm. To allow for the fact that the toxicity of nitrate and nitrite are additive~~.~~, U~~.~~S~~.~~ EPA has also established a standard for the sum of nitrate and nitrite at 10 ppm. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated with little to none of this risk and is considered safe with respect to nitrate.

21) Nitrite. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that nitrite poses an acute health concern at certain levels of exposure. This inorganic chemical is used in fertilizers and is found in sewage and wastes from humans and/or farm animals and generally gets into drinking water as a result of those activities. While excessive levels of nitrite in drinking water have not been observed, other sources of nitrite have caused serious illness and sometimes death in infants under six months of age. The serious illness in infants is caused because nitrite interferes with the oxygen carrying capacity of the child's blood. This is an acute disease in that symptoms can develop rapidly. However, in most cases, health deteriorates over a period of days. Symptoms include shortness of breath and blueness of the skin. Clearly, expert medical advice should be sought immediately if these symptoms occur. The purpose of this notice is to encourage parents and other responsible parties to provide infants with an alternate source of drinking water. Local and State health authorities are the best source for information concerning alternate sources of drinking water for infants. U~~.~~S~~.~~ EPA has set the drinking water standard at 1 part per million (ppm) for nitrite to protect against the risk of these adverse effects. U~~.~~S~~.~~ EPA has also set a drinking water standard for nitrate (converted to nitrite in humans) at 10 ppm and for the sum of nitrate and nitrite at 10 ppm. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated with little to none of this risk and is considered safe with respect to nitrite.

22) Selenium. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that

selenium is a health concern at certain high levels of exposure. Selenium is also an essential nutrient at low levels of exposure. This inorganic chemical is found naturally in food and soils and is used in electronics, photocopy operations, the manufacture of glass, chemicals, drugs, and as a fungicide and a feed additive. In humans, exposure to high levels of selenium over a long period of time has resulted in a number of adverse health effects, including a loss of feeling and control in the arms and legs. U~~.~~S~~. ~~EPA has set the drinking water standard for selenium at 0.05 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~. ~~EPA standard is associated with little to none of this risk and is considered safe with respect to selenium.

23) Acrylamide. The United States Environmental Protection Agency (U~~.~~S~~. ~~EPA) sets drinking water standards and has determined that acrylamide is a health concern at certain levels of exposure. Polymers made from acrylamide are sometimes used to treat water supplies to remove particulate contaminants. Acrylamide has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. Sufficiently large doses of acrylamide are known to cause neurological injury. U~~.~~S~~. ~~EPA has set the drinking water standard for acrylamide using a treatment technique to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. This treatment technique limits the amount of acrylamide in the polymer and the amount of the polymer which may be added to drinking water to remove particulates. Drinking water systems which comply with this treatment technique have little to no risk and are considered safe with respect to acrylamide.

24) Alachlor. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that alachlor is a health concern at certain levels of exposure. This organic chemical is a widely used pesticide. When soil and climatic conditions are favorable, alachlor may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. U~~.~~S~~. ~~EPA has set the drinking water standard for alachlor at 0.002 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to alachlor.

25) Aldicarb. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that aldicarb is a health concern at certain levels of exposure. Aldicarb is a widely used pesticide. Under certain soil and climatic conditions (e.g., sandy soil and high rainfall), aldicarb may leach into groundwater after normal agricultural applications to crops such as potatoes or peanuts or may enter drinking water supplies as a result of surface runoff. This chemical has been shown to damage the nervous system in laboratory animals such as rats and dogs exposed to high levels. U~~.~~S~~.~~ EPA has set the drinking water standard for aldicarb at 0.003 parts per million (ppm) to reduce the risk of adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to aldicarb.

26) Aldicarb sulfoxide. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that aldicarb sulfoxide is a health concern at certain levels of exposure. Aldicarb is a widely used pesticide. Aldicarb sulfoxide in groundwater is primarily a breakdown product of aldicarb. Under certain soil and climatic conditions (e.g., sandy soil and high rainfall), aldicarb sulfoxide may leach into groundwater after normal agricultural applications to crops such as potatoes or peanuts or may enter drinking water supplies as a result of surface runoff. This chemical has been shown to damage the nervous system in laboratory animals such as rats and dogs exposed to high levels. U~~.~~S~~.~~ EPA has set the drinking water standard for aldicarb sulfoxide at 0.004 parts per million (ppm) to reduce the risk of adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to aldicarb sulfoxide.

27) Aldicarb sulfone. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that aldicarb sulfone is a health concern at certain levels of exposure. Aldicarb is a widely used pesticide. Aldicarb sulfone in groundwater is primarily a breakdown product of aldicarb. Under certain soil and climatic conditions (e.g., sandy soil and high rainfall), aldicarb sulfone may leach into groundwater after normal agricultural applications to crops such as potatoes or peanuts or may enter drinking water supplies as a result of surface runoff. This chemical has been shown to damage the nervous system in laboratory animals such as rats and dogs exposed to high levels. U~~.~~S~~.~~ EPA has set the drinking water standard for aldicarb sulfone at 0.002 parts per million (ppm) to reduce the risk of adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to aldicarb sulfone.

28) Atrazine. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that

atrazine is a health concern at certain levels of exposure. This organic chemical is a herbicide. When soil and climatic conditions are favorable, atrazine may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to affect offspring of rats and the hearts of dogs. U~~.~~S~~. ~~EPA has set the drinking water standard for atrazine at 0.003 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~. ~~EPA standard is associated with little to none of this risk and is considered safe with respect to atrazine.

29) Carbofuran. The United States Environmental Protection Agency (U~~.~~S~~. ~~EPA) sets drinking water standards and has determined that carbofuran is a health concern at certain levels of exposure. This organic chemical is a pesticide. When soil and climatic conditions are favorable, carbofuran may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to damage the nervous and reproductive systems of laboratory animals such as rats and mice exposed at high levels over their lifetimes. Some humans who were exposed to relatively large amounts of this chemical during their working careers also suffered damage to the nervous system. Effects on the nervous system are generally rapidly reversible. U~~.~~S~~. ~~EPA has set the drinking water standard for carbofuran at 0.04 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~. ~~EPA standard is associated with little to none of this risk and is considered safe with respect to carbofuran.

30) Chlordane. The United States Environmental Protection Agency (U~~.~~S~~. ~~EPA) sets drinking water standards and has determined that chlordane is a health concern at certain levels of exposure. This organic chemical is a pesticide used to control termites. Chlordane is not very mobile in soils. It usually gets into drinking water after application near water supply intakes or wells. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. U~~.~~S~~. ~~EPA has set the drinking water standard for chlordane at 0.002 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets the U~~.~~S~~. ~~EPA standard is associated with little to none of this risk and is considered safe with respect to chlordane.

31) Dibromochloropropane (DBCP). The United States Environmental Protection Agency (U~~.~~S~~. ~~EPA) sets drinking water standards and has determined that DBCP is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, DBCP may get into

drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. U~~.~~S~~.~~EPA has set the drinking water standard for DBCP at 0.0002 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets the U~~.~~S~~.~~EPA standard is associated with little to none of this risk and is considered safe with respect to DBCP.

32) o-Dichlorobenzene. The United States Environmental Protection Agency (U~~.~~S~~.~~EPA) sets drinking water standards and has determined that o-dichlorobenzene is a health concern at certain levels of exposure. This organic chemical is used as a solvent in the production of pesticides and dyes. It generally gets into water by improper waste disposal. This chemical has been shown to damage the liver, kidney and the blood cells of laboratory animals such as rats and mice exposed to high levels during their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during working careers also suffered damage to the liver, nervous system, and circulatory system. U~~.~~S~~.~~EPA has set the drinking water standard for o-dichlorobenzene at 0.6 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~.~~EPA standard is associated with little to none of this risk and is considered safe with respect to o-dichlorobenzene.

33) cis-1,2-Dichloroethylene. The United States Environmental Protection Agency (U~~.~~S~~.~~EPA) establishes drinking water standards and has determined that cis-1,2-dichloroethylene is a health concern at certain levels of exposure. This organic chemical is used as a solvent and intermediate in chemical production. It generally gets into water by improper waste disposal. This chemical has been shown to damage the liver, nervous system, and circulatory system of laboratory animals such as rats and mice when exposed at high levels over their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. U~~.~~S~~.~~EPA has set the drinking water standard for cis-1,2-dichloroethylene at 0.07 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~.~~EPA standard is associated with little to none of this risk and is considered safe with respect to cis-1,2-dichloroethylene.

34) trans-1,2-Dichloroethylene. The United States Environmental Protection Agency (U~~.~~S~~.~~EPA) establishes drinking water standards and has determined that trans-1,2-dichloroethylene is a health concern at certain levels of exposure. This organic chemical is

used as a solvent and intermediate in chemical production. It generally gets into water by improper waste disposal. This chemical has been shown to damage the liver, nervous system, and the circulatory system of laboratory animals such as rats and mice when exposed at high levels over their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. U~~.~~S~~.~~ EPA has set the drinking water standard for trans-1,2-dichloroethylene at 0.1 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated with little to none of this risk and is considered safe with respect to trans-1,2-dichloroethylene.

35) 1,2-Dichloropropane. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that 1,2-dichloropropane is a health concern at certain levels of exposure. This organic chemical is used as a solvent and pesticide. When soil and climatic conditions are favorable, 1,2-dichloropropane may get into drinking water by runoff into surface water or by leaching into groundwater. It may also get into drinking water through improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. U~~.~~S~~.~~ EPA has set the drinking water standard for 1,2-dichloropropane at 0.005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated with little to none of this risk and is considered safe with respect to 1,2-dichloropropane.

36) 2,4-D. This contaminant is subject to an "additional State requirement". The supplier shall give the following notice if the level exceeds the Section 611.311 MCL. If the level exceeds the Section 611.310 MCL, but not that of Section 611.311, the supplier shall give a general notice under Section 611.854.

The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that 2,4-D is a health concern at certain levels of exposure. This organic chemical is used as a herbicide and to control algae in reservoirs. When soil and climatic conditions are favorable, 2,4-D may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to damage the liver and kidney of laboratory animals such as rats exposed at high levels during their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. U~~.~~S~~.~~ EPA has set the drinking water standard for 2,4-D at 0.07 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~.~~EPA standard is associated with little to none of this risk and is considered safe with respect to 2,4-D.

37) Epichlorohydrin. The United States Environmental Protection Agency (U~~.~~S~~.~~EPA) sets drinking water standards and has determined that epichlorohydrin is a health concern at certain levels of exposure. Polymers made from epichlorohydrin are sometimes used in the treatment of water supplies as a flocculent to remove particulates. Epichlorohydrin generally gets into drinking water by improper use of these polymers. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. U~~.~~S~~.~~EPA has set the drinking water standard for epichlorohydrin using a treatment technique to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. This treatment technique limits the amount of epichlorohydrin in the polymer and the amount of the polymer which may be added to drinking water as a flocculent to remove particulates. Drinking water systems which comply with this treatment technique have little to no risk and are considered safe with respect to epichlorohydrin.

38) Ethylbenzene. The United States Environmental Protection Agency (U~~.~~S~~.~~EPA) sets drinking water standards and has determined ethylbenzene is a health concern at certain levels of exposure. This organic chemical is a major component of gasoline. It generally gets into water by improper waste disposal or leaking gasoline tanks. This chemical has been shown to damage the kidney, liver, and nervous system of laboratory animals such as rats exposed to high levels during their lifetimes. U~~.~~S~~.~~EPA has set the drinking water standard for ethylbenzene at 0.7 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~.~~EPA standard is associated with little to none of this risk and is considered safe with respect to ethylbenzene.

39) Ethylene dibromide (EDB). The United States Environmental Protection Agency (U~~.~~S~~.~~EPA) sets drinking water standards and has determined that EDB is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, EDB may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. U~~.~~S~~.~~EPA has set the drinking water standard for EDB at 0.00005 parts per

million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to EDB.

40) Heptachlor. This contaminant is subject to an "additional State requirement". The supplier shall give the following notice if the level exceeds the Section 611.311 MCL. If the level exceeds the Section 611.310 MCL, but not that of Section 611.311, the supplier shall give a general notice under Section 611.854.

The United States Environmental Protection Agency (U~~.~~S~~. ~~EPA) sets drinking water standards and has determined that heptachlor is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, heptachlor may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. U~~.~~S~~. ~~EPA has set the drinking water standards for heptachlor at 0.0004 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to heptachlor.

41) Heptachlor epoxide. This contaminant is subject to an "additional State requirement". The supplier shall give the following notice if the level exceeds the Section 611.311 MCL. If the level exceeds the Section 611.310 MCL, but not that of Section 611.311, the supplier shall give a general notice under Section 611.854.

The United States Environmental Protection Agency (U~~.~~S~~. ~~EPA) sets drinking water standards and has determined that heptachlor epoxide is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, heptachlor epoxide may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. U~~.~~S~~. ~~EPA has set the drinking water standards for heptachlor epoxide at 0.0002 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to heptachlor epoxide.

42) Lindane. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that lindane is a health concern at certain levels of exposure. This organic chemical is used as a pesticide. When soil and climatic conditions are favorable, lindane may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to damage the liver, kidney, nervous system, and immune system of laboratory animals such as rats, mice and dogs exposed at high levels during their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system and circulatory system. U~~.~~S~~. ~~EPA has established the drinking water standard for lindane at 0.0002 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~. ~~EPA standard is associated with little to none of this risk and is considered safe with respect to lindane.

43) Methoxychlor. The United States Environmental Protection Agency (U~~.~~S~~. ~~EPA) sets drinking water standards and has determined that methoxychlor is a health concern at certain levels of exposure. This organic chemical is used as a pesticide. When soil and climatic conditions are favorable, methoxychlor may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to damage the liver, kidney, nervous system, and reproductive system of laboratory animals such as rats exposed at high levels during their lifetimes. It has also been shown to produce growth retardation in rats. U~~.~~S~~. ~~EPA has set the drinking water standard for methoxychlor at 0.04 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~. ~~EPA standard is associated with little to none of this risk and is considered safe with respect to methoxychlor.

44) Monochlorobenzene. The United States Environmental Protection Agency (U~~.~~S~~. ~~EPA) sets drinking water standards and has determined that monochlorobenzene is a health concern at certain levels of exposure. This organic chemical is used as a solvent. It generally gets into water by improper waste disposal. This chemical has been shown to damage the liver, kidney and nervous system of laboratory animals such as rats and mice exposed to high levels during their lifetimes. U~~.~~S~~. ~~EPA has set the drinking water standard for monochlorobenzene at 0.1 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~. ~~EPA standard is associated with little to none of this risk and is considered safe with respect to monochlorobenzene.

45) Polychlorinated biphenyls (PCBs). The United States Environmental Protection Agency (U~~.~~S~~. ~~EPA) sets drinking water standards and has determined that polychlorinated biphenyls (PCBs) are a health

concern at certain levels of exposure. These organic chemicals were once widely used in electrical transformers and other industrial equipment. They generally get into drinking water by improper waste disposal or leaking electrical industrial equipment. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. U~~.~~S~~. ~~EPA has set the drinking water standard for PCBs at 0.0005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to PCBs.

46) Pentachlorophenol. The United States Environmental Protection Agency (U~~.~~S~~. ~~EPA) sets drinking water standards and has determined that pentachlorophenol is a health concern at certain levels of exposure. This organic chemical is widely used as a wood preservative, herbicide, disinfectant, and defoliant. It generally gets into drinking water by runoff into surface water or leaching into groundwater. This chemical has been shown to produce adverse reproductive effects and to damage the liver and kidneys of laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the liver and kidneys. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. U~~.~~S~~. ~~EPA has set the drinking water standard for pentachlorophenol at 0.001 parts per million (ppm) to reduce the risk of adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to pentachlorophenol.

47) Styrene. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that styrene is a health concern at certain levels of exposure. This organic chemical is commonly used to make plastics and is sometimes a component of resins used for drinking water treatment. Styrene may get into drinking water from improper waste disposal. This chemical has been shown to damage the liver and nervous system in laboratory animals when exposed at high levels during their lifetimes. U~~.~~S~~. ~~EPA has set the drinking water standard for styrene at 0.1 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~. ~~EPA standard is associated with little to none of this risk and is considered safe with respect to styrene.

48) Tetrachloroethylene. The United States Environmental Protection Agency (U~~.~~S~~. ~~EPA) sets drinking water standards and has determined that tetrachloroethylene is a health concern at certain levels of exposure. This organic chemical has been a popular solvent, particularly for dry cleaning. It generally gets into drinking water by improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. U~~.~~S~~. ~~EPA has set the drinking water standard for tetrachloroethylene at 0.005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to tetrachloroethylene.

49) Toluene. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that toluene is a health concern at certain levels of exposure. This organic chemical is used as a solvent and in the manufacture of gasoline for airplanes. It generally gets into water by improper waste disposal or leaking underground storage tanks. This chemical has been shown to damage the kidney, nervous system, and circulatory system of laboratory animals such as rats and mice exposed to high levels during their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during working careers also suffered damage to the liver, kidney and nervous system. U~~.~~S~~. ~~EPA has set the drinking water standard for toluene at 1 part per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated with little to none of this risk and is considered safe with respect to toluene.

50) Toxaphene. The United States Environmental Protection Agency (U~~.~~S~~. ~~EPA) sets drinking water standards and has determined that toxaphene is a health concern at certain levels of exposure. This organic chemical was once a pesticide widely used on cotton, corn, soybeans, pineapples and other crops. When soil and climatic conditions are favorable, toxaphene may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. U~~.~~S~~. ~~EPA has set the drinking water standard for toxaphene at 0.003 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this

standard is associated with little to none of this risk and is considered safe with respect to toxaphene.

51) 2,4,5-TP. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that 2,4,5-TP is a health concern at certain levels of exposure. This organic chemical is used as a herbicide. When soil and climatic conditions are favorable, 2,4,5-TP may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to damage the liver and kidney of laboratory animals such as rats and dogs exposed to high levels during their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during working careers also suffered damage to the nervous system. U~~.~~S~~.~~ EPA has set the drinking water standard for 2,4,5-TP at 0.05 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated with little to none of this risk and is considered safe with respect to 2,4,5-TP.

52) Xylenes. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that xylene is a health concern at certain levels of exposure. This organic chemical is used in the manufacture of gasoline for airplanes and as a solvent for pesticides, and as a cleaner and degreaser of metals. It usually gets into water by improper waste disposal. This chemical has been shown to damage the liver, kidney and nervous system of laboratory animals such as rats and dogs exposed to high levels during their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. U~~.~~S~~.~~ EPA has set the drinking water standard for xylene at 10 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated with little to none of this risk and is considered safe with respect to xylene.

53) Antimony. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that antimony is a health concern at certain levels of exposure. This inorganic chemical occurs naturally in soils, ground~~-~~water, and surface water and is often used in the flame retardant industry. It is also used in ceramics and glass, batteries, fireworks, and explosives. It may get into drinking water through natural weathering of rock, industrial production, municipal waste disposal, or manufacturing processes. This chemical has been shown to decrease longevity, and altered blood levels of cholesterol and glucose in laboratory animals such as rats exposed to high levels during their lifetimes. U~~.~~S~~.~~ EPA has set the drinking water standard for antimony at 0.006 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated

with little to none of this risk and is considered safe with respect to antimony.

54) Beryllium. The United States Environmental Protection Agency (U~~.~~S~~. ~~EPA) sets drinking water standards and has determined that beryllium is a health concern at certain levels of exposure. This inorganic chemical occurs naturally in soils, ground-water, and surface water and is often used in electrical equipment and electrical components. It generally gets into water from runoff from mining operations, discharge from processing plants, and improper waste disposal. Beryllium compounds have been associated with damage to the bones and lungs and induction of cancer in laboratory animals such as rats and mice when the animals are exposed to high levels during their lifetimes. There is limited evidence to suggest that beryllium may pose a cancer risk via drinking water exposure. Therefore, U~~.~~S~~. ~~EPA based the health assessment on noncancer effects with and extra uncertainty factor to account for possible carcinogenicity. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. U~~.~~S~~. ~~EPA has set the drinking water standard for beryllium at 0.004 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~. ~~EPA standard is associated with little to none of this risk and is considered safe with respect to beryllium.

55) Cyanide. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that cyanide is a health concern at certain levels of exposure. This inorganic chemical is used in electroplating, steel processing, plastics, synthetic fabrics, and fertilizer products. It usually gets into water as a result of improper waste disposal. This chemical has been shown to damage the spleen, brain, and liver of humans fatally poisoned with cyanide. U~~.~~S~~. ~~EPA has set the drinking water standard for cyanide at 0.2 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~. ~~EPA standard is associated with little to none of this risk and is considered safe with respect to cyanide.

56) Nickel. ~~The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that nickel is a health concern at certain levels of exposure. This inorganic chemical occurs naturally in soils, ground water, and surface water and is often used in electroplating, stainless steel, and alloy products. It generally gets into water from mining and refining operations. This chemical has been shown to damage the heart and liver in laboratory animals when the animals are exposed to high levels over their lifetimes. U.S. EPA has set the drinking water standard at 0.1 parts per million (ppm) for nickel to protect against the risk of these adverse health effects.~~

~~Drinking water that meets the U.S. EPA standard is associated with little to none of this risk and is considered safe with respect to nickel.~~This subsection corresponds with 40 CFR 141.32(e)(56) marked "reserved" by USEPA. This statement maintains structural consistency with USEPA rules.

57) Thallium. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that thallium is a health concern at certain high levels of exposure. This inorganic chemical occurs naturally in soils, ground~~-~~water, and surface water and is used in electronics, pharmaceuticals, and the manufacture of glass and alloys. This chemical has been shown to damage the kidney, liver, brain, and intestines of laboratory animals when the animals are exposed to high levels during their lifetimes. U~~.~~S~~. ~~EPA has set the drinking water standard for thallium at 0.002 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~. ~~EPA standard is associated with little to none of this risk and is considered safe with respect to thallium.

58) Benzo(a)pyrene. The United States Environmental Protection Agency (U~~.~~S~~. ~~EPA) sets drinking water standards and has determined that benzo(a)pyrene is a health concern at certain levels of exposure. Cigarette smoke and charbroiled meats are common sources of general exposure. The major source of benzo(a)pyrene in drinking water is the leaching from coal tar lining and sealants in water storage tanks. This chemical has been shown to cause cancer in animals such as rats and mice when the animals are exposed to high levels. U~~.~~S~~. ~~EPA has set the drinking water standard for benzo(a)pyrene at 0.0002 parts per million (ppm) to protect against the risk of cancer. Drinking water that meets the U~~.~~S~~. ~~EPA standard is associated with little to none of this risk and is considered safe with respect to benzo(a)pyrene.

59) Dalapon. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that dalapon is a health concern at certain levels of exposure. This organic chemical is a widely used herbicide. It may get into drinking water after application to control grasses in crops, drainage ditches, and along railroads. This chemical has been associated with damage to the kidney and liver in laboratory animals when the animals are exposed to high levels during their lifetimes. U~~.~~S~~.~~ EPA has set the drinking water standard for dalapon at 0.2 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~. ~~EPA standard is associated with little to none of this risk and is considered safe with respect to dalapon.

60) Dichloromethane. The United States Environmental Protection Agency (U~~.~~S~~. ~~EPA) sets drinking water standards and has determined that dichloromethane (methylene chloride) is a health concern at

certain levels of exposure. This organic chemical is a widely used solvent. It is used in the manufacture of paint remover, as a metal degreaser, and as an aerosol propellant. It generally gets into water after improper discharge of waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed to high levels during their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. U~~.~~S~~.~~ EPA has set the drinking water standard for dichloromethane at 0.005 parts per million (ppm) to protect against the risk of cancer or other adverse health effects. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated with little to none of this risk and is considered safe with respect to dichloromethane.

61) Di(2-ethylhexyl)adipate. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that di(2-ethylhexyl)adipate is a health concern at certain levels of exposure. Di(2-ethylhexyl)adipate is a widely used plasticizer in a variety of products, including synthetic rubber, food packaging materials, and cosmetics. It may get into drinking water after improper waste disposal. This chemical has been shown to damage the liver and testes in laboratory animals such as rats and mice when the animals are exposed to high levels. U~~.~~S~~.~~ EPA has set the drinking water standard for di(2-ethylhexyl)adipate at 0.4 parts per million (ppm) to protect against the risk of adverse health effects that have been observed in laboratory animals. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated with little to none of this risk and is considered safe with respect to di(2-ethylhexyl)adipate.

62) Di(2-ethylhexyl)phthalate. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that di(2-ethylhexyl)phthalate is a health concern at certain levels of exposure. Di(2-ethylhexyl)phthalate is a widely used plasticizer, which is primarily used in the production of polyvinyl chloride (PVC) resins. It may get into drinking water after improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed to high levels during their lifetimes. U~~.~~S~~.~~ EPA has set the drinking water standard for di(2-ethylhexyl)phthalate at 0.006 parts per million (ppm) to protect against the risk of cancer or other adverse health effects which have been abserved in laboratory animals. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated with little to none of this risk and is considered safe with respect to di(2-ethylhexyl)phthalate.

63) Dinoseb. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that dinoseb is a health concern at certain levels of exposure. Dinoseb is a widely used pesticide and generally gets into water after

application on orchards, vineyards, and other crops. This chemical has been shown to damage the thyroid and reproductive organs in laboratory animals such as rats exposed to high levels. U~~.~~S~~.~~ EPA has set the drinking water standard for dinoseb at 0.007 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated with little to none of this risk and is considered safe with respect to dinoseb.

64) Diquat. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that diquat is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control terrestrial and aquatic weeds. It may get into drinking water by runoff into surface water. This chemical has been shown to damage the liver, kidney, and gastrointestinal tract and causes cataract formation in laboratory animals such as dogs and rats exposed at high levels over their lifetimes. U~~.~~S~~.~~ EPA has set the drinking water standard for diquat at 0.02 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated with little to none of this risk and is considered safe with respect to diquat.

65) Endothall. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that endothall is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control terrestrial and aquatic weeds. It may get into drinking water by runoff into surface water. This chemical has been shown to damage the liver, kidney, gastrointestinal tract, and reproductive system of laboratory animals such as rats and mice exposed at high levels over their lifetimes. U~~.~~S~~.~~ EPA has set the drinking water standard for endothall at 0.1 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated with little to none of this risk and is considered safe with respect to endothall.

66) Endrin. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that endrin is a health concern at certain levels of exposure. This organic chemical is a pesticide no longer registered for use in the United States. However, this pesticide is persistent in treated soils and accumulates in sediments and aquatic and terrestrial biota. This chemical has been shown to cause damage to the liver, kidney, and heart in laboratory animals such as rats and mice when the animals are exposed to high levels during their lifetimes. U~~.~~S~~.~~ EPA has set the drinking water standard for endrin at 0.002 parts per million (ppm) to protect against the risk of these adverse health effects that have been observed in laboratory animals. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated with

little to none of this risk and is considered safe with respect to endrin.

67) Glyphosate. The United States Environmental Protection Agency (U~~.~~S~~. ~~EPA) sets drinking water standards and has determined that glyphosate is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control grasses and weeds. It may get into drinking water by runoff into surface water. This chemical has been shown to cause damage to the liver and kidneys in laboratory animals such as rats and mice when the animals are exposed to high levels during their lifetimes. U~~.~~S~~.~~ EPA has set the drinking water standard for glyphosate at 0.7 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~. ~~EPA standard is associated with little to none of this risk and is considered safe with respect to glyphosate.

68) Hexachlorobenzene. The United States Environmental Protection Agency (U~~.~~S~~. ~~EPA) sets drinking water standards and has determined that hexachlorobenzene is a health concern at certain levels of exposure. This organic chemical is produced as an impurity in the manufacture of certain solvents and pesticides. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed to high levels during their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. U~~.~~S~~. ~~EPA has set the drinking water standard for hexachlorobenzene at 0.001 parts per million (ppm) to protect against the risk of cancer and other adverse health effects. Drinking water that meets the U~~.~~S~~. ~~EPA standard is associated with little to none of this risk and is considered safe with respect to hexachlorobenzene.

69) Hexachlorocyclopentadiene. The United States Environmental Protection Agency (U~~.~~S~~. ~~EPA) sets drinking water standards and has determined that hexachlorocyclopentadiene is a health concern at certain levels of exposure. This organic chemical is a used as an intermediate in the manufacture of pesticides and flame retardants. It may get into water by discharge from production facilities. This chemical has been shown to damage the kidney and the stomach of laboratory animals when exposed to high levels during their lifetimes. U~~.~~S~~. ~~EPA has set the drinking water standard for hexachlorocyclopentadiene at 0.05 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~. ~~EPA standard is associated with little to none of this risk and is considered safe with respect to hexachlorocyclopentadiene.

70) Oxamyl. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that oxamyl is a health concern at certain levels of exposure. This organic

chemical is used as a pesticide for the control of insects and other pests. It may get into drinking water by runoff into surface water or leaching into ground~~-~~water. This chemical has been shown to damage the kidneys of laboratory animals such as rats when exposed at high levels during their lifetimes. U~~.~~S~~.~~ EPA has set the drinking water standard for oxamyl at 0.2 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated with little to none of this risk and is considered safe with respect to oxamyl.

71) Picloram. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that picloram is a health concern at certain levels of exposure. This organic chemical is used as a pesticide for broadleaf weed control. It may get into drinking water by runoff into surface water or leaching into groundwater as a result of pesticide application and improper waste disposal. This chemical has been shown to cause damage to the kidneys and liver in laboratory animals such as rats when the animals are exposed to high levels during their lifetimes. U~~.~~S~~.~~ EPA has set the drinking water standard for picloram at 0.5 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated with little to none of this risk and is considered safe with respect to picloram.

72) Simazine. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that simazine is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control annual grasses and broadleaf weeds. It may leach into groundwater or run off into surface water after application. This chemical may cause cancer in laboratory animals such as rats and mice when the animals are exposed to high levels during their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. U~~.~~S~~.~~ EPA has set the drinking water standard for simazine at 0.004 parts per million (ppm) to reduce the risk of cancer or adverse health effects. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated with little to none of this risk and is considered safe with respect to simazine.

73) 1,2,4-Trichlorobenzene. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that 1,2,4-trichlorobenzene is a health concern at certain levels of exposure. This organic chemical is used as a dye carrier and as a precursor in herbicide manufacture. It generally gets into drinking water by discharges from industrial activities. This chemical has been shown to cause damage to several organs, including the adrenal glands. U~~.~~S~~.~~ EPA has set the drinking water standard for 1,2,4-trichlorobenzene at 0.07

parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated with little to none of this risk and is considered safe with respect to 1,2,4-trichlorobenzene.

74) 1,1,2-Trichloroethane. The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that 1,1,2-trichloroethane is a health concern at certain levels of exposure. This organic chemical is an intermediate in the production of 1,1-dichloroethylene. It generally gets into water by industrial discharge of wastes. This chemical has been shown to damage the kidney and liver of laboratory animals such as rats exposed to high levels during their lifetimes. U~~.~~S~~.~~ EPA has set the drinking water standard for 1,1,2-trichloroethane at 0.005 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated with little to none of this risk and is considered safe with respect to 1,1,2-trichloroethane.

75) 2,3,7,8-TCDD (dioxin). The United States Environmental Protection Agency (U~~.~~S~~.~~ EPA) sets drinking water standards and has determined that dioxin is a health concern at certain levels of exposure. This organic chemical is an impurity in the production of some pesticides. It may get into drinking water by industrial discharge of wastes. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed to high levels during their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. U~~.~~S~~.~~ EPA has set the drinking water standard for dioxin at 0.00000003 parts per million (ppm) to protect against the risk of cancer or other adverse health effects. Drinking water that meets the U~~.~~S~~.~~ EPA standard is associated with little to none of this risk and is considered safe with respect to dioxin.

BOARD NOTE: Derived from 40 CFR 141.32(e) (19945).

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

Section 611.Appendix B Percent Inactivation of G. Lamblia Cysts

TABLE 1.1
CT-99.9 FOR 99.9 PERCENT INACTIVATION OF GIARDIA LAMBLIA CYSTS BY FREE CHLORINE AT 0.5 DEGREES C OR LOWER

These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the CT 99.9 value at the lower temperature and at the higher pH.

Free Residual (mg/L)	pH ~~<=~~≦6.0	6.5	7.0	7.5	8.0	8.5	~~<=~~≧9.0
~~<=~~≦0.41	137	163	195	237	277	329	390
0.6	141	168	200	239	286	342	407
0.8	145	172	205	246	295	354	422
1.0	148	176	210	253	304	365	437
1.2	152	180	215	259	313	~~2~~376	451
1.4	155	184	221	266	321	387	464
1.6	157	189	226	273	329	397	477
1.8	162	193	231	279	338	407	489
2.0	165	197	236	286	346	417	500
2.2	169	201	242	297	353	426	511
2.4	172	205	247	29~~6~~8	361	435	522
2.6	175	209	252	304	368	444	533
2.8	178	213	257	310	375	452	543
3.0	181	217	261	316	382	460	552

TABLE 1.2
CT-99.9 FOR 99.9 PERCENT INACTIVATION OF GIARDIA LAMBLIA CYSTS
BY FREE CHLORINE AT 5.0 DEGREES C

These CT values achieve greater than a 99.99 percent inctivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the CT 99.9 value at the lower temperature and at the higher pH.

Free Residual (mg/L)	pH ~~<=~~≦6.0	6.5	7.0	7.5	8.0	8.5	~~<=~~≧9.0
~~<=~~≦0.4	97	117	139	166	198	236	279
0.6	100	120	143	171	204	244	291
0.8	103	122	146	175	210	252	301
1.0	105	125	149	179	216	260	312
1.2	107	127	152	183	221	267	320
1.4	109	130	155	187	227	274	329
1.6	111	132	158	192	232	281	337
1.8	114	135	162	196	238	287	345
2.0	116	138	165	200	243	294	353
2.2	118	140	169	204	248	300	361
2.4	120	143	172	209	253	306	368
2.6	122	146	175	213	258	312	375
2.8	124	148	178	217	263	318	382
3.0	126	151	182	221	268	324	369

TABLE 1.3
CT-99.9 FOR 99.9 PERCENT INACTIVATION OF GIARDIA LAMBLIA CYSTS
BY FREE CHLORINE AT 10.0 DEGREES C

These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the CT 99.9 value at the lower temperature and at the higher pH.

Free Residual (mg/L)	pH ~~<=~~≦6.0	6.5	7.0	7.5	8.0	8.5	~~<=~~≧9.0
~~<=~~≦0.4	73	88	104	125	149	177	209
0.6	75	90	107	128	153	183	21~~0~~8
0.8	78	92	110	131	158	189	22~~0~~6
1.0	79	94	112	134	162	195	234
1.2	80	95	114	137	166	200	240
1.4	82	98	116	140	170	206	247
1.6	83	99	119	144	174	211	253
1.8	86	101	122	147	179	215	259
2.0	87	104	124	150	182	221	265
2.2	89	105	127	153	186	225	271
2.4	90	107	129	157	190	230	276
2.6	92	110	131	160	194	234	281
2.8	93	111	134	163	197	239	287
3.0	95	113	137	166	201	243	292

TABLE 1.4
CT-99.9 FOR 99.9 PERCENT INACTIVATION OF GIARDIA LAMBLIA CYSTS BY FREE CHLORINE AT 15.0 DEGREES C

These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the CT 99.9 value at the lower temperature and at the higher pH.

Free Residual (mg/L)	pH ~~<=~~≦6.0	6.5	7.0	7.5	8.0	8.5	~~<=~~≧9.0
~~<=~~≦0.4	49	59	70	83	99	118	140
0.6	50	60	72	86	102	122	146
0.8	52	61	73	88	105	126	151
1.0	53	63	75	90	108	130	156
1.2	54	64	76	92	111	134	160
1.4	55	65	78	94	114	137	165
1.6	56	66	79	96	116	141	169
1.8	57	68	81	9~~6~~8	119	144	173
2.0	58	69	83	100	122	147	177
2.2	59	70	85	102	124	150	181
2.4	60	72	86	105	127	153	184
2.6	61	73	88	107	129	156	188
2.8	62	74	89	109	132	159	191
3.0	63	76	91	111	134	162	195

TABLE 1.5
CT-99.9 FOR 99.9 PERCENT INACTIVATION OF GIARDIA LAMBLIA CYSTS BY FREE CHLORINE AT 20 DEGREES C

These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the CT 99.9 value at the lower temperature and at the higher pH.

Free Residual				pH			
(mg/L)	~~<=~~≦6.0	6.5	7.0	7.5	8.0	8.5	~~<=~~≧9.0
~~<=~~≦0.4	36	44	52	62	74	89	105
0.6	38	45	54	64	77	92	109
0.8	39	46	55	66	79	95	113
1.0	39	47	56	67	81	98	117
1.2	40	48	57	69	83	100	120
1.4	41	49	58	70	85	103	123
1.6	42	50	59	72	87	105	126
1.8	43	51	61	74	89	108	129
2.0	44	52	62	75	91	110	132
2.2	44	53	63	77	93	113	135
2.4	45	54	65	78	95	115	138
2.6	46	55	66	80	97	117	141
2.8	47	56	67	81	99	119	143
3.0	47	57	68	83	101	122	146

TABLE 1.6
CT-99.9 FOR 99.9 PERCENT INACTIVATION OF GIARDIA LAMBLIA CYSTS BY FREE CHLORINE AT 25 DEGREES C AND HIGHER

These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the CT 99.9 value at the lower temperature and at the higher pH.

Free Residual				pH			
(mg/L)	~~<=~~≦6.0	6.5	7.0	7.5	8.0	8.5	~~<=~~≧9.0
~~<=~~≦0.4	24	29	35	42	50	59	70
0.6	25	30	36	43	51	61	73
0.8	26	31	37	44	53	63	75
1.0	26	31	37	45	54	65	78
1.2	27	32	38	46	55	67	80
1.4	27	33	39	47	57	69	82
1.6	28	33	40	48	58	70	84
1.8	29	34	41	49	60	72	86
2.0	29	35	41	50	61	74	88

2.2	30	35	42	51	62	75	90
2.4	30	36	43	52	63	77	92
2.6	31	37	44	53	65	78	94
2.8	31	37	45	54	66	80	96
3.0	32	38	46	55	67	81	97

TABLE 2.1
CT-99.9 FOR 99.9 PERCENT INACTIVATION OF GIARDIA LAMBLIA CYSTS BY CHLORINE DIOXIDE AND OZONE

These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature for determining $CT_{99.9}$ values between indicated temperatures.

	~~<=~~≤1°C	5°C	10°C	15°C	20°C	~~>~~25°C
Chlorine dioxide	63~~.~~	26~~.~~	23~~.~~	19~~.~~	15~~.~~	11~~.~~
Ozone	2.9	1.9	1.4	0.95	0.72	0.48

TABLE 3.1
CT-99.9 FOR 99.9 PERCENT INACTIVATION OF GIARDIA LAMBLIA CYSTS BY CHLORAMINES

These values are for pH values of 6 to 9. These CT values may be assumed to achieve greater than a 99.99 percent inactivation of viruses only if chlorine is added and mixed in the water prior to the addition of ammonia. If this condition is not met, the system must demonstrate, based on on-site studies or other information, as approved by the Agency, that the system is achieving at least a 99.99 percent inactivation of viruses. CT values between the indicated temperatures may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature for determining $CT_{99.9}$ values between indicated temperatures.

	~~<=~~≤1°C	5°C	10°C	15°C	20°C	~~>~~≥25°C
Chloramines	3800~~.~~	2200~~.~~	1850~~.~~	1500~~.~~	1100~~.~~	750~~.~~

BOARD NOTE: Derived from 40 CFR 141.74(b) Tables~~, as adopted at 54 Fed. Reg. 27526, June 29, 1989~~ 1.1 through 3.1 (1995).

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

Section 611.Table F Number of Water Quality Parameter Sampling Sites

System Size (Persons Served)	Number of Sites (Standard Monitoring)	(Reduced Monitoring)
more than 100,000	25	10
10,001 to 100,000	10	7
3,301 to 10,000	3	3

501 to 3,300	2	2
101 to 500	1	1
100 or fewer	1	1

BOARD NOTE: Derived from 40 CFR 141.87(a)(2) and (e) (1992).

(Source: Amended at 20 Ill. Reg. ________, effective ______________________)

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above proposed opinion and order was adopted on the _____ day of ______________, 1996, by a vote of ____.

Dorothy M. Gunn, Clerk
Illinois Pollution Control Board