ILLINOIS POLLUTION CONTROL BOARD
May 5, 1994

IN THE MATTER OF:)
)
SAFE DRINKING WATER ACT) R94-4
UPDATE, U.S. EPA REGULATIONS) (Identical-in-Substance Rules)
(7/1/93 - 12/31/93))

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.

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 100/5-1 et seq.), it is not subject to first notice or to second notice review by the Joint Committee on Administrative Rules (JCAR).

As discussed more fully below, this rulemaking involves revisions to the Illinois SDWA rules, as originally adopted August 9, 1990, in docket R88-26 (effective September 20, 1990), and subsequently amended. It includes the federal amendments made by U.S. EPA during the period July 1 through December 31, 1993. It also includes a small number of minor corrections to the text of the rules as amended in the Phase II amendments on November 19, 1992 in R91-3.

FEDERAL ACTIONS COVERED BY THIS RULEMAKING

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 this docket is from July 1, 1993 through December 31, 1993. During that time, U.S. EPA amended the regulations on August 3, 1993 to add two new analytical procedures for total trihalomethanes, a chemical contaminant. No other federal actions occurred during this time-frame. The only federal action during the period of this docket was as follows:

58 Fed. Reg. 41344 Aug. 3, 1993 (Total trihalomethanes analytical procedures)

The Board also uses this opportunity to make a substantive correction to the text of the rules. This correction, more fully discussed below, is to the Phase II rules adopted in docket R91-3. The Board makes this correction to aid the Agency in the U.S. EPA approval process for the Illinois SDWA program.

PUBLIC COMMENTS

The Board requests public comments on this proposal. The Board will receive 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 R94-4 on the front of each copy. Direct all questions to Michael J. McCambridge, at 312-814-6924.

To date, the Board has received one public comment in this matter:

PC 1 Illinois EPA (April 29, 1994, by Stephen C. Ewart, Deputy Counsel)

The Agency by PC 1 suggests a number of minor editorial corrections to the text of the regulations. Those corrections are discussed below.

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.

DISCUSSION OF PRESENT AMENDMENTS

This update concerns U.S. EPA's addition of two new analytical procedures for testing the total trihalomethanes content of drinking water on August 3, 1993. The new methods are Method 502.2, "Volatile Organic Compounds in Water by Purge and Trap Capillary Gas Chromatography with Photoionization and Electrolytic Conductivity Detector in Series", and Method 524.2, "Volatile Organic Chemicals in Water by Purge and Trap Capillary

Gas Chromatography/Mass Spectrometry". Both are found in the federal publication, "Methods for Determination of Organic Compounds in Drinking Water". In adopting the two new methods, U.S. EPA stated that it encourages the use of these new methods because it intends to eliminate technical support for the older packed column methods, Methods 501.1, 501.2, and 501.3. This means that U.S. EPA will eventually not even provide copies of those methods upon request, although it will continue to accept data obtained through their use.

The Board proposes amendments to Sections 611.102 and 611.685 in response to these federal actions. We follow the federal regulatory text with only minimal deviation.

Section 611.685 derives from 40 CFR 141.30(e), which U.S. EPA amended at 58 Fed. Reg. 41345 (Aug. 3, 1993). U.S. EPA added paragraphs (e)(3) and (e)(4) and two new sentences to the beginning of the text that formerly followed paragraphs (e)(1) and (e)(2). New paragraphs (e)(3) and (e)(4) authorize the use of methods 502.2 and 524.2, respectively. The first new sentence states that the older purge trap methods, methods 501.1 and 501.2, are set forth in appendix C to subpart C of part 141. The Board has referenced the federal appendix, which is already incorporated by reference in Section 611.102. The second new paragraph states that the two new methods, methods 502.2 and 524.2, are available from the National Technical Information Service (NTIS). The Board did not need to use the second sentence because Section 611.102(b) already gives that information with the incorporation by reference of the source of these methods. The Board has already given that reference the short name "U.S. EPA Organic Methods" in Section 611.102(a). Therefore, in new subsections (c) and (d) we substituted our short name for the full name in Section 611.685. Finally, we updated the end Board Note in Section 611.685 to refer to the 1993 Code of Federal Regulations.

Section 611.102 is the central listing of incorporations by reference. Amendment of the incorporations by reference was necessary as a result of the federal action. First, U.S. EPA has hitherto used the December, 1988 revision of the reference "Determination of Organic Compounds in Drinking Water" for the purposes of analyses under 40 CFR 141.24(f) and (h) (VOCs and SOCs). It references an even older, September, 1986, version for the purposes of 40 CFR 141.24(g) (Phase I VOCs). Therefore, the July, 1991 edition now cited for the purposes of the two new TTHM methods is new. This meant that we added the newer edition to our listing of incorporations by reference in subsection (b) and added it to our definition of "U.S. EPA Organic Methods" in subsection (a). In both locations, the Board has a listing of the limitations as to which methods from each of the three editions may be used for what purposes.

The Board has also made a small number of routine amendments to Section 611.102 that are not directly prompted by the federal action. We have recently initiated the practice of referring to the United States Environmental Protection Agency as "U.S. EPA", rather than as USEPA or EPA. We believe that this is most readily understood. Therefore, for each of the definitions in subsection (a) that refers to "USEPA . . .", we added a parallel reference to "U.S. EPA . . .", to begin the process of ultimately replacing all the older references. Second, the Board corrected the misspelling of "absorption" in the reference to ASTM method D3859-84A. Finally, we updated the references to the Code of Federal Regulations in subsection (c) to the recently released 1993 edition.

CORRECTIONS TO THE PHASE II RULES

The Board is using this opportunity to make a small number of amendments to the Phase II regulations adopted in R91-3 in November, 1992. These are all corrections suggested by the Agency to aid U.S. EPA review of our rules.

The Agency suggested a number of minor editorial corrections by PC 1. Those corrections are summarized as follows:

Location	Agency Suggestion	Board Action
611.101 "old MCL" Board Note	change second "that" to "the"	done as suggested, plus use of "Σ" in formula in "inactivation ratio"
611.102(b) "Methods for Chemical Analysis of Water and Wastes"	remove "of"	done as suggested
611.212(f)(1)	change "Or" to "or"	done as suggested, with similar changes at subsections (b)(3) and (d)(2), with repunctuation of subsections (b), (d) & (f)
611.356(d)(1)	change reference to "Table F"	done opposite of as suggested; changed reference to "Table E"
611.356(d)(4)(D)	correct misspelling of "highest"	done as suggested
611.532(a)	correct misspelling of "coliform"	done as suggested, plus change to superscript notation and "Σ" in formulae in

subsections (c), (d)(1)(A), (d)(1)(B)(i) & (d)(1)(B)(ii)		
611.602(i)(3)	correct misspelling of "consistently"	done as suggested
611.607	correct misspelling of "structural"	done as suggested
611.856	add "in"	done as suggested
611.Appendix A ¶ (5) (benzene)	delete duplicated language	done as suggested
611.Appendix A ¶(6) (1,1-dichloroethylene)	add "get"	done as suggested

The Board will make each of the corrections because they are identical in substance to the federal regulations.

<u>Minimum IOC Monitoring for a SEP--Section 611.603</u>

An amendment to Section 611.603 is a correction to the text of the rules as amended in R91-3. R91-3 contained the federal Phase II rules. Section 611.603 derives from 40 CFR 141.23(c), and it pertains to the monitoring frequency for the Phase II inorganic chemical contaminants (IOCs). Subsection (d) allows the Agency to grant a special exception permit (SEP) on the basis of three rounds of monitoring indicating that the IOC level is below the maximum contaminant level (MCL) at the individual sampling point.

The Agency is in the process of seeking federal authorization for the Illinois Phase II, Phase IIB, and Phase V rules from U.S. EPA (including dockets R91-2, R92-3, and R93-1). In the course of compiling the necessary paperwork for submittal to U.S. EPA, the Agency questioned where certain federal language from 40 CFR 141.23(c)(4) appeared in the Board's regulations. Examination of the texts has induced the Board to add the federal language at this time, even though we believe the language is implicit to the regulations as they exist.

Section 611.603(a) requires a supplier to sample for each of the IOC contaminants on a routine basis. This is annually for surface water suppliers and mixed surface water-groundwater suppliers and triennially for groundwater suppliers. Section

611.601(a) requires the supplier to sample for each water source, and Section 611.601(b) requires this where each source is introduced to the supplier's distribution system. Therefore, the existing regulations would require routine annual or triennial monitoring for each IOC for each source of water.

Subsections (b) through (f) of Section 611.603 essentially allow the Agency to permit suppliers to reduce this frequency for any contaminants not detected in previous rounds of monitoring. Subsections (d)(1) and (d)(2) require a minimum of three rounds of routine sampling before a supplier can qualify for a SEP that would allow less frequent monitoring. This structure closely parallels the federal language, except the Board omitted the language of the last federal sentence, which explicitly requires a minimum of three rounds of monitoring from any new water source before a supplier can qualify for a SEP, when we adopted the provision in R91-3.

The Agency noticed this omission when preparing documents on the Illinois SDWA program for state primacy review by U.S. EPA. The Agency requested, both informally and by PC 1, that the Board restore this express language to aid federal review and approval. In response, we add Section 611.603(d)(4) to parallel the last sentence of 40 CFR 141.23(c)(4).

The Board has made one routine amendment to this Section in addition to that described above. We have updated all references to the Code of Federal Regulations to the recently available 1993 edition.

<u>Demonstrating Compliance with IOC MCLs--Section 611.609</u>

Section 611.609 derives from 40 CFR 141.23(i). In the course of its review of the Illinois SDWA rules, the Agency observed that the title "Averaging" for Section 611.609 is incomplete and potentially misleading. The Agency informally communicated this to the Board, and we agree. The essence of Section 611.609 is determining compliance with the MCLs based on the compliance monitoring data. Although averaging of results is required to determine compliance, the Board agrees that use of the Section heading "Determining Compliance" is more accurate than "Averaging". We therefore change the heading as requested.

The Board has made one routine amendment to this Section in addition to that described above. We have updated all references to the Code of Federal Regulations to the recently available 1993 edition.

Public Notice in Separable Systems--Sections 611.646, 611.648 & 611.851

Sections 611.646 and 611.648 derive from 40 CFR 141.24(f) and (h), respectively. Section 611.851 derives from 40 CFR 141.32(a). The Agency observed during the course of its primacy review of the regulations that the Board did not include in R91-3 the federal provisions that allow public notice to fewer than all of a supplier's consumers if only part of its distribution system is affected by an exceedance of a volatile organic chemical contaminant (VOC) or synthetic organic chemical (SOC) MCL. Federal paragraphs (f)(15)(iii) and (h)(11)(iii) (relating to ongoing monitoring for VOCs and SOCs, respectively) provide that if the supplier has a separable distribution system, it needs only give the required public notices to those consumers on the portion of its distribution system that is affected by the exceedance of an MCL. Corresponding Illinois Sections 611.646(o)(3) and 611.648(k)(3) simply refer to Subpart T for the public notice requirements. We observe that 40 CFR 141.23(i)(4) and 141.24(g)(9) (relating to ongoing monitoring for IOCs and the initial monitoring for Phase I VOCs, respectively) include similar provisions, which the Board correspondingly codified in R91-3 as Sections 611.609(d) and 611.647(i). Therefore, it was inconsistent for us not to have included similar provisions at Sections 611.646(o)(3) and 611.648(k)(3).

The Agency informally requested that the Board restore the missing provisions at Sections 611.646(o)(3) and 611.648(k)(3) to aid U.S. EPA review of the Illinois SDWA program. We will use this opportunity to add those provisions. The Board will further follow the Agency's request by adding language at Section 611.851(c)(3) that references the supplier's ability to give public notice to fewer than all of its customers if allowed pursuant to Section 611.609(d), 611.646(o)(3), 611.647(i), or 611.611.648(k)(3). Since this provision has no direct counterpart in 40 CFR 141.32(a), we amended the Board Note to this Section to reflect that fact.

The Board has made one routine amendment to this Section in addition to those described above. We have updated all references to the Code of Federal Regulations to the recently available 1993 edition.

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	This docket (TTHM analytical methods; July 1, 1993 through December 31, 1993)

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. "May" is used when choice of a provision is optional. "Or" is used rather than "and/or", and denotes "one or both". "Either"..."or" denotes "one but not both". "And" denotes "both".

The text of the proposed amendments follows:

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

PART 611
PRIMARY DRINKING WATER STANDARDS

SUBPART A: GENERAL

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611.100 Purpose, Scope and Applicability
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611.102 Incorporations by Reference
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611.107 Agency Inspection of PWS Facilities
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611.112 Section 1416 Variances
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SUBPART B: FILTRATION AND DISINFECTION

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611.201 Requiring a Demonstration
611.202 Procedures for Agency Determinations
611.211 Filtration Required
611.212 Groundwater under Direct Influence of Surface Water
611.213 No Method of HPC Analysis
611.220 General Requirements
611.230 Filtration Effective Dates
611.231 Source Water Quality Conditions
611.232 Site-specific Conditions
611.233 Treatment Technique Violations

611.240 Disinfection
611.241 Unfiltered PWSs
611.242 Filtered PWSs
611.250 Filtration
611.261 Unfiltered PWSs: Reporting and Recordkeeping
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611.271 Protection during Repair Work
611.272 Disinfection following Repair

SUBPART C: USE OF NON-CENTRALIZED TREATMENT DEVICES

Section

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

SUBPART D: TREATMENT TECHNIQUES

Section

611.295 General Requirements
611.296 Acrylamide and Epichlorohydrin
611.297 Corrosion Control

SUBPART F: MAXIMUM CONTAMINANT LEVELS (MCL's)

Section

611.300 Old MCLs for Inorganic Chemicals
611.301 Revised MCLs for Inorganic Chemicals
611.310 Old MCLs for Organic Chemicals
611.311 Revised MCLs for Organic Contaminants
611.320 Turbidity
611.325 Microbiological Contaminants
611.330 Radium and Gross Alpha Particle Activity
611.331 Beta Particle and Photon Radioactivity

SUBPART G: LEAD AND COPPER

Section

611.350 General Requirements
611.351 Applicability of Corrosion Control
611.352 Corrosion Control Treatment
611.353 Source Water Treatment
611.354 Lead Service Line Replacement
611.355 Public Education and Supplemental Monitoring
611.356 Tap Water Monitoring for Lead and Copper
611.357 Monitoring for Water Quality Parameters
611.358 Monitoring for Lead and Copper in Source Water
611.359 Analytical Methods
611.360 Reporting
611.361 Recordkeeping

SUBPART K: GENERAL MONITORING AND ANALYTICAL REQUIREMENTS

Section

611.480 Alternative Analytical Techniques
611.490 Certified Laboratories
611.491 Laboratory Testing Equipment
611.500 Consecutive PWSs

611.510 Special Monitoring for Unregulated Contaminants

SUBPART L: MICROBIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

Section

611.521 Routine Coliform Monitoring
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611.523 Invalidation of Total Coliform Samples
611.524 Sanitary Surveys
611.525 Fecal Coliform and E. Coli Testing
611.526 Analytical Methodology
611.527 Response to Violation
611.531 Analytical Requirements
611.532 Unfiltered PWSs
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SUBPART M: TURBIDITY MONITORING AND ANALYTICAL REQUIREMENTS

Section

611.560 Turbidity

SUBPART N: INORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

Section

611.591 Violation of State MCL
611.592 Frequency of State Monitoring
611.600 Applicability
611.601 Monitoring Frequency
611.602 Asbestos Monitoring Frequency
611.603 Inorganic Monitoring Frequency
611.604 Nitrate Monitoring
611.605 Nitrite Monitoring
611.606 Confirmation Samples
611.607 More Frequent Monitoring and Confirmation Sampling
611.608 Additional Optional Monitoring
611.609 ~~Averaging~~Demonstrating Compliance
611.610 Inorganic Monitoring Times
611.611 Inorganic Analysis
611.612 Monitoring Requirements for Old Inorganic MCLs
611.630 Special Monitoring for Sodium
611.631 Special Monitoring for Inorganic Chemicals

SUBPART O: ORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

Section

611.640 Definitions
611.641 Old MCLs
611.645 Analytical Methods for Old MCLs
611.646 Phase I, Phase II, and Phase V Volatile Organic Contaminants
611.647 Sampling for Phase I Volatile Organic Contaminants
611.648 Phase II, Phase IIB, and Phase V Synthetic Organic Contaminants
611.650 Monitoring for 36 Contaminants (Repealed)
611.657 Analytical Methods for 36 Contaminants (Repealed)

611.658 Special Monitoring for Organic Chemicals

SUBPART P: THM MONITORING AND ANALYTICAL REQUIREMENTS
Section
611.680 Sampling, Analytical and other Requirements
611.683 Reduced Monitoring Frequency
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611.685 Analytical Methods
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SUBPART Q: RADIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS
Section
611.720 Analytical Methods
611.731 Gross Alpha
611.732 Manmade Radioactivity

SUBPART T: REPORTING, PUBLIC NOTIFICATION AND RECORDKEEPING
Section
611.830 Applicability
611.831 Monthly Operating Report
611.832 Notice by Agency
611.833 Cross Connection Reporting
611.840 Reporting
611.851 Reporting MCL and other Violations
611.852 Reporting other Violations
611.853 Notice to New Billing Units
611.854 General Content of Public Notice
611.855 Mandatory Health Effects Language
611.856 Fluoride Notice
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611.860 Record Maintenance
611.870 List of 36 Contaminants

611.Appendix A Mandatory Health Effects Information
611.Appendix B Percent Inactivation of G. Lamblia Cysts
611.Appendix C Common Names of Organic Chemicals
611.Appendix D Defined Substrate Method for the Simultaneous Detection of Total Coliforms and Eschricia Coli from Drinking Water
611.Appendix E Mandatory Lead Public Education Information
611.Table A Total Coliform Monitoring Frequency
611.Table B Fecal or Total Coliform Density Measurements
611.Table C Frequency of RDC Measurement
611.Table D Number of Lead and Copper Monitoring Sites
611.Table E Lead and Copper Monitoring Start Dates
611.Table F Number of Water Quality Parameter Sampling Sites
611.Table G Summary of Monitoring Requirements for Water Quality Parameters[1]
611.Table Z Federal Effective Dates

AUTHORITY: Implementing Sections 17 and 17.5 and authorized by Section 27 of the Environmental Protection Act (Ill. Rev. Stat. 1991, ch. 111½, 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 20, 1993; amended in R94-4 at 18 Ill. Reg. ________, effective ____________________.

Note: Capitalization denotes statutory language.

SUBPART A: GENERAL

Section 611.101 Definitions

As used in this Part, the term:

"Act" means the Environmental Protection Act (Ill. Rev. Stat. 1991, ch. 111½, par. 1001 et seq. [415 ILCS 5~~/1 et seq.~~])

"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) (199~~2~~3). 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~~/1 et seq.~~, formerly Ill. Rev. Stat. 1991 ch. 56½, par. 501 et seq.), the Bottled Water Act (815 ILCS 310~~/1 et seq.~~, formerly Ill. Rev. Stat. 1991 ch. 111½, 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 (199~~2~~3).

"Board" means the Illinois Pollution Control Board.

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

"CT" or "CT_{calc}" 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 (199~~2~~3).

"$CT_{99.9}$" 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 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3). 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 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"Contaminant" means any physical, chemical, biological or radiological substance or matter in water.
BOARD NOTE: Derived from 40 CFR 141.2 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"Disinfection" means a process that inactivates pathogenic organisms in water by chemical oxidants or equivalent agents.
BOARD NOTE: Derived from 40 CFR 141.2 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"Groundwater under the direct influence of surface water" is as determined in Section 611.212.
BOARD NOTE: Derived from 40 CFR 141.2 (199~~2~~3).

"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 (199~~2~~3).

"Halogen" means one of the chemical elements chlorine, bromine or iodine.
BOARD NOTE: Derived from 40 CFR 141.2 (199~~2~~3).

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

"Inactivation Ratio" (Ai) means:

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

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~~Σ(Ai)

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 (199~~2~~3).

"Initial compliance period" means the three-year compliance period that begins January 1, 1993, except

for the MCLs for dichloromethane, 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 (199~~2~~3)~~, as amended at 57 Fed. Reg. 31838 (July 17, 1992)~~.

"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 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"MFL" means millions of fibers per liter larger than 10 micrometers.
BOARD NOTE: Derived from 40 CFR 141.23(a)(4)(i) (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"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 th~~at~~e 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 (199~~2~~3).

"Person" means an individual, corporation, company, association, partnership, State, unit of local government or federal agency.
BOARD NOTE: Derived from 40 CFR 141.2 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"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) (199~~2~~3).

"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 (199~~2~~3).

"Repeat compliance period" means a compliance period that begins after the initial compliance period.
BOARD NOTE: Derived from 40 CFR 141.2 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"Sedimentation" means a process for removal of solids before filtration by gravity or separation.
BOARD NOTE: Derived from 40 CFR 141.2 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"Surface water" means all water that is open to the atmosphere and subject to surface runoff.
BOARD NOTE: Derived from 40 CFR 141.2 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"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 (199~~2~~3).

"Total trihalomethanes" or "TTHM" 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 (199~~2~~3). See the definition of THMs for a listing of the four compounds that U.S. EPA considers TTHMs to comprise.

"Transient, non-community water system" or "transient non-CWS" or "TNCWS" means a public water system (PWS) that is neither a community water system ("CWS") nor a non-transient, noncommunity water system ("NTNCWS").

BOARD NOTE: 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. 111½, par. 1003.28 [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 (199~~2~~3).

"μg" 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 (199~~2~~3).

"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 (199~~2~~3).

"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) (199~~2~~3). 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 18 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"

"Indigo method" is as described in "Standard Methods", 17th Edition, Method 4500-O_3 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 C.

"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.

"MMO-MUG Test" means "minimal medium ortho-nitrophenyl-beta-d-galactopyranoside-4-methyl-umbelliferyl-beta-d-glucuronide test", available from Environetics, Inc.

"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 Waterworks Association.

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

"USEPA Asbestos Methods" or "U.S. EPA Asbestos Methods" means "Analytical Method for

Determination of Asbestos Fibers in 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, available from USEPA-OST.

"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~~,~~; ~~and~~ "Methods for the Determination of Organic Compounds in Drinking Water", December, 1988, 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.

"USGS Methods" means "Methods for Determination of Inorganic Substances in Water and Fluvial Sediments", available from USGS.

b) The Board incorporates the following publications by reference:

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

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

ASTM Method D511-88A and B, "Standard Test Methods for Calcium and Magnesium in Water", approved 1988.

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

ASTM Method D1067-88B, "Standard Test Methods for Acidity or Alkalinity in Water", approved 1988.

ASTM Method D1125-82B, "Standard Test Methods for Electrical Conductivity and Resistivity of Water", approved October 29, 1982.

ASTM Method D1179-72A or B "Standard Test Methods for Fluoride in Water", approved July 28, 1972, reapproved 1978.

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 D1688-90A or C, "Standard Test Methods for Copper in Water", approved 1990.

ASTM Method D2036-89A or B, "Standard Test Methods for Cyanide in Water", approved 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 B, "Standard Test Methods for Arsenic in Water", approved 1988.

ASTM Method D3223-86, "Standard Test Method for Total Mercury in Water", approved February 28, 1986.

ASTM Method D3559-85D, "Standard Test Methods for Lead in Water", approved 1985.

ASTM Method D3645-84B, "Standard Test Methods for Beryllium in Water, Method B--Atomic Absorption, Graphite Furnace", approved Jan. 27, 1984.

ASTM Method D3697-87, "Standard Test Method for Antimony in Water", approved 1987.

ASTM Method D3859-84A, "Standard Test Methods for Selenium in Water, Method A--Atomic Absorption, Hydride Method", approved 1984.

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

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

ASTM Method 4327-88, "Standard Test Method for Anions in Water by Ion Chromatography", approved 1988.

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) Tests.

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

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

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

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.

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, 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, 5285 Port Royal Road, Springfield, VA 22161 (703) 487-4600 or (800) 336-4700:

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

"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 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", 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).)

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"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.

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"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).

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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:

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

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

"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 C.

"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. (For the purposes of Section 611.647 only). See NTIS.

"Methods ~~of~~ for Chemical Analysis of Water and Wastes". See NTIS and ORD Publications.

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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. United States Geological Survey, 1961 Stout St., Denver, CO 80294 303/844-4169:

> 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.

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

40 CFR 136, Appendix B and C (199~~2~~3).

40 CFR 141, Subpart C, Appendix C (199~~2~~3).

d) This Part incorporates no later amendments or editions.

(Source: Amended at 18 Ill. Reg. ________, effective ______________________)

SUBPART B: FILTRATION AND DISINFECTION

Section 611.212 Groundwater under Direct Influence of Surface Water

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

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

b) Well construction characteristics and geology with field evaluation.

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

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

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

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

B) A well casing that penetrates consolidated (slowly permeable) material~~,~~. ~~A~~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~~,~~. ~~O~~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 turbity 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. ~~O~~or,

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

g) Particulate analysis: Significant occurance 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~~, adopted at 54 Fed. Reg. 27526, June 29, 1989~~ (1993); from the Preamble at 54 Fed. Reg. 27489~~,~~ (June 29, 1989); and from the USEPA "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 18 Ill. Reg. ________, effective ____________ _____________)

SUBPART G: LEAD AND COPPER

Section 611.356 Tap Water Monitoring for Lead and Copper

a) Sample site location.

1) Selecting a pool of targeted sampling sites.

A) By the applicable date for commencement of monitoring under subsection (d)(1) below, each supplier shall complete a materials evaluation of its distribution system in order to identify a pool of targeted sampling sites that meets the requirements of this Section.

B) The pool of targeted sampling sites must be sufficiently large to ensure that the supplier can collect the number of lead and copper tap samples required by subsection (c) below.

C) The supplier shall select the sites for collection of first draw samples from this pool of targeted sampling sites.

D) The supplier shall not select as sampling sites any faucets that have point-of-use or point-of-entry treatment devices designed to remove or capable of removing inorganic contaminants.

2) Materials evaluation.

A) A supplier shall use the information on lead, copper, and galvanized steel collected pursuant to 40 CFR 141.42(d) (special monitoring for corrosivity characteristics) when conducting a materials evaluation.

B) When an evaluation of the information collected pursuant to 40 CFR 141.42(d) is insufficient to locate the requisite number of lead and copper sampling sites that meet the targeting criteria in subsection (a) above, the supplier shall review the following sources of information in order to identify a sufficient number of sampling sites:

i) all plumbing codes, permits, and records in the files of the building department(s) that indicate the plumbing materials that are installed within publicly- and privately-owned structures connected to the distribution system;

ii) all inspections and records of the distribution system that indicate the material composition of the service connections which connect a structure to the distribution system;

iii) all existing water quality information, which includes the results of all prior analyses of the system or individual structures connected to the system, indicating locations that may be particularly susceptible to high lead or copper concentrations; and

iv) the supplier shall seek to collect such information where possible in the course of its normal operations (e.g., checking service line materials when reading water meters or performing maintenance activities).

3) Tiers of sampling sites. Suppliers shall categorize the sampling sites within their pool according to the following tiers:

A) CWS Tier 1 sampling sites. "CWS Tier 1 sampling sites" shall include the following single-family structures:

i) those that contain copper pipes with lead solder installed after 1982 or which contain lead pipes; or

ii) those that are served by a lead service line.

BOARD NOTE: This allows the pool of CWS tier 1 sampling sites to consist exclusively of structures served by lead service lines.

B) CWS Tier 2 sampling sites. "CWS Tier 2 sampling sites" shall include the following buildings, including multiple-family structures:

i) those that contain copper pipes with lead solder installed after 1982 or contain lead pipes; or

ii) those that are served by a lead service line.

BOARD NOTE: This allows the pool of CWS tier 2 sampling sites to consist exclusively of structures served by lead service lines.

C) CWS Tier 3 sampling sites. "CWS Tier 3 sampling sites" shall include the following single-family structures: those that contain copper pipes with lead solder installed before 1983.

D) NTNCWS Tier 1 sampling sites. "NTNCWS Tier 1 sampling sites" shall include the following buildings:

i) those that contain copper pipes with lead solder installed after 1982 or which contain lead pipes; or

ii) those that are served by a lead service line.

BOARD NOTE: This allows the pool of NTNCWS tier 1 sampling sites to consist exclusively of buildings served by lead service lines.

E) Alternative NTNCWS sampling sites. "Alternative NTNCWS sampling sites" shall include the following buildings: those that contain copper pipes with lead solder installed before 1983.

4) Selection of sampling sites. Suppliers shall select sampling sites for their sampling pool as follows:

A) CWS Suppliers. CWS suppliers shall use CWS tier 1 sampling sites, except that the supplier may include CWS tier 2 or CWS tier 3 sampling sites in its sampling pool as follows:

i) If multiple-family residences comprise at least 20 percent of the structures served by a supplier, the supplier may use CWS tier 2 sampling sites in its sampling pool; or

ii) If the CWS supplier has an insufficient number of CWS tier 1 sampling sites on its distribution system, the supplier may use CWS tier 2 sampling sites in its sampling pool; or

iii) If fewer than 20 percent of the structures served by the supplier are multiple-family residences, and the CWS supplier has an insufficient number of CWS tier 1 and CWS tier 2 sampling sites on its distribution system, the supplier may complete its sampling pool with CWS tier 3 sampling sites.

iv) If the supplier has an insufficient number of CWS tier 1 sampling sites, CWS tier 2 sampling sites, and CWS tier 3 sampling sites, the supplier shall use those CWS tier 1 sampling sites, CWS tier 2 sampling sites, and CWS tier 3 sampling sites that it has, and the supplier shall randomly select an additional pool of representative sites on its distribution system for the balance of its sampling sites.

B) NTNCWS suppliers.

i) An NTNCWS supplier shall select NTNCWS tier 1 sampling sites for its sampling pool, except if the NTNCWS supplier has an insufficient number of NTNCWS tier 1 sampling sites, the supplier may complete its sampling pool with alternative NTNCWS sampling sites.

ii) If the NTNCWS supplier has an insufficient number of NTNCWS tier 1 sampling sites and NTNCWS alternative sampling sites, the supplier shall use those NTNCWS tier 1 sampling sites and NTNCWS alternative sampling sites that it has, and the supplier shall randomly select an additional pool of representative sites on its distribution system for the balance of its sampling sites.

C) Agency submission by suppliers with an insufficient number of CWS or NTNCWS tier 1 sampling sites.

i) Any CWS or NTNCWS supplier whose sampling pool does not include a sufficient number of sites to consist exclusively of CWS tier 1 sampling sites or NTNCWS tier 1 sampling sites, as appropriate, shall submit a letter to the Agency under Section 611.360(a)(2) that demonstrates why a review of the information listed in subsection (a)(2) above was inadequate to locate a sufficient number of CWS tier 1 sampling sites or NTNCWS tier 1 sampling sites.

ii) Any CWS supplier that wants to include CWS tier 3 sampling sites in its sampling pool shall demonstrate in a letter to the Agency why it was unable to locate a sufficient number of CWS tier 1 sampling sites and CWS tier 2 sampling sites.

iii) If the Agency determines, based on the information submitted pursuant to subsection (a)(4)(C)(i) or (a)(4)(C)(ii) above, that either the information was inadequate to locate a sufficient number of CWS tier 1 sampling sites or NTNCWS tier 1 sampling sites, or that the supplier was unable to locate a sufficient number of CWS tier 1 sampling sites and CWS tier 2 sampling sites, the Agency shall issue a SEP to the supplier pursuant to Section 611.110 that allows it to use CWS tier 2 sampling sites, NTNCWS tier 2 sampling sites, or CWS tier 3 sampling sites, as appropriate.

D) Suppliers with lead service lines. Any supplier whose distribution system contains lead service lines shall draw samples during each six-month monitoring period from sampling sites as follows:

i) 50 percent of the samples from sampling sites that contain lead pipes or from sampling sites that have copper pipes with lead solder, and

ii) 50 percent of those samples from sites served by a lead service line.

iii) A supplier that cannot identify a sufficient number of sampling sites served by a lead service line shall demonstrate in a letter to the Agency under Section 611.360(a)(4) that it was unable to locate a sufficient number of such sites.

iv) If the Agency determines, based on the information submitted pursuant to subsection (a)(4)(D)(iii) above, that a supplier that cannot identify a sufficient number of sampling sites served by a lead service line, the Agency shall issue a SEP to the supplier pursuant to Section 611.110 that allows it to collect first draw samples from all of the sites on its distribution system identified as being served by such lines.

BOARD NOTE: This allows the pool of sampling sites to consist exclusively of structures or buildings served by lead service lines.

b) Sample collection methods.

1) All tap samples for lead and copper collected in accordance with this Subpart, with the exception of lead service line samples collected under Section 611.354(c), shall be first-draw samples.

2) First-draw tap samples.

A) Each first-draw tap sample for lead and copper shall be one liter in volume and have stood motionless in the plumbing system of each sampling site for at least six hours.

B) First-draw samples from residential housing shall be collected from the cold water kitchen tap or bathroom sink tap.

C) First-draw samples from a non-residential building shall be collected at an interior tap from which water is typically drawn for consumption.

D) First-draw samples may be collected by the supplier or the supplier may allow residents to collect first-draw samples after instructing the residents of the sampling procedures specified in this subsection.

  i) To avoid problems of residents handling nitric acid, acidification of first-draw samples may be done up to 14 days after the sample is collected.

  ii) If the first-draw sample is not acidified immediately after collection, then the sample must stand in the original container for at least 28 hours after acidification.

E) If a supplier allows residents to perform sampling under subsection (b)(2)(D) above, the supplier may not challenge the accuracy of sampling results based on alleged errors in sample collection.

3) Service line samples.

A) Each service line sample shall be one liter in volume and have stood motionless in the lead service line for at least six hours.

B) Lead service line samples shall be collected in one of the following three ways:

  i) at the tap after flushing that volume of water calculated as being between the tap and the lead service line based on the interior diameter and length of the pipe between the tap and the lead service line;

  ii) tapping directly into the lead service line; or

  iii) if the sampling site is a single-family structure, allowing the water to run until there is a significant change in temperature that would be indicative of water that has been standing in the lead service line.

4) Follow-up first-draw tap samples.

A) A supplier shall collect each follow-up first-draw tap sample from the same sampling site from which it collected the previous sample(s).

B) If, for any reason, the supplier cannot gain entry to a sampling site in order to collect a follow-up tap sample, the supplier may collect the follow-up tap sample from another sampling site in its sampling pool, as long as the new site meets the same targeting criteria and is within reasonable proximity of the original site.

c) Number of samples

1) Suppliers shall collect at least one sample from the number of sites listed in the first column of Section 611.Table D (labelled "standard monitoring") during each six-month monitoring period specified in subsection (d) below.

2) A supplier conducting reduced monitoring pursuant to subsection (d)(4) below may collect one sample from the number of sites specified in the second column of Section 611.Table D (labelled "reduced monitoring") during each reduced monitoring period specified in subsection (d)(4) below.

d) Timing of monitoring

1) Initial tap sampling.

The first six-month monitoring period for small, medium-sized and large system suppliers shall begin on the dates specified in Section 611.Table ~~F~~E.

A) All large system suppliers shall monitor during each of two consecutive six-month periods.

B) All small and medium-sized system suppliers shall monitor during each consecutive six-month monitoring period until:

i) the supplier exceeds the lead action level or the copper action level and is therefore required to implement the corrosion control treatment requirements under Section 611.351, in which case the supplier shall continue monitoring in accordance with subsection (d)(2) below, or

ii) the supplier meets the lead action level and the copper action level during each of two consecutive six-month monitoring periods, in which case the supplier may reduce monitoring in accordance with subsection (d)(4) below.

2) Monitoring after installation of corrosion control and source water treatment.

A) Any large system supplier that installs optimal corrosion control treatment pursuant to Section 611.351(d)(4) shall monitor during each of two consecutive six-month monitoring periods before the date specified in Section 611.351(d)(5).

B) Any small or medium-sized system supplier that installs optimal corrosion control treatment pursuant to Section 611.351(e)(5) shall monitor during each of two consecutive six-month monitoring periods before the date specified in Section 611.351(e)(6).

C) Any supplier that installs source water treatment pursuant to Section 611.353(a)(3) shall monitor during each of two consecutive six-month monitoring periods before the date specified in Section 611.353(a)(4).

3) Monitoring after the Agency specification of water quality parameter values for optimal corrosion control.

After the Agency specifies the values for water quality control parameters pursuant to Section 611.352(f), the supplier shall monitor during each subsequent six-month monitoring period, with the first six-month monitoring period to begin on the date the Agency specifies the optimal values.

4) Reduced monitoring.

A) Reduction to annual for small and medium-sized system suppliers meeting the lead and copper action levels. A small or medium-sized system supplier that meets the lead and copper action levels during each of two consecutive six-month monitoring periods may reduce the number of samples in accordance with subsection (c) above, and reduce the frequency of sampling to once per year.

B) SEP allowing reduction to annual for suppliers maintaining water quality control parameters.

i) The Agency shall, by a SEP granted pursuant to Section 611.110, allow any supplier to reduce the frequency of monitoring to annual and the number of lead and copper samples to that specified by subsection (c) above if it determines that a supplier has, during each of two consecutive six-month monitoring periods, maintained the range of values for the water quality control parameters specified pursuant to Section 611.352(f) as reflecting optimal corrosion control treatment.

ii) Any supplier may request a SEP if it concurrently provides the Agency with the information necessary to support a determination under subsection (d)(4)(B)(i) above.

iii) The Agency shall set forth the basis for its determination under subsection (d)(4)(B)(i) above.

iv) The Agency shall, by a SEP issued pursuant to Section 611.110, review, and where appropriate, revise its subsection (d)(4)(B)(i) above determination when the supplier submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available to the Agency.

C) Reduction to triennial for small and medium-sized system suppliers.

i) Small and medium-sized system suppliers meeting lead and copper action levels. A small or medium-sized system supplier that meets the lead and copper action levels during three consecutive years of monitoring may reduce the frequency of monitoring for lead and copper from annually to once every three years.

ii) SEP for suppliers meeting optimal corrosion control treatment. The Agency shall, by a SEP granted pursuant to Section 611.110, allow a supplier to reduce its monitoring frequency from annual to triennial if it determines that the supplier, during each of three consecutive years of monitoring, has maintained the range of values for the water quality control parameters specified as representing optimal corrosion control treatment pursuant to Section 611.352(f). Any supplier may request a SEP if it concurrently provides the Agency with the information necessary to support a determination under this subsection. The Agency shall set forth the basis for its determination. The Agency shall, by a SEP issued pursuant to Section 611.110, review, and where appropriate, revise its determination when the supplier submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available to the Agency.

D) Sampling at a reduced frequency. A supplier that reduces the number and frequency of sampling shall collect these samples from sites included in the pool of targeted sampling sites identified in subsection (a) above, preferentially selecting those sampling sites from the highest tier first. Suppliers sampling annually or less frequently shall conduct the lead and copper tap sampling during the months of June, July, August, or September.

E) Resumption of standard monitoring.

i) Small or medium-sized suppliers exceeding lead or copper action level.

A small or medium-sized system supplier subject to reduced monitoring that exceeds the lead action level or the copper action level shall resume sampling in accordance subsection (d)(3) above and collect the number of samples specified for standard monitoring under subsection (c) above. Such a supplier shall also conduct water quality parameter monitoring in accordance with Section 611.357 (b), (c), or (d) (as appropriate) during the six-month monitoring period in which it exceeded the action level.

ii) Suppliers failing to operate within water quality control parameters. Any supplier subject to reduced monitoring frequency that fails to operate within the range of values for the water quality control parameters specified pursuant to Section 611.352(f) shall resume tap water sampling in accordance with subsection (d)(3) above and collect the number of samples specified for standard monitoring under subsection (c) above.

e) Additional monitoring. 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., calculating the 90th percentile lead action level or the copper level) under this Subpart.

BOARD NOTE: Derived from 40 CFR 141.86 (199~~2~~3).

(Source: Amended at 18 Ill. Reg. ________, effective ____________
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SUBPART L: MICROBIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.532 Unfiltered PWSs

A supplier that uses a surface water source and does not provide filtration treatment shall begin monitoring December 31, 1990, unless the Agency has determined, pursuant to Section 611.211, that filtration is required, in which case the Agency shall specify alternative monitoring requirements, as appropriate, until filtration is in place. A supplier that uses a groundwater source under the direct influence of surface water and does not provide filtration treatment shall begin monitoring beginning December 31, 1990, or 6 months after the Agency determines, pursuant to Section 611.212, that the groundwater source is under the direct influence of surface water, whichever is later, unless the Agency has determined that filtration is required, in which case the Agency shall specify alternative monitoring requirements, as appropriate, until filtration is in place.

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

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

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

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

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

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

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

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

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

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

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

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

i) Determine, for each sequence:

Ai = CT~~calc~~$_{calc}$/CT~~99.9~~$_{99.9}$

ii) Add the Ai values together:

B = ~~SUM~~Σ(Ai)

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

2) If the supplier uses more than one point of disinfectant application before or at the first customer, the supplier shall determine the CT value of each disinfection sequence immediately

prior to the next point of disinfectant application during peak hourly flow. The Ai value of each sequence and B must be calculated using the method in subsection (d)(1)(B) to determine if the supplier is in compliance with Section 611.241.

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

$$PI = 100 - (100/10^{3B})$$

e) The RDC of the water entering the distribution system must be monitored continuously, and the lowest value must be recorded each day, except that if there is a failure in the continuous monitoring equipment, grab sampling every 4 hours may be conducted in lieu of continuous monitoring, but for no more than 5 working days following the failure of the equipment, and suppliers serving 3,300 or fewer persons may take grab samples in lieu of providing continuous monitoring on an ongoing basis at the frequencies prescribed in Table C. If at any time the RDC falls below 0.2 mg/L in a system using grab sampling in lieu of continuous monitoring, the supplier shall take a grab sample every 4 hours until the RDC is equal to or greater than 0.2 mg/L.

f) Points of measurement.

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

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

BOARD NOTE: Derived from 40 CFR 141.74(b) (19~~89~~3)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

(Source: Amended at 18 Ill. Reg. ________, effective ____________ ____________)

SUBPART N: INORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.602 Asbestos Monitoring Frequency

The frequency of monitoring conducted to determine compliance with the MCL for asbestos in Section 611.301 is as follows:

a) Unless the Agency has determined under subsection (c) that the PWS is not vulnerable, each CWS and NTNCWS supplier shall monitor for asbestos during the first compliance period of each compliance cycle, beginning January 1, 1993.

b) CWS suppliers may apply to the Agency, by way of an application for a SEP under Section 611.110, for a determination that the CWS is not vulnerable based on consideration of the criteria listed in subsection (c) below.

c) The Agency shall determine that the CWS is "not vulnerable" if the CWS is not vulnerable to contamination either from asbestos in its source water, from corrosion of asbestos-cement pipe, or from both, based on a consideration of the following factors:

   1) Potential asbestos contamination of the water source; and

   2) The use of asbestos-cement pipe for finished water distribution and the corrosive nature of the water.

d) A SEP based on a determination that a CWS is not vulnerable to asbestos contamination expires at the end of the compliance cycle for which it was issued.

e) A supplier of a PWS vulnerable to asbestos contamination due solely to corrosion of asbestos-cement pipe shall take one sample at a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur.

f) A supplier of a PWS vulnerable to asbestos contamination due solely to source water shall monitor in accordance with Section 611.601.

g) A supplier of a PWS vulnerable to asbestos contamination due both to its source water supply and corrosion of asbestos-cement pipe shall take one sample at a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur.

h) A supplier that exceeds the MCL, as determined in Section 611.609, shall monitor quarterly beginning in the next quarter after the violation occurred.

i) Reduction of quarterly monitoring.

1) The Agency shall issue a SEP pursuant to Section 611.110 that reduces the monitoring frequency to that specified by subsection (a) if it determines that the sampling point is reliably and consistently below the MCL.

2) The request must, at a minimum, include the following information:

A) For a GWS: two quarterly samples.

B) For an SWS or mixed system: four quarterly samples.

3) 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 (h) above if it violates the MCL specified by Section 611.609.

j) If the Agency determines that data collected after January 1, 1990 are generally consistent with the requirements of this Section, it may grant a SEP pursuant to Section 611.110 that allows the supplier to use those data to satisfy the requirements of this Section for the compliance period beginning January 1, 1993.

BOARD NOTE: Derived from 40 CFR 141.23(b) (199~~1~~3).

(Source: Amended at 18 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;

  2) For SWSs and mixed systems: at least one sample each year.

  BOARD NOTE: Derived from 40 CFR 141.23(c)(1) (199~~1~~3)~~, as amended at 57 Fed. Reg. 31839 (July 17, 1992)~~.

b) SEP Application. 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.

BOARD NOTE: Drawn from 40 CFR 141.23(c)(2) and (c)(6) (199~~1~~3).

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) (199~~1~~3).

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) (199~~1~~3).

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) (199~~1~~3).

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) (199~~1~~3).

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) (199~~1~~3).

g) A supplier that exceeds the MCL for barium, cadmium, chromium, fluoride, mercury, or selenium, 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) (199~~1~~3).

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) (199~~1~~3).

(Source: Amended at 18 Ill. Reg. ________, effective ____________ ____________)

Section 611.607 More Frequent Monitoring and Confirmation Sampling

This Section corresponds with 40 CFR 141.23(g), a federal provision authorizing the states to require more frequent monitoring and confirmation sampling with regard to 40 CFR 141.23(b) through (e) (corresponding with Sections 611.602 through 611.605). The Act authorizes the Board to adopt such requirements. The Board has not done so at this Section. This statement maintains stru~~r~~ctural consistency with U.S. EPA rules.

(Source: Amended at 18 Ill. Reg. ________, effective ____________
_____________)

Section 611.609 ~~Averaging~~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 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 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) (199~~1~~3)~~, as amended at 57 Fed. Reg. 31839 (July 17, 1992)~~.

(Source: Amended at 18 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(l)(3) (199~~2~~3), 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(l)(4) (199~~2~~3), 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) (199~~2~~3), 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) (199~~2~~3), 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.

2) 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.

4) Iron:

    A) Standard Methods: Method 303A;

    B) U.S. EPA Inorganic Methods:

        i) Method 236.1, or

        ii) Method 236.2; or

    C) ICP Method 200.7, as supplemented by appendix 200.7A.

5) Manganese:

    A) ASTM: Method D858-84;

    B) Standard Methods: Method 303A;

    C) U.S. EPA Inorganic Methods:

        i) Method 243.1, or

        ii) Method 243.2; or

    D) ICP Method 200.7, as supplemented by appendix 200.7A.

6) Zinc:

    A) Standard Methods: Method 303A; or

B) U.S. EPA Inorganic Methods:

i) Method 289.1, or

ii) Method 289.2.

BOARD NOTE: The provisions of subsections (a) through (f)(3) above derive from 40 CFR 141.23(l) through (q) (199~~2~~3). The Board has deleted several analytical methods codified by U.S. EPA at 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. 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)(4) through (f)(6) above relate exclusively to additional state requirements. 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 18 Ill. Reg. ________, effective ____________ ______________)

SUBPART O: ORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

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) (199~~2~~3). 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 (199~~2~~3). 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) (199~~2~~3).

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) (199~~2~~3)~~, as amended at 57 Fed. Reg. 31841 (July 17, 1992),~~ 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 (l)(1) above if it violates the MCL specified by Section 611.311.

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

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

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

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

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

n) This subsection corresponds with 40 CFR 141.24(f)(14), an optional USEPA provision relating to compositing of samples that USEPA does not require for state programs. This statement maintains structural consistency with USEPA 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) ~~P~~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 ~~for a supplier out of compliance is governed~~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:

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".

q) Analysis under this Section must only be conducted by laboratories that have received approval by USEPA or the Agency according to the following conditions:

1) To receive conditional approval 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 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 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) (199~~2~~3)~~, as amended at 57 Fed. Reg. 31841 (July 17, 1992)~~.

(Source: Amended at 18 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: USEPA 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) (199~~2~~3).

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 USEPA provision relating to compositing of samples that USEPA does not require for state programs. This statement maintains structural consistency with USEPA rules.

k) Compliance with the MCLs for the Phase II, Phase IIB, and Phase V SOCs 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) ~~P~~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 ~~for a supplier out of compliance is governed~~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) (199~~2~~3).

l) 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.

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) USEPA 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 Derivitization", available from USEPA-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 Hydorcarbons 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:

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

2) If PCBs are detected in any sample analyzed using USEPA 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 USEPA 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), USEPA 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 USEPA 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 USEPA 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 USEPA 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) (199~~2~~3)~~, as amended at 57 Fed. Reg. 31842 (July 17, 1992)~~.

(Source: Amended at 18 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 methods, 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~~ degrees~~° 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) (19~~8~~93).

(Source: Amended at 18 Ill. Reg. ________, effective ________________________)

SUBPART T: REPORTING, PUBLIC NOTIFICATION AND RECORDKEEPING

Section 611.851 Reporting MCL and other Violations

A supplier that fails to comply with an applicable MCL or treatment technique established by this Part or which fails to comply with the requirements of any schedule prescribed pursuant to a variance or adjusted standard shall notify persons served by the PWS as follows:

a) Except as provided in subsection (c), the supplier shall give notice:

1) By publication in a daily newspaper of general circulation in the area served by the PWS as soon as possible, but in no case later than 14 days after the violation or failure. If the area served by a PWS is not served by a daily newspaper of general circulation, notice must instead be given by publication in a weekly newspaper of general circulation serving the area; and

2) By mail delivery (by direct mail or with the water bill), or by hand delivery, not later than 45 days after the violation or failure. This is not required if the Agency determines by SEP that the supplier in violation has corrected the violation or failure within the 45-day period; and

3) For violations of the MCLs of contaminants that pose an acute risk to human health, by furnishing a copy of the notice to the radio and television stations serving the area served by the PWS as soon as possible but in no case later than 72 hours after the violation. The following violations are acute violations:

    A) Any violations posing an acute risk to human health, as specified in this Part or as determined by the Agency on a case-by-case basis.

    B) Violation of the MCL for nitrate or nitrite in Section 611.301.

    C) Violation of the MCL for total coliforms, when fecal coliforms or E. coli are present in the water distribution system, as specified in Section 611.325(b).

    D) Occurrence of a waterborne disease outbreak.

b) Except as provided in subsection (c), following the initial notice given under subsection (a), the supplier shall give notice at least once every three months by mail delivery (by direct mail or with the water bill) or by hand delivery, for as long as the violation or failure exists.

c) Alternative methods of notice.

1) In lieu of the requirements of subsections (a) and (b), a CWS supplier in an area that is not served by a daily or weekly newspaper of general circulation shall give notice by hand delivery or

by continuous posting in conspicuous places within the area served by the CWS. Notice by hand delivery or posting must begin as soon as possible, but no later than 72 hours after the violation or failure for acute violations (as defined in subsection (a)(3)) or 14 days after the violation or failure (for any other violation). Posting must continue for as long as the violation or failure exists. Notice by hand delivery must be repeated at least every three months for as long as the violation or failure exists.

2) In lieu of the requirements of subsections (a) and (b), a non-CWS supplier may give notice by hand delivery or by continuous posting in conspicuous places within the area served by the non-CWS. Notice by hand delivery or posting must begin as soon as possible, but no later than 72 hours after the violation or failure for acute violations (as defined in subsection (a)(3)), or 14 days after the violation or failure (for any other violation). Posting must continue for as long as the violation or failure exists. Notice by hand delivery must be repeated at least every three months for as long as the violation or failure exists.

3) Where allowed, pursuant to Section 611.609(d), 611.646(o)(3), 611.647(i), or 611.648(k)(3) because it has a separable system, a supplier may issue public notice only to persons on that portion of its system that its out of compliance.

BOARD NOTE: ~~D~~Generally derived from 40 CFR 141.32(a) (199~~1~~3). Subsection (c)(3) derived from 40 CFR 141.23(i)(4) & 141.24(f)(15)(iii), (g)(9) & (h)(11)(iii) (1993).

(Source: Amended at 18 Ill. Reg. ________, effective ____________
____________)

Section 611.856 Fluoride Notice

Notice of violations of the MCL for fluoride, notices of variances and adjusted standards from the MCL for fluoride and notices of failure to comply with variance and adjusted standard schedules for the MCL for fluoride must consist of the public notice prescribed in Appendix A plus a description of any steps which the supplier is taking to come into compliance.

BOARD NOTE: Derived from 40 CFR 141.32(f) and (g) (19~~8~~93).

(Source: Amended at 18 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 also been shown to~~ 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 (1992).

10) Microbiological contaminants (for use when there is a violation of the treatment technique requirements for filtration and disinfection in Subpart B of this Part). The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that the presence of microbiological contaminants are a health concern at certain levels of exposure. If water is inadequately treated, microbiological contaminants in that water may cause disease. Disease symptoms may include diarrhea, cramps, nausea and possibly jaundice

and any associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water, but also may be caused by a number of factors other than your drinking water. U.S. EPA has set enforceable requirements for treating drinking water to reduce the risk of these adverse health effects. Treatment such as filtering and disinfecting the water removes or destroys microbiological contaminants. Drinking water which is treated to meet U.S. EPA requirements is associated with little to none of this risk and should be considered safe.

11) Total coliforms. (To be used when there is a violation of Section 611.325(a) and not a violation of Section 611.325(b)). The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that the presence of total coliforms is a possible health concern. Total coliforms are common in the environment and are generally not harmful themselves. The presence of these bacteria in drinking water, however, generally is a result of a problem with water treatment or the pipes which distribute the water and indicates that the water may be contaminated with organisms that can cause disease. Disease symptoms may include diarrhea, cramps, nausea and possibly jaundice, and any associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water, but also may be caused by a number of factors other than your drinking water. U.S. EPA has set an enforceable drinking water standard for total coliforms to reduce the risk of these adverse health effects. Under this standard, no more than 5.0 percent of the samples collected during a month can contain these bacteria, except that systems collecting fewer than 40 samples/month that have one total coliform-positive sample per month are not violating the standard. Drinking water which meets this standard is usually not associated with a health risk from disease-causing bacteria and should be considered safe.

12) Fecal Coliforms/E. coli. (To be used when there is a violation of Section 611.325(b) or both Section 611.325(a) and (b)). The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that the presence of fecal coliforms or E. coli is a serious health concern. Fecal coliforms and E. coli are generally not harmful themselves, but their presence in drinking water is serious because they usually are associated with sewage or animal wastes. The presence of these bacteria in

drinking water is generally a result of a problem with water treatment or the pipes which distribute the water and indicates that the water may be contaminated with organisms that can cause disease. Disease symptoms may include diarrhea, cramps, nausea and possibly jaundice, and associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water, but also may be caused by a number of factors other than your drinking water. U.S. EPA has set an enforceable drinking water standard for fecal coliforms and E. coli to reduce the risk of these adverse health effects. Under this standard all drinking water samples must be free of these bacteria. Drinking water which meets this standard is associated with little or none of this risk and should be considered safe. State and local health authorities recommend that consumers take the following precautions: [To be inserted by the public water system, according to instruction from State or local authorities].

13) Lead. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that lead is a health concern at certain exposure levels. Materials that contain lead have frequently been used in the construction of water supply distribution systems, and plumbing systems in private homes and other buildings. The most commonly found materials include service lines, pipes, brass and bronze fixtures, and solders and fluxes. Lead in these materials can contaminate drinking water as a result of the corrosion that takes place when water comes into contact with those materials. Lead can cause a variety of adverse health effects in humans. At relatively low levels of exposure, these effects may include interference with red blood cell chemistry, delays in normal physical and mental development in babies and young children, slight deficits in the attention span, hearing, and learning abilities of children, and slight increases in the blood pressure of some adults. U.S. EPA's national primary drinking water regulation requires all public water systems to optimize corrosion control to minimize lead contamination resulting from the corrosion of plumbing materials. Public water systems serving 50,000 people or fewer that have lead concentrations below 15 parts per billion (ppb) in more than 90% of tap water samples (the U.S. EPA "action level") have optimized their corrosion control treatment. Any water system that exceeds the action level must also monitor their source water to determine whether treatment to remove lead in source water is needed. Any water system that continues to exceed the

action level after installation of corrosion control and/or source water treatment must eventually replace all lead service lines contributing in excess of 15 ppb of lead to drinking water. Any water system that exceeds the action level must also undertake a public education program to inform consumers of ways they can reduce their exposure to potentially high levels of lead in drinking water.

14) Copper. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that copper is a health concern at certain exposure levels. Copper, a reddish-brown metal, is often used to plumb residential and commercial structures that are connected to water distribution systems. Copper contaminating drinking water as a corrosion by-product occurs as the result of the corrosion of copper pipes that remain in contact with water for a prolonged period of time. Copper is an essential nutrient, but at high doses it has been shown to cause stomach and intestinal distress, liver and kidney damage, and anemia. Persons with Wilson's disease may be at a higher risk of health effects due to copper than the general public. U.S. EPA's national primary drinking water regulation requires all public water systems to install optimal corrosion control to minimize copper contamination resulting from the corrosion of plumbing materials. Public water systems serving 50,000 people or fewer that have copper concentrations below 1.3 parts per million (ppm) in more than 90% of tap water samples (the U.S. EPA "action level") are not required to install or improve their treatment. Any water system that exceeds the action level must also monitor their source water to determine whether treatment to remove copper in source water is needed.

15) Asbestos. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that asbestos fibers greater than 10 micrometers in length are a health concern at certain levels of exposure. Asbestos is a naturally occurring mineral. Most asbestos fibers in drinking water are less than 10 micrometers in length and occur in drinking water from natural sources and from corroded asbestos-cement pipes in the distribution system. The major uses of asbestos were in the production of cements, floor tiles, paper products, paint, and caulking; in transportation-related applications; and in the production of textiles and plastics. Asbestos was once a popular insulating and fire retardant material. Inhalation studies have shown

that various forms of asbestos have produced lung tumors in laboratory animals. The available information on the risk of developing gastrointestinal tract cancer associated with the ingestion of asbestos from drinking water is limited. Ingestion of intermediate-range chrysolite asbestos fibers greater than 10 micrometers in length is associated with causing benign tumors in male rats. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. U.S. EPA has set the drinking water standard for asbestos at 7 million long fibers per liter to reduce the potential risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets the U.S. EPA standard is associated with little to none of this risk and should be considered safe with respect to asbestos.

16) Barium. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that barium is a health concern at certain levels of exposure. This inorganic chemical occurs naturally in some aquifers that serve as sources of groundwater. It is also used in oil and gas drilling muds, automotive paints, bricks, tiles, and jet fuels. It generally gets into drinking water after dissolving from naturally occurring minerals in the ground. This chemical may damage the heart and vascular system, and is associated with high blood pressure in laboratory animals such as rats exposed to high levels during their lifetimes. In humans, U.S. EPA believes that effects from barium on blood pressure should not occur below 2 parts per million (ppm) in drinking water. U.S. EPA has set the drinking water standard for barium at 2 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U.S. EPA standard is associated with little to none of this risk and is considered safe with respect to barium.

17) Cadmium. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that cadmium is a health concern at certain levels of exposure. Food and the smoking of tobacco are common sources of general exposure. This inorganic metal is a contaminant in the metals used to galvanize pipe. It generally gets into water by corrosion of galvanized pipes or by improper waste disposal. This chemical has been shown to damage the kidney in animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Some industrial

workers who were exposed to relatively large amounts of this chemical during working careers also suffered damage to the kidney. U.S. EPA has set the drinking water standard for cadmium at 0.005 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U.S. EPA standard is associated with little to none of this risk and is considered safe with respect to cadmium.

18) Chromium. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that chromium is a health concern at certain levels of exposure. This inorganic metal occurs naturally in the ground and is often used in the electroplating of metals. It generally gets into water from runoff from old mining operations and improper waste disposal from plating operations. This chemical has been shown to damage the kidney, nervous system, and the circulatory system of laboratory animals such as rats and mice when the animals are exposed at high levels. Some humans who were exposed to high levels of this chemical suffered liver and kidney damage, dermatitis and respiratory problems. U.S. EPA has set the drinking water standard for chromium at 0.1 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U.S. EPA standard is associated with little to none of this risk and is considered safe with respect to chromium.

19) Mercury. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that mercury is a health concern at certain levels of exposure. This inorganic metal is used in electrical equipment and some water pumps. It usually gets into water as a result of improper waste disposal. This chemical has been shown to damage the kidney of laboratory animals such as rats when the animals are exposed at high levels over their lifetimes. U.S. EPA has set the drinking water standard for mercury at 0.002 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U.S. EPA standard is associated with little to none of this risk and is considered safe with respect to mercury.

20) Nitrate. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that nitrate poses an acute health concern at certain levels of exposure. Nitrate is used in fertilizer and is found in sewage and wastes from human and/or farm animals and generally gets into drinking

water from those activities. Excessive levels of nitrate in drinking water have caused serious illness and sometimes death in infants under six months of age. The serious illness in infants is caused because nitrate is converted to nitrite in the body. Nitrite interferes with the oxygen carrying capacity of the child's blood. This is an acute disease in that symptoms can develop rapidly in infants. In most cases, health deteriorates over a period of days. Symptoms include shortness of breath and blueness of the skin. Clearly, expert medical advice should be sought immediately if these symptoms occur. The purpose of this notice is to encourage parents and other responsible parties to provide infants with an alternate source of drinking water. Local and State health authorities are the best source for information concerning alternate sources of drinking water for infants. U.S. EPA has set the drinking water standard at 10 parts per million (ppm) for nitrate to protect against the risk of these adverse effects. U.S. EPA has also set a drinking water standard for nitrite at 1 ppm. To allow for the fact that the toxicity of nitrate and nitrite are additive. U.S. EPA has also established a standard for the sum of nitrate and nitrite at 10 ppm. Drinking water that meets the U.S. EPA standard is associated with little to none of this risk and is considered safe with respect to nitrate.

21) Nitrite. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that nitrite poses an acute health concern at certain levels of exposure. This inorganic chemical is used in fertilizers and is found in sewage and wastes from humans and/or farm animals and generally gets into drinking water as a result of those activities. While excessive levels of nitrite in drinking water have not been observed, other sources of nitrite have caused serious illness and sometimes death in infants under six months of age. The serious illness in infants is caused because nitrite interferes with the oxygen carrying capacity of the child's blood. This is an acute disease in that symptoms can develop rapidly. However, in most cases, health deteriorates over a period of days. Symptoms include shortness of breath and blueness of the skin. Clearly, expert medical advice should be sought immediately if these symptoms occur. The purpose of this notice is to encourage parents and other responsible parties to provide infants with an alternate source of drinking water. Local and State health authorities are the best source for information concerning alternate sources of drinking water for infants. U.S. EPA has set the

drinking water standard at 1 part per million (ppm) for nitrite to protect against the risk of these adverse effects. U.S. EPA has also set a drinking water standard for nitrate (converted to nitrite in humans) at 10 ppm and for the sum of nitrate and nitrite at 10 ppm. Drinking water that meets the U.S. EPA standard is associated with little to none of this risk and is considered safe with respect to nitrite.

22) Selenium. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that selenium is a health concern at certain high levels of exposure. Selenium is also an essential nutrient at low levels of exposure. This inorganic chemical is found naturally in food and soils and is used in electronics, photocopy operations, the manufacture of glass, chemicals, drugs, and as a fungicide and a feed additive. In humans, exposure to high levels of selenium over a long period of time has resulted in a number of adverse health effects, including a loss of feeling and control in the arms and legs. U.S. EPA has set the drinking water standard for selenium at 0.05 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U.S. EPA standard is associated with little to none of this risk and is considered safe with respect to selenium.

23) Acrylamide. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that acrylamide is a health concern at certain levels of exposure. Polymers made from acrylamide are sometimes used to treat water supplies to remove particulate contaminants. Acrylamide has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. Sufficiently large doses of acrylamide are known to cause neurological injury. U.S. EPA has set the drinking water standard for acrylamide using a treatment technique to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. This treatment technique limits the amount of acrylamide in the polymer and the amount of the polymer which may be added to drinking water to remove particulates. Drinking water systems which comply with this treatment technique have little to no risk and are considered safe with respect to acrylamide.

24) Alachlor. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that alachlor is a health concern at certain levels of exposure. This organic chemical is a widely used pesticide. When soil and climatic conditions are favorable, alachlor may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. U.S. EPA has set the drinking water standard for alachlor at 0.002 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to alachlor.

25) Aldicarb. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that aldicarb is a health concern at certain levels of exposure. Aldicarb is a widely used pesticide. Under certain soil and climatic conditions (e.g., sandy soil and high rainfall), aldicarb may leach into groundwater after normal agricultural applications to crops such as potatoes or peanuts or may enter drinking water supplies as a result of surface runoff. This chemical has been shown to damage the nervous system in laboratory animals such as rats and dogs exposed to high levels. U.S. EPA has set the drinking water standard for aldicarb at 0.003 parts per million (ppm) to reduce the risk of adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to aldicarb.

26) Aldicarb sulfoxide. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that aldicarb sulfoxide is a health concern at certain levels of exposure. Aldicarb is a widely used pesticide. Aldicarb sulfoxide in groundwater is primarily a breakdown product of aldicarb. Under certain soil and climatic conditions (e.g., sandy soil and high rainfall), aldicarb sulfoxide may leach into groundwater after normal agricultural applications to crops such as potatoes or peanuts or may enter drinking water supplies as a result of surface runoff. This chemical has been shown to damage the nervous system in

laboratory animals such as rats and dogs exposed to high levels. U.S. EPA has set the drinking water standard for aldicarb sulfoxide at 0.004 parts per million (ppm) to reduce the risk of adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to aldicarb sulfoxide.

27) Aldicarb sulfone. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that aldicarb sulfone is a health concern at certain levels of exposure. Aldicarb is a widely used pesticide. Aldicarb sulfone in groundwater is primarily a breakdown product of aldicarb. Under certain soil and climatic conditions (e.g., sandy soil and high rainfall), aldicarb sulfone may leach into groundwater after normal agricultural applications to crops such as potatoes or peanuts or may enter drinking water supplies as a result of surface runoff. This chemical has been shown to damage the nervous system in laboratory animals such as rats and dogs exposed to high levels. U.S. EPA has set the drinking water standard for aldicarb sulfone at 0.002 parts per million (ppm) to reduce the risk of adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to aldicarb sulfone.

28) Atrazine. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that atrazine is a health concern at certain levels of exposure. This organic chemical is a herbicide. When soil and climatic conditions are favorable, atrazine may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to affect offspring of rats and the 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 and extra uncertainty factor to account for possible carcinogenicity. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. U.S. EPA has set the drinking water standard for beryllium at 0.004 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U.S. EPA standard is associated with little to none of this risk and is considered safe with respect to beryllium.

56) 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 0.004 parts per million (ppm) to protect against the risk of cancer or other adverse health effects which have been abserved in laboratory animals. Drinking water that meets the U.S. EPA standard is associated with little to none of this risk and is considered safe with respect to di(2-ethylhexyl)phthalate.

63) Dinoseb. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that dinoseb is a health concern at certain levels of exposure. Dinoseb is a widely used pesticide and generally gets into water after application on orchards, vineyards, and other crops. This chemical has been shown to damage the thyroid and reproductive organs in laboratory animals such as rats exposed to high levels. U.S. EPA has set the drinking water standard for dinoseb at 0.007 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U.S. EPA standard is associated with little to none of this risk and is considered safe with respect to dinoseb.

64) Diquat. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that diquat is a health concern at certain

levels of exposure. This organic chemical is a herbicide used to control terrestrial and aquatic weeds. It may get into drinking water by runoff into surface water. This chemical has been shown to damage the liver, kidney, and gastrointestinal tract and causes cataract formation in laboratory animals such as dogs and rats exposed at high levels over their lifetimes. U.S. EPA has set the drinking water standard for diquat at 0.02 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U.S. EPA standard is associated with little to none of this risk and is considered safe with respect to diquat.

65) Endothall. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that endothall is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control terrestrial and aquatic weeds. It may get into drinking water by runoff into surface water. This chemical has been shown to damage the liver, kidney, gastrointestinal tract, and reproductive system of laboratory animals such as rats and mice exposed at high levels over their lifetimes. U.S. EPA has set the drinking water standard for endothall at 0.1 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U.S. EPA standard is associated with little to none of this risk and is considered safe with respect to endothall.

66) Endrin. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that endrin is a health concern at certain levels of exposure. This organic chemical is a pesticide no longer registered for use in the United States. However, this pesticide is persistent in treated soils and accumulates in sediments and aquatic and terrestrial biota. This chemical has been shown to cause damage to the liver, kidney, and heart in laboratory animals such as rats and mice when the animals are exposed to high levels during their lifetimes. U.S. EPA has set the drinking water standard for endrin at 0.002 parts per million (ppm) to protect against the risk of these adverse health effects that have been observed in laboratory animals. Drinking water that meets the U.S. EPA standard is associated with little to none of this risk and is considered safe with respect to endrin.

67) Glyphosate. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has

determined that glyphosate is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control grasses and weeds. It may get into drinking water by runoff into surface water. This chemical has been shown to cause damage to the liver and kidneys in laboratory animals such as rats and mice when the animals are exposed to high levels during their lifetimes. U.S. EPA has set the drinking water standard for glyphosate at 0.7 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U.S. EPA standard is associated with little to none of this risk and is considered safe with respect to glyphosate.

68) Hexachlorobenzene. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that hexachlorobenzene is a health concern at certain levels of exposure. This organic chemical is produced as an impurity in the manufacture of certain solvents and pesticides. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed to high levels during their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. U.S. EPA has set the drinking water standard for hexachlorobenzene at 0.001 parts per million (ppm) to protect against the risk of cancer and other adverse health effects. Drinking water that meets the U.S. EPA standard is associated with little to none of this risk and is considered safe with respect to hexachlorobenzene.

69) Hexachlorocyclopentadiene. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that hexachlorocyclopentadiene is a health concern at certain levels of exposure. This organic chemical is a used as an intermediate in the manufacture of pesticides and flame retardants. It may get into water by discharge from production facilities. This chemical has been shown to damage the kidney and the stomach of laboratory animals when exposed to high levels during their lifetimes. U.S. EPA has set the drinking water standard for hexachlorocyclopentadiene at 0.05 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U.S. EPA standard is associated with little to none of this risk and is considered safe with respect to hexachlorocyclopentadiene.

70) Oxamyl. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that oxamyl is a health concern at certain levels of exposure. This organic chemical is used as a pesticide for the control of insects and other pests. It may get into drinking water by runoff into surface water or leaching into ground water. This chemical has been shown to damage the kidneys of laboratory animals such as rats when exposed at high levels during their lifetimes. U.S. EPA has set the drinking water standard for oxamyl at 0.2 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U.S. EPA standard is associated with little to none of this risk and is considered safe with respect to oxamyl.

71) Picloram. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that picloram is a health concern at certain levels of exposure. This organic chemical is used as a pesticide for broadleaf weed control. It may get into drinking water by runoff into surface water or leaching into groundwater as a result of pesticide application and improper waste disposal. This chemical has been shown to cause damage to the kidneys and liver in laboratory animals such as rats when the animals are exposed to high levels during their lifetimes. U.S. EPA has set the drinking water standard for picloram at 0.5 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U.S. EPA standard is associated with little to none of this risk and is considered safe with respect to picloram.

72) Simazine. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that simazine is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control annual grasses and broadleaf weeds. It may leach into groundwater or run off into surface water after application. This chemical may cause cancer in laboratory animals such as rats and mice when the animals are exposed to high levels during their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. U.S. EPA has set the drinking water standard for simazine at 0.004 parts per million (ppm) to reduce the risk of cancer or adverse health effects. Drinking water that meets the U.S. EPA standard is associated with little to none of this risk and is considered safe with respect to simazine.

73) 1,2,4-Trichlorobenzene. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that 1,2,4-trichlorobenzene is a health concern at certain levels of exposure. This organic chemical is used as a dye carrier and as a precursor in herbicide manufacture. It generally gets into drinking water by discharges from industrial activities. This chemical has been shown to cause damage to several organs, including the adrenal glands. U.S. EPA has set the drinking water standard for 1,2,4-trichlorobenzene at 0.07 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U.S. EPA standard is associated with little to none of this risk and is considered safe with respect to 1,2,4-trichlorobenzene.

74) 1,1,2-Trichloroethane. The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that 1,1,2-trichloroethane is a health concern at certain levels of exposure. This organic chemical is an intermediate in the production of 1,1-dichloroethylene. It generally gets into water by industrial discharge of wastes. This chemical has been shown to damage the kidney and liver of laboratory animals such as rats exposed to high levels during their lifetimes. U.S. EPA has set the drinking water standard for 1,1,2-trichloroethane at 0.005 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the U.S. EPA standard is associated with little to none of this risk and is considered safe with respect to 1,1,2-trichloroethane.

75) 2,3,7,8-TCDD (dioxin). The United States Environmental Protection Agency (U.S. EPA) sets drinking water standards and has determined that dioxin is a health concern at certain levels of exposure. This organic chemical is an impurity in the production of some pesticides. It may get into drinking water by industrial discharge of wastes. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed to high levels during their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. U.S. EPA has set the drinking water standard for dioxin at 0.00000003 parts per million (ppm) to protect against the risk of cancer or other adverse health effects. Drinking water that meets the U.S. EPA standard is associated with little to none of this risk and is considered safe with respect to dioxin.

BOARD NOTE: Derived from 40 CFR 141.32(e) (199~~2~~3)~~, as amended at 57 Fed. Reg. 31843 (July 17, 1992)~~.

(Source: Amended at 18 Ill. Reg. ________, effective ____________ ____________)

CONCLUSION

The Board intends to promptly submit these proposed amendments to the Secretary of State for publication in the Illinois Register.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above proposed opinion and order was adopted on the 5th day of May, 1994, by a vote of 6-0.

Dorothy M. Gunn

Dorothy M. Gunn, Clerk
Illinois Pollution Control Board