

ILLINOIS POLLUTION CONTROL BOARD
March 16, 1995

IN THE MATTER OF:)
)
SAFE DRINKING WATER ACT) R94-23
UPDATE, LEAD AND COPPER) (Identical-in-Substance Rules)
RULES CORRECTIONS, January 31) (Public Water Supplies)
through June, 30, 1994)

IN THE MATTER OF:)
)
SAFE DRINKING WATER ACT) R95-3
UPDATE, LEAD AND COPPER) (Identical-in-Substance Rules)
RULES CORRECTIONS, July 1) (Public Water Supplies)
through December, 31, 1994)

Proposal for Public Comment.

PROPOSED 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 proposes to update its regulations that are identical in substance to U.S. EPA regulations implementing the Safe Drinking Water Act (SDWA). The Board rules are contained in 35 Ill. Adm. Code 611. The text of the proposed 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 corrections to the lead and copper rules, as adopted by U.S. EPA on June 30, 1994 and a note to a recent judicial decision, that affects the implementation of those rules.

PUBLIC COMMENTS

The Board requests public comments on this proposal. The Board will accept comments for 45 days after a Notice of Proposed Amendments appears in the Illinois Register. The Board will then act promptly to adopt amendments based on the federal amendments involved in this docket.

Interested persons should address their comments to the Clerk of the Board. They should provide one original and nine copies and reference docket number R94-23/R95-3 on the front of each copy. Direct all questions to Michael J. McCambridge, at 312-814-6924.

ROUTINE DISCUSSIONS

At the end of the opinion segment of this document are two routine discussions generally made a 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 R94-23 docket is from January 1, 1994 through June 30, 1994. The nominal update period of the R95-3 docket is from July 1, 1994 through December 31, 1994. U.S. EPA amended its SDWA regulations three times during the two update periods. The federal actions during the time-frame of this docket were as follows:

- 59 Fed. Reg. 33860 (June 30, 1994) (Lead and Copper corrections)
- 59 Fed. Reg. 34320 (July 1, 1994) (Monitoring for Unregulated Contaminants)
- 59 Fed. Reg. 62470 (Dec. 5, 1994) (Analytical Methods)

The amendments to the lead and copper rules, adopted by U.S. EPA on June 30, 1994, corrected typographical errors, clarified language, and restored special primacy provisions inadvertently omitted by U.S. EPA in earlier rulemaking. U.S. EPA stated that it intended to clarify the regulations in order to simplify implementation. The amendments of July 1, 1994 similarly corrected typographical errors, clarified language, and corrected errors in regulatory text from U.S. EPA's stated intent in the Phase I, Phase II, and Phase V rules. The amendments of December 5, 1994 approved new and updated existing analytical methods. Essentially, these last updates are intended to eliminate multiple uses of procedures, which have resulted in the use of multiple versions of methods for different purposes.

Another related aspect of this update concerns a judicial challenge to the federal lead and copper regulations. In American Water Works Association v. EPA, 40 F.3d 1266 (D.C. Cir. 1994), the federal appellate court vacated an aspect of a definition instrumental to implementation of certain of the lead and copper regulations. Although the Board did not base substantive amendments on the federal judicial decision, we added a Board Note to the affected segment of the rules to indicate the action and state its probable impact on the enforceability of the affected rule.

CONSOLIDATION OF DOCKETS

Although the Board generally deals with each update batch separately, we deal with them together in this instance because it is expeditious for the Board and it will avoid misleading the public. The present SDWA amendments of December 5, 1994 affect some of the same provisions as the amendments of June 30, 1994. In at least one key instance (40 CFR 141.89(a)), the amendments of December obviate the amendments of June.

Generally, where such an overlap of substance occurs, the Board is inclined to pull the later amendments forward and deal with them in the earlier docket. This avoids duplication of effort and confusion in the regulated community. This often allows dismissal of the later docket. The Board is dealing with the later amendments together with the earlier amendments and did not delay in this instance for the following reasons:

- 1) The July 1 and December 5, 1994 amendments were directly affected by the June 30, 1994 amendments; and
- 2) Prompt action on the July 1 and December 5, 1994 amendments will facilitate implementation of the regulations.

Although we are dealing with all amendments together, the Board does not believe that outright dismissal of the later R95-3 docket is appropriate; the amendments are major in importance. For these reasons, the Board has consolidated the two proceedings, in order to avoid any possible confusion and to particularly draw the attention of the interested public to both sets of amendments.

The Board also notes that the later amendments occurred within six months of the earliest amendments included in this docket, even if they occurred outside the nominal time-frame of the docket.

DETAILED SECTION-BY-SECTION-ANALYSIS

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

Routine, General Amendments--All Sections

The Board has performed a number of standard revisions to the text of the federal rules. The rationale behind many of these is discussed in the August 9, 1990 opinion and order in docket R88-26 (Phase I rules), and we will not repeat those discussions here. Others 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 1993 version of the Code of Federal Regulations and to reference the June 30, 1994 Federal Register action, where appropriate.
4. We have made a number of changes based on the unique attributes of the Illinois regulatory scheme and on certain stylistic preferences, as described in the Addendum re Standardized Modifications of Federal Text at the end of this opinion.

General Housekeeping Amendments

Completing a practice begun in an earlier update docket, the Board changes all remaining references to the United States Environmental Protection Agency to "U.S. EPA" throughout the text of the regulations. This includes the redesignation of "Inorganic Methods" as "U.S. EPA Inorganic Methods". This occurred in Sections 611.100, 611.102, 611.110, 611.111, 611.112, 611.113, 611.130, 611.201, 611.212, 611.300, 611.301, 611.310, 611.311, 611.351, 611.359, 611.480, 611.490, 611.500, 611.510, 611.522, 611.523, 611.560, 611.600, 611.601, 611.605, 611.611, 611.612, 611.630, 611.646, 611.647, 611.648, 611.860, 611.Table E, and 611.Table Z. In many of these provisions, this is the only amendment. While the Board has traditionally waited until Sections open for other amendments to make stylistic revisions and minor corrections, we will make these changes now in order to complete the change and make the regulations internally consistent. Further, since the volume of substantive amendments is light in this update, it is convenient to make these changes now.

A similar set of amendments relates to correction of citations to the Illinois Compiled Statutes and the format of those citations. These corrections occurred at Sections 611.100, 611.101, 611.125, and 611.220. All citations to the older Illinois Revised Statutes have been deleted where they appeared. The statutory titles have been corrected at Sections 611.100, 611.125, and 611.220.

Other general amendments were ancillary to the substantive amendments in this docket. The following discussions specifically highlight these amendments.

Definitions--Section 611.101

U.S. EPA corrected 40 CFR 141.2 at 59 Fed. Reg. 34322 (July

1, 1994) by amending one definition and adding another. The amendments to the definition of "initial compliance period" related to citation format and correction of a cross-reference to the list of inorganic chemical contaminants (IOCs) for which the initial compliance period did not begin on January 1, 1993. The added definition was of "transient non-community water system", which U.S. EPA abbreviated as "TWS" and the Board abbreviated as "transient non-CWS".

Section 611.102 corresponds with 40 CFR 141.2. There was no amendment necessary to the definition of "initial compliance period" in the Illinois regulations. The citation format and citation corrections are meaningless because the Board inserted the IOC names in place of the cross-references when initially adopting the definition.

The Board foresaw the need and added the definition of "transient non-community water system" when initially adopting the regulations, so the addition of the definition was unnecessary. However, U.S. EPA defined the term directly, and the Board's former definition appeared in terms of what a transient non-CWS was not. (It was not a community waste system and not a non-transient non-CWS.) The definition is now amended to use U.S. EPA's language. We note, however, that we retained our abbreviation for the term, "transient non-CWS", rather than use the federal "TWS", because throughout the course of these SDWA updates, one consistent informal complaint expressed to Board staff has related to the confusing over-use of abbreviations. For this same reason, we have deleted the former abbreviation "TNCWS", which appeared nowhere in the text of the regulations but in this definition. **The Board invites comment on our definitions of "initial compliance period" and "transient non-community water system".**

Effective Dates--Section 611.120

U.S. EPA amended 40 CFR 141.6(a) at 59 Fed. Reg. 34322 (July 1, 1994) to correct the reference to the exceptions from the general effective date and to correct a reference in one of the exceptions. It amended 40 CFR 141.60(a)(3) at 59 Fed. Reg. 34324 (July 1, 1994) to change the effective date for the MCL for endrin from January 17, 1994 to August 17, 1992. The Board has an effective date reference at Section 611.120 that is fundamentally different from the federal provision. Without regard to when the federal regulations become effective, the Illinois regulations are effective at a later date: when they are filed with the Secretary of State. That is the general rule on effective dates recited in Section 611.120. Therefore, amendments based on the federal corrections are unnecessary.

Special Primacy Requirements--Section 611.130

U.S. EPA added 40 CFR 142.16(d) at 59 Fed. Reg. 33864 (June 30, 1994). This sets forth the special primacy requirements for state lead and copper programs. U.S. EPA explained that the Phase II amendments of July 30, 1992 at 56 Fed. Reg. 3526 (Jan. 30, 1991) erroneously deleted these provisions. The recent amendment restored them.

The Illinois regulations do not include a counterpart to 40 CFR 142.16 because such a provision is unnecessary. This rule applies only to the state, and not to the regulated community. Therefore, no amendment is necessary based on this federal action. The Board invites comment on our approach to the lead and copper special primacy requirements.

U.S. EPA corrected a reference to another agency's regulations in 40 CFR 142.62(g)(2), at 59 Fed. Reg. 33864 (June 30, 1994). The reference was to Food and Drug Administration rules relating to the quality of bottled water.

The Board corrected the federal error in the original adoption of corresponding Section 611.130(e)(4)(C). Therefore, the only amendment we make at this time is to update the citation in the Board Note at the end of subsection (e) to include the Federal Register citation to the federal amendments to 40 CFR 142.62(g). The Board invites comment on the amendments to Section 611.130(e).

Finally, U.S. EPA corrected the listings of BAT in 40 CFR 142.62(a) at 59 Fed. Reg. 34325 (July 1, 1994). 40 CFR 142.62(a) lists BAT for all contaminants for use in obtaining relief from an MCL. In the amendments, U.S. EPA corrected the headings for "PTA" and "GAC", removed PTA as BAT for alachlor, corrected the spelling of dalapon, and changed BAT for hexachlorobenzene from OX to GAC. These corrections prompted no substantive amendments to the Illinois regulations, since the Board never adopted the table. Rather, as is explained in the Board Note to Section 611.130(c), we relied on the listings of BAT at Sections 611.301 and 611.311 for the sake of consistency. The only amendment prompted by these corrections is the deletion of the discussion in the Board Note of the probable U.S. EPA error, since U.S. EPA has now corrected that error. The Board invites comment on the Amendment to the Board Note to Section 611.130(c).

Inorganic MCLs and BAT--Section 611.301

U.S. EPA corrected the spelling of "ultraviolet" irradiation best available treatment technologies (BAT) in the key to the BAT codes in 40 CFR 141.62(c) at 59 Fed. Reg. 34325 (July 1, 1994). Since the Board corrected this misspelling in the original adoption in R93-1, no change was necessary based on this federal

action. The Board invites comment on our action on Section 611.301.

Organic MCLs and BAT--Section 611.311

U.S. EPA corrected 40 CFR 141.61 at 59 Fed. Reg. 34324-25 (July 1, 1994). Subsection (b) lists all the BAT for each contaminant. U.S. EPA corrected the heading to the table by removing "synthetic" because the table sets forth BAT for the VOCs as well. U.S. EPA further corrected the table by integrating the amendments of 57 Fed. Reg. 31846 (July 17, 1992) into the pre-existing text. The format of those amendments had the effect of replacing the prior table, rather than adding to it. Finally, U.S. EPA corrected the MCL for aldicarb in subsection (c) from 0.003 mg/l to 0.002 mg/l.

The only amendment necessary for the Board was the correction of the aldicarb MCL at Section 611.311(c). We properly integrated the table when making the R93-1 amendments, and we never included a heading for the table, so those amendments were not necessary. We note, however, that U.S. EPA indicated GAC as BAT for toxaphene. Therefore, we remove the Board Note at the end of subsection (b) that discussed that based on the preamble discussion of the rule, U.S. EPA apparently intended GAC as BAT but used PTA in the text of the rule. Since U.S. EPA has now indicated its intent by removing PTA as BAT for this contaminant, that discussion is no longer necessary. **The Board invites comment on our corrections to Section 311.611.**

Applicability of Corrosion Control--Section 611.351

U.S. EPA amended 40 CFR 141.81(c) at 59 Fed. Reg. 33862 (June 30, 1994) by adding a sentence at the end of the subsection. This statement clarifies that a small-sized or medium-sized system supplier must implement corrosion control treatment when it exceeds the lead or copper action level, even if the supplier is deemed to have optimized corrosion control. U.S. EPA stated at 59 Fed. Reg. 33861 that some persons were confused at federal language in the second sentence of that provision (i.e., whether "any such water system" excluded the small-sized or medium-sized system supplier). The added sentence makes it clear that this was not U.S. EPA's intent.

35 Ill. Adm. Code 611.351(c) derives from 40 CFR 141.81(c). In originally codifying subsection (c), the Board divided it into several subsections. We further revised the language where it was patently unclear. As a consequence, we do not see that subsection (c)(2) is subject to the interpretation that U.S. EPA now deems wrong. Nevertheless, the Board has added subsection (c)(4) to embody the added federal clarifying language. We note that we have deviated from the federal language slightly, in that we have continued our use of "supplier" in place of the federal

"system". The Board requests comment on our correction to Section 611.351(c).

Lead Service Line Replacement--Section 611.354

U.S. EPA did not amend 40 CFR 141.84 in the present update periods. Rather, this provision was the subject of litigation in federal court that resulted in a decision during the time-frame. The court in American Water Works Association v. EPA, 40 F.3d 1266 (D.C. Cir. 1994), vacated U.S. EPA's definition of "control" over a lead service connection to the extent it would require the supplier to exert "control" over a privately-owned service connection. Under this decision, U.S. EPA cannot require a supplier to replace a lead service line if it lies on private property. This is different from U.S. EPA's approach under 40 CFR 141.84(d), which requires replacement of a lead service line up to the building inlet unless it can demonstrate that it does not control the line, and 141.84(e), which presumes supplier control over the service line in the absence of certain proofs by the supplier to the contrary.

In past actions (e.g., the federal stay of the aldicarb MCLs), the Board has indicated actions that render federal requirements less than fully enforceable. Our statutory mandate, under Section 17.5 of the Act, does not allow the Board to base regulatory amendments on judicial or administrative decisions. Rather, the Board explains the fault at the federal level and states our intent that no one interpret the Illinois regulation more stringently than the corresponding federal regulation. In the present instance, the Board followed this practice by stating in the Board Note at Section 611.354(e)(2)(B) that the Illinois definition of "control" over a service line should give the state regulations the same effect as the federal definition gives the U.S. EPA regulations. The Board invites comment on our approach to the American Water Works case.

Water Quality Parameters--Section 611.357

U.S. EPA amended 40 CFR 141.87 at 59 Fed. Reg. 33862 (June 30, 1994) by revising the introductory text. U.S. EPA explained that as originally drafted, the possible interpretation was that only large system suppliers that exceed the lead or copper action level would need to sample for water quality parameters. To clarify that this was not its intent, U.S. EPA added a comma after "all large systems" in the opening language.

As for Section 611.351(c), the Board clarified the corresponding Illinois regulation in its original adoption. In this instance, the Board added the comma for the sake of clarity, so no substantive amendment is necessary. Therefore, the only amendment is updating the end Board Note to include the Federal Register citation to the federal amendment. The Board requests

comment on our approach to Section 611.357.

Reporting Requirements--Section 611.360

U.S. EPA clarified 40 CFR 141.90(g) to expressly allow 10 days for reporting data on additional monitoring. U.S. EPA stated that it originally expressly stated the 10-day limit with regard to reporting other monitoring data elsewhere in this section, and that the lack of a 10-day limit for additional monitoring was potentially confusing.

The Board amended Section 611.360(g) to reflect the federal 10-day limit. The only amendment that deviates from the federal amendments is the addition of the word "of" at the beginning of this subsection to correspond with its appearance in the federal base text. The Board invites comment on the amendments to Section 611.360.

Updated Analytical Methods and Corrected Inorganic and Microbiological Monitoring Requirements--Sections 611.102, 611.359, 611.526, 611.531, 611.611 & 611.612

U.S. EPA amended the chart and introductory text of 40 CFR 141.89(a) at 59 Fed. Reg. 33862 (June 30, 1994). The amendments were intended to correct typographical errors in the methods for orthophosphate. U.S. EPA also used the opportunity to revise the methods references to the latest versions of its own methods manuals, Standard Methods, and ASTM references. Finally, U.S. EPA sought to clarify the practical quantitation levels (PQLs) for lead and copper in 40 CFR 141.89(a)(1)(ii). This also consolidated and changed the language describing reporting lead and copper levels in that paragraph.

The Board amended the appropriate incorporations by references in Section 611.102 and the methods listed in Section 611.359 to correspond with the federal amendments. This required the addition and deletion of methods incorporated in Section 611.102, and revisions to the stated availability of some documents. As is explained more fully below, U.S. EPA consolidated the analytical methods for the lead and copper program into the inorganic methods in 40 CFR 141.23(k), at 59 Fed. Reg. 62466 and 62470 (Dec. 5, 1994). The Board followed the federal lead and consolidated the methods in corresponding Section 611.611(a). This leaves a cross-reference at Section 611.359(a) to Section 611.611(a) for the methods.

As to the changes to define PQLs and reporting lead and copper levels, the Board has effected the federal amendments with minor deviation. We added the PQL definitions as parenthetical language in Sections 611.359(a)(1)(B)(i) and (a)(1)(B)(ii) to make these both a single sentence that fits more neatly into the

broader structure of subsection (a)(1)(B). We also added the PQLs as parenthetical language in subsection (a)(3) and added the words "lead and copper" for the sake of clarity at that subsection. Since the Board previously added a definition of PQL to Section 611.350(b) based on the Federal Register preamble discussion of this concept, we revised the Board Note reference to cite the regulatory amendment as the source of this definition. **The Board invites comment on the amendments to Section 611.359.**

U.S. EPA amended 40 CFR 141.21(f) at 59 Fed. Reg. 62466 (Dec. 5, 1994). This provision sets forth the microbiological analytical procedures for coliform bacteria. The amendments updated the existing methods, each of which is referenced in the new 18th edition of Standard Methods, including the colilert test, formerly available from Environetics, Inc. U.S. EPA also approved a new test for the simultaneous detection of total coliforms and E. Coli, the "colisure test", available from Millipore Corp.

U.S. EPA amended 141.74(a) at 59 Fed. Reg. 62470 (Dec. 5, 1994), which sets forth the analytical and monitoring requirements for demonstrating compliance with the filtration and disinfection requirements. U.S. EPA updated the methods to the 18th edition of Standard Methods for total coliforms, fecal coliforms, heterotrophic bacteria, free chlorine, total chlorine, chlorine dioxide, and ozone, including the addition of 4500-Cl E, for total chlorine. A method from "Methods for the Determination of Inorganic Substances in Environmental Samples" (abbreviated in the rules as "U.S. EPA Environmental Inorganics Methods") and one from Great Lakes Instruments, Inc. (GLI) were approved for turbidity measurement.

Section 611.526 of the Illinois regulations derives from 40 CFR 141.21(f), and Section 611.531 derives from 40 CFR 141.74(a). The Board followed the federal microbiological, turbidity, and residual disinfectant methods amendments in Sections 611.526 and 611.531. We added the appropriate methods referenced by U.S. EPA to the incorporations by reference in Section 611.102. For this reason, we added definitions in Section 611.102(a) for "colisure test" and "ONGP-MUG test" (by amending the former definition of "MMO-MUG test"). In subsection (b), the Board has added the appropriate methods, but we have also deleted the following, having not found their surviving use elsewhere in the regulations: Standard Methods (14th ed.): Method 214A; Standard Methods (16th ed.): Methods 212, 214A, 408C through 408F, 410 B and C, 907A, 908 through 908E, and 909 through 909B; Standard Methods (17th ed.): 2320, 2510, 2500, and 4500-O₃; "Microbiological Methods for Monitoring the Environment, Water and Wastes", and the reference to Environetics, Inc. for the colilert test. **The Board invites comment on our update to the**

analytical methods of Sections 611.526 and 611.531.

As already mentioned, the amendments at 59 Fed. Reg. 62466 (Dec. 5, 1994) consolidated the inorganic chemical contaminant, lead and copper, and sodium analytical methods into 40 CFR 141.23(k)(1), in a single table. U.S. EPA simultaneously amended 40 CFR 141.41(d) (special monitoring for sodium) and 141.89(a) to replace the methods formerly listed at those locations with cross-references to the table of methods. Many of the methods appear as updated versions of the same methods, with updates references, and some are approvals of newer methods.

U.S. EPA amended 40 CFR 141.23 at 59 Fed. Reg. 34323 (July 1, 1994) to make corrections to the text. One correction was the consolidation of the two listings of inorganic methods, in former paragraphs (k)(1) and (k)(4), into a single table by the deletion of former paragraph (k)(1) and the renumbering of former paragraph (k)(4) to paragraph (k)(1). The corrections to paragraphs (a)(1) and (a)(2) replaced references to "the compliance period beginning January 1, 1993" to "the initial compliance period". The corrections to paragraphs (a)(5), (f)(1), and (i)(2) added antimony, beryllium, cyanide, nickel, and thallium to the list of inorganic contaminants for which a supplier must monitor. The corrections to the table of methods at paragraph (a)(4)(i) corrected the listings for the atomic absorption platform furnace method and removed a redundant footnote to the concentration method for Method 200.7A because the concentration method was already a part of the method. At paragraph (c)(1), U.S. EPA corrected "once every three years" to "during each compliance period". Finally, at a handful of locations, paragraphs (c)(5)(iii), (i)(1), (i)(2), (k)(1), and (q)(3), U.S. EPA corrected grammar and spelling errors.

The Board made the federal corrections to 40 CFR 141.23 in the corresponding provisions where necessary. Since the Board made some of the corrections in the original adoption of the regulations, those corrections are unnecessary now. We amended the table of detection limits in Section 611.600(d) to delete the concentration method of 200.7A; all others of the corrections to the table were made in initial adoption. The Board followed the federal corrections and substituted "during each compliance period" for "every three years" at Section 611.603(a)(1). We corrected Section 611.606(a) to add antimony, beryllium, cyanide, nickel, and thallium. Although not prompted directly by a parallel federal amendment, the Board added these five contaminants to the listing in Section 611.603(g). We also changed "and" to "or" at Section 611.609(a) and (b), having already made the other corrections to these provisions. The extensive renumbering of Section 611.611 was unnecessary, partly because the initial deviation in structure from 40 CFR 141.23(k), and partly because the amendments of December 5, 1994 further caused renumbering by deletion of provisions. **The Board invites**

comment on our approach to the corrections to Sections 611.600, 611.601, 611.603, 611.609, and 611.611.

The Board amended Sections 611.359(a), 611.611(a), and 611.630(d) to correspond with the federal amendments. Where the use of an updated reference or method supplants the use of earlier editions, the Board made the appropriate additions and deletions at Section 611.102. In the course of making these amendments, we relied on federal amendments to the methods for the secondary MCLs at 40 CFR 143.4(b), at 59 Fed. Reg. 62470 (Dec. 5, 1994), to update the analytical methods for the state-only MCLs for iron, manganese, and zinc at Section 611.612(f). Again, we then deleted the references in Section 611.102 to the older methods. **The Board invites comment on our approach to the inorganic analytical methods of Sections 611.611 and 611.612 and the incorporations by reference in Section 611.102.**

U.S. EPA amended the special monitoring provision of Section 141.40 at 59 Fed. Reg. 62469 (Dec. 5, 1994). The only unregulated inorganic contaminant is sulfate. U.S. EPA used a cross reference to the methods for secondary contaminants at 40 CFR 143.4(b), as amended at 59 Fed. Reg. 62471, for the methods for sulfate. The methods used were from the reference called "U.S. EPA Environmental Inorganic Methods" by the Board, from ASTM, and from Standard Methods (18th ed.). The Board codified these at Section 611.510(b)(12). **The Board invites comment on our codification of the methods for the inorganic unregulated contaminant at Section 611.510.**

Updated Analytical Methods and Corrected Organic Monitoring Requirements--Sections 611.641, 611.642, 611.645, 611.646, 611.648 & 611.685

U.S. EPA corrected 40 CFR 141.24 at 59 Fed. Reg. 34323 (July 1, 1994) and updated the analytical methods at 59 Fed. Reg. 62468 (Dec. 5, 1994). The corrections included the removal and reservation of subsections (a) through (e), which pertained to monitoring for the old MCL for endrin, which U.S. EPA removed in the Phase V rules when it promulgated a new MCL for that contaminant. Thus, since the Phase V regulations became effective, 40 CFR 141.24(a) through (e) were without substantive effect. However, in updating the IOC, SOC, and TTHM analytical methods, at 59 Fed. Reg. 62468 (Dec. 5, 1994), discussed below, U.S. EPA codified the updated methods as subsection (e).

Section 611.641 formerly corresponded with 40 CFR 141.24(a) through (d), and Section 611.642 corresponded with subsection (e). Rather than repeal these two Sections, the Board has consolidated former Section 611.642 into Section 611.641 as subsection (d). We revised the Board Notes to Section 611.641 to indicate the broader former source of derivation of this provision and to relate that this Section now applies only to

state-only MCLs (for aldrin, DDT, dieldrin, heptachlor, heptachlor epoxide, 2,4-D, and TTHM). The Board has retained these provisions, rather than repeal them, because they provide for monitoring and analyses for these state-only MCLs. Until some interested person should justify the repeal of the state-only MCLs in the context of a general rulemaking under Section 27 of the Act, we believe that we must retain these Section 611.641 requirements.¹ **The Board invites comment on our retention of and amendments to Section 611.641.**

At 59 Fed. Reg. 34323 (July 1, 1994), U.S. EPA amended 40 CFR 141.24(f)(4), (f)(7), (f)(10), (f)(14), (f)(16), (h)(4)(i), (h)(10), and (h)(12) to correct the text. There is no need to make corresponding amendments to the Illinois regulations for a variety of reasons. The correction to paragraph (f)(4) was limited to correcting a cross-reference citation format; the Board originally substituted the language in Section 611.646(d). The corrections to paragraphs (f)(7) and (f)(10) were corrections to references to "non-transient, non-community water systems", which the Board originally referred to properly as "NTNCWSS" in Section 611.646(g). Paragraphs (f)(14) and (h)(10) pertain to composite sampling, for which there are no corresponding Illinois provisions. The correction to paragraph (f)(16) was limited to an incorporation by reference, which the Board properly codified at Section 611.102; further, as discussed below, U.S. EPA subsequently removed and reserved paragraph (f)(16). The correction to paragraph (h)(4)(i) changed "the compliance period starting January 1, 1993" to "the initial compliance period", the wording used initially by the Board in initially adopting corresponding Section 611.648(d). The correction to paragraph (h)(12) related to consolidation of endrin into this provision. As is discussed below, the December 5, 1994 amendments removed this paragraph.

Parallel corrections to 40 CFR 141.24(f)(14) and 141.28 pertained to laboratory certification. 40 CFR 141.24(f)(14) provision corresponds with Section 611.646(t). U.S. EPA substituted "certified laboratory" for "approved laboratory". Examination of the Illinois text revealed that not only was a parallel amendment necessary to subsection (t), but also to subsections (q), (q)(1), and (q)(2). 40 CFR 141.28 corresponds with Section 611.490 of the Illinois regulations. Since the Board already used "certified laboratory" in both the Section heading and text of that provision, no amendment was necessary. **The Board invites comment on these corrections to Sections**

¹ Alternatively, proof that these provisions render the Illinois drinking water program less stringent than or inconsistent with the federal requirements would justify their removal using identical-in-substance procedures.

611.646 and 611.648.

At 59 Fed. Reg. 34323, U.S. EPA removed and reserved 40 CFR 141.24(g), which pertained to monitoring for the Phase I VOCs. As previously observed by the Board in docket R93-1, the expansion of federal subsection (h) rendered subsection (g) without substantive effect. The Board has repealed corresponding Section 611.647 as a result. **The Board invites comment on the repeal of Section 611.647.**

At 59 Fed. Reg. 62468-69 (Dec. 5, 1994), U.S. EPA updated and consolidated nearly all the organic chemical (VOC, SOC, and TTHM) methods. U.S. EPA removed and reserved 40 CFR 141.24(f)(16) and (h)(12). It codified a table of all the methods at 40 CFR 141.24(e). Most of the updated and new methods are from the reference that the Board has termed "U.S. EPA Organic Methods". However, U.S. EPA has continued to use the method the Board terms "Dioxin and Furan Method 1613" and added two Standard Methods (18th ed.) methods: Method 6610 (for carbofuran and oxamyl) and Method 6651 (for glyphosate). U.S. EPA further amended 40 CFR 141.24(h)(13) and 141.30(e) to refer to 40 CFR 141.24(e) for methods for the analysis of PCBs and TTHMs, respectively.

The Board codified this table of methods at Section 611.645 and updated the incorporations by reference at Section 611.102 appropriately. We replaced Sections 611.646(p) and 611.648(l) with statements explaining the U.S. EPA removal of these subsections. The Board also amended Sections 611.648(m) and 611.685 to refer to Section 611.645 for the methods for PCBs and TTHMs. By listing the methods for each contaminant in numerical order, we deviated from the federal text, since we had no indication that the federal order indicated a preference among the various methods for that species.

One potential problem may exist with the federal method updates at 40 CFR 141.23 and 141.24, as well as 141.40. U.S. EPA appears to be using its reference "Technical Notes on Drinking Water Methods" to modify or extend its chosen express regulatory language. It refers to this document as presenting methods available until a certain date in the future, and it appears to refer to this document for either additional methods or for further instruction on the use of the methods. If U.S. EPA is using this as a guideline in place of or to supersede its express regulatory provisions, this could present codification problems for the Board. The Board intends to review that document before proceeding to adopt any regulations based on this proposal.

We incorporated certain of the chemical contaminants for which there is a state-only requirement (an old MCL) into the newly-centralized table of methods. The added state-only contaminants are those for which U.S. EPA did not already set

forth a method (because there is not already a less-stringent federal MCL and analytical requirement). Those contaminants are aldrin, DDT, and dieldrin. The methods used, Methods 505, 508, 508.1, and 525.2 for aldrin and dieldrin, and 505 and 508 for DDT, are those indicated for those contaminants as unregulated contaminants (aldrin and dieldrin) in 40 CFR 141.40(n)(11) or those we used in the past based on representations in the methods that they are capable of determining these contaminants (DDT).

The Board did not make one particular amendment made by U.S. EPA. U.S. EPA removed Appendix C to 40 CFR 141, Subpart C at 59 Fed. Reg. 62469 (Dec. 5, 1994). Inquiry with one of the U.S. EPA technical contacts listed in the Federal Register notice indicated that this was an error. We therefore retained our reference to this federal appendix. **The Board invites comment on our table of updated organic analytical methods at Section 611.645.**

U.S. EPA amended the special monitoring provision of Section 141.40 at 59 Fed. Reg. 34323 (July 1, 1994) and 59 Fed. Reg. 62469 (Dec. 5, 1994). It updated the methods for the unregulated organic contaminants and added aldicarb, aldicarb sulfone, and aldicarb sulfoxide to the list of unregulated contaminants for which it prescribes methods.² U.S. EPA updated the existing methods and added new methods for the contaminants. The methods used were from the reference called "U.S. EPA Organic Methods" by the Board and from Standard Methods (18th ed.). An additional correction in the July 1, 1994 action replaced the listing for the unregulated contaminant chlorobenzene, already regulated as a Phase II VOC, with dibromomethane, which U.S. EPA erroneously omitted from the table.

The Board codified the updated organic unregulated contaminant analytical methods at Section 611.510(b)(11). We made the substitution of dibromomethane for chlorobenzene at subsection (a)(5). Based on the July 1, 1994 corrections, we further substituted "laboratory certified" for "laboratory approved" at subsection (c). Others of the July 1, 1994 corrections resulted in no amendments. These federal corrections that did not result in amendments included changing "chemicals" in the section heading to "contaminants", which the Board had already done; corrections to 40 CFR 141.40(g) and (n)(11), which were superseded by December 5, 1994 amendments; and corrections to 40 CFR 141.40(j), which pertains to optional monitoring requirements that the Board never adopted. **The Board invites**

² U.S. EPA prescribed MCLs for these contaminants as part of the Phase IIB rules, but subsequently administratively stayed the MCLs, without affecting the requirement for monitoring these contaminants.

comment on our codification of the methods for the inorganic unregulated contaminant at Section 611.510.

Waiver of Cyanide Monitoring Requirements--Sections 611.110, 611.130, and 611.603

At 59 Fed. Reg. 34322 (Dec. 5, 1994), U.S. EPA added a provision to 141.23(c)(2) that allows waivers of the cyanide monitoring requirements where there is proven no source of industrial cyanide to which the supplier's water is vulnerable. The Board added this provision for waivers from the cyanide monitoring requirements, choosing the now familiar mechanism of the special exception permit (SEP) to allow the Agency to obviate the requirements. However, we did not follow the federal structure in placing the waiver provision at corresponding Section 611.603(b).

At Section 611.603(b), the Board deviated from the federal structure and divided subsection (b) into two subsections. As subsection (b)(2) the Board stated that the supplier may apply to the Agency for a SEP pursuant to subsections (d) through (f) and Sections 611.110 (the general SEP provision). New subsection (g) sets forth the language parallel to the federal language. An addition to subsection (e) makes relief from the cyanide monitoring requirements subject to the same limitations as relief from the VOC and SOC monitoring requirements from which this relief is available. The federal language of the vulnerability waiver lacks definiteness that we believe is necessary to aid suppliers and the Agency in using this relief.

One deviation from the federal language warrants further discussion, in order to avoid any misunderstanding that could jeopardize state primacy in the drinking water program. The Board uses "the Agency shall" where the federal language reads "the state may". The Board is compelled to use the imperative sense under Illinois administrative law because once the Agency has made the necessary determination (in this instance, that the suppliers water is not vulnerable), the Agency has no discretion but to grant the SEP. However, this does not mean that the Agency is compelled to grant a SEP upon request. The Agency retains full discretion in making its necessary prerequisite determination (on vulnerability). If the supplier fails to fully satisfy the Agency, so that it can make its determination, the Agency is not bound to make the determination. **The Board invites comment on our approach to the cyanide monitoring waiver provisions.**

Mandatory Health Effects Notices--Section 611.Appendix A

U.S. EPA made minor corrections of typographic errors to the mandatory health effects notices of 40 CFR 141.32(e) at 59 Fed. Reg. 34323 (July 1, 1994). Corrected were the notices for

chlordanes (paragraph (e)(30)), cis-1,2-dichloroethylene (paragraph (e)(33)), 1,2-dichloropropane (paragraph (e)(35)), heptachlor epoxide (paragraph (e)(41)), and di(2-ethylhexyl)-phthalate (paragraph (e)(62)). The Board corrected all but one of these errors in originally adopting the notices. Therefore, the Board amends Section 611.Appendix A(62) to change "0.004 parts per million" to "0.006 parts per million". **The Board invites comment on our correction to the mandatory health effects notice for di(2-ethylhexyl)phthalate at Section 611.Appendix A(62).**

SDWA REGULATORY HISTORICAL SUMMARY

The Board adopted the initial round of U.S. EPA drinking water regulations, including the "Phase I" rules, adopted by U.S. EPA 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 U.S. EPA 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, December 11, 1992, effective December 1, 1992) (U.S. EPA 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 U.S. EPA amendments February 1, 1991 through May 31, 1991)

R92-3 -- PCB --, May 6, 1993 (17 Ill. Reg. 7796, May 28, 1993, effective May 18, 1993) (U.S. EPA 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, December 11, 1992, 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 U.S. EPA amendments June 1, 1992 through June 30, 1991)
- R93-1 -- PCB --, July 14, 1993 (17 Ill. Reg. 12648, August 6, 1993, effective July 23, 1993) (U.S. EPA Phase V rules; July 1, 1992 through December 31, 1992)
- R93-19 -- PCB --, dismissed September 23, 1993 (no U.S. EPA amendments January 1 through June 30, 1993)
- R94-4 -- PCB --, July 21, 1994 (18 Ill. Reg. 12291, August 5, 1994, effective July 28, 1995) (TTHM analytical methods; July 1, 1993 through December 31, 1993)
- R94-23 This docket (January 1, 1994 through June 30, 1994).
- R95-3 This docket (July 1, 1994 through December 31, 1994).

AGENCY OR BOARD ACTION?

Section 7.2(a)(5) of the Act requires the Board to specify which decisions U.S. EPA 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 U.S. EPA will retain decision-making authority, the Board has replaced "Regional Administrator" with U.S. EPA, so as to avoid specifying which office within U.S. EPA 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:

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 U.S. EPA 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 promptly submit these proposed amendments to the Secretary of State for publication in the Illinois Register.

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

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PRIMARY DRINKING WATER STANDARDS

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AUTHORITY: Implementing Sections 17 and 17.5 and authorized by Section 27 of the Environmental Protection Act (~~Ill. Rev. Stat. 1991, ch. 111, pars. 1017, 1017.5 and 1027~~ [415 ILCS 5/17, 5/17.5 and 5/27]†).

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. , 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) (~~Ill. Rev. Stat. 1988 Supp., ch. 111 1/2, par. 1001 et seq.~~) [415 ILCS 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 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 ~~Ill. Rev. Stat. 1989, ch. 111 1/2, par. 7459~~ 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 (19894).

- 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 (19894).

- 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.

Section 611.101 Definitions

As used in this Part, the term:

"Act" means the Environmental Protection Act ~~(Ill. Rev. Stat. 1991, ch. 111, par. 1001 et seq. [415 ILCS 5])~~.

"Agency" means the Illinois Environmental Protection Agency.
BOARD NOTE: The Department of Public Health ("Public Health") regulates non-community water supplies ("non-CWSs", including non-transient, non-community water supplies ("NTNCWSs") and transient non-community water supplies ("transient non-CWSs")). For the purposes of regulation of supplies by Public Health by reference to this Part, "Agency" shall mean Public Health.

"Ai" means "inactivation ratio".

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

BOARD NOTE: Derived from 40 CFR 142.62(g)(2) and 21 CFR 129.3(a) (19934). The Board cannot compile an exhaustive listing of all federal, state, and local laws to which bottled water and bottling water may be subjected. However, the statutes and regulations of which the Board is aware are the following: the Illinois Food, Drug and Cosmetic Act ~~([410 ILCS 620, formerly Ill. Rev. Stat. 1991 ch. 56, par. 501 et seq.]~~, the Bottled Water Act ~~([815 ILCS 310, formerly Ill. Rev. Stat. 1991 ch. 111, par. 121.101]~~, the DPH Water Well Construction Code (77 Ill. Adm. Code 920), the DPH Water Well Pump Installation Code (77 Ill. Adm. Code 925), the federal bottled water quality standards (21 CFR 103.35), the federal drinking water processing and bottling standards (21 CFR 129), the federal Good Manufacturing Practices for human foods (21 CFR 110), the federal Fair Packaging and Labeling Act (15 U.S.C. §§ 1451 et seq.), and the federal Fair Packaging and Labeling regulations (21 CFR 201).

"Best available technology" or "BAT" means the best technology, treatment techniques or other means that U.S. EPA has found are available for the contaminant in question. BAT is specified in Subpart F of this Part.

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"Board" means the Illinois Pollution Control Board.

"CAS No" means "Chemical Abstracts Services Number".

"CT" or "CT₉₀" is the product of "residual disinfectant

concentration" (RDC or C) in mg/L determined before or at the first customer, and the corresponding "disinfectant contact time" (T) in minutes. If a supplier applies disinfectants at more than one point prior to the first customer, it shall determine the CT of each disinfectant sequence before or at the first customer to determine the total percent inactivation or "total inactivation ratio". In determining the total inactivation ratio, the supplier shall determine the RDC of each disinfection sequence and corresponding contact time before any subsequent disinfection application point(s). (See "CT_{99.9}")

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"CT_{99.9}" is the CT value required for 99.9 percent (3-log) inactivation of *Giardia lamblia* cysts. CT_{99.9} for a variety of disinfectants and conditions appear in Tables 1.1-1.6, 2.1 and 3.1 of Section 611.Appendix B. (See "Inactivation Ratio".)

BOARD NOTE: Derived from the definition of "CT" in 40 CFR 141.2 (19934).

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

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

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

BOARD NOTE: Derived from 40 CFR 141.2 (19934). This definition differs slightly from that of Section 3.05 of the Act.

"Compliance cycle" means the nine-year calendar year cycle during which public water systems (PWSs) must monitor. Each compliance cycle consists of three three-year compliance periods. The first calendar cycle begins January 1, 1993, and ends December 31, 2001; the second begins January 1, 2002 and ends December 31, 2010; the third begins January 1, 2011, and ends December 31, 2019.

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"Compliance period" means a three-year calendar year period within a compliance cycle. Each compliance cycle has three three-year compliance periods. Within the first compliance cycle, the first compliance period runs from January 1, 1993, to December 31, 1995; the second from January 1, 1996, to December 31, 1998; the third from January 1, 1999, to December 31, 2001.

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

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

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

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

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

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

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"Diatomaceous earth filtration" means a process resulting in

substantial particulate removal in which:

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

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

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

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

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

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

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

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

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

Where more than one RDC is measured, T is:

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

For subsequent measurements of RDC, the time in minutes that it takes for water to move from the previous RDC measurement point to the RDC measurement point for which the particular T is being calculated.

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

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

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

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

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

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

"Domestic or other non-distribution system plumbing problem" means a coliform contamination problem in a PWS with more than one service connection that is limited to the specific service

connection from which the coliform-positive sample was taken.
BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"Dose equivalent" means the product of the absorbed dose from ionizing radiation and such factors as account for differences in biological effectiveness due to the type of radiation and its distribution in the body as specified by the International Commission on Radiological Units and Measurements (ICRU).
BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"Entry point" means a point just downstream of the final treatment operation, but upstream of the first user and upstream of any mixing with other water. If raw water is used without treatment, the "entry point" is the raw water source. If a PWS receives treated water from another PWS, the "entry point" is a point just downstream of the other PWS, but upstream of the first user on the receiving PWS, and upstream of any mixing with other water.

"Filtration" means a process for removing particulate matter from water by passage through porous media.
BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"Flocculation" means a process to enhance agglomeration or collection of smaller floc particles into larger, more easily settleable particles through gentle stirring by hydraulic or mechanical means.
BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"GC" means "gas chromatography" or "gas-liquid phase chromatography".

"GC/MS" means gas chromatography (GC) followed by mass spectrometry (MS).

"Gross alpha particle activity" means the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample.
BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"Gross beta particle activity" means the total radioactivity due to beta particle emission as inferred from measurements on a dry sample.
BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"Groundwater under the direct influence of surface water" is as determined in Section 611.212.
BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"GWS" means "groundwater system", a public water supply (PWS) that uses only groundwater sources.
BOARD NOTE: Drawn from 40 CFR 141.23(b)(2) & 141.24(f)(2) note (19934).

"Halogen" means one of the chemical elements chlorine, bromine or iodine.
BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"HPC" means "heterotrophic plate count", measured as specified in Section 611.531(c).

"Inactivation Ratio" (Ai) means:

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

The sum of the inactivation ratios, or "total inactivation ratio" (B) is calculated by adding together the inactivation ratio for each disinfection sequence:

$$B = \sum(A_i)$$

A total inactivation ratio equal to or greater than 1.0 is assumed to provide a 3-log inactivation of *Giardia lamblia* cysts.

BOARD NOTE: Derived from the definition of "CT" in 40 CFR 141.2 (19934).

"Initial compliance period" means the three-year compliance period that begins January 1, 1993, except for the MCLs for dichloro-methane, 1,2,4-trichlorobenzene, 1,1,2-trichloroethane, benzo[a]-pyrene, dalapon, di(2-ethylhexyl)adipate, di(2-ethylhexyl)-phthalate, dinoseb, diquat, endothall, endrin, glyphosate, hexachlorobenzene, hexachlorocyclopentadiene, oxamyl, picloram, simazine, 2,3,7,8-TCDD, antimony, beryllium, cyanide, nickel, and thallium as they apply to suppliers whose supplies have fewer than 150 service connections, for which it means the three-year compliance period that begins on January 1, 1996.

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"L" means "liter".

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

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

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

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

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

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"Maximum Total Trihalomethane Potential" or "MTP" means the maximum concentration of total trihalomethanes (TTHMs) produced in a given water containing a disinfectant residual after 7 days at a temperature of 25° C or above.

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"MFL" means millions of fibers per liter larger than 10 micrometers.

BOARD NOTE: Derived from 40 CFR 141.23(a)(4)(i) (19934).

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

"mg/L" means milligrams per liter.

"Mixed system" means a PWS that uses both groundwater and surface water sources.

BOARD NOTE: Drawn from 40 CFR 141.23(b)(2) and 141.24(f)(2) note (19934).

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

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

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

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

"Non-community water system" or "NCWS" or "non-CWS" means a public water system (PWS) that is not a community water system (CWS).

BOARD NOTE: Derived from the definition of "public water system" in 40 CFR 141.2 (19934).

"Non-transient non-community water system" or "NTNCWS" means a public water system (PWS) that is not a community water system (CWS) and that regularly serves at least 25 of the same persons over 6 months per year.

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"NPDWR" means "national primary drinking water regulation".

"NTU" means "nephelometric turbidity units".

"Old MCL" means one of the inorganic maximum contaminant levels (MCLs), codified at Section 611.300, or organic MCLs, codified at Section 611.310, including any marked as "additional state requirements."

BOARD NOTE: Old MCLs are those derived prior to the implementation of the U.S. EPA "Phase II" regulations. The Section 611.640 definition of this term, which applies only to Subpart O of this Part, differs from this definition in that the definition does not include the Section 611.300 inorganic MCLs.

"P-A Coliform Test" means "Presence-Absence Coliform Test".

"Performance evaluation sample" means a reference sample provided to a laboratory for the purpose of demonstrating that the laboratory can successfully analyze the sample within limits of performance specified by the Agency; or, for bacteriological laboratories, Public Health; or, for radiological laboratories, the Illinois Department of Nuclear Safety. The true value of the concentration of the reference material is unknown to the laboratory at the time of the analysis.

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"Person" means an individual, corporation, company, association, partnership, State, unit of local government or federal agency.

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"Phase I" refers to that group of chemical contaminants and the accompanying regulations promulgated by U.S. EPA on July 8, 1987, at 52 Fed. Reg. 25712.

"Phase II" refers to that group of chemical contaminants and the accompanying regulations promulgated by U.S. EPA on January 30, 1991, at 56 Fed. Reg. 3578.

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

"Phase V" refers to that group of chemical contaminants promulgated by U.S. EPA on July 17, 1992, at 57 Fed. Reg. 31776.

"Picocurie" or "pCi" means the quantity of radioactive material producing 2.22 nuclear transformations per minute.
BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"Point of disinfectant application" is the point at which the disinfectant is applied and downstream of which water is not subject to recontamination by surface water runoff.
BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"Point-of-entry treatment device" is a treatment device applied to the drinking water entering a house or building for the purpose of reducing contaminants in the drinking water distributed throughout the house or building.
BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"Point-of-use treatment device" is a treatment device applied to a single tap used for the purpose of reducing contaminants in drinking water at that one tap.
BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"Public Health" means the Illinois Department of Public Health.
BOARD NOTE: The Department of Public Health ("Public Health") regulates non-community water supplies ("non-CWSs", including non-transient, non-community water supplies ("NTNCWSs") and transient non-community water supplies ("transient non-CWSs")). For the purposes of regulation of supplies by Public Health by reference to this Part, "Agency" shall mean Public Health.

"Public water system" or "PWS" means a system for the provision to the public of piped water for human consumption, if such system has at least fifteen service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. A PWS is either a community water system (CWS) or a non-community water system (non-CWS). Such term includes:

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

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

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"Reliably and consistently" below a specified level for a contaminant means an Agency determination based on analytical results following the initial detection of a contaminant to determine the qualitative condition of water from an individual sampling point or source. The Agency shall base this determination on the consistency of analytical results, the degree below the MCL, the susceptibility of source water to variation, and other vulnerability factors pertinent to the contaminant detected that may influence the quality of water.
BOARD NOTE: Derived from 40 CFR 141.23(b)(9), 141.24(f)(11)(ii), and 141.24(f)(11)(iii) (19934).

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

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

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

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

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

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

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"SDWA" means the Public Health Service Act, as amended by the Safe Drinking Water Act, Pub. L. 93-523, 42 U.S.C. 300f et seq.

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"Sanitary survey" means an onsite review of the water source, facilities, equipment, operation and maintenance of a public water system (PWS) for the purpose of evaluating the adequacy of such source, facilities, equipment, operation and maintenance for producing and distributing safe drinking water.

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

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

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

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

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

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

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

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

"Standard sample" means the aliquot of finished drinking water

that is examined for the presence of coliform bacteria.
BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"Supplier of water" or "supplier" means any person who owns or operates a public water system (PWS). This term includes the "official custodian".
BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"Surface water" means all water that is open to the atmosphere and subject to surface runoff.
BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"SWS" means "surface water system", a public water supply (PWS) that uses only surface water sources, including "groundwater under the direct influence of surface water".
BOARD NOTE: Drawn from 40 CFR 141.23(b)(2) and 141.24(f)(2) note (19934).

"System with a single service connection" means a system that supplies drinking water to consumers via a single service line.
BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"Too numerous to count" means that the total number of bacterial colonies exceeds 200 on a 47-mm diameter membrane filter used for coliform detection.
BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"Total trihalomethanes" or "THM" means the sum of the concentration of trihalomethanes (THMs), in milligrams per liter (mg/L), rounded to two significant figures.
BOARD NOTE: Derived from the definition of "total trihalomethanes" in 40 CFR 141.2 (19934). See the definition of THMs for a listing of the four compounds that U.S. EPA considers THMs to comprise.

"Transient, non-community water system" or "transient non-CWS" ~~or "TNCWS"~~ means a ~~public water system (PWS)~~ non-CWS that is neither a community water system ("CWS") nor a non-transient, noncommunity water system ("NTNCWS") does not regularly serve at least 25 of the same persons over six months of the year.
BOARD NOTE: Derived from 40 CFR 141.2 (1994). The federal regulations apply to all "public water systems", which are defined as all systems having at least 15 service connections or regularly serving water to at least 25 persons. See 42 U.S.C. §300f(4). The Act mandates that the Board and the Agency regulate "public water supplies", which it defines as having at least 15 service connections or regularly serving 25 persons daily at least 60 days per year. See ~~Ill. Rev. Stat. 1991 ch. 1114, par. 100~~ Section 3.28 of the Act [415 ILCS 5/3.28]. The Department of Public Health regulates transient non-community water systems.

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

"Trihalomethane" or "THM" means one of the family of organic compounds, named as derivatives of methane, in which three of the four hydrogen atoms in methane are each substituted by a halogen

atom in the molecular structure. The THMs are:

Trichloromethane (chloroform),

Dibromochloromethane,

Bromodichloromethane and

Tribromomethane (bromoform)

BOARD NOTE: Derived from the definitions of "total trihalomethanes" and "trihalomethanes" in 40 CFR 141.2 (19934).

" μ g" means micrograms (1/1,000,000th of a gram).

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

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

"VOC" or "volatile organic chemical contaminant" refers to that group of contaminants designated as "VOCs", or "volatile organic chemicals" or "volatile organic contaminants", in U.S. EPA regulatory discussions and guidance documents. "VOCs" include benzene, dichloromethane, tetrachloromethane (carbon tetrachloride), trichloroethylene, vinyl chloride, 1,1,1-trichloroethane (methyl chloroform), 1,1-dichloroethylene, 1,2-dichloroethane, cis-1,2-dichloroethylene, ethylbenzene, monochlorobenzene, o-dichlorobenzene, styrene, 1,2,4-trichlorobenzene, 1,1,2-trichloroethane, tetrachloroethylene, toluene, trans-1,2-dichloroethylene, xylene, and 1,2-dichloropropane.

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

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

BOARD NOTE: Derived from 40 CFR 141.2 (19934).

"Wellhead Protection Program" means the wellhead protection program for the State of Illinois, approved by U.S. EPA under Section 1428 of the SDWA.

BOARD NOTE: Derived from 40 CFR 141.71(b) (19934). The wellhead protection program will include the "groundwater protection needs assessment" under Section 17.1 of the Act, and regulations to be adopted in 35 Ill. Adm. Code 615 et seq.

(Source: Amended at 19 Ill. Reg. _____, effective _____)

Section 611.102 Incorporations by Reference

- a) Abbreviations. The following abbreviated names are used in this Part to refer to materials incorporated by reference:

"AEPA-1 Polymer" is available from Advanced Polymer Systems.

"ASTM" means American Society for Testing and Materials.

~~"Atomic Absorption Platform Furnace Method" or "AA Platform Furnace Method" means "Determination of Trace Elements by Stabilized Temperature Graphite Furnace Atomic Absorption~~

~~Spectrometry Method 200.9"~~

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

~~"Indigo method" is as described in "Standard Methods", 17th Edition, Method 4500-O, B.~~

~~"Inductively Coupled Plasma Mass Spectrometry Method" or "ICP-MS Method" means "Determination of Trace Elements in Water and Wastes by Inductively Coupled Plasma Mass Spectrometry Method 200.8"~~

~~"Inductively Coupled Plasma Method 200.7" or "ICP Method 200.7" means "Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis in Water and Wastes Method 200.7, with appendix". See 40 CFR 136, Appendix G.~~

~~"Inductively Coupled Plasma Method 200.7, Rev. 3.2" or "ICP Method 200.7, Rev. 3.2" means "Determination of Metals and Trace Elements in Water and Wastes by Inductively Coupled Plasma Atomic Emission Spectrometry Method 200.7, Revision 3.2" See 40 CFR 136, Appendix C.~~

~~"Ion Chromatography Method 300.0" means "Determination of Inorganic Ions in Water by Ion Chromatography Method 300.0"~~

~~"Microbiological Methods" means "Microbiological Methods for Monitoring the Environment, Water and Wastes", available from NTIS.~~

"MMONGP-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 Environmental, Inc American Public Health Association.

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

"NTIS" means "National Technical Information Service".

"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 Test for Nitrate in Drinking Water", July, 1994, available from Analytical Technology, Inc.

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

~~"USEPA Asbestos Methods" or "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- μ m in Length in Drinking Water", available from NTIS.

~~"USEPA Dioxin and Furan Method 1613" or "U.S. EPA Dioxin and Furan Method 1613"~~ means "Tetra- through Octa- Chlorinated Dioxins and Furans by Isotope-Dilution HRGC/HRMS", available from ~~USEPA-OST~~NTIS.

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

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

~~"USEPA Inorganic Methods" or "U.S. EPA Inorganic Methods"~~ means "Methods for Chemical Analysis of Water and Wastes", available from NTIS and ORD Publications.

~~"USEPA Ion Chromatography Method 300.0" or "U.S. EPA Ion Chromatography Method 300.0"~~ means ~~"Method 300.0, Determination of Inorganic Anions in Water by Ion Chromatography"~~, available from ~~USEPA-EMSL~~.

~~"USEPA Organic Methods" or "U.S. EPA Organic Methods" means "Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water", September, 1986, available from NTIS and USEPA-EMSL, for the purposes of Section 611.647 only; "Methods for the Determination of Organic Compounds in Drinking Water", December, 1988, 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 and ORD Publications, for the purposes of Sections 611.646 and 611.648 only; and "Methods for the Determination of Organic Compounds in Drinking Water", available from NTIS, for the purposes of Section 611.685 only. Methods 504.1, 508.1, and 525.2 are available from EPA EMSL.~~

~~"USGS Methods" means "Methods for Determination of Inorganic Substances in Water and Fluvial Sediments". "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.~~

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

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

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. See the methods
listed for the same reference under American Water
Works Association.

Supplement to the 18th edition of Standard Methods for
the Examination of Water and Wastewater, 1994.

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.

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

ASTM Method D511-8893 A and B, "Standard Test Methods
for Calcium and Magnesium in Water", approved
~~1988~~1993.

ASTM Method D515-88_A, "Standard Test Methods for
Phosphorus in Water", approved August 19, 1988.

ASTM Method D858-88, "Standard Test Methods for
Manganese in Water", approved August 19, 1988.

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

ASTM Method D1067-8892 B, "Standard Test Methods for
Acidity or Alkalinity in Water", approved ~~1988~~May 15,
1992.

ASTM Method D1125-82B91 A, "Standard Test Methods for
Electrical Conductivity and Resistivity of Water",
approved ~~October 29, 1982~~June 15, 1991.

ASTM Method D1179-7293 A ~~or~~ B "Standard Test Methods
for Fluoride in Water", approved ~~July 28, 1972,~~
~~reapproved 1978~~93.

ASTM Method D1293-84B "Standard Test Methods for pH of
Water", approved October 26, 1984.

~~ASTM Method D1428-64, "Standard Test Methods for
Sodium and Potassium in Water and Water Formed
Deposits by Flame Photometry", approved August 31,
1964, reapproved 1977.~~

ASTM Method D1688-90_A or C, "Standard Test Methods
for Copper in Water", approved March 15, 1990.

ASTM Method D2036-891 A or B, "Standard Test Methods
for Cyanide in Water", approved September 15, 1989.

ASTM Method D2459-72, "Standard Test Method for Gamma
Spectrometry in Water," 1975, reapproved 1981,
discontinued 1988.

ASTM Method D2907-83, "Standard Test Methods for Microquantities of Uranium in Water by Fluorometry", approved May 27, 1983.

ASTM Method D2972-~~88A or 93 B or C~~, "Standard Test Methods for Arsenic in Water", approved 198893.

ASTM Method D3223-~~8691~~, "Standard Test Method for Total Mercury in Water", approved ~~February 28, 1986~~September 23, 1991.

ASTM Method D3559-~~8590 D~~, "Standard Test Methods for Lead in Water", approved ~~1985~~August 6, 1990.

ASTM Method D3645-~~8493 B~~, "Standard Test Methods for Beryllium in Water, Method B--Atomic Absorption, Graphite Furnace", approved ~~Jan. 27, 1984~~93.

ASTM Method D3697-~~8792~~, "Standard Test Method for Antimony in Water", approved June 15, 1987~~92~~.

ASTM Method D3859-~~8493 A~~, "Standard Test Methods for Selenium in Water, Method A--Atomic Absorption, Hydride Method", approved 198493.

~~ASTM Method D3859-88, "Standard Test Methods for Selenium in Water", approved June 24, 1988.~~

ASTM Method D3867-90 A and B, "Standard Test Methods for Nitrite-Nitrate in Water", approved January 10, 1990.

ASTM Method D4327-8891, "Standard Test Method for Anions in Water by Ion Chromatography", approved ~~1988~~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.

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

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

Method 304, Radium in Water by Precipitation.

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

Method 306, Tritium in Water.

~~Standard Methods for the Examination of Water and Wastewater, 14th Edition, 1976.~~

~~Method 214A, Turbidity, Nephelometric Method--Nephelometric Turbidity Units (for the purposes of Section 611.560 turbidity only).~~

~~Methods 320 and 320A, Sodium, Flame Photometric Method.~~

~~Standard Methods for the Examination of Water and Wastewater, 16th Edition, 1985.~~

~~Method 212, Temperature.~~

~~Method 214A, Turbidity, Nephelometric Method — Nephelometric Turbidity Units (for the purposes of Section 611.631 microbiological only).~~

~~Method 303A, Determination of Antimony, etc. by Direct Aspiration into an Air Acetylene Flame.~~

~~Method 303E, Determination of Arsenic and Selenium by Conversion to Their Hydrides by Sodium Borohydride Reagent and Aspiration into an Atomic Absorption Atomizer.~~

~~Method 304, Determination of Micro Quantities of Aluminum, etc. by Electrothermal Atomic Absorption Spectrometry.~~

~~Method 307A, Arsenic, Atomic Absorption Spectrophotometric Method.~~

~~Method 307B, Arsenic, Silver Diethyldithiocarbamate Method.~~

~~Method 408C, Chlorine (Residual), Amperometric Titration Method.~~

~~Method 408D, Chlorine (Residual), DPD Ferrous Titrimetric Method.~~

~~Method 408E, Chlorine (Residual), DPD Colorimetric Method.~~

~~Method 408F, Chlorine (Residual), Leuco Crystal Violet Method.~~

~~Method 410B, Chlorine Dioxide, Amperometric Method.~~

~~Method 410C, Chlorine Dioxide, DPD Method (Tentative).~~

~~Method 413A, Fluoride, Preliminary Distillation Step.~~

~~Method 413B, Fluoride, Electrode Method.~~

~~Method 413C, Fluoride, SPADNS Method.~~

~~Method 413E, Fluoride, Complexone Method.~~

~~Method 423, pH Value.~~

~~Method 907A, Pour Plate Method.~~

~~Method 908, Multiple Tube Fermentation Technique~~

~~for Members of the Coliform Group.~~

~~Method 908A, Standard Coliform Multiple-Tube (MPN) Test.~~

~~Method 908B, Application of Tests to Routine Examinations.~~

~~Method 908C, Fecal Coliform MPN Procedure.~~

~~Method 908D, Estimation of Bacterial Density.~~

~~Method 908E, Presence-Absence (P-A) Coliform Test (Tentative).~~

~~Method 909, Membrane Filter Technique for Members of the Coliform Group.~~

~~Method 909A, Standard Total Coliform Membrane Filter Procedure.~~

~~Method 909B, Delayed Incubation Total Coliform Procedure.~~

~~Method 909C, Fecal Coliform Membrane Filter Procedure.~~

~~Standard Methods for the Examination of Water and Wastewater, 17th Edition, 1989.~~

~~Method 2320, Alkalinity.~~

~~Method 2510, Conductivity.~~

~~Method 2550, Temperature.~~

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

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

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

~~Method 3113, Metals by Electrothermal Atomic Absorption Spectrometry.~~

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

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

~~Method 3120, Metals by Plasma Emission Spectroscopy.~~

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

~~Method 4110, Determination of Anions by Ion Chromatography.~~

~~Method 4500-CN D, Cyanide, Titrimetric Method.~~

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

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

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

~~Method 4500-H⁺, pH Value.~~

~~Method 4500-NO₃-E, Nitrogen (Nitrate), Cadmium Reduction Method.~~

~~Method 4500-NO₃-F, Nitrogen (Nitrate), Automated Cadmium Reduction Method.~~

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

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

~~Method 4500-Si D, Silica, Molybdesilicate Method.~~

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

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

Standard Methods for the Examination of Water and Wastewater, 18th Edition, 1992:

Method 2130 B, Turbidity, Nephelometric Method.

Method 2320 B, Alkalinity, Titration Method.

Method 2510 B, Conductivity, Laboratory Method.

Method 2550 B, Temperature, Laboratory and Field Methods.

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

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

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

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

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

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

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

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

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

Method 4500-CN E, Cyanide, Colorimetric Method.

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

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

Method 4500-Cl D, Chlorine (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.

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

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

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

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

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

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

Method 4500-F C, Fluoride, Ion-Selective

Electrode Method.

Method 4500-F D, Fluoride, SPADNS Method.

Method 4500-F E, Fluoride, Complexone Method.

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

Method 4500-NO₂⁻ B, Nitrogen (Nitrite), Colorimetric Method.

Method 4500-NO₃⁻ D, Nitrogen (Nitrate), Nitrate Electrode Method.

Method 4500-NO₃⁻ E, Nitrogen (Nitrate), Cadmium Reduction Method.

Method 4500-NO₃⁻ F, Nitrogen (Nitrate), Automated Cadmium Reduction Method.

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

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

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

Method 4500-Si D, Silica, Molybdosilicate Method.

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

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

Method 4500-SO₄²⁻ C, Sulfate, Gravimetric Method with Ignition of Residue.

Method 4500-SO₄²⁻ D, Sulfate, Gravimetric Method with Drying of Residue.

Method 4500-SO₄²⁻ F, Sulfate, Automated Methylthymol Blue Method.

Method 6651, Glyphosate Herbicide (Proposed).

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

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

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

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

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

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

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

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

Method 9223, Chromogenic Substrate Coliform Test (Proposed).

Standard Methods for the Examination of Water and Wastewater, 18th Edition Supplement, 1994:

Method 6610, Carbamate Pesticides.

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

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

~~Environetics, Inc., 21 Business Park Drive, Branford, CT 06405 800/321-0207.~~

~~MMO-MUG tests - Colilert P/A or Colilert MPN.~~

ERDA Health and Safety Laboratory, New York, NY:

HASL Procedure Manual, HASL 300, 1973. See 40 CFR 141.25(b)(2).

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

Colisure Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia Coli in Drinking Water, February 28, 1994.

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

Waters Test Method for the Determination of Nitrite/Nitrate in Water Using Single Column Ion Chromatography, Method B-1011.

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

"Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and

in Water for Occupational Exposure", NCRP Report Number 22, June 5, 1959.

NTIS. National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161 (703) 487-4600 or (800) ~~336-4700~~ 553-6847:

Method 100.2, "Analytical Method for Determination of Asbestos Fibers in Water", EPA-600/4-83-043, September, 1983, Doc. No. PB83-260471.

Method 100.2, "Determination of Asbestos Structures over 10- μ m in Length in Drinking Water", EPA-600/4-83-043, June, 1994, Doc. No. PB94-201902.

~~"Methods of Chemical Analysis of Water and Wastes", March, 1979, EPA-600/4-79-020, Doc. No. PB84-297686.~~

"Methods for Chemical Analysis of Water and Wastes", March, 1983, Doc. No. PB84-128677, ~~for all methods referenced except methods 180.1 (turbidity, Section 611.560) and 273.1 and 273.2 (sodium, Section 611.630)~~ Methods 150.1, 150.2, and 245.2, which formerly appeared in this reference, are available from U.S. EPA EMSL.

~~"Methods for Chemical Analysis of Water and Wastes", March, 1979, Doc. No. PB84-128677, only for methods 180.1 (turbidity, Section 611.560) and 273.1 and 273.2 (sodium, Section 611.630).~~

"Methods for the Determination of Metals in Environmental Samples", June, 1991, Doc. No. PB91-231498.

~~"Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water", EPA/600/4-88/039, September, 1986, Doc. No. PB89-220461. (For the purposes of Section 611.647 only.)~~

~~"Methods for the Determination of Organic Compounds in Drinking Water", EPA/600/4-88/039, December, 1988, Doc. Nos. PB91-231480 and PB91-146027. (For the purposes of Section 611.646 and 611.648 only, including Method 515.1, revision 5.0 and Method 525.1, revision 3.0 (May, 1991).)~~

"Methods for the Determination of Organic Compounds in Finished Drinking Water", ~~EPA/600/4-88/039~~ December, 1988, revised July, 1991, EPA-600/4-88/039. (For the purposes of Section 611.685 only, including methods 502.2, 505, 507, 508, 508A, 515.1 and 524, 2531.1.)

"Methods for the Determination of Organic Compounds in Finished Drinking Water--Supplement I" July, 1990, EPA-600-4-90-020. (For methods 506, 547, 550, 550.1, and 551.)

"Methods for the Determination of Organic Compounds in Finished Drinking Water--Supplement II" August, 1992, EPA-600/R-92-129. (For methods 515.2, 524.2, 548.1, 549.1, 552.1 and 555.)

~~"Microbiological Methods for Monitoring the Environment: Water and Wastes", R. Bodner and J. Winter, 1978, EPA-600/8-78-017, Doc. No. PB290-329/LP.~~

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

~~"Technical Notes on Drinking Water Methods", EPA-600/R-94-173, October, 1994.~~

~~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) (1994): 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.~~

~~ORD Publications, CERL, EPA, Cincinnati, OH 45268+~~

~~"Methods for Chemical Analysis of Water and Wastes", March, 1983, (EPA-600/4-79-020), for all methods referenced except methods 180.1 (turbidity, Section 611.560) and 273.1 and 273.2 (sodium, Section 611.630).~~

~~"Methods for Chemical Analysis of Water and Wastes", March, 1979, (EPA-600/4-79-020), only for methods 180.1 (turbidity, Section 611.560) and 273.1 and 273.2 (sodium, Section 611.630).~~

~~"Methods for the Determination of Organic Compounds in Drinking Water", EPA/600/4-88/039, December, 1988, Dec. Nos. PB91-231480 and PB91-146027. (For the purposes of Section 611.646 only.) See NTIS.~~

~~Orion Research, Inc., 529 Main St., Boston, MA 02129 800/-225-1480:~~

~~Orion Guide to Water and Wastewater Analysis, Form WeWWG/5880, p. 5.~~

~~Technicon Industrial Systems, Tarrytown, NY 10591:~~

~~"Fluoride in Water and Wastewater", Industrial Method #129-71W, December, 1972 See 40 CFR 141.23(f)(10), footnotes 6 and 7.~~

~~"Fluoride in Water and Wastewater", #380-75WE, February, 1976. See 40 CFR 141.23(f)(10), footnotes 6 and 7.~~

~~United States Environmental Protection Agency, EMSL, EPA, Cincinnati, OH 45268 513-569-7586:~~

~~"The Analysis of Trihalomethanes in Drinking Waters by the Purge and Trap Method", Method 501.1. See 40 CFR 141, Subpart C, Appendix G.~~

~~"The Analysis of Trihalomethanes in Drinking Water by Liquid/Liquid Extraction," Method 501.2. See 40 CFR 141, Subpart C, Appendix G.~~

~~"Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis in Water and Wastes -- Method 200.7, with Appendix to Method 200.7" entitled, "Inductively Coupled Plasma-Atomic Emission Analysis of Drinking Water" (Appendix 200.7A), March 1987 (EPA/600/4-91/010). See 40 CFR 136, Appendix G.~~

"Interim Radiochemical Methodology for Drinking Water", EPA-600/4-75-008 (Revised) March, 1976.

~~"Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water", September, 1986 methods 504.1, 508.1, and 525.2. (For the purposes of Section 611.647 only). See NTIS.~~

"Methods for Chemical Analysis of Water and Wastes". See NTIS and ORD Publications. Methods 150.1, 150.2, and 245.2, which formerly appeared in this reference, are available from U.S. EPA EMSL.

~~"Microbiological Methods for Monitoring the Environment, Water and Wastes". See NTIS.~~

~~"Volatile Organic Compounds in Water by Purge and Trap Capillary Gas Chromatography/Mass Spectrometry", Method 524.2, order number PB91-231480. (For purposes of Section 611.685 only.) See NTIS.~~

~~"Volatile Organic Compounds in Water by Purge and Trap Capillary Gas Chromatography with Photoionization and Electrolytic Conductivity Detector in Series", Method 502.2, order number PB 91-231480. (For purposes of Section 621.685 only.) See NTIS.~~

"Procedures for Radiochemical Analysis of Nuclear Reactor Aqueous Solutions". See NTIS.

~~U.S. EPA OST (United States Environmental Protection Agency, Office of Science and Technology), P.O. Box 1407, Arlington, VA 22313.~~

~~"Tetra through Octa Chlorinated Dioxins and Furans by Isotope Dilution".~~

United States Environmental Protection Agency, Science and Technology Branch, Criteria and Standards Division, Office of Drinking Water, Washington D.C. 20460:

"Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems using Surface Water Sources", October, 1989.

USGS. Books and Open-File Reports Section, United States Geological Survey, 1961 Stout St, Federal Center, Box 25425, Denver, CO 8029425-0425-303/844-4169:

Methods available upon request by method number from

"Methods of Analysis by the U.S. Geological Survey National Water Quality Laboratory--Determination of Inorganic and Organic Constituents in Water and Fluvial Sediments", Open File Report 93-125 or Book 5, Chapter A-1, "Methods for Determination of Inorganic Substances in Water and Fluvial Sediments", 3d ed., Open-File Report 85-495, 1989, as appropriate. Techniques of Water Resources Investigation of the United States Geological Survey.

~~Book 5, Chapter A-1, "Methods for Determination of Inorganic Substances in Water and Fluvial Sediments", 3d ed., Open File Report 85-495, 1989.~~

I-1030-85

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 (19934).

40 CFR 141, Subpart C, Appendix C (19934).

- d) This Part incorporates no later amendments or editions.

(Source: Amended at 19 Ill. Reg. _____, effective _____)

Section 611.110 Special Exception Permits

- a) Unless otherwise specified, each Agency determination in this Part is to be made by way of a written permit pursuant to Section 39(a) of the Act. Such permit is titled a "special exception" permit ("SEP").
- b) No person shall cause or allow the violation of any condition of a SEP.
- c) The supplier may appeal the denial of or the conditions of a SEP to the Board pursuant to Section 40 of the Act.
- d) A SEP may be initiated either:
- 1) By an application filed by the supplier; or
 - 2) By the Agency, when authorized by Board regulations.

BOARD NOTE: The Board does not intend to mandate by any

provision of this Part that the Agency exercise its discretion and initiate a SEP pursuant to subsection (d)(2) above. Rather, the Board intends to clarify by this subsection that the Agency may opt to initiate a SEP without receiving a request from the supplier.

- e) The Agency shall evaluate a request for a SEP from the monitoring requirements of Section 611.601 (inorganic chemical contaminants), only as to monitoring for cyanide; Section 611.646(e) and (f) (Phase I, Phase II, and Phase V VOCs);~~i~~ Section 611.646(d), only as to initial monitoring for 1,2,4-trichlorobenzene;~~i~~ Section 611.648(a) (for Phase II, Phase IIB, and Phase V SOCs) or Section 611.510 (for unregulated organic contaminants) on the basis of knowledge of previous use (including transport, storage, or disposal) of the contaminant in the watershed or zone of influence of the system, as determined pursuant to 35 Ill. Adm. Code 671:
- 1) If the Agency determines that there was no prior use of the contaminant, it shall grant the SEP, or
 - 2) If the contaminant was previously used or the previous use was unknown, the Agency shall consider the following factors:
 - A) Previous analytical results;
 - B) The proximity of the system to any possible point source of contamination (including spills or leaks at or near a water treatment facility; at manufacturing, distribution, or storage facilities; from hazardous and municipal waste land fills; or from waste handling or treatment facilities) or non-point source of contamination (including the use of pesticides and other land application uses of the contaminant);
 - C) The environmental persistence and transport of the contaminant;
 - D) How well the water source is protected against contamination, including whether it is a SWS or a GWS:
 - i) A GWS must consider well depth, soil type, well casing integrity, and wellhead protection; and
 - ii) A SWS must consider watershed protection; and
 - E) For Phase II, Phase IIB, and Phase V SOCs and unregulated organic contaminants (pursuant to Section 611.631 or 611.648):
 - i) Elevated nitrate levels at the water source; and
 - ii) The use of PCBs in equipment used in the production, storage, or distribution of water (including pumps, transformers, etc.); and
 - F) For Phase I, Phase II, and Phase V VOCs (pursuant to Section 611.646): the number of persons served by the PWS and the proximity of a smaller system to a larger one.
- f) If a supplier refuses to provide any necessary additional

information requested by the Agency, or if a supplier delivers any necessary information late in the Agency's deliberations on a request, the Agency may deny the requested SEP or grant the SEP with conditions within the time allowed by law.

- g) The Agency shall grant a supplier a SEP pursuant to Section 611.110 that allows it to discontinue monitoring for cyanide if it determines that the supplier's water is not vulnerable due to a lack of any industrial source of cyanide.

BOARD NOTE: Subsection (e) above is derived from 40 CFR 141.23(c)(2) (1994), and 40 CFR 141.24(f)(8) and (h)(6) (19924). Subsection (f) above is derived from 40 CFR 141.82(d)(2), and 141.83(b)(2) (19924). Subsection (g) is derived from 40 CFR 141.23(c)(2) (1994). U.S. EPA has reserved the discretion, at 40 CFR 142.18 (19924), to review and nullify Agency determinations of the types made pursuant to Sections 611.510, 611.602, 611.603, 611.646, and 611.648 and the discretion, at 40 CFR 141.82(i), 141.83(b)(7), and 142.19 (19924), to establish federal standards for any supplier, superseding any Agency determination made pursuant to Sections 611.352(d), 611.352(f), 611.353(b)(2), and 611.353(b)(4).

(Source: Amended at 19 Ill. Reg. _____, effective _____)

Section 611.111 Section 1415 Variances

This Section is intended as a State equivalent of Section 1415(a)(1)(A) of the SDWA.

- a) The Board may grant a supplier a variance from a NPDWR in this Part.
- 1) The supplier shall file a variance petition pursuant to 35 Ill. Adm. Code 104, except as modified or supplemented by this Section.
 - 2) The Board may grant a variance from the additional State requirements in this Part without following this Section.
- b) As part of the showing of arbitrary or unreasonable hardship, the supplier shall demonstrate that:
- 1) Because of characteristics of the raw water sources that are reasonably available to the system, the supplier cannot meet the MCL or other requirement; and
 - 2) The system has applied BAT as identified in Subpart G of this Part. BAT may vary depending on:
 - A) The number of persons served by the system;
 - B) Physical conditions related to engineering feasibility; and
 - C) Costs of compliance; and
 - 3) The variance will not result in an unreasonable risk to health, as defined in subsection (g) below.
- c) The Board will prescribe a schedule for:

- 1) Compliance, including increments of progress, by the supplier, with each MCL or other requirement with respect to which the variance was granted, and
 - 2) Implementation by the supplier of each additional control measure for each MCL or other requirement, during the period ending on the date compliance with such requirement is required.
- d) A schedule of compliance will require compliance with each MCL or other requirement with respect to which the variance was granted as expeditiously as practicable.
- e) The Board will provide notice and opportunity for a public hearing as provided in 35 Ill. Adm. Code 104.
- f) The Board will not grant a variance:
- 1) From the MCL for total coliforms; provided, however, that the Board may grant a variance from the total coliform MCL of Section 611.325 for PWSs that demonstrate that the violation of the total coliform MCL is due to persistent growth of total coliforms in the distribution system, rather than from fecal or pathogenic contamination, from a treatment lapse or deficiency, or from a problem in the operation or maintenance of the distribution system.
 - 2) Or, from any of the treatment technique requirements of Subpart B of this Part.
- g) As used in this Section and Section 611.112, "unreasonable risk to health level" ("URTH level") means the concentration of a contaminant that will cause a serious health effect within the period of time specified in the variance or exemption requested by a supplier seeking to come into compliance by installing the treatment required to reduce the contaminant to the MCL. URTH level determinations are made on the basis of the individual contaminant, taking into account: the degree by which the level exceeds the MCL; duration of exposure; historical data; and population exposed. A risk to health is assumed to be unreasonable unless the supplier demonstrates that there are costs involved that clearly exceed the health benefits to be derived.
- h) The provisions of Section 611.130 apply to determinations made pursuant to this Section.

BOARD NOTE: Derived from 40 CFR 141.4 (19924), from Section 1415(a)(1)(A) of the SDWA and from 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. U.S. EPA has reserved the discretion to review and modify or nullify Board determinations made pursuant to this Section at 40 CFR 142.23 (19924).

(Source: Amended at 19 Ill. Reg. _____, effective _____)

Section 611.112 Section 1416 Variances

This Section is intended as a State equivalent of Section 1416 of the SDWA.

- a) The Board may grant a supplier a variance from any requirement respecting an MCL or treatment technique requirement of an NPDR

in this Part.

- 1) The supplier shall file a variance petition pursuant to 35 Ill. Adm. Code 104, except as modified or supplemented by this Section.
 - 2) The Board may grant a variance from the additional State requirements in this Part without following this Section.
- b) As part of the showing of arbitrary or unreasonable hardship, the supplier shall demonstrate that:
- 1) Due to compelling factors (which may include economic factors), the supplier is unable to comply with the MCL or treatment technique requirement;
 - 2) The supplier was:
 - A) In operation on the effective date of the MCL or treatment technique requirement; or
 - B) Not in operation on the effective date of the MCL or treatment technique requirement and no reasonable alternative source of drinking water is available to the supplier; and
 - 3) The variance will not result in an unreasonable risk to health.
- c) The Board will prescribe a schedule for:
- 1) Compliance, including increments of progress, by the supplier, with each MCL and treatment technique requirement with respect to which the variance was granted; and
 - 2) Implementation by the supplier, during the period ending on the date when compliance is required, of each additional control measure for each contaminant subject to the MCL or treatment technique requirement.
- d) A schedule of compliance will require compliance with each MCL or other requirement with respect to which the variance was granted as expeditiously as practicable; but no schedule shall extend more than 12 months after the date of the variance, except as follows:
- 1) The Board may extend the date for a period not to exceed three years beyond the date of the variance if the supplier establishes: that it is taking all practicable steps to meet the standard; and:
 - A) The supplier cannot meet the standard without capital improvements that cannot be completed within 12 months;
 - B) In the case of a supplier that needs financial assistance for the necessary improvements, the supplier has entered into an agreement to obtain such financial assistance; or
 - C) The supplier has entered into an enforceable agreement to become a part of a regional PWS; and

- 2) In the case of a PWS with 500 or fewer service connections that needs financial assistance for the necessary improvements, a variance under subsections (d)(1)(A) or (d)(1)(B) above may be renewed for one or more additional two year periods if the supplier establishes that it is taking all practicable steps to meet the final date for compliance.
- e) The Board will provide notice and opportunity for a public hearing as provided in 35 Ill. Adm. Code 104.
- f) The Agency shall promptly send U.S. EPA the Opinion and Order of the Board granting a variance pursuant to this Section. The Board may reconsider and modify a grant of variance, or variance conditions, if U.S. EPA notifies the Board of a finding pursuant to Section 1416 of the SDWA.

BOARD NOTE: Derived from Section 1416 of the SDWA.

- g) The Board will not grant a variance:
- 1) From the MCL for total coliforms; provided, however, that the Board may grant a variance from the total coliform MCL of Section 611.325 for PWSs that demonstrate that the violation of the total coliform MCL is due to persistent growth of total coliforms in the distribution system, rather than from fecal or pathogenic contamination, from a treatment lapse or deficiency, or from a problem in the operation or maintenance of the distribution system.
 - 2) From any of the treatment technique requirements of Subpart B of this Part.
 - 3) From the residual disinfectant concentration (RDC) requirements of Sections 611.241(c) and 611.242(b).
- h) The provisions of Section 611.130 apply to determinations made pursuant to this Section.

BOARD NOTE: Derived from 40 CFR 141.4 (19924). U.S. EPA has reserved the discretion to review and modify or nullify Board determinations made pursuant to this Section at 40 CFR 142.23 (19924).

(Source: Amended at 19 Ill. Reg. _____, effective _____)

Section 611.113 Alternative Treatment Techniques

This Section is intended to be equivalent to Section 1415(a)(3) of the SDWA.

- a) Pursuant to this Section, the Board may grant an adjusted standard from a treatment technique requirement.
- b) The supplier seeking an adjusted standard shall file a petition pursuant to 35 Ill. Adm. Code 106.Subpart G.
- c) As justification the supplier shall demonstrate that an alternative treatment technique is at least as effective in lowering the level of the contaminant with respect to which the treatment technique requirement was prescribed.
- d) As a condition of any adjusted standard, the Board will require

the use of the alternative treatment technique.

- e) The Board will grant adjusted standards for alternative treatment techniques subject to the following conditions:
- 1) All adjusted standards shall be subject to the limitations of 40 CFR 142, Subpart G, incorporated by reference in Section 611.102, and
 - 2) All adjusted standards shall be subject to review and approval by U.S. EPA pursuant to 40 CFR 142.46 before they become effective.

BOARD NOTE: Derived from Section 1415(a)(3) of the SDWA.

- f) The provisions of Section 611.130 apply to determinations made pursuant to this Section.

(Source: Amended at 19 Ill. Reg. _____, effective _____)

Section 611.125 Fluoridation Requirement

All CWSs which are required to add fluoride to the water shall maintain a fluoride ion concentration reported as F of 0.9 to 1.2 mg/l in its distribution system, as required by Section 7a of ~~"AN ACT to provide for safeguarding the public health by vesting certain measures of control and supervision in the Department of Public Health over pPublic Water Suppliesy Regulation Act in the State"~~ (Ill. Rev. Stat. 1989, ch. 111 1/2, par. ~~121(9)(1))~~[415 ILCS 40/7a].

BOARD NOTE: This is an additional State requirement.

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 (19924). 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, according to a definite schedule:
 - i) modification of lime softening;
 - ii) alum coagulation;

- iii) electro dialysis;
- 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 (19924).

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) (19924), ~~as amended at 57 Fed. Reg. 31848 (July 17, 1992)~~, for the purposes of variances and exemptions (adjusted standards). That list is identical to the list at 40 CFR 141.61(b), 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 USEPA intended that this leads to greater consistency and because the preamble at 57 Fed. Reg. 31778-79 indicates that this listing is correct as to alachlor and hexachlorobenzene (although the preamble at 56 Fed. Reg. 3529 (Jan. 30, 1991) indicates that it is wrong as to toxaphene).~~

- 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) (19924).

- 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) (19924).

- 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.

Derived from 40 CFR 142.62(g) (19924).

- 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) (19924).

(Source: Amended at 19 Ill. Reg. _____, effective _____)

SUBPART B: FILTRATION AND DISINFECTION

Section 611.201 Requiring a Demonstration

The Agency shall notify each supplier in writing of the date on which any demonstrations pursuant to the Section are required. The Agency shall require demonstrations at times which meet the U.S. EPA requirements for that type of demonstration, allowing sufficient time for the supplier to collect the necessary information.

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 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 organism associated with surface water (e.g. cryptosporidium), which 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 water source.
- g) Particulate analysis: Significant occurrence 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 (19934); 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 19 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 ~~Ill. Rev. Stat. 1991, ch. 1111, par. 501 et seq~~ the Public Water Supply Operations Act [415 ILCS 45].

BOARD NOTE: Derived from 40 CFR 141.70 (1994).

(Source: Amended at 19 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 compliance with the MCL for arsenic is calculated

pursuant to Section 611.611.

BOARD NOTE: Derived from 40 CFR 141.11(a) (19924).

- 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	
Cyanide	0.2	*
Iron	1.0	*
Manganese	0.15	*
Zinc	5.	*

BOARD NOTE: Derived from 40 CFR 141.11(b) & (c) (19924). 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). 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). ~~USEPA adopted a MCL for cyanide at 40 CFR 141.62(b)(13), effective January 17, 1994, at 57 Fed. Reg. 31847 (July 17, 1992). That MCL is the same as that at this Section. The Board has rendered the state MCL at this Section ineffective on the date the new federal MCL becomes effective.~~

- c) This subsection corresponds with 40 CFR 141.11(c), the substance of which the Board has codified in subsection (b) above. This statement maintains structural parity with the federal rules.
- d) Nitrate.
- 1) The Board incorporates by reference 40 CFR 141.11(d) (19924). 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) (19924). 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 19 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 (19924).

- 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 (\leq) 10 μ g/L GAC LIME, BAT only if influent Hg concentrations \leq 10 μ g/L RO, BAT only if influent Hg concentrations \leq 10 μ g/L
Nickel	IX LIME RO
Nitrate	IX RO ED
Nitrite	IX RO
Selenium	AAL C/F, BAT for Se(IV) only LIME RO

(19914), U.S. EPA removed the last entry in this subsection and marked it reserved at 56 Fed. Reg. 3578 (Jan. 30, 1991). See the preceding Board Note regarding the dual listing of MCLs for 2,4-D.

c) TTHM 0.10 *

BOARD NOTE: Derived in part from 40 CFR 141.12(c) (19924). This is an additional State requirement to the extent it applies to supplies other than CWSs that add a disinfectant at any part of treatment and which provide water to 10,000 or more individuals.

(Source: Amended at 19 Ill. Reg. _____, effective _____)

Section 611.311 Revised MCLs for Organic Contaminants

- a) Volatile organic chemical contaminants. The following MCLs for volatile organic chemical contaminants (VOCs) apply to CWS suppliers and NTNCWS suppliers. The MCLs for dichloromethane, 1,2,4-trichlorobenzene, and 1,1,2-trichloroethane are effective January 17, 1994.

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

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

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

15972-60-8	Alachlor	GAC
116-06-3	Aldicarb	GAC
1646-87-4	Aldicarb sulfone	GAC
1646-87-3	Aldicarb sulfoxide	GAC
1912-24-9	Atrazine	GAC
71-43-2	Benzene	GAC, PTA

50-32-8	Benzo[a]pyrene	GAC
1563-66-2	Carbofuran	GAC
56-23-5	Carbon tetrachloride	GAC, PTA
57-74-9	Chlordane	GAC
94-75-7	2,4-D	GAC
75-99-0	Dalapon	GAC
96-12-8	Dibromochloropropane	GAC, PTA
95-50-1	o-Dichlorobenzene	GAC, PTA
106-46-7	p-Dichlorobenzene	GAC, PTA
107-06-2	1,2-Dichloroethane	GAC, PTA
156-59-2	cis-1,2-Dichloroethylene	GAC, PTA
156-60-5	trans-1,2-Dichloroethylene	GAC, PTA
75-35-4	1,1-Dichloroethylene	GAC, PTA
75-09-2	Dichloromethane	PTA
78-87-5	1,2-Dichloropropane	GAC, PTA
103-23-1	Di(2-ethylhexyl)adipate	GAC, PTA
117-81-7	Di(2-ethylhexyl)phthalate	GAC
88-85-7	Dinoseb	GAC
85-00-7	Diquat	GAC
145-73-3	Endothall	GAC
72-20-8	Endrin	GAC
106-93-4	Ethylene dibromide (EDB)	GAC, PTA
100-41-4	Ethylbenzene	GAC, PTA
1071-53-6	Glyphosate	OX
76-44-8	Heptachlor	GAC
1024-57-3	Heptachlor epoxide	GAC
118-74-1	Hexachlorobenzene	GAC
77-47-3	Hexachlorocyclopentadiene	GAC, PTA
58-89-9	Lindane	GAC
72-43-5	Methoxychlor	GAC
108-90-7	Monochlorobenzene	GAC, PTA
23135-22-0	Oxamyl	GAC
87-86-5	Pentachlorophenol	GAC
1918-02-1	Picloram	GAC
1336-36-3	Polychlorinated biphenyls (PCB)	GAC
122-34-9	Simazine	GAC
100-42-5	Styrene	GAC, PTA
1746-01-6	2,3,7,8-TCDD	GAC
127-18-4	Tetrachloroethylene	GAC, PTA
108-88-3	Toluene	GAC
8001-35-2	Toxaphene	GAC
120-82-1	1,2,4-trichlorobenzene	GAC, PTA
71-55-6	1,1,1-Trichloroethane	GAC, PTA
79-00-5	1,1,2-trichloroethane	GAC, PTA
79-01-6	Trichloroethylene	GAC, PTA
93-72-1	2,4,5-TP	GAC
75-01-4	Vinyl chloride	PTA
1330-20-7	Xylene	GAC, PTA

~~BOARD NOTE: Examination of the preamble to the Phase II amendments, at 56 Fed. Reg. 3529 (Jan. 30, 1991) indicates that USEPA may not have intended the adoption of PTA for BAT for toxaphene. The Board included it because that is what the federal rule actually indicates. See the Board Note to Section 611.130(e)(1).~~

- c) Synthetic organic chemical contaminants. The following MCLs for synthetic organic chemical contaminants (SOCs) apply to CWS and NTNCWS suppliers. The MCLs for benzo[a]pyrene, dalapon, di(2-ethylhexyl)adipate, di(2-ethylhexyl)phthalate, dinoseb, diquat, endothall, endrin, glyphosate, hexachlorobenzene, hexachlorocyclopentadiene, oxamyl (vydate), picloram, simazine, and 2,3,7,8-TCDD

(dioxin) are effective January 17, 1994.

CAS Number	Contaminant	MCL (mg/L)
15972-60-8	Alachlor	0.002
116-06-3	Aldicarb	0.0032
1646-87-4	Aldicarb sulfone	0.002
1646-87-3	Aldicarb sulfoxide	0.004
1912-24-9	Atrazine	0.003
50-32-8	Benzo[a]pyrene	0.0002
1563-66-2	Carbofuran	0.04
57-74-9	Chlordane	0.002
94-75-7	2,4-D	0.07
75-99-0	Dalapon	0.2
96-12-8	Dibromochloropropane	0.0002
103-23-1	Di(2-ethylhexyl)adipate	0.4
117-81-7	Di(2-ethylhexyl)phthalate	0.006
88-85-7	Dinoseb	0.007
85-00-7	Diquat	0.02
145-73-3	Endothall	0.1
72-20-8	Endrin	0.002
106-93-4	Ethylene dibromide	0.00005
1071-53-6	Glyphosate	0.7
76-44-8	Heptachlor	0.0004
1024-57-3	Heptachlor epoxide	0.0002
118-74-1	Hexachlorobenzene	0.001
77-47-4	Hexachlorocyclopentadiene	0.05
58-89-9	Lindane	0.0002
72-43-5	Methoxychlor	0.04
23135-22-0	Oxamyl (Vydate)	0.2
87-86-5	Pentachlorophenol	0.001
1918-02-1	Picloram	0.5
1336-36-3	Polychlorinated biphenyls (PCBs)	0.0005
122-34-9	Simazine	0.004
1746-01-6	2,3,7,8-TCDD (Dioxin)	0.00000003
8001-35-2	Toxaphene	0.003
93-72-1	2,4,5-TP	0.05

BOARD NOTE: Derived from 40 CFR 141.61 (19924), ~~as amended at 57 Fed. Reg. 31847 (July 17, 1992)~~. See the definition of "initial compliance period" at Section 611.101. More stringent state MCLs for 2,4-D, heptachlor, and heptachlor epoxide appear at Section 611.310. See the Board Note at that provision. The effectiveness of the MCLs for aldicarb, aldicarb sulfone, and aldicarb sulfoxide are administratively stayed until the Board takes further administrative action to end this stay. However, suppliers must monitor for these three SOCs pursuant to Section 611.648. See 40 CFR 141.6(g) (19924) and 57 Fed. Reg. 22178 (May 27, 1992).

(Source: Amended at 19 Ill. Reg. _____, effective _____)

Section 611.325 Microbiological Contaminants

- a) The MCL is based on the presence or absence of total coliforms in a sample, rather than coliform density.
 - 1) For a supplier which collects at least 40 samples per month, if no more than 5.0 percent of the samples collected during a month are total coliform-positive, the supplier is in compliance with the MCL for total coliforms.

- 2) For a supplier which collects fewer than 40 samples per month, if no more than one sample collected during a month is total coliform-positive, the supplier is in compliance with the MCL for total coliforms.
- b) Any fecal coliform-positive repeat sample or E. coli-positive repeat sample, or any total coliform-positive repeat sample following a fecal coliform-positive or E. coli-positive routine sample, constitutes a violation of the MCL for total coliforms. For purposes of the public notification requirements in Section 611.851 et seq., this is a violation that may pose an acute risk to health.
- c) A supplier shall determine compliance with the MCL for total coliforms in subsections (a) and (b) for each month in which it is required to monitor for total coliforms.
- d) BATs for achieving compliance with the MCL for total coliforms in subsections (a) and (b):
 - 1) Protection of wells from contamination by coliforms by appropriate placement and construction;
 - 2) Maintenance of RDC throughout the distribution system;
 - 3) Proper maintenance of the distribution system including appropriate pipe replacement and repair procedures, main flushing programs, proper operation and maintenance of storage tanks and reservoirs and continual maintenance of positive water pressure in all parts of the distribution system;
 - 4) Filtration and disinfection of surface water, as described in Subpart B, or disinfection of groundwater using strong oxidants such as chlorine, chlorine dioxide or ozone; or
 - 5) For systems using groundwater, compliance with the wellhead protection program, after U.S. EPA approves the program.

BOARD NOTE: Derived from 40 CFR 141.63 (19894), as amended at ~~54 Fed. Reg. 27562, June 29, 1989.~~

(Source: Amended at 19 Ill. Reg. _____, effective _____)

SUBPART G: LEAD AND COPPER

Section 611.350 General Requirements

- a) Applicability and Scope
 - 1) Applicability. The requirements of this Subpart constitute national primary drinking water regulations for lead and copper. This Subpart applies to all community water systems (CWSs) and non-transient, non-community water systems (NTNCWSs).
 - 2) Scope. This Subpart establishes a treatment technique that includes requirements for corrosion control treatment, source water treatment, lead service line replacement, and public education. These requirements are triggered, in some cases, by lead and copper action levels measured in samples

collected at consumers' taps.

- b) Definitions. For the purposes of only this Subpart, the following terms shall have the following meanings:

"Action level" means that concentration of lead or copper in water computed pursuant to subsection (c) below that determines, in some cases, the treatment requirements of this Subpart which a supplier must complete. The action level for lead is 0.015 mg/L. The action level for copper is 1.3 mg/L.

"Corrosion inhibitor" means a substance capable of reducing the corrosivity of water toward metal plumbing materials, especially lead and copper, by forming a protective film on the interior surface of those materials.

"Effective corrosion inhibitor residual" means a concentration of inhibitor in the drinking water sufficient to form a passivating film on the interior walls of a pipe.

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

"First draw sample" means a one-liter sample of tap water, collected in accordance with Section 611.356(b)(2), that has been standing in plumbing pipes for at least 6 hours and which is collected without flushing the tap.

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

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

"Maximum permissible concentration" or "MPC" means that concentration of lead or copper for finished water entering the supplier's distribution system, designated by the Agency by a SEP pursuant to Sections 611.110 and 611.353(b) that reflects the contaminant removal capability of the treatment properly operated and maintained.

BOARD NOTE: Derived from 40 CFR 141.83(b)(4) (19924) (Section 611.353(b)(4)(B)).

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

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

"Method detection limit" or "MDL" is as defined at Section 611.646(a). The MDL for lead is 0.001 mg/L. The MDL for copper is 0.001 mg/L, or 0.020 mg/L by atomic absorption

direct aspiration method.

BOARD NOTE: Derived from 40 CFR 141.89(a)(1)(iii) (19924).

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

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

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

"90th percentile level" means that concentration of lead or copper contaminant exceeded by 10 percent or fewer of all samples collected during a six-month monitoring period pursuant to Section 611.356 (i.e., that concentration of contaminant greater than or equal to the results obtained from 90 percent of the samples). The 90th percentile levels for copper and lead shall be determined pursuant to subsection (c)(3) below.

BOARD NOTE: Derived from 40 CFR 141.80(c) (19924).

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

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

BOARD NOTE: Derived from 40 CFR 141.89(a)(1)(ii) and (a)(1)(iv) (19924) and ~~56 Fed. Reg. 26511-12 (June 7, 1991) (preamble). USEPA has generally defined the PQL as 5 to 10 times the method detection limit.~~

"Service line sample" means a one-liter sample of water, collected in accordance with Section 611.356(b)(3), that has been standing for at least 6 hours in a service line.

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

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

BOARD NOTE: Derived from 40 CFR 141.2 (19924).

c) Lead and Copper Action Levels:

- 1) The lead action level is exceeded if the 90th percentile lead level is greater than 0.015 mg/L.
- 2) The copper action level is exceeded if the 90th percentile copper level is greater than 1.3 mg/L.

- 3) Suppliers shall compute the 90th percentile lead and copper levels as follows:
 - A) List the results of all lead or copper samples taken during a six-month monitoring period in ascending order, ranging from the sample with the lowest concentration first to the sample with the highest concentration last. Assign each sampling result a number, ascending by single integers beginning with the number 1 for the sample with the lowest contaminant level. The number assigned to the sample with the highest contaminant level shall be equal to the total number of samples taken.
 - B) Determine the number for the 90th percentile sample by multiplying the total number of samples taken during the six-month monitoring period by 0.9.
 - C) The contaminant concentration in the sample with the number yielded by the calculation in subsection (c)(3)(B) above is the 90th percentile contaminant level.
 - D) For suppliers that collect 5 samples per six-month monitoring period, the 90th percentile is computed by taking the average of the highest and second highest concentrations.
- d) Corrosion Control Treatment Requirements:
 - 1) All suppliers shall install and operate optimal corrosion control treatment.
 - 2) Any supplier that complies with the applicable corrosion control treatment requirements specified by the Agency pursuant to Sections 611.351 and 611.352 is deemed in compliance with the treatment requirement of subsection (d)(1) above.
- e) Source water treatment requirements. Any supplier whose system exceeds the lead or copper action level shall implement all applicable source water treatment requirements specified by the Agency pursuant to Section 611.353.
- f) Lead service line replacement requirements. Any supplier whose system exceeds the lead action level after implementation of applicable corrosion control and source water treatment requirements shall complete the lead service line replacement requirements contained in Section 611.354.
- g) Public education requirements. Any supplier whose system exceeds the lead action level shall implement the public education requirements contained in Section 611.355.
- h) Monitoring and analytical requirements. Suppliers shall complete all tap water monitoring for lead and copper, monitoring for water quality parameters, source water monitoring for lead and copper, and analyses of the monitoring results under this Subpart in compliance with Sections 611.356, 611.357, 611.358, and 611.359.
- i) Reporting requirements. Suppliers shall report to the Agency any information required by the treatment provisions of this Subpart

and Section 611.360.

- j) Recordkeeping requirements. Suppliers shall maintain records in accordance with Section 611.361.
- k) Violation of national primary drinking water regulations. Failure to comply with the applicable requirements of this Subpart, including conditions imposed by the Agency by special exception permit (SEP) pursuant to these provisions, shall constitute a violation of the national primary drinking water regulations for lead or copper.

BOARD NOTE: Derived from 40 CFR 141.80 (19924).

(Source: Amended at 19 Ill. Reg. _____, effective _____)

Section 611.351 Applicability of Corrosion Control

- a) Corrosion control required. Suppliers shall complete the applicable corrosion control treatment requirements described in Section 611.352 on or before the deadlines set forth in this Section.
 - 1) Large systems. Each large system supplier (one regularly serving more than 50,000 persons) shall complete the corrosion control treatment steps specified in subsection (d) below, unless it is deemed to have optimized corrosion control under subsection (b)(2) or (b)(3) below.
 - 2) Medium-sized and small systems. Each small system supplier (one regularly serving 3300 or fewer persons) and each medium-sized system (one regularly serving more than 3,300 up to 50,000 or fewer persons) shall complete the corrosion control treatment steps specified in subsection (e) below, unless it is deemed to have optimized corrosion control under one of subsections (b)(1), (b)(2), or (b)(3) below.
- b) Suppliers deemed to have optimized corrosion control. A supplier is deemed to have optimized corrosion control, and is not required to complete the applicable corrosion control treatment steps identified in this Section, if the supplier satisfies one of the following criteria:
 - 1) Small or medium-sized system meeting action levels. A small system or medium-sized system supplier is deemed to have optimized corrosion control if the system meets the lead and copper action levels during each of two consecutive six-month monitoring periods with monitoring conducted in accordance with Section 611.356.
 - 2) SEP for equivalent activities to corrosion control. The Agency shall, by a SEP granted pursuant to Section 611.110, deem any supplier to have optimized corrosion control treatment if it determines that the supplier has conducted activities equivalent to the corrosion control steps applicable under this Section. In making this determination, the Agency shall specify the water quality control parameters representing optimal corrosion control in accordance with Section 611.352(f). A supplier shall provide the Agency with the following information in order to support an Agency SEP determination under this subsection:

- A) the results of all test samples collected for each of the water quality parameters in Section 611.352(c)(3);
 - B) a report explaining the test methods the supplier used to evaluate the corrosion control treatments listed in Section 611.352(c)(1), the results of all tests conducted, and the basis for the supplier's selection of optimal corrosion control treatment;
 - C) a report explaining how the supplier has installed corrosion control and how the supplier maintains it to insure minimal lead and copper concentrations at consumers' taps; and
 - D) the results of tap water samples collected in accordance with Section 611.356 at least once every six months for one year after corrosion control has been installed.
- 3) Results less than practical quantitation level for lead. Any supplier is deemed to have optimized corrosion control if it submits results of tap water monitoring conducted in accordance with Section 611.356 and source water monitoring conducted in accordance with Section 611.358 that demonstrate that for two consecutive six-month monitoring periods the difference between the 90th percentile tap water lead level, computed pursuant to Section 611.350(c)(3), and the highest source water lead concentration is less than the practical quantitation level for lead specified in Section 611.359(a)(1)(B)(i).
- c) Suppliers not required to complete corrosion control steps for having met both action levels.
- 1) Any small system or medium-sized system supplier, otherwise required to complete the corrosion control steps due to its exceedance of the lead or copper action level, may cease completing the treatment steps after the supplier has fulfilled both of the following conditions:
 - A) It has met both the copper action level and the lead action level during each of two consecutive six-month monitoring periods conducted pursuant to Section 611.356, and
 - B) the supplier has submitted the results for those two consecutive six-month monitoring periods to the Agency.
 - 2) A supplier that has ceased completing the corrosion control steps pursuant to subsection (c)(1) above (or the Agency, if appropriate) shall resume completion of the applicable treatment steps, beginning with the first treatment step that the supplier previously did not complete in its entirety, if the supplier thereafter exceeds the lead or copper action level during any monitoring period.
 - 3) The Agency may, by SEP, require a supplier to repeat treatment steps previously completed by the supplier where it determines that this is necessary to properly implement the treatment requirements of this Section. Any such SEP shall explain the basis for this decision.

- 4) The requirement for any small or medium-sized system supplier to implement corrosion control treatment steps in accordance with subsection (e) below (including systems deemed to have optimized corrosion control under subsection (b)(1) above) is triggered whenever any small or medium-sized system supplier exceeds the lead or copper action level.
- d) Treatment steps and deadlines for large systems. Except as provided in subsections (b)(2) and (b)(3) above, large system suppliers shall complete the following corrosion control treatment steps (described in the referenced portions of Sections 611.352, 611.356, and 611.357) on or before the indicated dates.
- 1) Step 1: The supplier shall conduct initial monitoring (Sections 611.356(d)(1) and 611.357(b)) during two consecutive six-month monitoring periods on or before January 1, 1993.

BOARD NOTE: U.S. EPA specified January 1, 1993 at 40 CFR 141.81(d)(1). In order to remain identical-in-substance and to retain state primacy, the Board retained this date despite the fact that this Section became effective after that date.
 - 2) Step 2: The supplier shall complete corrosion control studies (Section 611.352(c)) on or before July 1, 1994.
 - 3) Step 3: The Agency shall approve optimal corrosion control treatment (Section 611.352(d)) by a SEP issued pursuant to Section 611.110 on or before January 1, 1995.
 - 4) Step 4: The supplier shall install optimal corrosion control treatment (Section 611.352(e)) by January 1, 1997.
 - 5) Step 5: The supplier shall complete follow-up sampling (Sections 611.356(d)(2) and 611.357(c)) by January 1, 1998.
 - 6) Step 6: The Agency shall review installation of treatment and approve optimal water quality control parameters (Section 611.352(f)) by July 1, 1998.
 - 7) Step 7: The supplier shall operate in compliance with the Agency-specified optimal water quality control parameters (Section 611.352(g)) and continue to conduct tap sampling (Sections 611.356(d)(3) and 611.357(d)).
- e) Treatment steps and deadlines for small and medium-sized system suppliers. Except as provided in subsection (b) above, small and medium-sized system suppliers shall complete the following corrosion control treatment steps (described in the referenced portions of Sections 611.352, 611.356 and 611.357) by the indicated time periods.
- 1) Step 1: The supplier shall conduct initial tap sampling (Sections 611.356(d)(1) and 611.357(b)) until the supplier either exceeds the lead action level or the copper action level or it becomes eligible for reduced monitoring under Section 611.356(d)(4). A supplier exceeding the lead action level or the copper action level shall recommend optimal corrosion control treatment (Section 611.352(a)) within six months after it exceeds one of the action levels.

- 2) Step 2: Within 12 months after a supplier exceeds the lead action level or the copper action level, the Agency may require the supplier to perform corrosion control studies (Section 611.352(b)). If the Agency does not require the supplier to perform such studies, the Agency shall, by a SEP issued pursuant to Section 611.110, specify optimal corrosion control treatment (Section 611.352(d)) within the following timeframes:
 - A) for medium-sized systems, within 18 months after such supplier exceeds the lead action level or the copper action level,
 - B) for small systems, within 24 months after such supplier exceeds the lead action level or the copper action level.
- 3) Step 3: If the Agency requires a supplier to perform corrosion control studies under step 2 (subsection (e)(2) above), the supplier shall complete the studies (Section 611.352(c)) within 18 months after the Agency requires that such studies be conducted.
- 4) Step 4: If the supplier has performed corrosion control studies under step 2 (subsection (e)(2) above), the Agency shall, by a SEP issued pursuant to Section 611.110, approve optimal corrosion control treatment (Section 611.352(d)) within 6 months after completion of step 3 (subsection (e)(3) above).
- 5) Step 5: The supplier shall install optimal corrosion control treatment (Section 611.352(e)) within 24 months after the Agency approves such treatment.
- 6) Step 6: The supplier shall complete follow-up sampling (Sections 611.356(d)(2) and 611.357(c)) within 36 months after the Agency approves optimal corrosion control treatment.
- 7) Step 7: The Agency shall review the supplier's installation of treatment and, by a SEP issued pursuant to Section 611.110, approve optimal water quality control parameters (Section 611.352(f)) within 6 months after completion of step 6 (subsection (e)(6) above).
- 8) Step 8: The supplier shall operate in compliance with the Agency-approved optimal water quality control parameters (Section 611.352(g)) and continue to conduct tap sampling (Sections 611.356(d)(3) and 611.357(d)).

BOARD NOTE: Derived from 40 CFR 141.81 (19924).

(Source: Amended at 19 Ill. Reg. _____, effective _____)

Section 611.354 Lead Service Line Replacement

- a) Suppliers required to replace lead service lines.
 - 1) If the results from tap samples taken pursuant to Section 611.356(d)(2) exceed the lead action level after the supplier has installed corrosion control or source water treatment (whichever sampling occurs later), the supplier

shall recommence replacing lead service lines in accordance with the requirements of subsection (b) below.

- 2) If a supplier is in violation of Section 611.351 or Section 611.353 for failure to install source water or corrosion control treatment, the Agency may, by a SEP issued pursuant to Section 611.110, require the supplier to commence lead service line replacement under this Section after the date by which the supplier was required to conduct monitoring under Section 611.356(d)(2) has passed.
- b) Annual replacement of lead service lines.
- 1) A supplier required to commence lead service line replacement pursuant to subsection (a) above shall annually replace at least 7 percent of the initial number of lead service lines in its distribution system.
 - 2) The initial number of lead service lines is the number of lead lines in place at the time the replacement program begins.
 - 3) The supplier shall identify the initial number of lead service lines in its distribution system based on a materials evaluation, including the evaluation required under Section 611.356(a).
 - 4) The first year of lead service line replacement shall begin on the date the supplier exceeded the action level in tap sampling referenced in subsection (a) above.
- c) Service lines not needing replacement. A supplier is not required to replace any individual lead service line for which the lead concentrations in all service line samples taken from that line pursuant to Section 611.356(b)(3) are less than or equal to 0.015 mg/L.
- d) Replacement of service line.
- 1) A supplier required to replace a lead service line pursuant to subsection (a) above shall replace the entire service line (up to the building inlet) unless the Agency determines pursuant to subsection (e) below that the supplier controls less than the entire service line.
 - 2) Replacement of less than the entire service line.
 - A) Where the Agency has determined that the supplier controls less than the entire service line, the supplier shall replace that portion of the line that the Agency determines is under the supplier's control.
 - B) The supplier that will replace less than the entire service line shall notify the user served by the line that the supplier will replace that portion of the service line under its control, and the supplier shall offer to replace the remaining portion of the service line that is under the building owner's control.
 - C) The supplier required to replace less than the entire service line is not required to bear the cost of replacing any portion of the service line that is

under the building owner's control.

- D) Offer to collect samples.
- i) For buildings where only a portion of the lead service line is replaced, the supplier shall inform the resident(s) that the supplier will collect a first draw tap water sample after partial replacement of the service line is completed if the resident(s) so desire.
 - ii) In cases where the resident(s) accept the offer, the supplier shall collect the sample and report the results to the resident(s) within 14 days following partial lead service line replacement.

e) Control of entire service line.

- 1) A supplier is presumed to control the entire lead service line (up to the building inlet) unless the supplier demonstrates to the satisfaction of the Agency, in a letter submitted under Section 611.360(e)(4), that it does not have any of the following forms of control over the entire line (as defined by state statutes, municipal ordinances, public service contracts or other applicable legal authority):

- A) authority to set standards for construction, repair, or maintenance of the line;
- B) authority to replace, repair, or maintain the service line; or
- C) ownership of the service line.

2) Agency determinations.

- A) The Agency shall review the information provided by the supplier and determine the following:
 - i) whether the supplier controls less than the entire service line, and
 - ii) where the supplier controls less than the entire service line, the Agency shall determine the extent of the supplier's control.
- B) The Agency shall make its determination of the extent of a supplier's control of a service line as a SEP pursuant to Section 611.110, and the Agency shall explain the basis for its determination.

BOARD NOTE: See Section 611.360(e)(4) and the Board Note that follows. The court in American Water Works Association v. EPA, 40 F.3d 1266 (D.C. Cir. 1994), vacated U.S. EPA's definition of "control" to the extent it would require the supplier to exert "control" over a privately-owned service connection. The Board does not intend that the Illinois definition give the state regulations more effect than the federal definition gives the U.S. EPA regulations.

- f) Agency determination of shorter replacement schedule.

- 1) The Agency shall, by a SEP issued pursuant to Section 611.110, require a supplier to replace lead service lines on a shorter schedule than that otherwise required by this Section if it determines, taking into account the number of lead service lines in the system, that such a shorter replacement schedule is feasible.
 - 2) The Agency shall notify the supplier of its finding pursuant to subsection (f)(1) above within 6 months after the supplier is triggered into lead service line replacement based on monitoring, as referenced in subsection (a) above.
- g) Cessation of service line replacement.
- 1) Any supplier may cease replacing lead service lines whenever it fulfills both of the following conditions:
 - A) first draw tap samples collected pursuant to Section 611.356(b)(2) meet the lead action level during each of two consecutive six-month monitoring periods and
 - B) the supplier has submitted those results to the Agency.
 - 2) If any of the supplier's first draw tap samples thereafter exceed the lead action level, the supplier shall recommence replacing lead service lines pursuant to subsection (b) above.
- h) To demonstrate compliance with subsections (a) through (d) above, a supplier shall report to the Agency the information specified in Section 611.360(e).

BOARD NOTE: Derived from 40 CFR 141.84 (19924).

(Source: Amended at 19 Ill. Reg. _____, effective _____)

Section 611.357 Monitoring for Water Quality Parameters

All large system suppliers, and all small and medium-sized system suppliers that exceed the lead action level or the copper action level, 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).
 - 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) 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 (19924).

(Source: Amended at 19 Ill. Reg. _____, effective _____)

Section 611.359 Analytical Methods

- a) ~~Analyses for lead, copper, pH, conductivity, calcium, alkalinity, orthophosphate, silica, and temperature shall be conducted using the methods set forth in subsection (b) below Section 611.611(a).~~
- 1) ~~Analyses performed for the purposes of compliance with this Subpart shall only be conducted by laboratories that have been certified by USEPA or the Agency. To obtain certification to conduct analyses for lead and copper, laboratories must:~~
 - A) ~~Analyse performance evaluation samples that include lead and copper provided by USEPA Environmental Monitoring and Support Laboratory or equivalent samples provided by the Agency; and~~
 - B) ~~Achieve quantitative acceptance limits as follows:~~
 - i) ~~Lead: ± 30 percent of the actual amount in the performance evaluation sample when the actual amount is greater than or equal to 0.005 mg/L, and~~
 - ii) ~~Copper: ± 10 percent of the actual amount in the performance evaluation sample when the actual amount is greater than or equal to 0.050 mg/L,~~
 - iii) ~~Achieve the method detection limits (MDLs) defined in Section 611.350(a) according to the procedures in 35 Ill. Adm. Code 103 and 40 CFR 136, Appendix B: "Definition and Procedure for~~

~~the Determination of the Method Detection Limit—Revision 1.11", and~~

~~iv) Be currently certified by USEPA or the Agency to perform analyses to the specifications described in subsection (a)(2) below.~~

~~2) The Agency shall, by a SEP issued pursuant to Section 611.110, allow a supplier to use previously collected monitoring data for the purposes of monitoring under this Subpart if the data were collected and analyzed in accordance with the requirements of this Subpart.~~

~~3) Reporting lead levels.~~

~~A) All lead levels greater than or equal to the lead PQL ($Pb \geq 0.005$ mg/L) must be reported as measured.~~

~~B) All lead levels measured less than the PQL and greater than the MDL (0.005 mg/L $> Pb > MDL$) must be either reported as measured or as one half the PQL (0.0025 mg/L).~~

~~C) All lead levels below the lead MDL ($MDL > Pb$) must be reported as zero.~~

~~4) Reporting copper levels.~~

~~A) All copper levels greater than or equal to the copper PQL ($Cu \geq 0.05$ mg/L) must be reported as measured.~~

~~B) All copper levels measured less than the PQL and greater than the MDL (0.05 mg/L $> Cu > MDL$) must be either reported as measured or as one half the PQL (0.025 mg/L).~~

~~C) All copper levels below the copper MDL ($MDL > Cu$) must be reported as zero.~~

~~b) Analytical methods.~~

~~1) Lead~~

~~A) Atomic absorption, furnace technique:~~

~~i) USEPA Inorganic Methods: Method 239.2,~~

~~ii) ASTM Methods: Method D3559-85D, or~~

~~iii) Standard Methods: Method 3113,~~

~~B) Inductively coupled plasma, mass spectrometry: ICP-MS Method 200.8, or~~

~~C) Atomic absorption, platform furnace technique: AA-Platform Furnace Method 200.9.~~

~~D) For analyzing lead and copper, the technique applicable to total metals must be used and samples cannot be filtered. Samples that contain less than 1 NTU and which are properly preserved (concentrated nitric acid to pH less than 2) may be analyzed~~

~~directly (without digestion) for total metals, otherwise digestion is required. Turbidity must be measured on the preserved samples just prior to when metal analysis is initiated. When digestion is required, the "total recoverable" technique, as defined in the method, must be used.~~

~~2) Copper~~

~~A) Atomic absorption, furnace technique:~~

~~i) USEPA Inorganic Methods: Method 220.2,~~

~~ii) ASTM Methods: Method D1688-90C, or~~

~~iii) Standard Methods: Method 3113,~~

~~B) Atomic absorption, direct aspiration:~~

~~i) USEPA Inorganic Methods: Method 220.1,~~

~~ii) ASTM Methods: Method D1688-90A, or~~

~~iii) Standard Methods: Method 3111-B,~~

~~C) Inductively coupled plasma:~~

~~i) ICP Method 200.7, Rev. 3.2, or~~

~~ii) Standard Methods: Method 3120,~~

~~D) Inductively coupled plasma, mass spectrometry: ICP-MS Method 200.8, or~~

~~E) Atomic absorption, platform furnace technique: AA-Platform Furnace Method 200.9,~~

~~F) Subsection (b)(1)(D) above applies to analyses for copper.~~

~~3) pH: Electrometric:~~

~~A) USEPA Inorganic Methods: Method 150.1 or 150.2,~~

~~B) ASTM Methods: Method D1293-84B, or~~

~~C) Standard Methods: Method 4500-H⁺.~~

~~4) Conductivity: Conductance:~~

~~A) USEPA Inorganic Methods: Method 120.1,~~

~~B) ASTM Methods: Method D1125-82B, or~~

~~C) Standard Methods: Method 2510.~~

~~5) Calcium:~~

~~A) EDTA titrimetric:~~

~~i) USEPA Inorganic Methods: Method 215.2,~~

- ii) ~~ASTM Methods: Method D511-88A, or~~
- iii) ~~Standard Methods: Method 3500-Ca-D,~~
- B) ~~Atomic absorption, direct aspiration:~~
 - i) ~~USEPA Inorganic Methods: Method 215.1,~~
 - ii) ~~ASTM Methods: Method D511-88B, or~~
 - iii) ~~Standard Methods: Method 3111-B, or~~
- C) ~~Inductively coupled plasma:~~
 - i) ~~ICP Method 200.7, Rev 3.2, or~~
 - ii) ~~Standard Methods: Method 3120.~~
- 6) ~~Alkalinity:~~
 - A) ~~Titrimetric:~~
 - i) ~~USEPA Inorganic Methods: Method 310.1,~~
 - ii) ~~ASTM Methods: Method D1067-88B, or~~
 - iii) ~~Standard Methods: Method 2320, or~~
 - B) ~~Electrometric titration: USGS Methods: Method I-1030-85.~~
- 7) ~~Orthophosphate:~~
 - A) ~~Unfiltered, no digestion or hydrolysis: USEPA Inorganic Methods: Method 365.1,~~
 - B) ~~Colorimetric, automated, ascorbic acid: Standard Methods: Method 4500-P-F,~~
 - C) ~~Colorimetric, ascorbic acid, two reagent:~~
 - i) ~~USEPA Inorganic Methods: Method 365.3, or~~
 - ii) ~~Standard Methods: Method 4500-P-E,~~
 - D) ~~Colorimetric, ascorbic acid, single reagent:~~
 - i) ~~USEPA Inorganic Methods: Method 365.2, or~~
 - ii) ~~ASTM Methods: Method D515-88A,~~
 - E) ~~Colorimetric, phosphomolybdate, automated-segmented flow or automated discrete: USGS Methods: Methods I-1601-85, I-2601-85, or I-2598-85.~~
 - F) ~~Ion Chromatography:~~
 - i) ~~Ion Chromatography Method 300.0,~~
 - ii) ~~ASTM Methods: Method D4327-88, or~~
 - iii) ~~Standard Methods: Method 4110.~~

~~8) Silica:~~

~~A) Colorimetric, molybdate blue, automated segmented flow, USGS Methods: Methods I-1700-85 or I-2700-85,~~

~~B) Colorimetric:~~

~~i) USEPA Inorganic Methods: Method 370.1, or~~

~~ii) ASTM Methods: Method D859-88,~~

~~C) Molybdesilicate: Standard Methods: Method 4500-Si-D,~~

~~D) Heteropoly blue: Standard Methods: Method 4500-Si-E,~~

~~E) Automated method for molybdate reactive silica: Standard Methods: Method 4500-Si-F, or~~

~~F) Inductively coupled plasma:~~

~~i) ICP Method 200.7, Rev. 3.2, or~~

~~ii) Standard Methods: Method 3120.~~

~~9) Temperature: Thermometric: Standard Methods: Method 2550.~~

BOARD NOTE: Derived from 40 CFR 141.89 (19924), as amended at 579 Fed. Reg. 3184762470 (July 17, 1992December 5, 1994).

(Source: Amended at 19 Ill. Reg. _____, effective _____)

Section 611.360 Reporting

A supplier shall report all of the following information to the Agency in accordance with this Section.

- a) Reporting for tap, lead and copper, and water quality parameter monitoring.
 - 1) A supplier shall report the following information for all samples within 10 days of the end of each applicable sampling period specified in Sections 611.356 through 611.358 (i.e., every six-months, annually, every 3 years, or every nine years).
 - A) the results of all tap samples for lead and copper, including the location of each site and the criteria under Section 611.356(a)(3) through (7) under which the site was selected for the supplier's sampling pool;
 - B) a certification that each first-draw sample collected by the supplier was one-liter in volume and, to the best of the supplier's knowledge, had stood motionless in the service line, or in the interior plumbing of a sampling site, for at least six hours;
 - C) where residents collected samples, a certification that each tap sample collected by the residents was taken after the supplier informed them of the proper sampling procedures specified in Section 611.356(b)(2);

- D) the 90th percentile lead and copper concentrations measured from among all lead and copper tap samples collected during each sampling period (calculated in accordance with Section 611.350(c)(3));
 - E) with the exception of initial tap sampling conducted pursuant to Section 611.356(d)(1), the supplier shall designate any site that was not sampled during previous sampling periods, and include an explanation of why sampling sites have changed;
 - F) the results of all tap samples for pH, and where applicable, alkalinity, calcium, conductivity, temperature, and orthophosphate or silica collected pursuant to Section 611.357(b) through (e);
 - G) the results of all samples collected at entry point(s) for applicable water quality parameters pursuant to Section 611.357(b) through (e).
- 2) By the applicable date in Section 611.356(d)(1) for commencement of monitoring, each CWS supplier that does not complete its targeted sampling pool with CWS tier 1 sampling sites meeting the requirements of Section 611.356(a)(4)(A) shall send a letter to the Agency justifying its selection of CWS tier 2 sampling sites or CWS tier 3 sampling sites pursuant to Section 611.356 (a)(4)(A)(ii), (a)(4)(A)(iii), or (a)(4)(A)(iv).
 - 3) By the applicable date in Section 611.356(d)(1) for commencement of monitoring, each NTNCWS supplier that does not complete its sampling pool with NTNCWS tier 1 sampling sites meeting the requirements of Section 611.356(a)(4)(B) shall send a letter to the Agency justifying its selection of alternative NTNCWS sampling sites pursuant to that Section.
 - 4) By the applicable date in Section 611.356(d)(1) for commencement of monitoring, each supplier with lead service lines that is not able to locate the number of sites served by such lines required by Section 611.356(a)(4)(D) shall send a letter to the Agency demonstrating why it was unable to locate a sufficient number of such sites based upon the information listed in Section 611.356(a)(2).
 - 5) Each supplier that requests that the Agency grant a SEP that reduces the number and frequency of sampling shall provide the information required by Section 611.356(d)(4).
- b) Reporting for source water monitoring.
- 1) A supplier shall report the sampling results for all source water samples collected in accordance with Section 611.358 within 10 days of the end of each source water sampling period (i.e., annually, per compliance period, per compliance cycle) specified in Section 611.358.
 - 2) With the exception of the first round of source water sampling conducted pursuant to Section 611.358(b), a supplier shall specify any site that was not sampled during previous sampling periods, and include an explanation of why the sampling point has changed.

c) Reporting for corrosion control treatment.

By the applicable dates under Section 611.351, a supplier shall report the following information:

- 1) for a supplier demonstrating that it has already optimized corrosion control, the information required by Section 611.352(b)(2) or (b)(3).
- 2) for a supplier required to optimize corrosion control, its recommendation regarding optimal corrosion control treatment pursuant to Section 611.352(a).
- 3) for a supplier required to evaluate the effectiveness of corrosion control treatments pursuant to Section 611.352(c), the information required by Section 611.352(c).
- 4) for a supplier required to install optimal corrosion control approved by the Agency pursuant to Section 611.352(d), a copy of the Agency permit letter, which acts as certification that the supplier has completed installing the permitted treatment.

d) Reporting for source water treatment. On or before the applicable dates in Section 611.353, a supplier shall provide the following information to the Agency:

- 1) if required by Section 611.353(b)(1), its recommendation regarding source water treatment; or
- 2) for suppliers required to install source water treatment pursuant to Section 611.353(b)(2), a copy of the Agency permit letter, which acts as certification that the supplier has completed installing the treatment approved by the Agency within 24 months after the Agency approved the treatment.

e) Reporting for lead service line replacement. A supplier shall report the following information to the Agency to demonstrate compliance with the requirements of Section 611.354:

- 1) Within 12 months after a supplier exceeds the lead action level in sampling referred to in Section 611.354(a), the supplier shall report each of the following to the Agency in writing:
 - A) a demonstration that it has conducted a materials evaluation, including the evaluation required by Section 611.356(a),
 - B) identify the initial number of lead service lines in its distribution system, and
 - C) provide the Agency with the supplier's schedule for annually replacing at least 7 percent of the initial number of lead service lines in its distribution system.
- 2) Within 12 months after a supplier exceeds the lead action level in sampling referred to in Section 611.354(a), and every 12 months thereafter, the supplier shall demonstrate to the Agency in writing that the supplier has either:

- A) replaced in the previous 12 months at least 7 percent of the initial number of lead service lines in its distribution system (or any greater number of lines specified by the Agency pursuant to Section 611.354(f)), or
 - B) conducted sampling that demonstrates that the lead concentration in all service line samples from an individual line(s), taken pursuant to Section 611.356(b)(3), is less than or equal to 0.015 mg/L.
 - C) Where the supplier makes a demonstration under subsection (e)(2)(B) above, the total number of lines that the supplier has replaced, combined with the total number that meet the criteria of Section 611.354(b), shall equal at least 7 percent of the initial number of lead lines identified pursuant to subsection (a) above (or the percentage specified by the Agency pursuant to Section 611.354(f)).
- 3) The annual letter submitted to the Agency pursuant to subsection (e)(2) above shall contain the following information:
- A) the number of lead service lines originally scheduled to be replaced during the previous year of the supplier's replacement schedule;
 - B) the number and location of each lead service line actually replaced during the previous year of the supplier's replacement schedule; and
 - C) if measured, the water lead concentration from each lead service line sampled pursuant to Section 611.356(b)(3) and the location of each lead service line sampled, the sampling method used, and the date of sampling.
- 4) As soon as practicable, but no later than three months after a supplier exceeds the lead action level in the sampling referred to in Section 611.354(a), any supplier seeking to rebut the presumption that it has control over the entire lead service line pursuant to Section 611.354(d) shall submit a letter to the Agency describing the following:
- A) the legal authority (e.g., state statutes, municipal ordinances, public service contracts or other applicable legal authority) that limits the supplier's control over the service lines; and
 - B) the extent of the supplier's control over the service lines.

BOARD NOTE: This communication is vital to a supplier seeking to replace less than entire service lines. Under Section 611.354(e)(1), a supplier is presumed to control the entire service line unless it makes an affirmative showing. Under Section 611.354(d)(2)(A), a supplier is affirmatively required to replace all of each service line except as to any particular service line for which the Agency has made an affirmative determination that the supplier does not control in

its entirety. Under Sections 611.354(b)(1) and (b)(4), the supplier must have completed replacing seven percent of the lead service lines within a year of the day of the event that triggered the requirement. Section 39(a) of the Act allows the Agency 90 days to render its decision on any permit request. Therefore, any supplier that desires an Agency determination pursuant to Section 611.354(e)(2) must submit the required information within the three month time-frame of this subsection.

- f) Reporting for public education program.
- 1) By December 31st of each calendar year, any supplier that is subject to the public education requirements of Section 611.355 shall submit a letter to the Agency demonstrating that the supplier has delivered the public education materials which meet the following requirements:
 - A) the content requirements of Section 611.355(a) and (b), and
 - B) the delivery requirements of Section 611.355(c).
 - 2) The information submitted pursuant to this subsection shall include a list of all the newspapers, radio stations, television stations, facilities and organizations to which the supplier delivered public education materials during the previous year.
 - 3) The supplier shall submit the letter required by this subsection annually for as long as it continues to exceed the lead action level.
- g) Reporting of additional monitoring data. Any supplier that collects sampling data in addition to that required by this Subpart shall report the results of that sampling to the Agency ~~on or before~~ within the first ten days following the end of the applicable sampling period(s) specified by Sections 611.356 through 611.358 during which the samples are collected.

BOARD NOTE: Derived from 40 CFR 141.90 (19924).

(Source: Amended at 19 Ill. Reg. _____, effective _____)

SUBPART K: GENERAL MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.480 Alternative Analytical Techniques

The Agency may approve, by special exception permit, an alternate analytical technique. The Agency shall not approve an alternate analytical technique without the concurrence of U.S. EPA. The Agency shall approve an alternate technique if it is substantially equivalent to the prescribed test in both precision and accuracy as it relates to the determination of compliance with any MCL. The use of the alternate analytical technique must not decrease the frequency of monitoring required by this Part.

BOARD NOTE: Derived from 40 CFR 141.27 (19894).

Section 611.490 Certified Laboratories

- a) For the purpose of determining compliance with Subparts L through Q, samples will be considered only if they have been analyzed:
- 1) By a laboratory certified pursuant to Section 4(o) of the Act; or,
 - 2) By a laboratory certified by U.S. EPA; or,
 - 3) Measurements for turbidity, free chlorine residual, temperature and pH may be performed under the supervision of a certified operator (35 Ill. Adm. Code 603.103).
- b) Nothing in this Part shall be construed to preclude the Agency or any duly designated representative of the Agency from taking samples or from using the results from such samples to determine compliance by a supplier of water with the applicable requirements of this Part.

BOARD NOTE: Derived from 40 CFR 141.28 (19894).

- c) The CWS supplier shall have required analyses performed either at an Agency laboratory, or a certified laboratory. The Agency may require that some or all of the required samples be submitted to its laboratories.

BOARD NOTE: This is an additional State requirement.

Section 611.500 Consecutive PWSs

When a PWS supplies water to one or more other PWSs, the Agency shall modify the monitoring requirements imposed by this Part to the extent that the interconnection of the PWSs justifies treating them as a single PWS for monitoring purposes. Any modified monitoring must be conducted pursuant to a schedule specified by special exception permit. The Agency shall not approve such modified monitoring without the concurrence of U.S. EPA.

BOARD NOTE: Derived from 40 CFR 141.29 (19894).

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 applicaiton 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 502.1~~2~~, 503.1, 524.1, or 524.2, or 502.2 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-trichloropropanemay 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) (19924), as amended at 579 Fed. Reg. ~~31845~~62469 (July ~~17~~Dec. 5, 19924). The Board has adopted no counterpart to ~~40 CFR~~ 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) (19924)

- 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)

(19924), 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) (19924).

- 10) Instead of performing the monitoring required by this subsection, a CWS and NTCWS 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
<u>Aldicarb</u>	<u>531.1, Standard Methods: Method 6610</u>
<u>Aldicarb sulfone</u>	<u>531.1, Standard Methods: Method 6610</u>
<u>Aldicarb sulfoxide</u>	<u>531.1, Standard Methods: Method 6610</u>
Aldrin	505, 508, <u>508.1, 525.2</u>
Butachlor	507, <u>525.2</u>
Carbaryl	<u>531.1, Standard Methods: Method 6610</u>
Dicamba	<u>515.1, 515.2, 555</u>
Dieldrin	505, 508, 525
3-Hydroxycarbofuran	<u>531.1, Standard Methods: Method 6610</u>
Methomyl	<u>531.1, Standard Methods: Method 6610</u>
Metolachlor	507, <u>508.1, 525.2</u>
Metribuzin	507, <u>508.1, 525.2</u>
Propachlor	507, <u>508.1, 525.2</u>

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

Contaminant	USEPA Inorganic Methods
Sulfate	Colorimetric <u>U.S. EPA Environmental Inorganic Methods: Methods 300.0, 375.2; ASTM D 4327-91; Standard Methods: Methods 4110, 4500-SO, F, 4500-SO, C & D</u>

BOARD NOTE: Subsection (b) derived from 40 CFR 141.40(n) (19924), as amended at 57 Fed. Reg. 31846/62471 (July 17/Dec. 5, 1992/24).

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

BOARD NOTE: Subsection (c) derived from 40 CFR 141.40 (h) (19924), ~~as amended at 57 Fed. Reg. 31846 (July 17, 1992).~~

- 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 (1) (19924).

(Source: Amended at 19 Ill. Reg. _____, effective _____)

SUBPART L: MICROBIOLOGICAL MONITORING
AND ANALYTICAL REQUIREMENTS

Section 611.522 Repeat Coliform Monitoring

- a) If a routine sample is total coliform-positive, the supplier shall collect a set of repeat samples within 24 hours of being notified of the positive result. A supplier that collects more than one routine sample per month shall collect no fewer than three repeat samples for each total coliform-positive sample found. A supplier that collects one routine sample per month or fewer shall collect no fewer than four repeat samples for each total coliform-positive sample found. The Agency shall extend the 24-hour limit on a case-by-case basis if it determines that the supplier has a logistical problem in collecting the repeat samples within 24 hours that is beyond its control. In the case of an extension, the Agency shall specify how much time the supplier has to collect the repeat samples.
- b) The supplier shall collect at least one repeat sample from the sampling tap where the original total coliform-positive sample was taken, and at least one repeat sample at a tap within five service connections upstream and at least one repeat sample at a tap within five service connections downstream of the original sampling site. If a total coliform-positive sample is at the end of the distribution system, or one away from the end of the distribution system, the Agency may waive the requirement to collect at least one repeat sample upstream or downstream of the original sampling site.
- c) The supplier shall collect all repeat samples on the same day, except that the Agency shall allow a supplier with a single service connection to collect the required set of repeat samples over a four-day period or to collect a larger volume repeat sample(s) in one or more sample containers of any size, as long as the total volume collected is at least 400 ml (300 ml for PWSs that collect more than one routine sample per month).
- d) If one or more repeat samples in the set is total coliform-positive, the supplier shall collect an additional set of repeat samples in the manner specified in subsections (a) through (c). The additional samples must be collected within 24 hours of being notified of the positive result, unless the Agency extends the limit as provided in subsection (a). The supplier shall repeat this process until either total coliforms are not detected in one complete set of repeat samples or the supplier determines that the MCL for total coliforms in Section 611.325 has been exceeded and notifies the Agency.
- e) If a supplier collecting fewer than five routine samples/month has one or more total coliform-positive samples and the Agency does not invalidate the sample(s) under Section 611.523, the supplier

shall collect at least five routine samples during the next month the supplier provides water to the public, unless the Agency determines that the conditions of subsection (e)(1) or (2) are met. This does not apply to the requirement to collect repeat samples in subsections (a) through (d). The supplier does not have to collect the samples if:

- 1) The Agency performs a site visit before the end of the next month the supplier provides water to the public. Although a sanitary survey need not be performed, the site visit must be sufficiently detailed to allow the Agency to determine whether additional monitoring or any corrective action is needed.
- 2) The Agency has determined why the sample was total coliform-positive and establishes that the supplier has corrected the problem or will correct the problem before the end of the next month the supplier serves water to the public.
 - A) The Agency shall document this decision in writing, and make the document available to U.S. EPA and the public. The written documentation must describe the specific cause of the total coliform-positive sample and what action the supplier has taken or will take to correct the problem.
 - B) The Agency cannot waive the requirement to collect five routine samples the next month the supplier provides water to the public solely on the grounds that all repeat samples are total coliform-negative.
 - C) Under this subsection, a supplier shall still take at least one routine sample before the end of the next month it serves water to the public and use it to determine compliance with the MCL for total coliforms in Section 611.325, unless the Agency has determined that the supplier has corrected the contamination problem before the supplier took the set of repeat samples required in subsections (a) through (d), and all repeat samples were total coliform-negative.
- f) After a supplier collects a routine sample and before it learns the results of the analysis of that sample, if it collects another routine sample(s) from within five adjacent service connections of the initial sample, and the initial sample, after analysis, is found to contain total coliforms, then the supplier may count the subsequent sample(s) as a repeat sample instead of as a routine sample.
- g) Results of all routine and repeat samples not invalidated pursuant to Section 611.523 must be included in determining compliance with the MCL for total coliforms in Section 611.325.

BOARD NOTE: Derived from 40 CFR 141.21(b) (1994).

(Source: Amended at 19 Ill. Reg. _____, effective _____)

Section 611.523 Invalidation of Total Coliform Samples

A total coliform-positive sample invalidated under this Section does not count towards meeting the minimum monitoring requirements.

- a) The Agency shall invalidate a total coliform-positive sample only if the conditions of subsection (a)(1), (a)(2), or (a)(3) are met.
- 1) The laboratory establishes that improper sample analysis caused the total coliform-positive result.
 - 2) The Agency, on the basis of the results of repeat samples collected as required by Section 611.522(a) through (d) determines that the total coliform-positive sample resulted from a domestic or other non-distribution system plumbing problem. The Agency cannot invalidate a sample on the basis of repeat sample results unless all repeat sample(s) collected at the same tap as the original total coliform-positive sample are also total coliform-positive, and all repeat samples collected within five service connections of the original tap are total coliform-negative (e.g., Agency cannot invalidate a total coliform-positive sample on the basis of repeat samples if all the repeat samples are total coliform-negative, or if the supplier has only one service connection).
 - 3) The Agency determines that there are substantial grounds to believe that a total coliform-positive result is due to a circumstance or condition which does not reflect water quality in the distribution system. In this case, the supplier shall still collect all repeat samples required under Section 611.522(a) through (d) and use them to determine compliance with the MCL for total coliforms in Section 611.325. To invalidate a total coliform-positive sample under this subsection, the decision with the rationale for the decision must be documented in writing. The Agency shall make this document available to U.S. EPA and the public. The written documentation must state the specific cause of the total coliform-positive sample, and what action the supplier has taken, or will take, to correct this problem. The Agency shall not invalidate a total coliform-positive sample solely on the grounds that all repeat samples are total coliform-negative.
- b) A laboratory shall invalidate a total coliform sample (unless total coliforms are detected) if the sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined (e.g., the Multiple-Tube Fermentation Technique), produces a turbid culture in the absence of an acid reaction in the P-A Coliform Test, or exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter (e.g., Membrane Filter Technique). If a laboratory invalidates a sample because of such interference, the supplier shall collect another sample from the same location as the original sample within 24 hours of being notified of the interference problem, and have it analyzed for the presence of total coliforms. The supplier shall continue to re-sample within 24 hours and have the samples analyzed until it obtains a valid result. The Agency shall waive the 24-hour time limit on a case-by-case basis, if it is not possible to collect the sample within that time.

BOARD NOTE: Derived from 40 CFR 141.21(c) (1994).

(Source: Amended at 19 Ill. Reg. _____, effective _____)

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):
 - 1) Multiple-Tube Fermentation (MTF) Technique, as set forth in Standard Methods: Methods 9221 A and B:
 - A) ~~Standard Methods: Method 908, 908A and 908B, except that 10 fermentation tubes must be used; or~~ 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 comparisan demonstrates that the false-positive rate for total coliforms, using lactose broth, is less than 10 percent;
 - B) ~~Microbiological Methods: Part III, Section B 4.1-4.6.4, pp. 114-118, (Most Probable Number Method), except that 10 fermentation tubes must be used; or~~ If inverted tubes are used ot 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: Methods 9222 A, B, and C+;
 - A) ~~Standard Methods: Method 909, 909A and 909B; or~~
 - B) ~~Microbiological Methods: Part III, Section B.2.1-2.6, pp. 108-112; or~~
 - 3) P-A Coliform Test, as set forth in: Standard Methods: Method 908E, or 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) ~~MMO-MUG test. The MMO-MUG test with hepes buffer in lieu of phosphate buffer is an acceptable minor revision.~~ ONPG-MUG test: Standard Methods: Method 9223. (The ONPG-MUG test is also known as the autoanalysis colilert system.)
 - 5) Colisure test from Millipore Corporation. (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.)

- d) ~~In lieu of the 10-tube MTF Technique specified in subsection (c)(1), a supplier may use the MTF Technique using either five tubes (20 ml sample portions or a single culture bottle containing the culture medium for the MTF Technique, i.e., lauryl tryptose broth (formulated as described in Standard Methods, Method 908A, incorporated by reference in Section 611.102) as long as a 100 ml water sample is used in the analysis. 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 Microbiological Approved methods, referenced above,~~ 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 $44.5 \pm 0.2^\circ \text{C}$ 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) ~~The preparation of EC medium is described in Standard Methods: Method 90869221 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 $50 \mu\text{g/L}$ 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 $50 \mu\text{g/L}$ 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 Agar is described in Standard Methods: ~~Method 9086~~ 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 Coli-ert 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 incorporations 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) (19914), as amended at 569 Fed. Reg. 642, January 8, 1991, 57 Fed. Reg. 1852, January 15, 1992, and 57 Fed. Reg. 24747, June 10, 1992 62466 (Dec. 5, 1994).

(Source: Amended at 19 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) ~~Fecal coliform concentration: Standard Methods, 16th Edition, Methods 908C, 908D or 909C.~~ 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 total coliforms, fecal coliforms, heterotrophic bacteria, turbidity, and temperature in accordance with one of the following methods, and by using analytical test procedures contained in "Technical Notes on Drinking Water", available from NTIS, incorporated by reference in Section 611.102:
 - A) Total coliform fermentation technique: Standards Methods (18th ed.): Method 9221 A, B, and C.
 - i) 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 for total coliforms, using lactose broth, is less than 10 percent;
 - ii) 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
 - iii) No requirement exists to run the completed phase on 10 percent of all total coliform-positive confirmed tubes;
 - B) Total coliform membrane filter technique: Standard Methods (18th ed.): Method 9222 A, B, and C.
 - C) ONPG-MUG test (also known as the autoanalysis colilert system): Standard Methods (18th ed.): Method 9223.
 - D) Fecal coliform MPN procedure: Standard Methods (18th ed.): Method 9221 E (A-1 broth may be held up to three months in a tightly closed screwcap tube at 4° C (39° F)).
 - E) Heterotrophic bacteria (the time from sample collection to initiation of analysis must not exceed 8 hours):
 - i) U.S. EPA Environmental Inorganic Methods: Method 180.1
 - ii) GLI Method 2.
 - F) Temperature: Standard Methods (18th ed.): Method 2550.
- b) ~~Total coliform concentration: Standard Methods, 16th Edition, Methods 908A, 908B, 908D, 909A or 909B.~~ 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 "Technical Notes on Drinking Water", available from NTIS, 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 E.
- B) DPD Ferrous Titrimetric: Method 4500-Cl F.
- C) DPD Colimetric: Method 4500-Cl G.
- D) Iodometric Electrode: Method 4500-Cl I.

3) Chlorine dioxide:

- A) Amperometric Titration: Method 4500-ClO, C or E.
- B) DPD Method: Method 4500-ClO, D.

4) Ozone: Indigo Method: Method 4500-O, 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.

~~e) HPC: Standard Methods, 16th Edition, Method 907A.~~

~~d) Turbidity: Standard Methods, 16th Edition, Method 214A.~~

~~e) RDG+~~

- ~~1) Free chlorine and combined chlorine (chloramines) must be measured by Standard Methods, 16th Edition, Method 408C, 408D, 408E or 408F.~~
- ~~2) Ozone must be measured by the Indigo method, or automated methods which are calibrated in reference to the results obtained by the Indigo method on a regular basis, if approved by the Agency.~~
- ~~3) Chlorine dioxide must be measured by Standard Methods, 16th Edition, Methods 410B or 410C.~~
- ~~f) Temperature: Standard Methods, 16th Edition, Method 212.~~
- ~~g) pH: Standard Methods, 16th Edition, Method 423.~~

BOARD NOTE: Derived from 40 CFR 141.74(a) (19894), as amended at 549 Fed. Reg. 27526, June 29, 198962470 (Dec. 5, 1994).

SUBPART M: TURBIDITY MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.560 Turbidity

The requirements in this Section apply to unfiltered PWSs until December 30, 1991, unless the Agency has determined prior to that date that filtration is required. The requirements in this Section apply to filtered PWSs until June 29, 1993. The requirements in this Section apply to unfiltered PWSs that the Agency has determined must install filtration, until June 29, 1993, or until filtration is installed, whichever is later.

- a) Suppliers shall take samples at representative entry point(s) to the distribution system at least once per day, for the purposes of making turbidity measurements to determine compliance with Section 611.320.
 - 1) If Public Health determines that a reduced sampling frequency in a non-CWS will not pose a risk to public health, it may reduce the required sampling frequency. The option of reducing the turbidity frequency will be permitted only in those suppliers that practice disinfection and which maintain an active RDC in the distribution system, and in those cases where Public Health has indicated in writing that no unreasonable risk to health existed under the circumstances of this option.
 - 2) The turbidity measurements must be made in accordance with the following methods, incorporated by reference in Section 611.102:
 - A) By the Nephelometric Method:
 - i) Standard Methods: Method 214A; or
 - ii) U.S. EPA Inorganic Methods: Method 180.1.
 - B) Calibration of the turbidimeter must be made either by the use of a formazin standard as specified in the cited references, or a styrene divinylbenzene polymer standard (Amco-AEPA-1 Polymer).
- b) If the result of a turbidity analysis indicates that the maximum

allowable limit has been exceeded, the sampling and measurement must be confirmed by resampling as soon as practicable and preferably within one hour. If the repeat sample confirms that the maximum allowable limit has been exceeded, the supplier of water shall report to the Agency within 48 hours. The repeat sample must be the sample used for the purpose of calculating the monthly average. If the monthly average of the daily samples exceeds the maximum allowable limit, or if the average of two samples taken on consecutive days exceeds 5 NTU, the supplier of water shall report to the Agency and notify the public as directed in Subpart T of this Part.

- c) Sampling for non-CWSs must begin by June 29, 1991.
- d) This Section applies only to suppliers that use water obtained in whole or in part from surface sources.

BOARD NOTE: Derived from 40 CFR 141.22 (19924).

(Source: Amended at 19 Ill. Reg. _____, effective _____)

SUBPART N: INORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

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) (1994).

- 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 temperature)	0.0008
		Inductively-coupled plasma-Mass spectrometry	0.0004
		Atomic absorption-gaseous hydride technique	0.001
Asbestos	7 MFL	Transmission electron	0.01 MFL

		microscopy	
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 (using concentration technique in appendix 200.7A to USEPA Inorganic Method 200.7)	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 (using concentration technique in appendix 200.7A to USEPA Inorganic Method 200.7)	0.001
Chromium	0.1	Atomic absorption- furnace technique	0.001
		Inductively-coupled plasma	0.007
		Inductively-coupled plasma (using concentration technique in appendix 200.7A to USEPA Inorganic Method 200.7)	0.001
Cyanide	0.2	Distillation, spectrophotometric (screening method for total cyanides)	0.02
		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	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-	0.0003

Mass spectrometry

BOARD NOTE: Derived from 40 CFR 141.23 preamble and paragraph (a)(4)(i) (19914), ~~as amended at 57 Fed. Reg. 31838-39 (July 17, 1992).~~

(Source: Amended at 19 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) (19914) and ~~40 CFR 141.23(e), as amended at 57 Fed. Reg. 31839 (July 17, 1992).~~

(Source: Amended at 19 Ill. Reg. _____, effective _____)

Section 611.603 Inorganic Monitoring Frequency

The frequency of monitoring conducted to determine compliance with the revised MCLs in Section 611.301 for antimony, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, and thallium is as follows:

- a) Suppliers shall take samples at each sampling point, beginning in the initial compliance period, as follows:
 - 1) For GWSs: at least one sample every three years during each compliance period;
 - 2) For SWSs and mixed systems: at least one sample each year.

BOARD NOTE: Derived from 40 CFR 141.23(c)(1) (19934).

b) SEP Application.

- 1) The supplier may apply to the Agency for a SEP that allows reduction from the monitoring frequencies specified in subsection (a) above pursuant to subsections (d) through (f) below and Section 611.110.
- 2) The supplier may apply to the Agency for a SEP that relieves it of the requirement for monitoring cyanide pursuant to subsections (d) through (f) below and Section 611.110.

BOARD NOTE: Drawn from 40 CFR 141.23(c)(2) and (c)(6) (19934).

- c) SEP Procedures. The Agency shall review the request pursuant to the SEP procedures of Section 611.110 based on consideration of the factors in subsection (e) below.

BOARD NOTE: Drawn from 40 CFR 141.23(c)(6) (19934).

- d) Standard for SEP reduction in monitoring. The Agency shall grant a SEP that allows a reduction in the monitoring frequency if the supplier demonstrates that all previous analytical results were less than the MCL, provided the supplier meets the following minimum data requirements:
- 1) For GWS suppliers: a minimum of three rounds of monitoring.
 - 2) For SWS and mixed system suppliers: annual monitoring for at least three years.
 - 3) At least one sample must have been taken since January 1, 1990.
 - 4) A supplier that uses a new water source is not eligible for a SEP until it completes three rounds of monitoring from the new source.

BOARD NOTE: Drawn from 40 CFR 141.23(c)(4) (19934).

- e) Standard for SEP monitoring conditions. As a condition of any SEP, the Agency shall require that the supplier take a minimum of one sample during the term of the SEP. In determining the appropriate reduced monitoring frequency, the Agency shall consider:
- 1) Reported concentrations from all previous monitoring;
 - 2) The degree of variation in reported concentrations; and
 - 3) Other factors may affect contaminant concentrations, such as changes in groundwater pumping rates, changes in the CWSs configuration, the CWS's operating procedures, or changes in stream flows or characteristics.

BOARD NOTE: Drawn from 40 CFR 141.23(c)(3) and (c)(5) (19934).

- f) SEP Conditions and Revision.

- 1) A SEP will expire at the end of the compliance cycle for which it was issued.

BOARD NOTE: Drawn from 40 CFR 141.23(c)(3) (19934).

- 2) In issuing a SEP, the Agency shall specify the level of the contaminant upon which the "reliably and consistently" determination was based. A SEP must provide that the Agency will review and, where appropriate, revise its determination of the appropriate monitoring frequency when the supplier submits new monitoring data or when other data relevant to the supplier's appropriate monitoring frequency become available.

BOARD NOTE: Drawn from 40 CFR 141.23(c)(6) (19934).

- g) A supplier that exceeds the MCL for antimony, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, ~~or~~ selenium, or thallium, as determined in Section 611.609, shall monitor quarterly for that contaminant, beginning in the next

quarter after the violation occurred.

BOARD NOTE: Derived from 40 CFR 141.23(c)(7) (19934).

- h) Reduction of quarterly monitoring.
- 1) The Agency shall grant a SEP pursuant to Section 611.110 that reduces the monitoring frequency to that specified by subsection (a) above if it determines that the sampling point is reliably and consistently below the MCL.
 - 2) A request for a SEP must include the following minimal information:
 - A) For a GWS: two quarterly samples.
 - B) For an SWS or mixed system: four quarterly samples.
 - 3) 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 for any contaminant pursuant to subsection (g) above if it violates the MCL specified by Section 611.609 for that contaminant.

BOARD NOTE: Derived from 40 CFR 141.23(c)(8) (19934).

(Source: Amended at 19 Ill. Reg. _____, effective _____)

Section 611.605 Nitrite Monitoring

Each supplier shall monitor to determine compliance with the MCL for nitrite in Section 611.301.

- a) All suppliers shall take one sample at each sampling point during the compliance period beginning January 1, 1993 and ending December 31, 1995.
- b) This subsection corresponds with 40 CFR 141.23(e)(2), a provision by which U.S. EPA refers to state requirements that do not exist in Illinois. This statement maintains structural consistency with U.S. EPA rules.
- c) Repeat monitoring frequency.
 - 1) Quarterly monitoring.
 - A) A supplier that has any one sample in which the concentration is equal to or greater than 50 percent of the MCL shall initiate quarterly monitoring during the next quarter.
 - B) A supplier required to begin quarterly monitoring pursuant to subsection (c)(1)(A) shall continue on a quarterly basis for a minimum of one year following any one sample exceeding the 50 percent of the MCL, after which the supplier may discontinue quarterly monitoring pursuant to subsection (c)(2).
 - 2) The Agency shall grant a SEP pursuant to Section 611.110

that allows a supplier to reduce its monitoring frequency to annually if it determines that the sampling point is reliably and consistently below the MCL.

- A) A request for a SEP must include the following minimal information: the results from four quarterly samples.
- B) In issuing the SEP, the Agency 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 for nitrite pursuant to subsection (c)(1) if it equals or exceeds 50 percent of the MCL specified by Section 611.301 for nitrite.
- d) A supplier that is monitoring annually shall take samples during the quarter(s) which previously resulted in the highest analytical result.

BOARD NOTE: Derived from 40 CFR 141.23(e) (1994).

(Source: Amended at 19 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 or 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 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) (1994).

(Source: Amended at 19 Ill. Reg. _____, effective _____)

Section 611.609 Determining Compliance

Compliance with the MCLs of Sections 611.300 or 611.301 (as appropriate) must be determined based on the analytical result(s) obtained at each sampling point.

- a) For suppliers that monitor at a frequency greater than annual, compliance with the MCLs for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, ~~and~~or thallium is determined by a running annual average at each sampling point.
- 1) If the average at any sampling point is greater than the MCL, then the supplier is out of compliance.
 - 2) If any one sample would cause the annual average to be exceeded, then the supplier is out of compliance immediately.
 - 3) Any sample below the method detection limit must be calculated at zero for the purpose of determining the annual average.

BOARD NOTE: The "method detection limit" is different from the "detection limit", as set forth in Section 611.600. The "method detection limit" is the level of contaminant that can be determined by a particular method with a 95 percent degree of confidence, as determined by the method outlined in 40 CFR 136, appendix B, incorporated by reference at Section 611.102.

- b) For suppliers that monitor annually or less frequently, compliance with the MCLs for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, ~~and~~or thallium is determined by the level of the contaminant at any sampling point. If a confirmation sample is taken, the determination of compliance will be based on the average of the two samples.
- c) Compliance with the MCLs for nitrate and nitrite is determined based on one sample if the levels of these contaminants are below the MCLs. If the levels of nitrate or nitrite exceed the MCLs in the initial sample, Section 611.606 requires confirmation sampling, and compliance is determined based on the average of the initial and confirmation samples.
- d) 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 give the public notice required by Subpart T only to persons served by that portion of the distribution system not in compliance.

BOARD NOTE: Derived from 40 CFR 141.23(i) (19934).

(Source: Amended at 19 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 ~~antimony, asbestos, beryllium, barium, cadmium, chromium, cyanide, mercury, nickel, nitrate, nitrite, selenium, and thallium pursuant to Sections 611.600 through 611.604~~ the following contaminants must be conducted using the following methods. Criteria for analyzing arsenic, chromium, copper, lead, nickel, selenium, sodium, and thallium with digestion, and other

analytical procedures, are contained in "Technical Notes on Drinking Water Methods", available from NTIS, 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.) ~~For approved analytical techniques for metals and selenium, the technique applicable to total metals must be used. For methods marked with an asterisk (*), the procedure of subsection (f) below must be used for preservation, measurement of turbidity, and digestion.~~

1) Antimony:

~~A) Atomic absorption, furnace technique*:~~

~~i) USEPA Inorganic Methods: Method 204.2, or~~

~~ii) Standard Methods: Method 3113;~~

~~B) Atomic absorption, platform furnace technique*:~~ USEPA Environmental Metals Methods: ~~Method 220.9;~~

GA) Inductively-coupled plasma-Mass spectrometry*: U.S. EPA Environmental Metals Methods: Method 200.8 ~~or.~~

DB) Atomic absorption, gaseous-hydride technique, using the digestion technique set forth in the method: ASTM Method D3697-87 92.

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

D) Atomic absorption, furnace technique: Standard Methods: 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 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.

D) Atomic Absorbtion, furnace technique:

i) ASTM D2972-93 C, or

ii) Standard Methods: Method 3113 B.

E) Atomic absorption, hydride technique:

i) ASTM D2972-93 B, or

ii) Standard Methods: Method 3114 B.

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

34) Barium:

~~A) Atomic absorption, furnace technique*~~

~~i) USEPA Inorganic Methods: Method 208.2, or~~

~~ii) Standard Methods: Method 3113B,~~

~~B) Atomic absorption, direct aspiration technique*~~

~~i) USEPA Inorganic Methods: Method 208.1, or~~

~~ii) Standard Methods: Method 3111D, or~~

GA) Inductively-coupled plasma-arc furnace*:

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

ii) Standard Methods: 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: Method 3111 D.

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

45) Beryllium:

~~A) Atomic absorption, furnace technique*~~

~~i) USEPA Inorganic Methods: Method 210.2,~~

~~ii) ASTM Method D3645-84B, or~~

~~iii) Standard Methods: Method 3113,~~

~~B) Atomic absorption, platform furnace technique*: USEPA Environmental Metals Methods: Method 200.9,~~

GA) Inductively-coupled plasma-arc furnace*:

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

ii) Standard Methods: Method 3120_B, or

GB) 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

iii) Standard Methods: Method 3113 B.

56) Cadmium:

~~A) Atomic absorption, furnace technique*~~

~~i) USEPA Inorganic Methods: Method 213.2, or~~

~~ii) Standard Methods: Method 3113B, or~~

BA) Inductively-coupled plasma arc furnace*: U.S. EPA Environmental Metals Methods*7: Method 200.7.

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

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

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

67) Chromium:

~~A) Atomic absorption, furnace technique*~~

~~i) USEPA Inorganic Methods: Method 218.2, or~~

~~ii) Standard Methods: Method 3113B, or~~

BA) Inductively-coupled plasma arc furnace*:

i) U.S. EPA Environmental Metals Methods: Method 200.77, or

ii) Standard Methods: Method 3120B.

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

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

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

78) Cyanide:

A) Distillation (Standard Methods: Method 4500-CN), followed by spectrophotometric, amenable:

~~i) USEPA Inorganic Methods: Method 335.2,~~

ii) ASTM Method D2036-89A91 B,

iii) Standard Methods: Method 4500-CN DC, ~~or,~~

~~iv) USGS Methods: Method I-3300-85,~~

B) Automated dDistillation (Standard Methods: Method 4500-CN), followed by spectrophotometric, manual:

- ~~i) USEPA Inorganic Methods: ASTM Method 335.3D2036-91 A, or~~
 - ii) Standard Methods: Method 4500-CN E, or
 - iv) USGS Methods: Method I-3300-85.
 - C) Distillation (Standard Methods: Method 4500-CN), followed by semiautomated spectrophotometric selective electrode: U.S. EPA Environmental Inorganic Methods: Method 335.4.
 - ~~i) ASTM Method D2036-89A, or~~
 - ~~ii) Standard Methods: Method 4500-CN F, or~~
 - D) Distillation, amenable, spectrophotometric selective electrode: Standard Methods: Method 4500-CN F.
 - ~~i) USEPA Inorganic Methods: Method 335.1,~~
 - ~~ii) ASTM Method D2036-89B, or~~
 - ~~iii) Standard Methods: Method 4500-CN G.~~
- 9) Fluoride:
- A) Ion Chromatography:
 - i) U.S. EPA Environmental Inorganic Methods: Method 300.0,
 - ii) ASTM Method D4327-91, or
 - iii) Standard Methods: Method 4110 B.
 - B) Manual distillation, colorimetric SPADNS: Standard Methods: Method 4500-F B and D.
 - C) Manual electrode:
 - i) ASTM D1179-93B, or
 - ii) Standard Methods: Method 4500-F C.
 - D) Automated electrode: Technicon Methods: Method 380-75WE.
 - E) Automated alizarin:
 - i) Standard Methods: Method 4500-F E, or
 - ii) Technicon Methods: Method 129-71W.
- 810) Mercury:
- A) Manual cold vapor technique, using the digestion technique set forth in the method:
 - i) U.S. EPA Inorganic Environmental Metals Methods: Method 245.1,

- ii) ASTM D3223-8691, or
 - iii) Standard Methods: Method 3112_B~~7~~or.
- B) Automated cold vapor technique, ~~using the digestion technique set forth in the method:~~ U.S. EPA Inorganic Methods: Method 245.2.
- C) inductively-coupled plasma-mass spectrometry: U.S. EPA Environmental Metals Methods: Method 200.8.
- 911) Nickel:
- A) ~~Atomic absorption, furnace technique*~~
 - i) ~~USEPA Inorganic Methods: Method 249.2, or~~
 - ii) ~~Standard Methods: Method 3113,~~
 - B) ~~Atomic absorption, platform furnace technique*:~~ USEPA Environmental Metals Methods: Method 200.9,
 - C) ~~Atomic absorption, direct aspiration technique*~~
 - i) ~~USEPA Inorganic Methods: Method 249.1, or~~
 - ii) ~~Standard Methods: Method 3111B,~~
 - DA) Inductively-coupled plasma*:
 - i) U.S. EPA Environmental Metals Methods: Method 200.7, or
 - ii) Standard Methods: Method 3120_B~~7~~or.
 - EB) 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: Method 3111 B;
 - E) Atomic absorption, furnace technique: Standard Methods: Method 3113 B;
- 102) Nitrate:
- A) ~~Manual cadmium reduction*~~
 - i) ~~USEPA Inorganic Methods: Method 353.3,~~
 - ii) ~~ASTM D3867-90, or~~
 - iii) ~~Standard Methods: Method 4500-NO₃-E,~~
 - B) ~~Automated hydrazine reduction: USEPA Inorganic Methods: Method 353.1,~~
 - C) ~~Automated cadmium reduction*~~

- ~~i) USEPA Inorganic Methods: Method 353.2,~~
- ~~ii) ASTM D3867-90, or~~
- ~~iii) Standard Methods: Method 4500-NO₃-F,~~
- ~~B) Ion selective electrode: WeWWG/5880, available from Orion Research, or~~
- EA) Ion chromatography:
 - i) U.S. EPA Ion Chromatography Environmental Inorganic Methods: Method 300.0, -ex
 - ii) ASTM D4327-91,
 - iii) Standard Methods: Method 4500-NO₃, or
 - iy) B-1011, available from Millipore Corporation.
- B) Automated cadmium reduction:
 - i) U.S. EPA Environmental Inorganic Methods: Method 353.2,
 - ii) ASTM D3867-90 B, or
 - iii) Standard Methods: Method 4500-NO₃ F.
- C) Ion selective electrode:
 - i) Standard Methods: Method 4500-NO₃ D, or
 - ii) Technical Bulletin 601.
- D) Manual cadmium reduction:
 - i) ASTM D3867-90 B, or
 - iii) Standard Methods: Method 4500-NO₃ E.
- 113) Nitrite:
 - ~~A) Spectrophotometric: USEPA Inorganic Methods: Method 354.1,~~
 - ~~B) Automated cadmium reduction:~~
 - ~~i) USEPA Inorganic Methods: Method 353.2,~~
 - ~~ii) ASTM D3867-90, or~~
 - ~~iii) Standard Methods: Method 4500-NO₃-F,~~
 - ~~C) Manual cadmium reduction:~~
 - ~~i) USEPA Inorganic Methods: Method 353.3,~~
 - ~~ii) ASTM D3867-90, or~~
 - ~~iii) Standard Methods: Method 4500-NO₃-E,~~

DA) Ion chromatography:

- i) U.S. EPA Ion Chromatography Environmental Inorganic Methods: Method 300.0, ~~or~~
- ii) ASTM D4327-91,
- iii) Standard Methods: Method 4110 B, or
- iv) Method B-1011, available from Millipore Corporation.

B) Automated cadmium reduction:

- i) U.S. EPA Environmental Inorganic Methods: Method 353.2,
- ii) ASTM D3867-90 A, or
- iii) Standard Methods: Method 4500-NO₃ F.

C) Manual cadmium reduction:

- i) ASTM D3867-90 B, or
- ii) Standard Methods: Method 4500-NO₃ E.

D) Spectrophotometric: Standard Methods: Method 4500-NO₃ B.

124) Selenium:

A) Atomic absorption, gaseous-hydride, using the digestion technique set forth in the method:

- i) ASTM D3859-8493 A, or
- ii) Standard Methods: Method 3114_B, ~~or~~.

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.BD) Atomic absorption, graphite furnace technique*, adding 2mL of 30% hydrogen peroxide (H₂O₂) and an appropriate concentration of nickel nitrate hexahydrate (Ni(NO₃)₂·6H₂O) to the samples as a matrix modifier:

- i) ~~USEPA Inorganic Methods*: Method 270.2,~~
- ii) ASTM D3859-8893 B, or
- iii) Standard Methods: Method 3113_B.

135) Thallium:

~~A) Atomic absorption, furnace technique, using the digestion technique set forth in the method*~~

- ~~i) USEPA Inorganic Methods: Method 279.2, or~~

~~ii) Standard Methods: Method 3113,~~

~~B) Atomic absorption platform furnace technique, using the digestion technique set forth in the method: USEPA Environmental Metals Methods: Method 200.9, or~~

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

~~BOARD NOTE: Derived from 40 CFR 141.23(k)(1) (1992) and 40 CFR 141.23 (k)(4), as added at 57 Fed. Reg. 31839-40 (July 17, 1992). In promulgating the Phase V rules, U.S. EPA creates a new table of analytical methods at 40 CFR 141.23(k)(4) that would duplicate the methods set forth at 40 CFR 141.23(k)(1) except that U.S. EPA updated and revised several of the methods. The Board has combined the two federal tables, using the version of each method set forth in the Phase V rules where the methods set forth conflict.~~

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

16) Lead:

A) Atomic absorption, furnace technique:

i) ASTM D3559-90 D, or

ii) Standard Methods: 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 D1688-90 C, or

ii) Standard Methods: Method 3113 B.

B) Atomic absorption, direct aspiration:

i) ASTM D1688-90 A, or

ii) Standard Methods: Method 3111 B.

C) Inductively-coupled plasma:

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

ii) Standard Methods: 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 D1293-84, or
- iii) Standard Methods: Method 4500-H⁺ B.
- B) U.S. EPA Inorganic Methods: Method 150.2.
- 19) Conductivity: Conductance:
- A) ASTM D1125-91 A, or
- B) Standard Methods: Method 2510 B.
- 20) Calcium:
- A) EDTA titrimetric:
- i) ASTM D511-93 A, or
- ii) Standard Methods: Method 3500-Ca D.
- B) Atomic absorption, direct aspiration:
- i) ASTM D511-93 B, or
- ii) Standard Methods: Method 3111 B.
- C) Inductively-coupled plasma:
- i) U.S. EPA Environmental Metals Methods: Method 200.7, or
- ii) Standard Methods: Method 3120 B.
- 21) Alkalinity:
- A) Titrimetric:
- i) ASTM D1067-92 B, or
- ii) Standard Methods: 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: Method 4500-P F.

- B) Single reagent colorimetric, ascorbic acid:
 - i) ASTM D515-88 A, or
 - ii) Standard Methods: Method 4500-P E.
 - C) Colorimetric, polyphosphomolybdate: USGS Methods: Method I-1601-85.
 - D) Colorimetric, automated-segmented flow: USGS Methods: Method I-2601-90.
 - E) Colorimetric, automated discete: USGS Methods: Method I02598-85.
 - F) Ion Chromatography:
 - i) U.S. EPA Environmental Inorganic Methods: Method 300.0,
 - ii) ASTM D4327-91, or
 - iii) Standard Methods: Method 4110.
- 23) Silica:
- A) Colorimetric, molybdate blue: USGS Methods: Method I-1700-85.
 - B) Colorimetric, automated-segmented flow: USGS Methods: Method I-2700-85.
 - C) Colorimetric: ASTM D859-88.
 - D) Molybdosilicate: Standard Methods: Method 4500-Si D.
 - E) Heteropoly blue: Standard Methods: Method 4500-Si E.
 - F) Autometed method for molybdate-reactive silica: Standard Methods: Method 4500-Si F.
 - G) Inductively-coupled plasma:
 - i) U.S. EPA Environmental Metals Methods: Method 200.7, or
 - ii) Standard Methods: Method 3120 B.
- 24) Temperature: thermometric: Standard Methods: Method 2550 B.
- 25) Sodium:
- A) Inducively-coupled plasma: U.S. EPA Environmental Metals Methods: Method 200.7.
 - B) Atomic absorbtion, direct aspiration: Standard Methods: Method 3111 B.

~~b) Arsenic. Analyses for arsenic must be conducted using one of the following methods:~~

- 1) ~~Atomic absorption, furnace technique, USEPA Inorganic Methods: Method 206.2~~
- 2) ~~Atomic absorption, gaseous hydride:~~
- ~~A) USEPA Inorganic Methods: Method 206.3,~~
- ~~B) ASTM D2972-88B,~~
- ~~C) Standard Methods:~~
- ~~i) Method 307A (referencing Methods 303E and 304),~~
~~or~~
- ~~ii) Method 307B~~
- ~~D) USGS Methods: I-1062-85,~~
- 3) ~~Spectrophotometric, silver diethyldithiocarbamate:~~
- ~~A) USEPA Inorganic Methods: Method 206.4,~~
- ~~B) ASTM D2972-88A, or~~
- ~~C) Standard Methods: Method 307B, or~~
- 4) ~~Inductively coupled plasma arc furnace, ICP Method 200.7, as supplemented by appendix 200.7A.~~
- ~~BOARD NOTE: Derived from 40 CFR 141.23(k)(2) (1992).~~
- e) ~~Fluoride. Analyses for fluoride must be conducted using one of the following methods:~~
- 1) ~~Colorimetric SPADNS, with distillation:~~
- ~~A) USEPA Inorganic Methods: Method 340.1,~~
- ~~B) ASTM D1179-72A, or~~
- ~~C) Standard Methods: Methods 413A and 413C,~~
- ~~BOARD NOTE: 40 CFR 141.23(k)(3) cites methods "43 A and C", an obvious error that the Board has corrected to "413A and 413C".~~
- 2) ~~Potentiometric, ion selective electrode:~~
- ~~A) USEPA Inorganic Methods: Method 340.2,~~
- ~~B) ASTM D1179-72B, or~~
- ~~C) Standard Methods: Method 413B,~~
- 3) ~~Automated Alizarin fluoride blue, with distillation (complexone):~~
- ~~A) USEPA Inorganic Methods: Method 340.3,~~
- ~~B) Standard Methods: Method 413E, or~~
- ~~C) Technicon Methods: Method 129-71W, or~~

~~4) Automated ion selective electrode: Technicon Methods, Method 380-75WE.~~

~~BOARD NOTE: Derived from 40 CFR 141.23(k)(3) (1992).~~

eb) 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.

~~BOARD NOTE: Derived from 40 CFR 141.23(k)(4) (1992) as amended and renumbered to 40 CFR 141.23(k)(5) at 57 Fed. Reg. 31840 (July 17, 1992).~~

ec) 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: $\pm 30\%$ at greater than or equal to 0.006 mg/L.

BOARD NOTE: 40 CFR 141.23(k)(63) (1994), as renumbered from paragraph (k)(5) and amended at 40 CFR 31840 (July 17, 1992), actually lists "6#30" as the acceptance limit for antimony. The Board corrected this to " $\pm 30\%$ " based on the discussion at 57 Fed. Reg. 31801 (July 17, 1992).

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

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

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

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

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

G) Cyanide: $\pm 25\%$ at greater than or equal to 0.1 mg/l.

H) Fluoride: $\pm 10\%$ at 1 to 10 mg/L.

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

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

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

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

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

N) Thallium: $\pm 30\%$ 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)(52) (19924), as amended and renumbered to 40 CFR 141.23(k)(6) at 57 Fed. Reg. 31840-4162466 (July 17 Dec. 5, 19924), and the discussion at 57 Fed. Reg. 31809 (July 17, 1992). Section 611.609 is derived from 40 CFR 141.23(k) (1994), as amended at 59 Fed. Reg. 62466 (Dec. 5, 1994).

~~f) Sample preservation, turbidity measurement, and digestion. For all analytical methods marked with an asterisk (*) in subsection (a) above, the following must be done:~~

~~1) The samples must be preserved with concentrated nitric acid (pH < 2).~~

- ~~1) Turbidity must be measured on the preserved samples immediately prior to analysis; and~~
- ~~2) The sample must be analyzed as follows:

 - ~~A) Directly for total metals if the turbidity is less than 1 NTU, or~~
 - ~~B) After digestion, using the total recoverable technique as defined in the applicable method, if the turbidity is 1 NTU or greater.~~~~

~~BOARD NOTE: Derived from 40 CFR 141.23(k)(4), footnote 6, as added at 57 Fed. Reg. 31840 (July 17, 1992).~~

(Source: Amended at 19 Ill. Reg. _____, effective _____)

Section 611.612 Monitoring Requirements for Old Inorganic MCLs

- a) Analyses for the purpose of determining compliance with the old inorganic MCLs of Section 611.300 are required as follows:
 - 1) Analyses for all CWSs utilizing surface water sources must be repeated at yearly intervals.
 - 2) Analyses for all CWSs utilizing only groundwater sources must be repeated at three-year intervals.
 - 3) This subsection corresponds with 40 CFR 141.23(1)(3) (19934), which requires monitoring for the repealed old MCL for nitrate at a frequency specified by the state. The Board has followed the U.S. EPA lead and repealed that old MCL. This statement maintains structural consistency with U.S. EPA rules.
 - 4) This subsection corresponds with 40 CFR 141.23(1)(4) (19934), which authorizes the state to determine compliance and initiate enforcement action. This authority exists through the authorization of the Act, not through federal rules. This statement maintains structural consistency with U.S. EPA rules.
- b) If the result of an analysis made under subsection (a) above indicates that the level of any contaminant listed in Section 611.300 exceeds the old MCL, the supplier shall report to the Agency within 7 days and initiate three additional analyses at the same sampling point within one month.
- c) When the average of four analyses made pursuant to subsection (b) above, rounded to the same number of significant figures as the old MCL for the substance in question, exceeds the old MCL, the supplier shall notify the Agency and give notice to the public pursuant to Subpart T of this Part. Monitoring after public notification must be at a frequency designated by the Agency by a SEP granted pursuant to Section 611.110 and must continue until the old MCL has not been exceeded in two successive samples or until a different monitoring schedule becomes effective as a condition to a variance, an adjusted standard, a site specific rule, an enforcement action, or another SEP granted pursuant to Section 611.110.

- d) This subsection corresponds with 40 CFR 141.23(o) (19934), which pertains to monitoring for the repealed old MCL for nitrate. The Board has followed the U.S. EPA action and repealed that old MCL. This statement maintains structural consistency with U.S. EPA rules.
- e) This subsection corresponds with 40 CFR 141.23(p) (19934), which pertains to the use of existing data up until a date long since expired. The Board did not adopt the original provision in R88-26. This statement maintains structural consistency with U.S. EPA rules.
- f) Analyses conducted to determine compliance with the old MCLs of Section 611.300 must be made in accordance with the following methods, incorporated by reference in Section 611.102.

~~1) Arsenic:~~

~~A) ASTM:~~

~~i) Method D2972-88A, or~~

~~ii) Method D2972-88B,~~

~~B) Standard Methods:~~

~~i) Method 307A, or~~

~~ii) Method 307B,~~

~~C) USGS Methods, Method I-1062-85,~~

~~D) U.S. EPA Inorganic Methods:~~

~~i) Method 206.2, or~~

~~ii) Method 206.3, or~~

~~E) ICP Method 200.7, as supplemented by appendix 200.7A.~~

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

~~3) Cyanide, until the cyanide MCL of Section 611.300 is no longer effective:~~

~~A) Standard Methods: Method 4500-CN D, E, F, or G,~~

~~B) U.S. EPA Inorganic Methods: Methods 335.1, 335.2, or 335.3, or~~

~~C) ASTM Methods D2036-89A or B.~~

42) Iron:

A) Standard Methods: ~~Method 303A,~~

i) Method 3111 B,

ii) Method 3113 B, or

iii) Method 3120 B.

- B) U.S. EPA ~~Inorganic~~Environmental Metals Methods:
- i) Method ~~236.1~~200.7, or
 - ii) Method ~~236.2~~200.9, ~~or~~
- ~~C) ICP Method 200.7, as supplemented by appendix 200.7A.~~
- 53) Manganese:
- A) ~~ASTM: Method D858-84,~~
- BA) Standard Methods: ~~Method 303A,~~
- i) Method 3111 B,
 - ii) Method 3113 B, or
 - iii) Method 3120 B.
- CB) U.S. EPA ~~Inorganic~~Environmental Metals Methods:
- i) Method ~~243.1,~~ ~~or~~200.7,
 - ii) Method ~~243.2~~200.8, ~~or~~
 - iii) Method 200.9.
- ~~D) ICP Method 200.7, as supplemented by appendix 200.7A.~~
- 64) Zinc:
- A) Standard Methods: ~~Method 303A, or~~
- i) Method 3111 B, or
 - ii) Method 3120 B.
- B) U.S. EPA ~~Inorganic~~Environmental Metals Methods:
- i) Method ~~289.1~~200.7, or
 - ii) Method ~~289.2~~200.8.

BOARD NOTE: The provisions of subsections (a) through (f)(3) above derive from 40 CFR 141.23(l) through (qp) (19934), as amended at 59 Fed. Reg. 62466 (Dec. 5, 1994). The Board has deleted several analytical methods codified by U.S. EPA ~~at removed and reserved~~ 40 CFR 141.23(q) (formerly 40 CFR 141.23(f)) ~~because the MCLs of 40 CFR 141.11 expired for those contaminants on July 30 and November 30, 1992~~ at 59 Fed. Reg. 62466 (Dec. 5, 1994). Subsection (f)(2) above relates to a contaminant for which U.S. EPA specifies a MCL, but for which it repealed the analytical method. Subsections (f)(42) through (f)(64) above relate exclusively to additional state requirements. The Board retained subsections (f)(1), (f)(3), and (f)(4) to set forth methods for the inorganic contaminants for which there is a state-only MCL. The methods

specified are those set forth in 40 CFR 143.4(b), as amended at 59 Fed. Reg. 62471 (Dec. 5, 1994), for secondary MCLs. The predecessor to subsections (a) through (e) above were formerly codified as Section 611.601. The predecessor to subsection (f) above was formerly codified as Section 611.606.

(Source: Amended at 19 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 performed by the following methods, incorporated by reference in Section 611.102, conducted as directed in Section 611.611(a).~~
- ~~1) Standard Methods, Methods 320 and 320A, flame photometric method,~~
 - ~~2) USEPA Inorganic Methods,~~
 - ~~A) Method 273.1, Atomic Absorption Direct Aspiration,~~
~~or~~
 - ~~B) Method 273.2, Atomic Absorption Graphite Furnace, or~~
 - ~~3) ASTM Method D1428-64.~~

BOARD NOTE: Derived from 40 CFR 141.41 (19924), as amended at 59 Fed. Reg. 62470 (Dec. 5, 1994).

(Source: Amended at 19 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.
- ~~BOARD NOTE: This applies also to additional State requirements.~~
- 2) The Agency shall, by SEP, require CWS suppliers utilizing only groundwater sources to collect samples at least once every three years.
- ~~BOARD NOTE: This applies also to additional State requirements.~~
- 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 611.648(1).

BOARD NOTE: This provision now applies only to state-only MCLs. It was formerly derived from 40 CFR 141.24(a) through (d) (1991), which U.S. EPA removed and reserved at 59 Fed. Reg. 34323 (July 1, 1994).

(Source: Amended at 19 Ill. Reg. _____, effective _____)

Section 611.645 Analytical Methods for ~~Old MCLs~~ Organic Chemical Contaminants

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 611.648(1). 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 shall be conducted using the methods listed in this Section or by equivalent methods as approved by the Agency. All methods are from U.S. EPA Organic Methods unless otherwise indicated.

Volatile Organic Chemical Contaminants (VOCs):

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

Synthetic Organic Chemical Contaminants (SOCs):

<u>2,3,7,8-Tetrachlorodibenzodioxin (2,3,7,8-TCDD or dioxin)</u>	<u>Dioxin and Furan Method 1613</u>
<u>2,4-D</u>	<u>515.1, 515.2, 555</u>
<u>2,4,5-TP (Silvex)</u>	<u>515.1, 515.2, 555</u>
<u>Alachlor</u>	<u>505*, 507, 508.1, 525.2</u>
<u>Atrazine</u>	<u>505*, 507, 508.1, 525.2</u>
<u>Benzo(a)pyrene</u>	<u>525.2, 550, 550.1</u>

<u>Carbofuran</u>	<u>531.1, Standard</u> <u>Methods: Method 6610</u>
<u>Chlordane</u>	<u>505, 508, 508.1,</u> <u>525.2</u>
<u>Dalapon</u>	<u>515.1, 552.1</u>
<u>Di(2-ethylhexyl)adipate</u>	<u>506, 525.2</u>
<u>Di(2-ethylhexyl)phthalate</u>	<u>506, 525.2</u>
<u>Dibromochloropropane (DBCP)</u>	<u>504.1, 551</u>
<u>Dinoseb</u>	<u>515.1, 515.2, 555</u>
<u>Diquat</u>	<u>549.1</u>
<u>Endothall</u>	<u>548.1</u>
<u>Endrin</u>	<u>505, 508, 508.1,</u> <u>525.2</u>
<u>Ethylene Dibromide (EDB)</u>	<u>504.1, 551</u>
<u>Glyphosate</u>	<u>547, Standard</u> <u>Methods: Method 6651</u>
<u>Heptachlor</u>	<u>505, 508, 508.1,</u> <u>525.2</u>
<u>Heptachlor Epoxide</u>	<u>505, 508, 508.1,</u> <u>525.2</u>
<u>Hexachlorobenzene</u>	<u>505, 508, 508.1,</u> <u>525.2</u>
<u>Hexachlorocyclopentadiene</u>	<u>505, 508, 508.1,</u> <u>525.2</u>
<u>Lindane</u>	<u>505, 508, 508.1,</u> <u>525.2</u>
<u>Methoxychlor</u>	<u>505, 508, 508.1,</u> <u>525.2</u>
<u>Oxamyl</u>	<u>531.1, Standard</u> <u>Methods: Method 6610</u>
<u>PCBs (measured for compliance purposes as decchlorobiphenyl)</u>	<u>508A</u>
<u>PCBs (qualitatively identified as Araclors)</u>	<u>505, 508</u>
<u>Pentachlorophenol</u>	<u>515.1, 515.2, 525.2,</u> <u>555</u>
<u>Picloram</u>	<u>515.1, 515.2, 555</u>
<u>Simazine</u>	<u>505*, 507, 508.1,</u> <u>525.2</u>

<u>Toxaphene</u>	<u>505, 508, 525.2</u>
<u>Total Trihalomethanes (TTHMs):</u>	
<u>Total Trihalomethanes (TTHMs)</u>	<u>502.2, 524.2</u>
<u>State-Only MCLs (for which a method is not listed above):</u>	
<u>Aldrin</u>	<u>505, 508, 508.1,</u> <u>525.2</u>
<u>DDT</u>	<u>505, 508</u>
<u>Dieldrin</u>	<u>505, 508, 508.1,</u> <u>525.2</u>

* 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 araclor, atrazine, and simazine if lower detection limits are required.

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

(Source: Amended at 19 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) (19934).

- 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) (19934), 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 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 (1)(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) ~~Analyses for the Phase I, Phase II, and Phase V VOCs must be conducted using the following methods. These methods are contained in USEPA Organic Methods, incorporated by reference in Section 611.102. 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.~~
- ~~1) Method 502.1: "Volatile Halogenated Organic Chemicals in Water by Purge and Trap Gas Chromatography".~~
 - ~~2) Method 502.2: "Volatile Organic Compounds in Water by Purge and Trap Capillary Column Gas Chromatography with Photoionization and Electrolytic Conductivity Detectors in Series".~~
 - ~~3) Method 503.1: "Volatile Aromatic and Unsaturated Organic Compounds in Water by Purge and Trap Gas Chromatography".~~
 - ~~4) Method 524.1: "Measurement of Purgeable Organic Compounds in Water by Purged Column Gas Chromatography/Mass Spectrometry".~~
 - ~~5) Method 524.2: "Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/Mass Spectrometry".~~

Spectrometry.

- q) Analysis under this Section must only be conducted by laboratories that have received approval certification by U.S. EPA or the Agency according to the following conditions:
- 1) To receive conditional approval 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 conditional approval 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 ~~approved~~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) (19934).

(Source: Amended at 19 Ill. Reg. _____, effective _____)

Section 611.647 Sampling for Phase I Volatile Organic Contaminants
(Repealed)

~~For systems in operation before January 1, 1993, for purposes of initial monitoring, analysis of Phase I VOCs for purposes of determining compliance with the MCLs must be conducted as follows:~~

- ~~a) CWS suppliers shall sample at entry points representative of each well after treatment. Sampling must be conducted at the same location(s) or more representative location(s) every three months for one year except as provided in subsection (h)(1) below.~~
- ~~b) SWS and mixed system suppliers using surface sources shall sample at points in the distribution system representative of each source or at entry points to the distribution system after any application of treatment. SWS and mixed system suppliers shall sample each source every three months except as provided in subsection (h)(2) below. Sampling must be conducted at the same location or a more representative location each quarter.~~
- ~~e) If the system draws water from more than one source and sources are combined before distribution, the supplier shall sample at an entry point to the distribution system during periods of normal operating conditions.~~
- ~~d) Time for sampling.~~
 - ~~1) All CWS and NTNCWS suppliers serving more than 3,300 people shall analyze all distribution or entry point samples, as appropriate, representing all source waters.~~
 - ~~2) All other CWS and NTNCWS suppliers shall analyze distribution or entry point samples, as required in this~~

~~paragraph, representing all source waters beginning no later than January 1, 1991.~~

- ~~e) If the results exceed the MCL, the CWS or NTNCWS supplier shall initiate three additional analyses at the same sampling point within one month. The sample results must be averaged with the first sampling result and used for compliance determination in accordance with subsection (i) below. The Agency shall delete results of obvious sampling errors from this calculation.~~
- ~~f) Analysis for vinyl chloride is required only for CWSs that have detected one or more of the following two carbon organic compounds: Trichloroethylene, tetrachloroethylene, 1,2-dichloroethane, 1,1,1 trichloroethane, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene or 1,1-dichloroethylene. The analysis for vinyl chloride is required at each distribution or entry point at which one or more of the two carbon organic compounds were found. If the first analysis does not detect vinyl chloride, the Agency shall reduce the frequency of vinyl chloride monitoring to once every three years for that sample location or other sample locations that are more representative of the same source.~~
- ~~g) The Agency or suppliers may composite up to five samples from one or more suppliers. Compositing of samples is to be done in the laboratory by the procedures listed below. Samples must be analyzed within fourteen days of collection. If any of the Phase I VOCs is detected in the original composite sample, a sample from each source that made up the composite sample must be reanalyzed individually within fourteen days from sampling. The sample for reanalysis cannot be the original sample but can be a duplicate sample. If duplicates of the original samples are not available, new samples must be taken from each source used in the original composite and analyzed for the Phase I VOCs. Reanalysis must be accomplished within fourteen days of the second sample. To composite samples, the following procedure must be followed:~~
- ~~1) Compositing samples prior to GC analysis.~~
 - ~~A) Add 5 ml or equal larger amounts of each sample (up to 5 samples are allowed) to a 25 ml glass syringe. Special precautions must be made to maintain zero headspace in the syringe.~~
 - ~~B) The samples must be cooled at 4° C during this step to minimize volatilization losses.~~
 - ~~C) Mix well and draw out a 5 ml aliquot for analysis.~~
 - ~~D) Follow sample introduction, purging and desorption steps described in the method.~~
 - ~~E) If less than five samples are used for compositing, a proportionately smaller syringe may be used.~~
 - ~~2) Compositing samples prior to GC/MS analysis.~~
 - ~~A) Inject 5 ml or equal larger amounts of each aqueous sample (up to 5 samples are allowed) into a 25 ml purging device using the sample introduction technique described in the method.~~
 - ~~B) The total volume of the sample in the purging device~~

must be 25 ml.

- ~~G) Purge and desorb as described in the method.~~
- ~~h) This subsection corresponds with 40 CFR 141.24(g)(8), the effectiveness of which expired on January 1, 1993. Although USEPA has not repealed this provision, the Board has done so to avoid confusion. This statement maintains structural integrity with USEPA rules.~~
- ~~i) Compliance with Section 611.311(a) is determined based on the results of running annual average of quarterly sampling for each sampling location. If one location's average is greater than the MCL, then the CWS or NTNCWS is deemed to be out of compliance. If a CWS or NTNCWS has a distribution system separable from other parts of the distribution system with no interconnections, only that part of the system that exceeds any MCL as specified in Section 611.311(a) is deemed out of compliance. The Agency shall, by SEP, reduce the public notice requirement to that portion of the CWS that is out of compliance. If any one sample result would cause the annual average to be exceeded, then the CWS is deemed to be out of compliance immediately. For CWS suppliers that only take one sample per location because none of the Phase I VOCs were detected, compliance is based on that one sample.~~
- ~~j) Analysis under this Section must be conducted using the following methods or alternatives approved pursuant to Section 611.480. These methods are contained in USEPA Organic Methods, incorporated by reference in Section 611.102:~~
- ~~1) Method 502.1.~~
 - ~~2) Method 503.1.~~
 - ~~3) Method 524.1.~~
 - ~~4) Method 524.2.~~
 - ~~5) Method 502.2.~~
- ~~k) Analysis under this Section must only be conducted by laboratories that have received conditional approval by the Agency, pursuant to Section 611.490, according to the following conditions:~~
- ~~1) To receive conditional approval to conduct analyses for the Phase I VOCs, except vinyl chloride, the laboratory shall:~~
 - ~~A) Analyze performance evaluation samples that include these substances provided by the Agency pursuant to 35 Ill. Adm. Code 183.125(e)(3).~~
 - ~~B) Achieve the quantitative acceptance limits under subsection (k)(1)(C) or (k)(1)(D) below for at least six of the Phase I VOCs, except vinyl chloride.~~
 - ~~C) Achieve quantitative results on the analyses performed under subsection (k)(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 (k)(1)(A) above that are within \pm 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.~~

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

~~F) Be currently approved by the Agency for the analyses of THMs under Subpart P of this Part.~~

~~2) To receive conditional approval for vinyl chloride, the laboratory shall:~~

~~A) Analyse performance evaluation samples provided by the Agency. (See 35 Ill. Adm. Code 183.125(e)(3).)~~

~~B) Achieve quantitative results on the analyses performed under subsection (k)(2)(A) above that are within \pm 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, App. B, incorporated by reference in Section 611.102.~~

~~D) Receive approval or be currently approved by the Agency under subsection (k)(1) above.~~

~~l) The Agency shall, by SEP, increase required monitoring where it determines that it is necessary to do so to detect variations within the CWS.~~

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

~~n) Each approved laboratory shall determine the method detection limit (MDL), as defined in 40 CFR 136, App. B, incorporated by reference in Section 611.102, at which it is capable of detecting each of the Phase I VOCs. The acceptable MDL is 0.0005 mg/L. This concentration is the detection level for purposes of subsections (e), (f), (g) and (h) above.~~

~~BOARD NOTE: Derived from 40 CFR 141.24(g) (1992).~~

(Source: Repealed at 19 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) (19934).

- 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) (19934).

- 1) ~~Analysis for Phase II, Phase IIB, and Phase V SOCs must be conducted using the following methods. These methods, except for USEPA Dioxin and Furan Method 1613, are contained in USEPA Organic Methods. All methods are incorporated by reference in Section 611.102. This provision corresponds with 40 CFR 141.24(h)(12) (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.~~
 - 1) ~~Method 504: "1,2-Dibromoethane (EDB) and 1,2-Dibromo-3-chloropropane (DBCP) in Water by Microextraction and Gas Chromatography". Method 504 can be used to measure 1,2-Dibromo-3-chloropropane (dibromochloropropane or DBCP) and 1,2-Dibromoethane (ethylene dibromide or EDB).~~
 - 2) ~~Method 505: "Analysis of Organohalide Pesticides and Commercial Polychlorinated Biphenyl Products (Aroclors) in Water by Microextraction and Gas Chromatography". Method 505 can be used to measure alachlor, atrazine, chlordane, DDT, dieldrin, endrin, heptachlor, heptachlor epoxide, hexachlorobenzene, hexachlorocyclopentadiene, lindane,~~

~~methoxychlor, simazine, and toxaphene. Method 505 can be used as a screen for PCBs.~~

- ~~3) Method 507: "Determination of Nitrogen and Phosphorus Containing Pesticides in Ground Water by Gas Chromatography with a Nitrogen Phosphorus Detector". Method 507 can be used to measure alachlor, atrazine, and simazine.~~
- ~~4) Method 508: "Determination of Chlorinated Pesticides in Water by Gas Chromatography with an Electron Capture Detector". Method 508 can be used to measure chlordane, DDT, dieldrin, endrin, heptachlor, heptachlor epoxide, hexachlorobenzene, lindane, methoxychlor, and toxaphene. Method 508 can be used as a screen for PCBs.~~
- ~~5) Method 508A: "Screening for Polychlorinated Biphenyls by Perchlorination and Gas Chromatography". Method 508A is used to quantitate PCBs as decachlorobiphenyl if detected in Methods 505 or 508.~~
- ~~6) Method 515.1, revision 5.0 (May, 1991): "Determination of Chlorinated Acids in Water by Gas Chromatography with an Electron Capture Detector". Method 515.1 can be used to measure 2,4-D, dalapon, dinoseb, pentachlorophenol, picloram, and 2,4,5-TP (Silvex).~~
- ~~7) Method 525.1, revision 3.0 (May, 1991): "Determination of Organic Compounds in Drinking Water by Liquid-Solid Extraction and Capillary Column Gas Chromatography/Mass Spectrometry". Method 525 can be used to measure alachlor, atrazine, chlordane, di(2-ethylhexyl)adipate, di(2-ethylhexyl)phthalate, endrin, heptachlor, heptachlor epoxide, hexachlorobenzene, hexachlorocyclopentadiene, lindane, methoxychlor, and pentachlorophenol polynuclear aromatic hydrocarbons, simazine, and toxaphene.~~
- ~~8) Method 531.1: "Measurement of N-Methyl Carbamoyloximes and N-Methyl Carbamates in Water by Direct Aqueous Injection HPLC with Post-Column Derivatization". Method 531.1 can be used to measure aldicarb, aldicarb sulfoxide, aldicarb sulfone, and carbofuran, and oxamyl.~~
- ~~9) U.S. EPA Dioxin and Furan Method 1613: "Tetra through Octa-Chlorinated Dioxins and Furans by Isotope Dilution". Method 1613 can be used to measure 2,3,7,8-TCDD (dioxin).~~
- ~~10) Method 547: "Analysis of Glyphosate in Drinking Water by Direct Aqueous Injection HPLC with Post-Column Derivatization", available from U.S. EPA OST. Method 547 can be used to measure glyphosate.~~
- ~~11) Method 548: "Determination of Endothall in Aqueous Samples". Method 548 can be used to measure endothall.~~
- ~~12) Method 549: "Determination of Diquat and Paraquat in Drinking Water by High Performance Liquid Chromatography with Ultraviolet Detection". Method 549 can be used to measure diquat.~~
- ~~13) Method 550: "Determination of Polycyclic Aromatic Hydrocarbons in Drinking Water by Liquid-Liquid Extraction and HPLC with Coupled Ultraviolet and Fluorescence~~

~~Detection". Method 550 can be used to measure benzo-
(a)pyrene and other polynuclear aromatic hydrocarbons.~~

~~14) Method 550.1: "Determination of Polycyclic Aromatic
Hydrocarbons in Drinking Water by Liquid-Solid Extraction
and HPLC with Coupled Ultraviolet and Fluorescence
Detection". Method 550 can be used to measure benzo-
(a)pyrene and other polynuclear aromatic hydrocarbons.~~

- 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
Dibromochloropropane (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.

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) (1993), as amended at 59 Fed. Reg. 62468 (Dec. 5, 1994).

(Source: Amended at 19 Ill. Reg. _____, effective _____)

SUBPART P: THM MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.685 Analytical Methods

Sampling and analyses made pursuant to this Subpart must be conducted by one of the ~~following total trihalomethanes (THM) methods, incorporated by reference in Section 611.102 as directed in Section 611.645 and in "Technical Notes on Drinking Water Methods", 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.

- ~~a) "The Analysis of Trihalomethanes in Drinking Waters by the Purge and Trap Method," U.S. EPA Organic Methods, Method 501.1.~~
- ~~b) "The Analysis of Trihalomethanes in Drinking Water by Liquid/Liquid Extraction," U.S. EPA Organic Methods, Method 501.2.~~
- ~~c) "Volatile Organic Compounds in Water by Purge and Trap Capillary Gas Chromatography with Photoionization and Electrolytic Conductivity Detector in Series", U.S. EPA Organic Methods (July 1991 revision), Method 502.2.~~
- ~~d) "Volatile Organic Chemicals in Water by Purge and Trap Capillary Gas Chromatography/Mass Spectrometry", U.S. EPA Organic Methods (July 1991 revision), Method 524.2.~~
- ~~e) 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 above two methods. Samples for maximum TTHM potential must not be dechlorinated, and must be held for seven days at 25° C (or above) prior to analysis, according to the procedures described in the above two methods.~~

BOARD NOTE: Derived from 40 CFR 141.30(e) (19934), as amended at 59 Fed. Reg. 62469 (Dec. 5, 1994).

(Source: Amended at 19 Ill. Reg. _____, effective _____)

SUBPART T: REPORTING, PUBLIC NOTIFICATION AND RECORDKEEPING

Section 611.860 Record Maintenance

A supplier shall retain on its premises or at a convenient location near its premises the following records:

- a) Records of bacteriological analyses made pursuant to this Part must be kept for not less than 5 years. Records of chemical analyses made pursuant to this Part must be kept for not less than 10 years. Actual laboratory reports may be kept, or data may be transferred to tabular summaries, provided that the following information is included:
 - 1) The date, place and time of sampling, and the name of the person who collected the sample;
 - 2) Identification of the sample as to whether it was a routine distribution system sample, check sample, raw or process water sample or other special purpose sample;
 - 3) Date of analysis;
 - 4) Laboratory and person responsible for performing analysis;
 - 5) The analytical technique or method used; and
 - 6) The results of the analysis.

- b) Records of action taken by the supplier to correct violations of this Part must be kept for a period not less than 3 years after the last action taken with respect to the particular violation involved.
- c) Copies of any written reports, summaries or communications relating to sanitary surveys of the system conducted by the supplier itself, by a private consultant, by U.S. EPA, the Agency or a unit of local government delegated pursuant to Section 611.108, must be kept for a period not less than 10 years after completion of the sanitary survey involved.
- d) Records concerning a variance or adjusted standard granted to the supplier must be kept for a period ending not less than 5 years following the expiration of such variance or adjusted standard.

BOARD NOTE: Derived from 40 CFR 141.33 (19894).

(Source: Amended at 19 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 _____ 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 _____ at your water system.

BOARD NOTE: Derived from 40 CFR 141.32(e)(9) and 143.5 (19924).

- 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 chrysotile 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 heart 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 a "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 a "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 a "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 an 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.
- 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 0.0046 parts per million (ppm) to protect against 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 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 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) (1993~~4~~).

(Source: Amended at 19 Ill. Reg. _____, effective _____)

Section 611.Table E Lead and Copper Monitoring Start Dates

System Size (Persons served)	First Six-month Monitoring Period Begins
more than 50,000	Upon effective date ¹
3,301 to 50,000	Upon effective date ²
3,300 or fewer	July 1, 1993

¹ U.S. EPA sets forth a date of January 1, 1992.

² U.S. EPA sets forth a date of July 1, 1992.

BOARD NOTE: Derived from 40 CFR 141.86(d)(1) (1992~~4~~).

(Source: Amended at 19 Ill. Reg. _____, effective _____)

Section 611.Table Z Federal Effective Dates

The following are the effective dates of the federal MCLs:

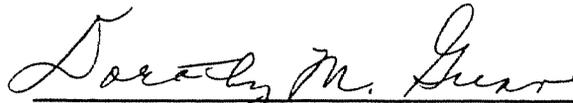
Fluoride (40 CFR 141.60(b)(1)) (corresponding with Section 611.301(b))	October 2, 1987
Phase I VOCs (40 CFR 141.60(a)(1))	July 9, 1989

(corresponding with Section 611.311(a))
 (benzene, carbon tetrachloride, p-dichlorobenzene., 1,2-Dichloroethane, 1,1-dichloroethylene, 1,1,1-trichloroethane, trichloroethylene, and vinyl chloride)

- Lead and Copper (40 CFR, Subpart I) July 7, 1991
 (corresponding with Subpart G of this Part)
 (lead and copper monitoring, reporting, and recordskeeping requirements of 40 CFR 141.86 through 141.91)
- Phase II IOCs (40 CFR 141.60(b)(2)) July 30, 1992
 (corresponding with Section 611.301(b))
 (asbestos, cadmium, chromium, mercury, nitrate, nitrite, and selenium)
- Phase II VOCs (40 CFR 141.60(a)(2)) July 30, 1992
 (corresponding with Section 611.311(a))
 (o-dichlorobenzene, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, 1,2-dichloropropane, ethylbenzene, monochlorobenzene, styrene, tetrachloroethylene, toluene, and xylenes (total))
- Phase II SOCs (40 CFR 141.60(a)(2)) July 30, 1992
 (corresponding with Section 611.311(c))
 (alachlor, atrazine, carbofuran, chlordane, dibromochloropropane, ethylene dibromide, heptachlor, heptachlor epoxide, lindane, methoxychlor, polychlorinated biphenyls, toxaphene, 2,4-D, and 2,4,5-TP (Silvex))
- Lead and Copper (40 CFR, Subpart I) December 7, 1992
 (corresponding with Subpart G of this Part)
 (lead and copper corrosion control, water treatment, public education, and lead service line replacement requirements of 40 CFR 141.81 through 141.85)
- Phase IIB IOC (40 CFR 141.60(b)(2)) January 1, 1993
 (corresponding with Section 611.301(b))
 (barium)
- Phase IIB SOCs (40 CFR 141.60(a)(2)) January 1, 1993
 (corresponding with Section 611.311(c))
 (aldicarb, aldicarb sulfone, aldicarb sulfoxide, and pentachlorophenol; U.S. EPA stayed the effective date as to the MCLs for aldicarb, aldicarb sulfone, and aldicarb sulfoxide, but the monitoring requirements became effective January 1, 1993)
- Phase V IOCs (40 CFR 141.60(b)(3)) January 17, 1994
 (corresponding with Section 611.301(b))
 (antimony, beryllium, cyanide, nickel, and thallium)
- Phase V VOCs (40 CFR 141.60(a)(3)) January 17, 1994
 (corresponding with Section 611.311(a))
 (dichloromethane, 1,2,4-trichlorobenzene, and 1,1,2-trichloroethane)
- Phase V SOCs (40 CFR 141.60(a)(3)) January 17, 1994
 (corresponding with Section 611.311(c))
 (benzo[a]pyrene, dalapon, di(2-ethylhexyl)adipate, di(2-ethylhexyl)phthalate dinoseb, diquat, endothall, endrin, glyphosate, hexachlorobenzene, hexachlorocyclopentadiene, oxamyl, picloram, simazine, and 2,3,7,8-TCDD)

(Source: Amended at 19 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 16th day of March, 1995, by a vote of 7-0.



Dorothy M. Gunn, Clerk
Illinois Pollution Control Board