ILLINOIS POLLUTION CONTROL BOARD
March 11, 1992

IN THE MATTER OF:) R91-3
SAFE DRINKING WATER ACT) (Identical in Substance)
UPDATE (7/1/90 - 1/31/91))

PROPOSAL FOR PUBLIC COMMENT

PROPOSED ORDER OF THE BOARD (by J. Anderson):

Pursuant to Section 17.5 of the Environmental Protection Act (Act), the Board is proposing to update its regulations which are identical in substance to USEPA regulations implementing the Safe Drinking Water Act (SDWA). The Board rules are contained in 35 Ill. Adm. Code 611.

Section 17.5 of the Act provides for quick adoption of regulations which 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, it is not subject to first notice or to second notice review by the Joint Committee on Administrative Rules (JCAR).

The text of the Proposed amendments is attached to this Order. The text will be published in the Illinois Register in the near future. The Board will receive public comment for 45 days after the date of publication in the Illinois Register. Because of its length, the text of the proposed rules will not be published in the Environmental Register, or in the Board's Opinion volumes.

IT IS SO ORDERED

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Order was adopted on the [illegible] day of March, 1992, by a vote of 7-0.

Dorothy M. Gunn

Dorothy M. Gunn, Clerk
Illinois Pollution Control Board

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

PART 611
PRIMARY DRINKING WATER STANDARDS

SUBPART A: GENERAL

Section

SUBPART B: FILTRATION AND DISINFECTION

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SUBPART C: USE OF NON-CENTRALIZED TREATMENT DEVICES

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SUBPART D: TREATMENT TECHNIQUES

SUBPART F: MAXIMUM CONTAMINANT LEVELS (MCL's)

SUBPART K: GENERAL MONITORING AND ANALYTICAL REQUIREMENTS

SUBPART L: MICROBIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

SUBPART M: TURBIDITY MONITORING AND ANALYTICAL REQUIREMENTS

SUBPART N: INORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

SUBPART O: ORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

Section

SUBPART P: THM MONITORING AND ANALYTICAL REQUIREMENTS

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SUBPART Q: RADIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

Section

SUBPART T: REPORTING, PUBLIC NOTIFICATION AND RECORDKEEPING

Section

AUTHORITY: Implementing Sections 17 and 17.5 and authorized by Section 27 of the Environmental Protection Act (Ill. Rev. Stat. 1989, ch. 111 1/2, pars. 1017, 1017.5 and 1027.

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. , effective

SUBPART A: GENERAL

Section 611.101 Definitions

As used in this Part, the term:

"Act" means the Environmental Protection Act (Ill. Rev. Stat. 1989, ch. 111 1/2, par. 1001 et seq.)

"Agency" means the Illinois Environmental Protection Agency.

"Ai" means "inactivation ratio".

"Best available technology" or "BAT" means the best technology, treatment techniques or other means which USEPA has found are available for the contaminant in question. BAT is specified in Subpart ~~G~~F.

BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~90).

"Board" means the Illinois Pollution Control Board.

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

"CT" or "CTcalc" 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 disinfect~~e~~ant 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 "CT99.9")

BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

"CT99.9" is the CT value required for 99.9 percent (3-log) inactivation of Giardia lamblia cysts. CT99.9 for a variety of disinfectants and conditions appear in Tables 1.1-1.6, 2.1 and 3.1 of Appendix B. (See "Inactivation Ratio".)

BOARD NOTE: Derived from the definition of "CT" in 40 CFR 141.2 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

"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 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

"Community Water System" ("CWS") means a PWS which 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 (19~~89~~90).

"Compliance cycle" means the nine-year calendar year cycle during which 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, as amended at 56 Fed. Reg. 3578, January 30, 1991.

"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, as amended at 56 Fed. Reg. 3578, January 30, 1991.

"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 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27562, June 29, 1989~~.

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

BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~90).

"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 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

"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 ~~membrance~~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 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

"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 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

"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 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

"Disinfectant contact time" ("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 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

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

BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

"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 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27562, June 29, 1989~~.

"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 (19~~89~~90).

"Filtration" means a process for removing particulate matter from water by passage through porous media.

BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

"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 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

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

"GC/MS" means GC followed by mass spectrometry.

"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 (19~~89~~90).

"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 (19~~89~~90).

"Groundwater under the direct influence of surface water" is as determined in Section ~~611.211~~611.212.

BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

"Halogen" means one of the chemical elements chlorine, bromine or iodine.

BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~90).

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

"Initial compliance period" means the three-year compliance period which begins January 1, 1993.

BOARD NOTE: Derived from 40 CFR 141.2, as amended at 56 Fed. Reg. 3578, January 30, 1991.

"Inactivation Ratio" (Ai) means:

Ai = CTcalc/CT99.9

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(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 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

"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 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

"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 (19~~89~~90).

"Maximum contaminant level" ("MCL") See Section

BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~90).

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

BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~90).

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

BOARD NOTE: Derived from 40 CFR 141.23(a)(4)(i), as amended at 56 Fed. Reg. 3578, January 30, 1991.

"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 PWS treatment facility, as measured by water transport time within the distribution system.

BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27562, June 29, 1989~~.

"nm" means nanometer.

"Non-community water system" ("non-CWS") means a PWS which is not a CWS.

BOARD NOTE: Derived from the definition of "public water system" in 40 CFR 141.2 (19~~89~~90).

"Non-transient non-community water system" ("NTNCWS") means a PWS that is not a 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 (19~~89~~90).

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

"NTU" means "nephelometric turbidity units".

"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 non-CWSs, Public Health. 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 (19~~89~~90).

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

BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~90).

"Picocurie (pCi)" means the quantity of radioactive material producing 2.22 nuclear transformations per minute.

BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~90).

"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 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

"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 (19~~89~~90).

"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 (19~~89~~90).

"Public Health" means the Illinois Department of Public Health.

"Public water system" ("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 twenty-five individuals daily at least 60 days out of the year. 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 which are used primarily in connection with such system.

A PWS is either a "CWS" or a "nonCWS."

BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~90).

"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 (19~~89~~90).

"Repeat compliance period" means an compliance period which begins after the initial compliance period.

BOARD NOTE: Derived from 40 CFR 141.2, as amended at 56 Fed. Reg. 3578, January 30, 1991.

"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 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

"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 (19~~89~~90).

"Sanitary survey" means an onsite review of the water source, facilities, equipment, operation and maintenance of a 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 (19~~89~~90).

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

BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

"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 m/h) resulting in substantial particulate removal by physical and biological mechanisms.

BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

"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 (19~~89~~90).

"Supplier of water" or "supplier" means any person who owns or operates a PWS. This term includes the "official custodian".

BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~90).

"Surface water" means all water which is open to the atmosphere and subject to surface runoff.

BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

"System with a single service connection" means a system which supplies drinking water to consumers via a single service line.

BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27562 June 29, 1989~~.

"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 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27562, June 29, 1989~~.

"Total trihalomethanes" (TTHM) means the sum of the concentration of THMs, in mg/L, rounded to two significant figures.

BOARD NOTE: Derived from the definition of "total trihalomethanes" in 40 CFR 141.2 (19~~89~~90).

"Trihalomethane" (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 (19~~89~~90).

"ug" means micrograms.

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

"VOC" means "volatile organic chemical".

BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

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

BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~90)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

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

BOARD NOTE: Derived from 40 CFR 141.71(b) (19~~89~~90), adopted at 54 Fed. Reg. 27526, June 29, 1989. 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 16 Ill. Reg. , effective

Section 611.102 Incorporations by Reference

a) Abbreviations. The following abbreviated names are used for materials incorporated by reference:

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

"Asbestos Methods" means "Analytical Method for Determination of Asbestos Fibers in Water", available from NTIS.

"ASTM" means American Society for Testing and Materials

"Indigo method" is as described in "Standard Methods", 17th Edition, Method 4500-O3 B.

"Inductively Coupled Plasma Method" 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.

"Inorganic Methods" means "Methods for Chemical Analysis of Water and Wastes", available from NTIS.

"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 ~~Access Analytical Systems, Inc.~~Environetics, Inc.

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

"NTIS" means "National Technical Information Service".

"Organic Methods" means "Methods for the Determination of Organic Compounds in Drinking Water", available from ~~USEPA~~ NTIS.

"Pesticide Methods" means "Methods for Organochlorine Pesticides and Chloro-phenoxy Acid

Herbicides in Drinking Water and Raw Source Water", available from USEPA.

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

"SPE Test Method" means "Solid Phase Extraction Test Method", available from J.T. Baker Chemical Company.

"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.

"USGS Method" means "United States Geological Survey Method"

b) The Board incorporates the following publications by reference:

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

~~MMO-MUG tests: Colilert P/A or Colilert MPN~~see Environetics, Inc.

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

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

~~ASTM Method D992-71, "Standard Method of Test for Nitrate Ion in Water", effective October 22, 1971.~~

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

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 D1687-77D, "Standard Test Methods for Chromium in Water", approved February 18, 1977.~~

ASTM Method D1688-84D or E, "Standard Test Methods for Copper in Water", approved November 30, 1984.

ASTM Method D1889-88a, "Standard Test Method for Turbidity of Water", approved June 24, 1988.

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 D2972-78A or B, "Standard Test Methods for Arsenic in Water", approved August 18, 1978.

ASTM Method D3086-79, "Standard Test Methods for Organochlorine Pesticides In Water", approved November 30, 1979.

ASTM Method D3223-~~79~~86, "Standard Test Method for Total Mercury in Water", approved ~~November 30, 1979~~February 28, 1986.

ASTM Method D3478-85, "Standard Test Method for Chlorinated Phenoxy Acid Herbicides in Water", approved November 29, 1985.

ASTM Method D3557-~~78~~90A or B, "Standard Test Methods for Cadmium in Water", approved ~~July 28, 1978~~March 15, 1990.

ASTM Method D3559-78A or B, "Standard Test Methods for Lead in Water", approved July 28, 1978.

ASTM Method D3859-~~79~~88A or B, "Standard Test Methods for Selenium in Water", approved ~~November 30, 1979~~June 24, 1988.

ASTM Method D3867-~~79~~90A or B, "Standard Test Methods for Nitrite-Nitrate in Water", approved ~~November 30, 1979~~January 10, 1990.

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 301A II, Determination of Cadmium, etc. by Direct Aspiration into an Air-Acetylene Flame.~~

~~Method 301A III, Determination of Low Concentrations of Cadmium, etc. by Chelation with Ammonium Pyrrolidine Dithiocarbamate, and Extraction into Methyl Isobutyl Ketone.~~

~~Method 301A IV, Determination of Aluminum, etc. by Direct Aspiration into a Nitrous Oxide Acetylene Flame.~~

~~Method 301A VI, Determination of Mercury by Cold Vapor (Flameless) Atomic Absorption.~~

Method 301A VII, Determination of Arsenic and Selenium by Conversion to their Hydrides and Aspiration of the Gas into the Argon-Hydrogen Flame.

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

Method 404A, Arsenic/ Silver Diethyldithiocarbamate Method.

Method 404B(4) Arsenic/ Mercuric Bromide Stain Method

Method 413D, Cyanide, Colorimetric Method.

~~Method 419C, Nitrogen (Nitrate), Cadmium Reduction Method (Tentative).~~

~~Method 419D, Nitrogen (Nitrate), Brucine Method (Tentative).~~

Method 509A, Organochlorine Pesticides (Tentative).

Method 509B, Chlorinated Phenoxy Acid Herbicides (Tentative).

~~Method 605, Nitrogen (Nitrate), Cadmium Reduction Method (Tentative).~~

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

Method 212, Temperature.

Method 214A, Turbidity, Nephelometric Method -- Nephelometric Turbidity Units.

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

Method 303B, Determination of Low Concentrations of Cadmium, etc. by Chelation with Ammonium Pyrrolidine Dithiocarbamate (APDC) and Extraction into Methyl Isobutyl Ketone (MIBK).

Method 303C, Determination of Aluminum, etc., by Direct Aspiration into a Nitrous Oxide-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 303F, Determination of Mercury by the Cold Vapor Technique.

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

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 412D, Cyanide, Colorimetric Method.

Method 413A, Fluoride, Preliminary Distillation Step.

Method 413B, Fluoride, Electrode Method.

Method 413C, Fluoride, SPADNS Method.

Method 413E, Fluoride, Complexone Method.

Method 418C, Nitrogen (Nitrate), Cadmium Reduction Method.

Method 418F, Nitrogen (Nitrate), Automated Cadmium Reduction 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.

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).

J.T. Baker Chemical Company, 22 Red School Lane,
Phillipsburg, NJ 08865:

Solid Phase Extract (SPE) Test Method Number SPE-550. See 40 CFR 141.24(e), footnote 6.

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.

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

"Methods of for Chemical Analysis of Water and Wastes", J. Kopp and D. McGee, Third Edition, March, 1979. EPA-600/4-79-020, Doc. No. PB84-~~128677~~297686

"Methods for Chemical Analysis of Water and Wastes", March, 1983, Doc. No. PB84-128677.

"Methods for the Determination of Organic Compounds in Drinking Water", EPA/600/4-88/039, December, 1988, Doc. No. PB 89-220461.

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

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

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, (202) 382-4359

"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", March 1987. 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 Drinking Water"~~, EPA/600/4-88/039, December, 1988~~. See NTIS.

"Methods for Organochlorine Pesticides and Chloro-phenoxy Acid Herbicides in Drinking Water and Raw Source Water"

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

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

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

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", 1979

Book 5, Chapter A-3, "Methods for Analysis of Organic Substances in Water," 1971

Techniques of Water-Resources Investigations of the U. S. Geological Survey Books:

Book 5, Chapter A-1, "Methods for Determination of Inorganic substances in Water and Fluvial Sediments", 1989

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

40 CFR 136, Appendix B and C (19~~89~~90)

40 CFR 141.22(a) (19~~89~~90)@@

40 CFR 141.23(f)(10), footnotes 6 and 7 (19~~89~~90)@@

40 CFR 141.24(e), footnote 6 (19~~89~~90)@@

40 CFR 141.25(b)(2) (19~~89~~90)@@

40 CFR 141, Subpart C, Appendix C (19~~89~~90).

d) This Part incorporates no future amendments or editions.

(Source: Amended at 16 Ill. Reg. , effective
)

Section 611.110 Special Exception Permits

a) Unless otherwise specified, each Agency determination in this Part is to be made by way of a written permit pursuant to Section 39(a) of the Act. Such permit is titled a "special exception" permit ("SEP").

b) No person shall cause or allow the violation of any condition of a ~~special exception permit~~ SEP.

c) The supplier may appeal the denial of or the conditions of a ~~special exception permit~~ SEP to the Board pursuant to Section 40 of the Act.

d) A SEP may be initiated either:

  1) By an application filed by the supplier; or

  2) By the Agency, when authorized by Board regulations.

(Source: Amended at 16 Ill. Reg. , effective
)

Section 611.111 Section 1415 Variances

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

a) The Board may grant a supplier a variance from a NPDWR in this Part.

  1) The supplier shall file a variance petition pursuant to 35 Ill. Adm. Code 104, except as modified or supplemented by this Section.

  2) The Board may grant a variance from the additional State requirements in this Part without following this Section.

b) As part of the showing of arbitrary or unreasonable hardship, the supplier shall demonstrate that:

  1) Because of characteristics of the raw water sources which are reasonably available to the system, the supplier cannot meet the MCL or other requirement; and

  2) The system has applied BAT as identified in Subpart G. BAT may vary depending on:

    A) The number of persons served by the system;

    B) Physical conditions related to engineering feasibility; and

C) Costs of compliance; and

3) The variance will not result in an unreasonable risk to health, as defined in subsection (g).

c) The Board will prescribe a schedule for:

1) Compliance, including increments of progress, by the supplier, with each MCL or other requirement with respect to which the variance was granted, and

2) Implementation by the supplier of each additional control measure for each MCL or other requirement, during the period ending on the date compliance with such requirement is required.

d) A schedule of compliance will require compliance with each MCL or other requirement with respect to which the variance was granted as expeditiously as practicable.

e) The Board will provide notice and opportunity for a public hearing as provided in 35 Ill. Adm. Code 104.

f) The Board will not grant a variance:

1) F~~f~~rom the MCL for total coliforms; provided, however, that the Board may grant a variance from the total coliform MCL of Section 611.325 for PWSs that demonstrate that the violation of the total coliform MCL is due to persistent growth of total coliforms in the distribution system, rather than fecal or pathogenic contamination, a treatment lapse or deficiency, or a problem in the operation or maintenance of the distribution system.

2) Or, ~~or~~ from any of the treatment technique requirements of Subpart B.

g) As used in this Section and Section 611.112, "unreasonable risk to health level" ("URTH level") means the concentration of a contaminant which will cause a serious health effect within the period of time specified in the variance or exemption requested by a supplier seeking to come into compliance by installing the treatment required to reduce the contaminant to the MCL. URTH determinations are made on the basis of the individual contaminant, taking into account: the degree by which the level exceeds the MCL; duration of exposure; historical data; and, population exposed. A risk to health is assumed to be unreasonable unless the supplier demonstrates that there are costs involved which clearly exceed the health benefits to be derived.

BOARD NOTE: Derived from 40 CFR 141.4 (19~~89~~90), as amended at ~~54 Fed. Reg. 27562, June 29, 1989~~ 56 Fed. Reg. 1557, January 15, 1991, from Section 1415(a)(1)(A) of the SDWA and from the "Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems using Surface Water Sources", incorporated by reference in Section 611.102.

(Source: Amended at 16 Ill. Reg. , effective)

Section 611.112 Section 1416 Variances

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

a) The Board may grant a supplier a variance from any requirement respecting an MCL or treatment technique requirement of an NPDWR in this Part.

  1) The supplier shall file a variance petition pursuant to 35 Ill. Adm. Code 104, except as modified or supplemented by this Section.

  2) The Board may grant a variance from the additional State requirements in this Part without following this Section.

b) As part of the showing of arbitrary or unreasonable hardship, the supplier shall demonstrate that:

  1) Due to compelling factors (which may include economic factors), the supplier is unable to comply with the MCL or treatment technique requirement;

  2) The supplier was:

    A) In operation on the effective date of the MCL or treatment technique requirement; or

    B) Not in operation on the effective date of the MCL or treatment technique requirement and no reasonable alternative source of drinking water is available to the supplier; and

  3) The variance will not result in an unreasonable risk to health.

c) The Board will prescribe a schedule for:

 1) Compliance, including increments of progress, by the supplier, with each MCL and treatment technique requirement with respect to which the variance was granted; and

 2) Implementation by the supplier of each additional control measure for each contaminant, subject to the MCL or treatment technique requirement, during the period ending on the date compliance with such requirement is required.

d) A schedule of compliance will require compliance with each MCL or other requirement with respect to which the variance was granted as expeditiously as practicable; but no schedule shall extend more than 12 months after the date of the variance, except as follows:

 1) The Board may extend the date for a period not to exceed three years beyond the date of the variance if the supplier establishes: that it is taking all practicable steps to meet the standard; and:

  A) The supplier cannot meet the standard without capital improvements which cannot be completed within 12 months;

  B) In the case of a supplier which needs financial assistance for the necessary improvements, the supplier has entered into an agreement to obtain such financial assistance; or

  C) The supplier has entered into an enforceable agreement to become a part of a regional PWS; and

 2) In the case of a PWS with 500 or fewer service connections, and which needs financial assistance for the necessary improvements, a variance under subsections (d)(1)(A) or (B) may be renewed for one or more additional two year periods if the supplier establishes that it is taking all practicable steps to meet the final date for compliance.

e) The Board will provide notice and opportunity for a public hearing as provided in 35 Ill. Adm. Code 104.

f) The Agency shall promptly send USEPA the Opinion and Order of the Board granting a variance pursuant to this

Section. The Board may reconsider and modify a grant of variance, or variance conditions, if USEPA notifies the Board of a finding pursuant to Section 1416 of the SDWA.

BOARD NOTE: Derived from Section 1416 of the SDWA.

g) The Board will not grant a variance:

1) F~~f~~rom the MCL for total coliforms; provided, however, that the Board may grant a variance from the total coliform MCL of Section 611.325 for PWSs that demonstrate that the violation of the total coliform MCL is due to persistent growth of total coliforms in the distribution system, rather than fecal or pathogenic contamination, a treatment lapse or deficiency, or a problem in the operation or maintenance of the distribution system.

2) Or, ~~or~~ from any of the treatment technique requirements of Subpart B.

BOARD NOTE: Derived from 40 CFR 141.4 (19~~89~~90), as amended at ~~54 Fed. Reg. 27562, June 29, 1989~~ 56 Fed. Reg. 1557, January 15, 1991.

(Source: Amended at 16 Ill. Reg. , effective)

SUBPART D: TREATMENT TECHNIQUES

Section 611.295 General Requirements

The requirements of this Subpart constitute NPDWRs. This Subpart establishes treatment techniques in lieu of MCLs for specified contaminants.

BOARD NOTE: Derived from 40 CFR 141.110, as amended at 56 Fed. Reg. 3578, January 30, 1991.

(Source: Added at 16 Ill. Reg. , effective)

Section 611.296 Acrylamide and Epichlorohydrin

a) Each supplier shall certify annually in writing to the Agency that, when products containing acrylamide or epichlorohydrin are used in the PWS, the product of monomer level and dose does not exceed the levels specified as follows:

$P = A * B$

Where:

A = Percent by weight of unreacted monomer in the product used.

B = Parts per million by weight of finished water at which the product is dosed.

P = Product of monomer level and dose:

1) For acrylamide, P = 0.05; and

2) For epichlorohydrin, P = 0.20.

b) Certifications can rely on manufacturers or third parties, as approved by the Agency.

BOARD NOTE: Derived from 40 CFR 141.111, as amended at 56 Fed. Reg. 3578, January 30, 1991.

(Source: Added at 16 Ill. Reg. , effective)

SUBPART F: MAXIMUM CONTAMINANT LEVELS (MCL'S)

Section 611.300 Inorganic Chemicals

a) The MCL for nitrate is applicable to both CWS suppliers and non-CWS suppliers except as provided by in subsection (d). The levels for the other inorganic chemicals apply only to CWS suppliers. The levels for additional State requirements apply only to CWSs. Compliance with MCLs for inorganic chemicals is calculated pursuant to Subpart N. Compliance with the following MCLs for cadmium, chromium, fluoride, mercury, nitrate and selenium (marked with a "T") is required until July 30, 1992.

BOARD NOTE: Derived from 40 CFR 141.11(a) ~~(1989)~~ (1990), as amended at 56 Fed. Reg. 3578, January 30, 1991. See Section 611.100(c) for applicability to non-CWSs.

The following are the MCL's for inorganic chemicals:

Contaminant	Level, mg/L	Additional State Requirement *
Arsenic	0.05	
Barium	1.	

Cadmium	0.010	T
Chromium	0.05	T
Copper	5.	*
Cyanide	0.2	*
Fluoride	4.0	T
Iron	1.0	*
Lead	0.05	
Manganese	0.15	
Mercury	0.002	T
Nitrate (as N)	10.	T
Selenium	0.01	T
Silver	0.05	
Zinc	5.	*

BOARD NOTE: Derived from 40 CFR 141.11(b) and 141.62 ~~(1989)~~(1990), as amended at 56 Fed. Reg. 3578, January 30, 1991.

c) The secondary MCL for fluoride is 2.0 mg/L.

BOARD NOTE: Derived from 40 CFR 141.11(c) (19~~89~~90).

d) Nitrate.

1) The Board incorporates by reference 40 CFR 141.11(d) (19~~89~~90). This incorporation includes no later editions or amendments.

2) If allowed by Public Health, non-CWSs may exceed the MCL for nitrate to the extent authorized by 40 CFR 141.11(d).

BOARD NOTE: Derived from 40 CFR 141.11(d) (19~~89~~90). Public Health regulations are at 77 Ill. Adm. Code 900.50.

e) The following supplementary condition applies to the concentrations listed in subsection (b): Iron and manganese:

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

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

permit.

BOARD NOTE: This is an additional State requirement.

(Source: Amended at 16 Ill. Reg. , effective)

Section 611.301 Revised MCLs for Inorganic Chemicals

a) See Section 611.100(e).

b) The MCLs in the following table apply to CWSs. Except for fluoride and selenium, the MCLs also apply to NTNCWSs. The MCLs for nitrate, nitrite and total nitrate and nitrite also apply to transient non-CWSs. Compliance is required by July 30, 1992.

Contaminant	MCL	Units
Fluoride	4.	mg/L
Asbestos	7.	Million fibers/L (longer than 10 micrometers)
Cadmium	0.005	mg/L
Chromium	0.1	mg/L
Mercury	0.002	mg/L
Nitrate (as N)	10.	mg/L
Nitrite (as N)	1.	mg/L
Total Nitrate and Nitrite (as N)	10.	mg/L
Selenium	0.05	mg/L

BOARD NOTE: See Section 611.100(c) for applicability to non-CWSs.

c) USEPA has identified the following as BAT for achieving compliance with the MCL for the inorganic contaminants identified in subsection (b), except for fluoride:

Contaminant	BAT(s)
Asbestos	C/F or DDF (if contamination is from raw water source)

	CC (if contamination is from corrosion in the distribution system)
Barium	IX LIME RO CC
Cadmium	C/F IX LIME RO
Chromium	C/F IX LIME, BAT for Cr(III) only RO
Mercury	C/F, BAT only if influent Hg concentrations less than 10 micrograms/L GAC LIME, BAT only if influent Hg concentrations less than 10 micrograms/L RO, BAT only if influent Hg concentrations less than 10 micrograms/L
Nitrate	IX RO ED
Nitrite	IX RO
Selenium	AAL C/F, BAT for Se(IV) only LIME RO ED

Abbreviations

AAL	Activated alumina
C/F	Coagulation/filtration
DDF	Direct and diatomite filtration
GAC	Granular activated carbon

IX	Ion exchange
LIME	Lime softening
RO	Reverse osmosis
CC	Corrosion control
ED	Electrodialysis

BOARD NOTE: Derived from 40 CFR 141.62, as amended at 56 Fed. Reg. 3578, January 30, 1991.

(Source: Added at 16 Ill. Reg. , effective)

Section 611.310 Organic Chemicals

The following are the MCLs for organic chemicals. The MCLs for organic chemicals in subsections (a) and (b) apply to all CWSs. ~~The levels for additional State requirements apply only to CWSs.~~ Compliance with the MCLs in subsections (a) and (b) is calculated pursuant to Section 611.641 et seq. Compliance with the MCL for TTHM is calculated pursuant to Subpart P. Compliance is required with the following MCLs for chlordane, lindane, methoxychlor, toxaphene and 2,4,5-TP (marked with a "T") until July 30, 1992.

	Contaminant	Level (mg/L)	Additional State Requirement *
a)	Chlorinated hydrocarbons:		
	Aldrin	0.001	*
	Chlordane	0.003	*T
	DDT	0.05	*
	Dieldrin	0.001	*
	Endrin	0.0002	
	Heptachlor	0.0001	*
	Heptachlor epoxide . .	0.0001	*
	Lindane	0.004	T
	Methoxychlor	0.1	T
	Toxaphene	0.005	T

BOARD NOTE: Derived from 40 CFR 141.12(a), as amended at 56 Fed. Reg. 3578, January 30, 1991.

	Contaminant	Level (mg/L)	Additional State Requirement *
b)	Chlorophenoxys:		
	2,4-D	0.01	*
	2,4,5-TP (Silvex) . . .	0.01	T

BOARD NOTE: Derived from 40 CFR 141.12 ~~(1989)~~ (1990), as amended at 56 Fed. Reg. 3578, January 30, 1991.

	Contaminant	Level (mg/L)	Additional State Requirement *
c)	TTHM	0.10	*

BOARD NOTE: This is an additional State requirement.

d) TTHM. CWS suppliers serving fewer than 10,000 individuals shall comply with the TTHM standard by January 1, 1992.

BOARD NOTE: This is an additional State requirement.

(Source: Amended at 16 Ill. Reg. , effective)

Section 611.311 ~~VOCs~~Revised MCLs for Organic Contaminants

a) The following MCLs ~~levels for VOCs~~for organic contaminants apply to CWS suppliers and NTNCWS suppliers. Compliance is required for the MCLs marked with a "D" by July 30, 1992.

CAS No.	Contaminant	MCL (mg/L)	Note
~~71-43-2~~	~~Benzene~~	~~0.005~~	
~~75-01-4~~	~~Vinyl chloride~~	~~0.002~~	
~~56-23-5~~	~~Carbon tetrachloride~~	~~0.005~~	
~~107-06-2~~	~~1,2-Dichloroethane~~	~~0.005~~	
~~79-01-6~~	~~Trichloroethylene~~	~~0.005~~	
~~75-35-4~~	~~1,1-Dichloroethylene~~	~~0.007~~	
~~71-55-6~~	~~1,1,1-Trichloroethane~~	~~0.20~~	
~~106-46-7~~	~~para-Dichlorobenzene~~	~~0.075~~	
71-43-2	Benzene	0.005	
56-23-5	Carbon tetrachloride	0.005	
95-50-1	o-Dichlorobenzene	0.6	D
106-46-7	p-Dichlorobenzene	0.075	
107-06-2	1,2-Dichloroethane	0.005	
75-35-4	1,1-Dichloroethylene	0.007	
156-59-2	cis-1,2-Dichloroethylene	0.07	D
156-60-5	trans-1,2-Dichloroethylene	0.1	D
78-87-5	1,2-Dichloropropane	0.005	D
100-41-4	Ethylbenzene	0.7	D
108-90-7	Monochlorobenzene	0.1	D
100-42-5	Styrene	0.1	D
127-18-4	Tetrachloroethylene	0.005	D
108-88-3	Toluene	1.	D
71-55-6	1,1,1-Trichloroethane	0.2	
79-01-6	Trichloroethylene	0.005	
75-01-4	Vinyl chloride	0.002	
1330-20-7	Xylenes (total)	10.	D

BOARD NOTE: See Section 611.100(c) for applicability to non-CWSs.

b) ~~BATs for achieving compliance with the MCLs for VOCs are: central treatment using packed tower aeration; central treatment using granular activated carbon for all these chemicals except vinyl chloride.~~USEPA has identified, as indicated below granular activated carbon (GAC) or packed tower aeration (PTA) as BAT for achieving compliance with the MCLs for organic contaminants in subsections (a) and (c).

15972-60-8	Alachlor	GAC
1912-24-9	Atrazine	GAC
71-43-2	Benzene	GAC, PTA
1563-66-2	Carbofuran	GAC
56-23-5	Carbon tetrachloride	GAC, PTA
57-74-9	Chlordane	GAC
96-12-8	Dibromochloropropane	GAC, PTA
95-50-1	o-Dichlorobenzene	GAC, PTA
106-46-7	p-Dichlorobenzene	GAC, PTA
107-06-2	1,2-Dichloroethane	GAC, PTA
156-59-2	cis-1,2-Dichloroethylene	GAC, PTA
156-60-5	trans-1,2-Dichoroethylene	GAC, PTA
75-35-4	1,1-Dichloroethylene	GAC, PTA
78-87-5	1,2-Dichloropropane	GAC, PTA
106-93-4	Ethylene dibromide (EDB)	GAC, PTA
100-41-4	Ethylbenzene	GAC, PTA
58-89-9	Lindane	GAC
72-43-5	Methoxychlor	GAC
108-90-7	Monochlorobenzene	GAC, PTA
1336-36-3	Polychlorinated biphenyls (PCB)	GAC
100-42-5	Styrene	GAC, PTA
127-18-4	Tetrachloroethylene	GAC, PTA

71-55-6	1,1,1-Trichloroethane	GAC, PTA
79-01-6	Trichloroethylene	GAC, PTA
108-88-3	Toluene	GAC, PTA
8001-35-2	Toxaphene	GAC, PTA
93-72-1	2,4,5-TP	GAC
75-01-4	Vinyl chloride	PTA
1330-20-7	Xylene	GAC, PTA

c) Pesticides and PCBs. The following MCLs for organic contaminants apply to CWS and NTNCWS suppliers. Compliance is required by July 30, 1992.

CAS Number	Contaminant	MCL (mg/L)
15972-60-8	Alachlor	0.002
1912-24-9	Atrazine	0.003
1563-66-2	Carbofuran	0.04
57-74-9	Chlordane	0.002
96-12-8	Dibromochloropropane	0.0002
106-93-4	Ethylene dibromide	0.00005
58-89-9	Lindane	0.0002
72-43-5	Methoxychlor	0.04
1336-36-3	Polychlorinatedbiphenyls (PCBs)	0.0005
8001-35-2	Toxaphene	0.003
93-72-1	2,4,5-TP	0.05

BOARD NOTE: Derived from 40 CFR 141.61 ~~(1989)~~ (1990), as amended at 56 Fed. Reg. 3578, January 30, 1991. See Section 611.100(c) for applicability to non-CWSs.

(Source: Amended at 16 Ill. Reg. , effective
)

SUBPART L: MICROBIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.526 Analytical Methodology

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

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

c) Suppliers shall conduct total coliform analyses in accordance with one of the following analytical methods, incorporated by reference in Section 611.102:

1) Multiple-Tube Fermentation (MTF) Technique, as set forth in:

A) Standard Methods, 16th Edition, Method 908, 908A and 908B, except that 10 fermentation tubes must be used; or

B) Microbiological Methods, Part III, Section B 4.1-4.6.4, pp. 114-118, (Most Probable Number Method), except that 10 fermentation tubes must be used; or

2) Membrane Filter (MF) Technique, as set forth in:

A) Standard Methods, 16th Edition, Method 909, 909A and 909B; or

B) Microbiological Methods, Part III, Section B.2.1-2.6, pp. 108-112; or

3) P-A Coliform Test, as set forth in: Standard Methods, 16th Edition, Method 908E; or

4) MMO-MUG test.

d) In lieu of the 10-tube MTF Technique specified in subsection (c)(1), a supplier may use the MTF Technique using either five tubes (20-ml sample portions or a single culture bottle containing the culture medium for the MTF Technique, i.e., lauryl tryptose broth (formulated as described in Standard Methods, 16th Edition, Method 908A, incorporated by reference in Section 611.102) as long as a 100-ml water sample is used in the analysis.

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

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

2) For Microbiological Methods, referenced above, which use a membrane~~e~~ filter, transfer the total coliform-positive culture by one of the following methods: remove the membrane containing the total coliform colonies from the substrate with a sterile forceps and carefully curl and insert the membrane into a tube of EC medium. (The laboratory may first remove a small portion of selected colonies for verification); swab the entire membrane filter surface with a sterile cotton swab and transfer the inoculum to EC medium (do not leave the cotton swab in the EC medium); or inoculate individual total coliform-positive colonies into EC medium. Gently shake the inoculated ~~EC~~ tubes of EC medium to insure adequate mixing and incubate in a waterbath at 44.5 +/- 0.2 degrees C for 24 +/- 2 hours. Gas production of any amount in the inner fermentation tube of the EC medium indicates a positive fecal coliform test.

3) The preparation of EC medium is described in Standard Methods, 16th Edition, Method 908C.

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

f) If a supplier uses the MMO-MUG test for total coliform detection, the supplier shall test all total coliform-positive cultures for fluorescence.

1) To test for fluorescence, use an ultraviolet light (366 nm) in the dark after incubating the tube or container at 35 +/- 0.5 degrees Celsius for 24 to 28 hours. If fluorescence is observed, the sample is E. coli-positive.

2) If fluorescence is not observed, transfer, with a pipette, a 0.1 mL, 28-hour culture to EC Medium supplemented with MUG. The formulation and incubation conditions of EC Medium supplemented with MUG, and observation of the results, are

described in subsection (g)(1), below.

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

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

2) Nutrient agar supplemented with 100 ug/L MUG (final concentration). Nutrient Agar is described in Standard Methods, 16th Edition, Method 908C. This test is used to determine if a total coliform-positive sample, as determined by the MF technique or any other method in which a membrane filter is used, contains E. coli. Transfer the membrane filter containing a total coliform colony or colonies to nutrient agar supplemented with 100 ug/L MUG (final concentration). After incubating the agar plate at 35 degrees Celsius for 4 hours, observe the colony or colonies under ultraviolet light (366 nm) in the dark for fluorescence. If fluorescence is visible, E. coli are present.

BOARD NOTE: Derived from 40 CFR 141.21(f) ~~(1989), as amended at 54 Fed. Reg. 27562, June 29, 1989~~(1990), as amended at 56 Fed. Reg. 636, January 8, 1991, and at 57 Fed. Reg. 1850, January 15, 1992.

(Source: Amended at 16 Ill. Reg. , effective
)

SUBPART N: INORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.591 Violation of State MCL

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

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

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

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

BOARD NOTE: This is an additional State requirement.

(Source: Renumbered from Section 611.602 at 16 Ill. Reg.
effective)

Section 611.592 Frequency of State Monitoring

This Section applies to MCLs which are marked as "additional State requirements", and for which no specific monitoring, reporting or public notice requirements are specified below.

a) Analyses for all CWS suppliers utilizing surface water sources must be repeated at yearly intervals.

b) Analyses for all CWS suppliers utilizing only groundwater sources must be repeated at three-year intervals.

BOARD NOTE: This is an additional State requirement.

(Source: Renumbered from Section 611.603 at 16 Ill. Reg.
effective)

Section 611.600 Applicability

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

a) CWS suppliers.

BOARD NOTE: Derived from 40 CFR 141.23, preamble, amended at 56 Fed. Reg. 3578, January 30, 1991. See Section 611.100(c) for applicability to non-CWSs.

b) NTNCWS suppliers.

BOARD NOTE: Derived from 40 CFR 141.23, preamble, amended at 56 Fed. Reg. 3578, January 30, 1991. See Section 611.100(c) for applicability to non-CWSs.

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

BOARD NOTE: Derived from 40 CFR 141.23, preamble, amended at 56 Fed. Reg. 3578, January 30, 1991. See Section 611.100(c) for applicability to non-CWSs.

d) Definitions for this Subpart only:

"GWS" means "groundwater system", a PWS which uses only groundwater sources.

BOARD NOTE: Drawn from 40 CFR 141.23(b)(2), Note, amended at 56 Fed. Reg. 3578, January 30, 1991.

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

BOARD NOTE: Derived from 40 CFR 141.23(a)(4)(i), as amended at 56 Fed. Reg. 3578, January 30, 1991.

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

BOARD NOTE: Drawn from 40 CFR 141.23(b)(2), Note, amended at 56 Fed. Reg. 3578, January 30, 1991.

"Reliably and consistently" below a specified level for a contaminant means that:

Levels are below the specified level;

The distribution of data is such that it is unlikely that future individual measurements will exceed the specified level unless the long term average increases;

The data does not show an upward trend toward the specified level; and

There are no factors which show that the source is vulnerable to the contaminant.

BOARD NOTE: Derived from 40 CFR 141.23(b)(9), as amended at 56 Fed. Reg. 3578, January 30, 1991.

"SWS" means "surface water system", a PWS which uses only surface water sources, including "groundwater under the direct influence of surface water", as defined in Section 611.102.

BOARD NOTE: Drawn from 40 CFR 141.23(b)(2), Note, amended at 56 Fed. Reg. 3578, January 30, 1991.

e) Detection limits. The following are detection limits for purposes of this Subpart:

Contaminant	MCL (mg/L, except asbestos)	Method	Detection Limit (mg/L)
Asbestos	7 MFL	Transmission Electron Microscopy	0.01 MFL
Barium	2	Atomic Absorption; furnace technique	0.002
		Atomic Absorption; direct aspiration	0.1
		Inductively Coupled Plasma	0.002
		Inductively Coupled Plasma; Using concentration technique in Appendix A to Inorganic Method 200.7.	0.001
Cadmium	0.005	Atomic Absorption; furnace technique	0.0001
		Inductively Coupled Plasma; Using concentration technique in Appendix A to Inorganic Method 200.7.	0.001
Chromium	0.1	Atomic Absorption; furnace technique	0.001
		Inductively Coupled Plasma	0.007
		Inductively Coupled Plasma;	0.001

		Using concentration technique in Appendix A to Inorganic Method 200.7.	
Mercury	0.002	Manual Cold Vapor Technique	0.0002
		Automated Cold Vapor Technique	0.0002
Nitrate (as N)	10	Manual Cadmium Reduction	0.01
		Automated Hydrazine Reduction	0.01
		Automated Cadmium Reduction	0.05
		Ion Selective Electrode	1
		Ion Chromatography	0.01
Nitrite (as N)	1	Spectrophotometric	0.01
		Automated Cadmium Reduction	0.05
		Manual Cadmium Reduction	0.01
		Ion Chromatography	0.004
Selenium	0.05	Atomic Absorption; furnace	0.002
		Atomic Absorption; gaseous hydride	0.002

BOARD NOTE: Derived from 40 CFR 141.23(a)(4)(i), as amended at 56 Fed. Reg. 3578, January 30, 1991.

(Source: Added at 16 Ill. Reg. , effective)

Section 611.601 ~~Requirements~~Monitoring Frequency

~~a) Analyses for the purpose of determining compliance with Section 611.300 are required as follows:~~

~~1) Analyses for all CWSs utilizing surface water sources must be repeated at yearly intervals.~~

~~BOARD NOTE: This applies also to additional State requirements.~~

~~2) Analyses for all CWSs utilizing only groundwater sources must be repeated at three-year intervals.~~

~~BOARD NOTE: This applies also to additional State requirements.~~

~~3) For non-CWSs, whether supplied by surface or groundwater sources, analyses for nitrate must be repeated at intervals specified by Public Health.~~

~~b) If the result of an analysis made under subsection (a) or Section 611.607 indicates that the level of any contaminant listed in Section 611.300 exceeds the MCL, the supplier shall report to the Agency within 7 days and initiate three additional analyses at the same sampling point within one month.~~

~~BOARD NOTE: This applies also to additional State requirements.~~

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

~~BOARD NOTE: This applies also to additional State requirements.~~

~~d) The provisions of subsections (b) and (c) notwithstanding, compliance with the MCL of nitrate must be determined on the basis of the mean of two analyses. When a level exceeding the MCL for nitrate is found, a second analysis must be initiated within 24 hours, and if the mean of the two analyses exceeds the MCL, the supplier of water shall report his findings to the Agency and shall notify the public pursuant to Subpart T.~~

~~BOARD NOTE: Derived from 40 CFR 141.23(a) through (d) (1989).~~

Monitoring must be conducted as follows:

a) Definitions. As used in this Section:

"Distribution system" includes all points downstream of an "entry point".

"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 PWS, and upstream of any mixing with other water.

"GWS" is as defined in Section 611.600.

"Mixed system" is as defined in Section 611.600.

"Representative" means that a sample is expected to reflect the properties of water averaged over the period of time and portion of the PWS to be sampled. To be representative, a sample must be taken under normal seasonal operating conditions.

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

"SWS" is as defined in Section 611.600.

"Treatment" means any process: which changes the physical or chemical properties of water; which is under the control of the supplier; and, which is not a "point of use" or "point of entry treatment device" as defined in Section 611.101. "Treatment" includes, but is not limited to: aeration, coagulation, sedimentation, filtration, activated carbon, chlorination and fluoridation.

b) Required sampling. Each supplier shall take a minimum of one sample at each sampling point at the times required in Section 611.610. Each sampling point must be "representative." The total number of sampling points must be representative of the water delivered to users throughout the PWS.

c) Sampling points.

1) Sampling points for GWSs. Unless otherwise provided by SEP, the following are the sampling points for GWSs: Each entry point.

2) Sampling points for SWSs and mixed systems. Unless otherwise provided by SEP, the following

are sampling points for SWSs and mixed systems:

A) Each entry point; or

B) Points in the distribution system.

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

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

d) See Section 611.100(e).

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

1) Asbestos, Section 611.602;

2) Barium, cadmium, chromium, fluoride, mercury and selenium, Section 611.603;

3) Nitrate, Section 611.604; and

4) Nitrite, Section 611.605.

BOARD NOTE: Derived from 40 CFR 141.23(a), as amended at 56 Fed. Reg. 3578, January 30, 1991.

(Source: Added at 16 Ill. Reg. , effective
)

Section 611.602 ~~Violation of State MCL~~Asbestos Monitoring Frequency

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

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

~~b) Notify the Agency and give public notice as specified~~

~~in Subpart T, when the average of four analyses, rounded to the same number of significant figures as the MCL for the contaminant in question, exceeds the MCL; and,~~

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

~~BOARD NOTE: This is an additional State requirement.~~

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.

BOARD NOTE: See Section 611.100(c) for applicability to non-CWSs.

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.

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 or from corrosion of asbestos-cement pipe, based on a consideration of the following factors:

1) Potential asbestos contamination of the water source; and

2) If the water is corrosive, the use of asbestos-cement pipe for finished water distribution.

d) A determination that a CWS is not vulnerable 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 which 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) A supplier may request that the Agency reduce the monitoring frequency to annual. The request must be by way of a SEP application pursuant to Section 611.110.

   2) The request must include the following minimal information:

      A) For a GWS, two quarterly samples.

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

   3) The Agency shall, by SEP, allow annual monitoring at a sampling point, if it determines that the sampling point is reliably and consistently below the MCL.

   4) In issuing the SEP, the Agency shall specify:

      A) The level of the contaminant upon which the "reliably and consistently" determination was based; and

      B) The level of the contaminant which, if exceeded in any one sample, would cause the supplier to reinitiate quarterly monitoring.

      BOARD NOTE: Derived from 40 CFR 141.23(b), as amended at 56 Fed. Reg. 3578, January 30, 1991.

(Source: Amended at 16 Ill. Reg. , effective
)

Section 611.603 ~~Frequency of State Monitoring~~Inorganic Monitoring Frequency

~~This Section applies to MCLs which are marked as "additional State requirements", and for which no specific monitoring, reporting or public notice requirements are specified below.~~

~~a) Analyses for all CWS suppliers utilizing surface water sources must be repeated at yearly intervals.~~

~~b) Analyses for all CWS suppliers utilizing only groundwater sources must be repeated at three-year intervals.~~

~~BOARD NOTE: This is an additional State requirement.~~

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

a) CWS suppliers shall take, at each sampling point beginning January 1, 1993, as follows:

1) For GWSs, one sample during each compliance period;

2) For SWSs and mixed systems, one sample each year.

BOARD NOTE: Derived from 40 CFR 141.23(c)(1), as amended at 56 Fed. Reg. 3578, January 30, 1991.

b) Application. The supplier may apply to the Agency for a reduction from the monitoring frequencies specified in subsection (a) by way of an application for a SEP under Section 611.110.

BOARD NOTE: Drawn from 40 CFR 141.23(c)(2) and (6), as amended at 56 Fed. Reg. 3578, January 30, 1991.

c) Procedures. The Agency shall review the request pursuant to the SEP procedures of Section 611.110.

BOARD NOTE: Drawn from 40 CFR 141.23(c)(6), as amended at 56 Fed. Reg. 3578, January 30, 1991.

d) Standard for reduction in monitoring. The Agency shall reduce 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.

BOARD NOTE: Drawn from 40 CFR 141.23(c)(4), as amended at 56 Fed. Reg. 3578, January 30, 1991.

e) Standard for monitoring conditions. As a condition of any SEP, the Agency shall require that the supplier take a minimum of one sample. 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 which may affect contaminant concentrations such as: changes in groundwater pumping rates; changes in the CWSs configuration; the CWS's operating procedures; or, stream flows or characteristics.

BOARD NOTE: Drawn from 40 CFR 141.23(c)(3) and (5), as amended at 56 Fed. Reg. 3578, January 30, 1991.

f) Conditions and Revision.

1) The 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), as amended at 56 Fed. Reg. 3578, January 30, 1991.

2) The 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), as amended at 56 Fed. Reg. 3578, January 30, 1991.

g) A supplier which 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), as amended at 56 Fed. Reg. 3578, January 30, 1991.

h) Reduction of quarterly monitoring.

1) A supplier may request that the Agency reduce the monitoring frequency to annual. The request must be by way of a SEP application pursuant to Section 611.110.

2) The request must include the following minimal information:

A) For a GWS, two quarterly samples.

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

3) The Agency shall, by SEP, allow annual monitoring at a sampling point, if it determines that the sampling point is reliably and consistently below the MCL.

4) In issuing the SEP, the Agency shall specify:

A) The level of the contaminant upon which the "reliably and consistently" determination was based; and

B) The level of the contaminant which, if exceeded in any one sample, would cause the supplier to reinitiate quarterly monitoring.

BOARD NOTE: Derived from 40 CFR 141.23(c)(8), as amended at 56 Fed. Reg. 3578, January 30, 1991.

(Source: Added at 16 Ill. Reg. , effective)

Section 611.604 Nitrate Monitoring

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

a) Suppliers shall monitor at the following frequencies, beginning January 1, 1993:

1) CWSs and NTNCWSs:

    A) GWSs, annually;

    B) SWSs and mixed systems, quarterly.

    BOARD NOTE: Drawn from 40 CFR 141.23(d)(1), adopted at 56 Fed. Reg. 3578, January 30, 1991.

2) Transient non-CWSs, annually.

BOARD NOTE: Drawn from 40 CFR 141.23(d)(4), adopted at 56 Fed. Reg. 3578, January 30, 1991. See Section 611.100(c) for applicability to non-CWSs.

b) Quarterly monitoring for GWSs.

1) A CWS or NTNCWS supplier which has any one sample in which the concentration is equal to or greater than 50 percent of the MCL shall initiate quarterly monitoring during the next quarter.

BOARD NOTE: See Section 611.100(c) for applicability to non-CWSs.

2) The supplier may request that the Agency reduce the monitoring frequency to annual. The request must be by way of a SEP application pursuant to Section 611.110.

    A) The request must include the following minimal information: four quarterly samples.

    B) The Agency shall, by SEP, allow annual monitoring at a sampling point, if it determines that the sampling point is reliably and consistently below the MCL.

    C) In issuing the SEP, the Agency shall specify:

        i) The level of the contaminant upon which the "reliably and consistently" determination was based; and

        ii) The level of the contaminant which, if exceeded in any one sample, would cause the supplier to reinitiate quarterly monitoring.

        BOARD NOTE: Derived from 40 CFR

141.23(d)(2), as amended at 56 Fed. Reg. 3578, January 30, 1991.

c) Reduction of monitoring frequency for SWSs and mixed systems.

1) CWS and NTNCWS suppliers, which are SWSs or mixed systems, may apply to the Agency for a reduction in monitoring frequency by way of a SEP application pursuant to Section 611.110.

BOARD NOTE: See Section 611.100(c) for applicability to non-CWSs.

2) The Agency shall allow the supplier to reduce the sampling frequency to annually if all analytical results from four consecutive quarters are less than 50 percent of the MCL.

3) As a condition of the SEP, the Agency shall require the supplier to initiate quarterly monitoring, beginning the next quarter, if any one sample is greater than or equal to 50 percent of the MCL.

BOARD NOTE: Drawn from 40 CFR 141.23(d)(3), adopted at 56 Fed. Reg. 3578, January 30, 1991.

d) See subsection (a)(2).

e) After it has completed monitoring in four consecutive quarters, each CWS or NTNCWS supplier which is monitoring annually shall take samples during the quarter which resulted in the highest analytical result.

BOARD NOTE: Drawn from 40 CFR 141.23(d)(5), adopted at 56 Fed. Reg. 3578, January 30, 1991. See Section 611.100(c) for applicability to non-CWSs.

(Source: Added at 16 Ill. Reg. , effective)

Section 611.605 Nitrite Monitoring

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

a) Suppliers shall monitor at the following frequencies, beginning January 1, 1993:

1) GWS suppliers, once each compliance period;

2) SWS and mixed system suppliers, once each year.

BOARD NOTE: Drawn from 40 CFR 141.23(e)(1) and (2), adopted at 56 Fed. Reg. 3578, January 30, 1991.

b) See Section 611.100(e).

c) Repeat monitoring frequency.

1) A supplier which has any one sample in which the concentration is equal to or greater than 50 percent of the MCL shall initiate quarterly monitoring during the next quarter.

2) The supplier may request that the Agency reduce the monitoring frequency to annual. The request must be by way of a SEP application pursuant to Section 611.110.

A) The request must include the following minimal information: four quarterly samples.

B) The Agency shall, by SEP, allow annual monitoring at a sampling point, if it determines that the sampling point is reliably and consistently below the MCL.

C) In issuing the SEP, the Agency shall specify:

i) The level of the contaminant upon which the "reliably and consistently" determination was based; and

ii) The level of the contaminant which, if exceeded in any one sample, would cause the supplier to reinitiate quarterly monitoring.

BOARD NOTE: Drawn from 40 CFR 141.23(e)(3), adopted at 56 Fed. Reg. 3578, January 30, 1991.

d) After it has completed monitoring in four consecutive quarters, each supplier which is monitoring annually shall take samples during the quarter which resulted in the highest analytical result.

BOARD NOTE: Drawn from 40 CFR 141.23(e)(4), adopted at 56 Fed. Reg. 3578, January 30, 1991.

(Source: Added at 16 Ill. Reg. , effective)

Section 611.606 ~~Analytical Methods~~Confirmation Samples

~~Analyses conducted to determine compliance with Section 611.300 must be made in accordance with the following methods, incorporated by reference in Section 611.102. For approved analytical procedures for metals, the technique applicable to total metals must be used.~~

~~a) Arsenic:~~

~~1) ASTM Method D2972A or B; or~~

~~2) Standard Methods, 14th Edition:~~

~~A) Method 301A VII; or~~

~~B) Method 404A and 404B(4); or~~

~~3) USGS Methods, Method I-1062-78, pp. 61-63, Atomic Absorption - Gaseous Hydride; or~~

~~4) Inorganic Methods:~~

~~A) Method 206.2, Atomic Absorption Furnace Technique; or~~

~~B) Method 206.3; or~~

~~C) Method 206.4; or~~

~~5) Inductively Coupled Plasma Method 200.7.~~

~~b) Barium:~~

~~1) Standard Methods, 14th Edition, Method 301A IV; or~~

~~2) Inorganic Methods:~~

~~A) Method 208.1; or~~

~~B) Method 208.2, Atomic Absorption Furnace Technique; or~~

~~3) Inductively Coupled Plasma Method 200.7.~~

~~c) Cadmium:~~

~~1) ASTM Method D3557 A or B; or~~

~~2) Standard Methods, 14th Edition, Methods 301A II or III; or~~

~~3) Inorganic Methods:~~

~~A) Method 213.1; or~~

~~B) Method 213.2, Atomic Absorption Furnace Technique; or~~

~~4) Inductively Coupled Plasma Method 200.7.~~

~~d) Chromium:~~

~~1) ASTM Method D 1687; or~~

~~2) Standard Methods, 14th Edition, Methods 301A II or III; or~~

~~3) Inorganic Methods:~~

~~A) Method 218.1; or~~

~~B) Method 218.2, Atomic Absorption Furnace Technique; or~~

~~4) Inductively Coupled Plasma Method 200.7.~~

~~e) Lead:~~

~~1) ASTM Method D 3559 A or B; or~~

~~2) Standard Methods, 14th Edition, Methods 301A II or III; or~~

~~3) Inorganic Methods:~~

~~A) Method 239.1; or~~

~~B) Method 239.2, Atomic Absorption Furnace Technique.~~

~~4) Inductively Coupled Plasma Method 200.7.~~

~~f) Mercury:~~

~~1) ASTM Method D 3223; or~~

~~2) Standard Methods, 14th Edition, Method 301A VI, Cold Vapor Technique; or~~

~~3) Inorganic Methods:~~

~~A) Method 245.1; or~~

~~B) Method 245.2, Automated Cold Vapor Technique.~~

~~g) Nitrate:~~

~~1) ASTM:~~

~~A) Method D 3867 A or B; or~~

~~B) Method D 992; or~~

~~2) Standard Methods, 14th Edition:~~

~~A) Method 419C, Spectrometric, Cadmium Reduction;~~

~~B) Method 419D, Colorimetric Brucine; or~~

~~C) Method 605, Automated Cadmium Reduction.~~

~~3) Inorganic Methods:~~

~~A) Method 352.1; or~~

~~B) Method 353.1, Automated Hydrazine Reduction; or~~

~~C) Method 353.2; or~~

~~D) Method 353.3; or~~

~~h) Selenium:~~

~~1) Inorganic Methods~~

~~A) Method 270.2, Atomic Absorption Furnace Technique; or~~

~~B) Method 270.3; or~~

~~2) USGS Methods, Method I-1667-78, pp. 237-239; or~~

~~3) ASTM Method D 3859; or~~

~~4) Standard methods, 14th Edition, Method 301A VII, Hydride Generation - Atomic Absorption Spectrophotometry.~~

~~i) Silver:~~

~~1) Standard Methods, 14th Edition, Methods 301A II; or~~

~~2) Inorganic Methods:~~

~~A) Method 272.1; or~~

~~B) Method 272.2, Atomic Absorption Furnace Technique; or~~

~~3) Inductively Coupled Plasma Method 200.7.~~

~~j) Fluoride:~~

~~1) ASTM D 1179 A or B; or~~

~~2) Standard Methods, 16th Edition:~~

~~A) Methods 413A and 413C;~~

~~B) 413B; or~~

~~C) 413E; or~~

~~3) Inorganic Methods:~~

~~A) Method 340.1;~~

~~B) Method 340.2;~~

~~C) Method 340.3; or~~

~~4) Technicon Methods, Methods 129-71W or 380-75WE~~

~~BOARD NOTE: Derived from 40 CFR 141.23(f) (1989).~~

~~k) Manganese:~~

~~1) ASTM D 858;~~

~~2) Standard Methods, 16th Edition, Method 303A.~~

~~3) Inorganic Methods: Methods 243.1 or 243.2; or~~

~~4) Inductively Coupled Plasma Method 200.7.~~

~~BOARD NOTE: These methods are used for additional State requirements.~~

~~l) Iron:~~

~~1) Inorganic Methods: 236.1 or 236.2; or~~

~~2) Inductively Coupled Plasma Method 200.7.~~

~~3) Standard Methods, 16th Edition, Method 303A~~

~~BOARD NOTE: These methods are used for additional State requirements.~~

~~m) Copper:~~

~~1) ASTM D 1688 D or E;~~

~~2) Standard Methods, 16th Edition:~~

~~A) Methods 303A or B;~~

~~B) Method 304.~~

~~BOARD NOTE: These methods are used for additional State requirements.~~

~~3) Inorganic Methods: 220.1 or 220.2; or~~

~~4) Inductively Coupled Plasma Method 200.7.~~

~~n) Zinc:~~

~~1) Inorganic Methods 289.1 or 289.2; or~~

~~2) Standard Methods, 16th Edition, Method 303A~~

~~BOARD NOTE: These methods are used for additional State requirements.~~

~~o) Cyanide:~~

~~1) Inorganic Method 335.2; or~~

~~2) Standard Methods, 16th Edition, Method 412D~~

~~BOARD NOTE: These methods are used for additional State requirements.~~

a) Where the results of sampling for asbestos, barium, cadmium, chromium, fluoride, mercury or selenium indicate a level in excess of the MCL, the supplier shall collect one additional sample as soon as possible after the supplier receives notification of the analytical result (but not to exceed two weeks) at the same sampling point.

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

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

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

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

BOARD NOTE: Derived from 40 CFR 141.23(f), as amended at 56 Fed. Reg. 3578, January 30, 1991.

(Source: Amended at 16 Ill. Reg. effective)

Section 611.607 Fluoride Monitoring Renumbered

~~In addition to complying with Section 611.601 through 611.606, suppliers monitoring for fluoride shall comply with the requirements of this Section.~~

~~a) Sampling points.~~

~~1) Where the PWS draws water from one source, the supplier shall take one sample at the entry point to the distribution system.~~

~~2) Where the PWS draws water from more than one source, the supplier shall sample each source at the entry points to the distribution system.~~

~~3) If the PWS draws water from more than one source and sources are combined before distribution, the supplier shall sample at an entry point to the distribution system during periods representative of the maximum fluoride levels occurring under normal operating conditions.~~

~~b) The Agency shall, by special exception permit, alter the frequencies for fluoride monitoring as set out in Section 611.601(a) to increase or decrease such frequency considering the following factors:~~

~~1) Reported concentrations from previously required monitoring,~~

~~2) The degree of variation in reported concentrations and,~~

~~3) Other factors which affect fluoride concentrations such as changes in pumping rates in groundwater supplies or significant changes in the PWS's configuration, operating procedures, source of water and changes in stream flows.~~

~~c) Monitoring shall be decreased from the frequencies specified in Section 611.601(a) upon application by the supplier if the Agency determines that the supplier is unlikely to exceed the MCL, considering the factors listed in subsection (b). Such determination must be by special exception permit. In no case shall monitoring be reduced to less than one sample every 10 years. For suppliers monitoring once every 10 years, the Agency shall review the monitoring results every ten years to determine whether more frequent monitoring is necessary.~~

~~d) Analyses for fluoride under this Section may only be used for determining compliance if conducted by laboratories that have analyzed performance evaluation samples to within +/-10% of the reference value at fluoride concentrations from 1.0 mg/L to 10.0 mg/L, within the last 12 months. See 35 Ill. Adm. Code 183.125(c)(3).~~

~~e) Compliance with the MCL must be determined based on each sampling point. If any sampling point is determined to be out of compliance, the supplier is deemed to be out of compliance.~~

~~BOARD NOTE: Derived from 40 CFR 141.23(g) (1989).~~

(Source: Renumbered to Section 611.603 at 16 Ill. Reg.
effective)

Section 611.608 Additional Optional Monitoring

Suppliers may conduct additional, more frequent monitoring than the minimum frequencies specified in this Subpart, without prior approval from the Agency. The supplier must report the results of all such monitoring to the Agency.

BOARD NOTE: Derived from 40 CFR 141.23(h), as amended at 56 Fed. Reg. 3578, January 30, 1991.

(Source: Added at 16 Ill. Reg. , effective)

Section 611.609 Averaging

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 which are conducting monitoring at a frequency greater than annual, compliance with the MCLs for asbestos, barium, cadmium, chromium, fluoride, mercury and selenium 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 detection limit must be calculated at zero for the purpose of determining the annual average.

b) For suppliers which are monitoring annually, or less frequently, compliance with the MCLs for asbestos, barium, cadmium, chromium, fluoride, mercury and selenium 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, compliance is determined based on the average of the initial and confirmation samples.

d) When a portion of the distribution system which is separable from other parts of the distribution system is out of compliance, the CWS supplier shall, at a minimum, give public notice pursuant to Subpart T to the portion not in compliance.

BOARD NOTE: Derived from 40 CFR 141.23(i), as amended at 56 Fed. Reg. 3578, January 30, 1991.

(Source: Added at 16 Ill. Reg. effective)

Section 611.610 ~~Special Monitoring for Sodium~~Inorganic Monitoring Times

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

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

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

~~d) Analyses for sodium must be performed by the following methods, incorporated by reference in Section 611.102:~~

~~1) Standard Methods, 14th Edition, Method 320 and 320A, flame photometric method;~~

~~2) Inorganic Methods:~~

~~A) Method 273.1, Atomic Absorption - Direct Aspiration; or~~

~~B) Method 273.2, Atomic Absorption - Graphite Furnace; or~~

~~3) ASTM Method D1428.~~

~~BOARD NOTE: Derived from 40 CFR 141.41 (1989).~~

Each supplier shall monitor, within each compliance period, at the time designated by the Agency by SEP.

BOARD NOTE: Derived from 40 CFR 141.23(j), amended at 56 Fed. Reg. 3578, January 30, 1991.

(Source: Amended at 16 Ill. Reg. effective
)

Section 611.611 Inorganic Analysis

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

a) Analysis for asbestos, barium, cadmium, chromium, mercury, nitrate, nitrite and selenium must be conducted using the following methods. For approved analytical techniques for metals and selenium, the technique applicable to total metals must be used.

1) Asbestos: Transmission electron microscopy, Asbestos Methods

2) Barium:

A) Atomic absorption; furnace technique

i) Inorganic Methods, 1983 Edition, Method 208.2

ii) Standard Methods, 16th Edition, Method 304

B) Atomic absorption; direct aspiration

i) Inorganic Methods, 1983 Edition, Method 208.1

ii) Standard Methods, 16th Edition, Method 303C

C) Inductively-coupled plasma arc furnace, Inductively Coupled Plasma Method, Method 200.7A

3) Cadmium

A) Atomic absorption; furnace technique

i) Inorganic Methods, 1983 Edition, Method 213.2

ii) Standard Methods, 16th Edition, Method 304

B) Inductively-coupled plasma arc furnace, Inductively Coupled Plasma Method, Method 200.7A

4) Chromium

A) Atomic absorption; furnace technique

i) Inorganic Methods, 1983 Edition, Method 218.2

ii) Standard Methods, 16th Edition, Method 304. Add 1 mL of 30% hydrogen peroxide to each 100 mL of standards and samples before analysis.

B) Inductively-coupled plasma arc furnace, Inductively Coupled Plasma Method, Method 200.7A

5) Mercury

A) Manual cold vapor technique

i) Inorganic Methods, 1983 Edition, Method 245.1

ii) ASTM D3223-79

iii) Standard Methods, 16th Edition, Method 303F

B) Automated cold vapor technique, Inorganic Methods, 1983 Edition, Method 245.2

6) Nitrate

A) Manual cadmium reduction

i) Inorganic Methods, 1983 Edition, Method 353.3

ii) ASTM D3867-85B

iii) Standard Methods, 16th Edition, Method 418C

B) Automated hydrazine reduction, Inorganic Methods, 1983 Edition, Method 353.1

C) Automated cadmium reduction

i) Inorganic Methods, 1983 Edition, Method 353.2

ii) ASTM D3867-85A

iii) Standard Methods, 16th Edition, Method 418F

D) Ion selective electrode, WeWWG/5880, available from Orion Research

E) Ion chromatography

i) Inorganic Methods, 1983 Edition, Method 300.0

ii) B-1011, available from Millipore Corporation

7) Nitrite

A) Spectrophotometric, Inorganic Methods, 1983 Edition, Method 354.1

B) Automated cadmium reduction

i) Inorganic Methods, 1983 Edition, Method 353.2

ii) ASTM D3867-85A

iii) Standard Methods, 16th Edition, Method 418F

C) Manual cadmium reduction

i) Inorganic Methods, 1983 Edition, Method 353.3

ii) ASTM D3867-85B

iii) Standard Methods, 16th Edition, Method 418C

D) Ion chromatography

i) Inorganic Methods, 1983 Edition, Method 300.0

ii) Method B-1011, available from Millipore Corporation

8) Selenium

A) Atomic absorption; gaseous hydride

i) Inorganic Methods, 1983 Edition, Method 270.3

ii) ASTM D3859-84A

iii) Standard Methods, 16th Edition, Method 303E

iv) USGS Methods, 1985 Edition, I-3667

B) Atomic absorption; furnace technique

i) Inorganic Methods, 1983 Edition, Method 270.2

ii) ASTM D3859-84B

iii) Standard Methods, 16th Edition, Method 304. Prior to dilution of the selenium calibration standard, add 2 mL of 30% hydrogen peroxide for each 100 mL of standard.

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

1) Atomic absorption; furnace technique: Inorganic Methods, 1979@@ Edition, Method 206.2

2) Atomic absorption; gaseous hydride:

A) Inorganic Methods, 1979@@ Edition, Method 206.3

B) ASTM D2972-78B

C) Standard Methods, 16th Edition, Method 301.A VII@@

D) USGS Methods, 1979 Edition, I-1062-78@

3) Spectrophotometric, silver diethyldithiocarbamate:

A) Inorganic Methods, 1979@@ Edition, Method 206.4

B) ASTM D 2972-78A

C) Standard Methods, 16th Edition, Method 404A and 404B(4)@@.

c) Fluoride. Analyses for fluoride must be conducted using one of the following methods:

1) Colorimetric SPADNS, with distillation:

A) Inorganic Methods, 1983 Edition, Method 340.1

B) ASTM D1179-72A

C) Standard Methods, 16th Edition, Methods 413A and 413C

2) Potentiometric, ion selective electrode

A) Inorganic Methods, 1983 Edition, Method 340.2

B) ASTM D1179-72B

C) Standard Methods, 16th Edition, Method 413B

3) Automated Alizarin fluoride blue, with distillation (complexone)

A) Inorganic Methods, 1983 Edition, 340.3

B) Standard Methods, 16th Edition, Method 413E

C) Technicon Methods, Method 129-71W

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

d) Sample collection for asbestos, barium, cadmium, chromium, fluoride, mercury, nitrate, nitrite and selenium under this Subpart must be conducted using sample preservation, container and maximum holding time procedures as follows:

1) Asbestos

A) Preservative: Cool to 4 degrees C.

B) Plastic, hard or soft; or glass, hard or soft.

2) Barium

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

B) Container: Plastic, hard or soft; or glass, hard or soft.

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

3) Cadmium

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

B) Container: Plastic, hard or soft; or glass, hard or soft.

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

4) Chromium

A) Preservative: Concentrated nitric acid to pH less than 2. If nitric acid cannot be used because of shipping restrictions, the sample may initially be preserved by icing and immediately shipping it to the laboratory.

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

B) Container: Plastic, hard or soft; or glass, hard or soft.

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

5) Fluoride

A) Preservative: None.

B) Container: Plastic, hard or soft; or glass, hard or soft.

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

6) Mercury

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

B) Container: Plastic, hard or soft; or glass, hard or soft.

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

i) If stored in glass, 28 days.

ii) If stored in plastic, 14 days.

7) Nitrate, chlorinated

A) Preservative: Cool to 4 degrees C.

B) Container: Plastic, hard or soft; or glass, hard or soft.

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

8) Nitrate, non-chlorinated

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

B) Container: Plastic, hard or soft; or glass, hard or soft.

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

9) Nitrite

A) Preservative: Cool to 4 degrees C.

B) Container: Plastic, hard or soft; or glass, hard or soft.

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

10) Selenium

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

B) Container: Plastic, hard or soft; or glass, hard or soft.

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

e) Analyses under this Subpart must be conducted by laboratories that received approval from USEPA or the Agency. The Agency shall approve laboratories to conduct analyses for asbestos, barium, cadmium, chromium, fluoride, mercury, nitrate, nitrite and selenium if the laboratory:

1) Analyzes performance evaluation samples, provided by the Agency pursuant to 35 Ill. Adm. Code 183.125(c), which include those substances at levels not in excess of levels expected in drinking water; and

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

A) Asbestos, 2 standard deviations based on study statistics.

B) Barium, +/- 15% at greater than or equal to 0.15 mg/L.

C) Cadmium, +/- 20% at greater than or equal to 0.002 mg/L.

D) Chromium, +/- 15% at greater than or equal to 0.01 mg/L.

E) Fluoride, +/- 10% at 1 to 10 mg/L.

F) Mercury, +/- 30% at greater than or equal to 0.0005 mg/L.

G) Nitrate, +/- 10% at greater than or equal to 0.4 mg/L.

H) Nitrite, +/- 15% at greater than or equal to 0.4 mg/L.

I) Selenium, +/- 20% at greater than or equal to 0.01 mg/L.

f) Manganese:

1) ASTM D 858;

2) Standard Methods, 16th Edition, Method 303A.

3) Inorganic Methods, 1983 Edition,@@: Methods 243.1 or 243.2; or

4) Inductively Coupled Plasma Method 200.7.

BOARD NOTE: These methods are used for additional State requirements.

g) Iron:

1) Inorganic Methods, 1983 Edition,@@: 236.1 or 236.2; or

2) Inductively Coupled Plasma Method 200.7.

3) Standard Methods, 16th Edition, Method 303A

BOARD NOTE: These methods are used for additional State requirements.

h) Copper:

1) ASTM D 1688 D or E;

2) Standard Methods, 16th Edition:

A) Methods 303A or B;

B) Method 304.

3) Inorganic Methods, 1983 Edition,@@: 220.1 or 220.2; or

4) Inductively Coupled Plasma Method 200.7.

BOARD NOTE: These methods are used for additional State requirements.

i) Zinc:

1) Inorganic Methods, 1983 Edition,@@ 289.1 or 289.2; or

2) Standard Methods, 16th Edition, Method 303A

BOARD NOTE: These methods are used for additional State requirements.

j) Cyanide:

1) Inorganic Method 335.2; or

2) Standard Methods, 16th Edition, Method 412D.

BOARD NOTE: These methods are used for additional State requirements.

(Source: Added at 16 Ill. Reg. , effective)

Section 611.630 Special Monitoring for Sodium

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

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

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

d) Analyses for sodium must be performed by the following methods, incorporated by reference in Section 611.102:

1) Standard Methods, 14th Edition, Method 320 and 320A, flame photometric method;

2) Inorganic Methods:

A) Method 273.1, Atomic Absorption - Direct Aspiration; or

B) Method 273.2, Atomic Absorption - Graphite

Furnace; or

3) ASTM Method D1428.

BOARD NOTE: Derived from 40 CFR 141.41 (1989).

(Source: Renumbered from Section 611.610 at 16 Ill. Reg.
effective)

Section 611.631 Special Monitoring for Inorganic Chemicals

Monitoring of the contaminants listed in subsection (l) must be conducted as follows:

a) See Section 611.100(e).

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

BOARD NOTE: Derived from 40 CFR 141.40(n)(2), as amended at 56 Fed. Reg. 3578, January 30, 1991. See Section 611.100(c) for applicability to non-CWSs.

c) Each CWS and NTNCWS supplier may apply to the Agency for a adjustment from the requirements of subsection (b).

BOARD NOTE: Derived from 40 CFR 141.40(n)(3), as amended at 56 Fed. Reg. 3578, January 30, 1991. See Section 611.100(c) for applicability to non-CWSs.

d) The Agency shall grant an adjustment from the requirement of subsection (b) if previous analytical results indicate contamination would not occur, provided this data was collected after January 1, 1990.

BOARD NOTE: Derived from 40 CFR 141.40(n)(4), as amended at 56 Fed. Reg. 3578, January 30, 1991.

e) Definitions. As used in this Section:

"Distribution system" includes all points downstream of an "entry point".

"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 PWS, and upstream of any mixing with other water.

"GWS" is as defined in Section 611.600.

"Mixed system" is as defined in Section 611.600.

"Representative" means that a sample is expected to reflect the properties of water averaged over the period of time and portion of the PWS to be sampled. To be representative, a sample must be taken under normal seasonal operating conditions.

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

"SWS" is as defined in Section 611.600.

"Treatment" means any process: which changes the physical or chemical properties of water; which is under the control of the supplier; and, which is not a "point of use" or "point of entry treatment device" as defined in Section 611.101. "Treatment" includes, but is not limited to: aeration, coagulation, sedimentation, filtration, activated carbon, chlorination and fluoridation.

BOARD NOTE: Derived from 40 CFR 141.40(n)(5), (6) and (7), as amended at 56 Fed. Reg. 3578, January 30, 1991.

f) Required sampling. Each supplier shall take a minimum of one sample at each sampling point at the times required in Section 611.610. Each sampling point must be "representative." The total number of sampling points must be representative of the water delivered to users throughout the PWS.

BOARD NOTE: Derived from 40 CFR 141.40(n)(5), (6) and (7), as amended at 56 Fed. Reg. 3578, January 30, 1991.

g) Sampling points.

1) Sampling points for GWSs. Unless otherwise provided by SEP, the following are the sampling points for GWSs: Each entry point.

2) Sampling points for SWSs and mixed systems. Unless otherwise provided by SEP, the following are sampling points for SWSs and mixed systems:

A) Each entry point; or

B) Points in the distribution system.

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

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

BOARD NOTE: Derived from 40 CFR 141.40(n)(5), (6) and (7), as amended at 56 Fed. Reg. 3578, January 30, 1991.

h) See Section 611.100(e).

i) See Section 611.100(e).

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

BOARD NOTE: Derived from 40 CFR 141.40(n)(10), as amended at 56 Fed. Reg. 3578, January 30, 1991. See Section 611.100(c) for applicability to non-CWSs.

k) See Section 611.100(e).

l) List of Inorganic Contaminants:

Contaminant	Inorganic Methods
Antimony	Graphite Furnace Atomic Absorption; Inductively Coupled Plasma
Beryllium	Graphite Furnace Atomic Absorption; Inductively Coupled Mass Spectrometry Plasma; Spectrophotometric
Nickel	Atomic Absorption; Inductively Coupled Plasma; Graphite

	Furnace Atomic Absorption
Sulfate	Colorimetric
Thallium	Graphite Furnace Atomic Absorption; Inductively Coupled Mass Spectrometry Plasma
Cyanide	Spectrophotometric

BOARD NOTE: Derived from 40 CFR 141.40(n)(12), as amended at 56 Fed. Reg. 3578, January 30, 1991.

(Source: Added at 16 Ill. Reg. , effective)

SUBPART O: ORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.640 Definitions

The following terms are defined for use in this Subpart only. Additional definitions are located in Section 611.102.

"Eight organic contaminants" means:

Benzene
Carbon tetrachloride
p-Dichlorobenzene.
1,2-Dichloroethane
1,1-Dichloroethylene
1,1,1-Trichloroethane
Trichloroethylene
Vinyl chloride

BOARD NOTE: These are the organic contaminants regulated at 40 CFR 141.61(a)(1) - (8), as amended at 56 Fed. Reg. 3578, January 30, 1991. These MCLs are located at Section 611.311(a).

"Eleven Pesticides and PCBs" means:

Alachlor
Atrazine
Carbofuran
Chlordane
Dibromochloropropane
Ethylene dibromide
Lindane
Methoxychlor
Polychlorinated biphenyls
Toxaphene
2,4,5-TP

BOARD NOTE: These are organic contaminants regulated at 40 CFR 141.61(c)(1) - (18), as amended at 56 Fed. Reg. 3578, January 30, 1991, excluding 2,4-D, heptachlor and heptachlor epoxide. The former MCLs are located at Section 611.311. The latter are "additional State requirements" regulated under Section 611.310.

"GWS" means "groundwater system", a PWS which uses only groundwater sources.

BOARD NOTE: Drawn from 40 CFR 141.24(f)(2), Note, amended at 56 Fed. Reg. 3578, January 30, 1991.

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

BOARD NOTE: Drawn from 40 CFR 141.24(f)(2), Note, amended at 56 Fed. Reg. 3578, January 30, 1991.

"Old MCL" means an MCL in Section 611.310, including the MCLs which are "additional State requirements" and the MCLs which are derived from 40 CFR 141.12, but excluding those marked with a "T", and excluding TTHM. "Old MCLs" includes the following:

Aldrin
2,4-D
DDT
Dieldrin
Endrin
Heptachlor
Heptachlor epoxide

"Reliably and consistently" below a specified level for a contaminant means that:

Levels are below the specified level;

The distribution of data is such that it is unlikely that future individual measurements will exceed the specified level unless the long term average increases;

The data does not show an upward trend toward the specified level; and

There are no factors which show that the source is vulnerable to the contaminant.

BOARD NOTE: Drawn from 40 CFR 141.24(f)(11)(ii) and (iii), as amended at 56 Fed. Reg. 3578, January 30, 1991.

"Revised MCL" means an MCL in Section 611.311. This term includes "eight organic contaminants", "ten organic contaminants" and "eleven pesticides and PCBs".

"SWS" means "surface water system", a PWS which uses only surface water sources, including "groundwater under the direct influence of surface water", as defined in Section 611.102.

BOARD NOTE: Drawn from 40 CFR 141.24(f)(2), Note, amended at 56 Fed. Reg. 3578, January 30, 1991.

"Ten organic contaminants" means:

o-Dichlorobenzene
cis-1,2-Dichloroethylene
trans-1,2-Dichloroethylene
1,2-Dichloropropane
Ethylbenzene
Monochlorobenzene
Styrene
Tetrachloroethylene
Toluene
Xylene.

BOARD NOTE: These are organic contaminants regulated at 40 CFR 141.61(a)(9) - (18), amended at 56 Fed. Reg. 3578, January 30, 1991. The MCLs are at Section 611.311(a).

Sourcce: Added at 16 Ill. Reg. effective
)

Section 611.641 ~~Sampling and Analytical Requirements~~Old MCLs

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

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

BOARD NOTE: This applies also to additional State requirements.

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

BOARD NOTE: This applies also to additional State requirements.

b) If the result of an analysis made pursuant to subsection (a) indicates that the level of any ~~contaminant listed in Section 611.310 (a) and (b)~~old MCL exceeds the MCL, the CWS supplier shall report to the Agency within 7 days and initiate three additional analyses within one month.

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

BOARD NOTE: Derived from 40 CFR 141.24(a) through (d) ~~(1989)~~ (1990).

(Source: Amended at 16 Ill. Reg. , effective
)

Section 611.645 Analytical Methods for Old MCLs

~~a)~~

Analysis made to determine compliance with the old MCLs of Section 611.310(a) must be made in accordance with the appropriate methods specified in Section 611.648(l).

~~the following methods, incorporated by reference in Section 611.102, or alternative methods approved pursuant to Section 611.480:~~

~~1) Pesticide Methods; or~~

~~2) ASTM Method D 3086; or~~

~~3) Standard Methods, 14th Edition, Method 509A; or~~

~~4) USGS Methods, Book 5, Chapter A-3, pp. 24-39; or~~

~~5) SPE Test Method Number SPE-500~~

BOARD NOTE: Derived from 40 CFR 141.24(e), amended at 56 Fed. Reg. 3578, January 30, 1991.

~~b) Analysis made to determine compliance with Section 611.310(b) must be conducted in accordance with:~~

~~1) Pesticide Methods; or~~

~~2) ASTM Method D 3478; or~~

~~3) Standard Methods, 14th Edition, Method 509B; or~~

~~4) USGS Method, Book 5, Chapter A-3, pp. 24-39.~~

~~BOARD NOTE: Derived from 40 CFR 141.24(e,f) (1989).~~

(Source: Amended at 16 Ill. Reg. effective)

Section 611.646 Ten Organic Contaminants

Analysis of the ten organic contaminants for the purpose of determining compliance with the MCL must be conducted as follows:

a) Definitions. As used in this Section:

"Detection" means greater than or equal to 0.0005 mg/L.

BOARD NOTE: Drawn from 40 CFR 141.24(f)(7) and (20), amended at 56 Fed. Reg. 3578, January 30, 1991.

"Distribution system" includes all points downstream of an "entry point".

"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 PWS, and upstream of any mixing with other water.

"GWS" is as defined in Section 611.640.

"Mixed system" is as defined in Section 611.640.

"Representative" means that a sample is expected to reflect the properties of water averaged over the period of time and portion of the PWS to be sampled. To be representative, a sample must be taken under normal seasonal operating conditions.

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

"SWS" is as defined in Section 611.640.

"Treatment" means any process: which changes the physical or chemical properties of water; which is under the control of the supplier; and, which is not a "point of use" or "point of entry treatment device" as defined in Section 611.101. "Treatment" includes, but is not limited to: aeration, coagulation, sedimentation, filtration, activated carbon, chlorination and fluoridation.

BOARD NOTE: Derived from 40 CFR 141.24(f)(1), (2) and (3), as amended at 56 Fed. Reg. 3578, January 30, 1991.

b) Required sampling. Each supplier shall take a minimum of one sample at each sampling point at the times required in subsection (u). Each sampling point must be "representative." The total number of sampling points must be representative of the water delivered to users throughout the system.

BOARD NOTE: Derived from 40 CFR 141.24(f)(1), (2) and (3), as amended at 56 Fed. Reg. 3578, January 30, 1991.

c) Sampling points.

1) Sampling points for GWSs. Unless otherwise provided by SEP, the following are the sampling points for GWSs: Each entry point.

2) Sampling points for SWSs and mixed systems. Unless otherwise provided by SEP, the following are sampling points for SWSs and mixed systems:

A) Each entry point; or

B) Points in the distribution system.

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

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

BOARD NOTE: Derived from 40 CFR 141.24(f)(1), (2) and (3), as amended at 56 Fed. Reg. 3578, January 30, 1991.

d) Each CWS and NTNCWS supplier shall take four consecutive quarterly samples for each of the ten organic contaminants during each compliance period beginning in the compliance period starting January 1, 1993.

BOARD NOTE: Derived from 40 CFR 141.24(f)(4), amended at 56 Fed. Reg. 3578, January 30, 1991. See Section 611.100(c) for applicability to non-CWSs.

e) Suppliers which do not detect one of the ten organic contaminants after conducting the initial round of monitoring required in subsection (d) shall take one sample annually.

BOARD NOTE: Derived from 40 CFR 141.24(f)(5), amended at 56 Fed. Reg. 3578, January 30, 1991.

f) Reduction of monitoring frequency.

1) Results of prior monitoring. If the initial monitoring for the ten organic contaminants as allowed in subsection (r) has been completed by December 31, 1992, and the supplier did not detect any of the eight or ten organic contaminants, then the supplier shall take one sample annually beginning January 1, 1993.

2) Reduction to 3-year monitoring. After a minimum of three years of annual sampling, GWS suppliers which have no previous detection of any of the eight or ten organic contaminants shall take one sample during each compliance period.

BOARD NOTE: Derived from 40 CFR 141.24(f)(6), amended at 56 Fed. Reg. 3578, January 30, 1991.

g) A CWS or NTNCWS supplier may apply for a waiver from the requirements of subsection (d) and (e). The Agency shall, after considering the factors in subsection (h), by SEP pursuant to Section 611.110, grant the waiver if:

1) The supplier has completed the initial monitoring; and

2) The supplier did not detect any one of the eight or ten organic contaminants.

BOARD NOTE: Derived from 40 CFR 141.24(f)(7), amended at 56 Fed. Reg. 3578, January 30, 1991. Provisions concerning the term of the waiver are below in subsections (i) and (j). The definition of "detected" is in Section 611.640. See Section

611.100(c) for applicability to non-CWSs.

h) Vulnerability Assessment. The Agency shall grant a waiver after evaluating the following factor(s):

1) The Agency shall grant the waiver if the supplier demonstrates that there has been no previous use (including transport, storage or disposal) of the contaminant within the watershed or zone of influence.

2) If the contaminant has been used, or if previous use of the contaminant is unknown, the Agency shall use the following factors to determine whether a waiver is granted:

A) Previous analytical results.

B) The proximity of the PWS to a potential point or non-point source of contamination. Point sources include spills and leaks of chemicals at or near a water treatment facility or at manufacturing, distribution, or storage facilities, or from hazardous and municipal waste landfills and other waste handling or treatment facilities.

C) The environmental persistence and transport of the contaminants.

D) The number of persons served by the PWS and the proximity of a smaller PWS to a larger PWS.

E) How well the water source is protected against contamination such as whether it is a SWS, mixed system or GWS. GWSs shall consider factors such as depth of the well, the type of soil, and wellhead protection. The "wellhead protection program" may be used, if appropriate, to meet these requirements. SWSs and mixed systems shall consider watershed protection. The Agency shall determine whether watershed protection is adequate, based on the following factors:

i) The comprehensiveness of the watershed review;

ii) The effectiveness of the PWS's program to monitor and control detrimental activities occurring in the watershed;

and

iii) The extent to which the PWS has maximized land ownership or controlled land use within the watershed. At a minimum, the watershed control program must: characterize the watershed hydrology and land ownership; identify watershed characteristics and activities which may have an adverse effect on source water quality; and monitor the occurrence of activities which may have an adverse effect on source water quality.

iv) The supplier shall demonstrate through ownership or written agreements with landowners within the watershed that it can control all human activities which may have an adverse impact on the quality of the source water. With each renewal application, the supplier shall submit a report to the Agency that identifies any special concerns about the watershed and how they are being handled; describes activities in the watershed that affect water quality; and projects what adverse activities are expected to occur in the future and describes how the supplier expects to address them.

BOARD NOTE: Derived from 40 CFR 141.24(f)(8)(ii), amended at 56 Fed. Reg. 3578, January 30, 1991.

i) Waivers for GWSs are for a maximum of six years. As a condition of the waiver a supplier shall, within 30 months after the beginning of the period for which the waiver was issued, take one sample at each sampling point and file a new application for a SEP under subsection (g). Based on this application, the Agency shall either:

1) If it determines that the PWS meets the standard of subsection (g), issue a SEP granting a waiver for the next two compliance periods; or,

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

BOARD NOTE: Derived from 40 CFR 141.24(f)(7) and

(9), amended at 56 Fed. Reg. 3578, January 30, 1991.

j) Waivers issued to SWS or mixed system suppliers pursuant to subsection (g) are for a maximum of one compliance period. The Agency shall require as a condition that, if the supplier wants the waiver extended:

1) The supplier take such samples for the eight and ten organic contaminants which the Agency determines are necessary, based on the vulnerability assessment; and

2) The supplier file a SEP application with a new vulnerability assessment within 30 months after the beginning of the waiver period.

3) The Agency shall act on the application pursuant to subsection (g).

BOARD NOTE: Derived from 40 CFR 141.24(f)(10), amended at 56 Fed. Reg. 3578, January 30, 1991.

k) If one of the ten organic contaminants is detected in any sample, then:

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

BOARD NOTE: Derived from 40 CFR 141.24(f)(11)(i), as amended at 56 Fed. Reg. 3578, January 30, 1991.

2) Annual monitoring.

A) A supplier may request that the Agency reduce the monitoring frequency to annual. The request must be by way of a SEP application pursuant to Section 611.110.

B) The request must include the following minimal information:

i) For a GWS, two quarterly samples.

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

C) The Agency shall, by SEP, allow 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:

i) The level of the contaminant upon which the "reliably and consistently" determination was based; and

ii) The level of the contaminant which, if exceeded in any one sample, would cause the supplier to reinitiate quarterly monitoring.

BOARD NOTE: Derived from 40 CFR 141.24(f)(11)(ii) and (iii), as amended at 56 Fed. Reg. 3578, January 30, 1991.

3) Suppliers which monitor annually shall monitor during the quarter which previously yielded the highest analytical result.

BOARD NOTE: Derived from 40 CFR 141.24(f)(11)(iii), as amended at 56 Fed. Reg. 3578, January 30, 1991.

4) Suppliers which have three consecutive annual samples with no detection of a contaminant at a sampling point may apply to the Agency for a waiver with respect to that point, as specified in subsection (g).

BOARD NOTE: Derived from 40 CFR 141.24(f)(11)(iv), as amended at 56 Fed. Reg. 3578, January 30, 1991.

l) Quarterly monitoring following MCL violations.

1) Suppliers which violate an MCL for one of the ten organic contaminants, as determined by subsection (o), 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 reduce the monitoring frequency to annual. The request must be by way of a SEP application pursuant to Section 611.110.

B) The request must include the following minimal information: four quarterly samples.

C) The Agency shall, by SEP, allow 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:

i) The level of the contaminant upon which the "reliably and consistently" determination was based; and

ii) The level of the contaminant which, if exceeded in any one sample, would cause the supplier to reinitiate quarterly monitoring.

E) The supplier shall monitor during the quarter which previously yielded the highest analytical result.

BOARD NOTE: Derived from 40 CFR 141.24(f)(12), amended at 56 Fed. Reg. 3578, January 30, 1991.

m) Confirmation samples.

1) If any of the ten organic contaminants 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 (o).

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

BOARD NOTE: Derived from 40 CFR 141.24(f)(13), amended at 56 Fed. Reg. 3578, January 30, 1991.

n) See Section 611.100(e).

o) Compliance with the MCLs for the ten organic contaminants must be determined based on the analytical results obtained at each sampling point.

1) For suppliers which 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) Public notice is governed by Subpart T.

BOARD NOTE: Derived from 40 CFR 141.24(f)(15), amended at 56 Fed. Reg. 3578, January 30, 1991.

p) Analysis for the ten organic contaminants must be conducted using the following methods. These methods are contained in 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."

BOARD NOTE: Derived from 40 CFR 141.24(f)(16), amended at 56 Fed. Reg. 3578, January 30, 1991.

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 ten organic contaminants the laboratory must:

A) Analyze Performance Evaluation samples which 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 (D) for at least 80 percent of the eight or ten organic contaminants, except vinyl chloride.

C) Achieve quantitative results on the analyses performed under subsection (q)(1)(A) 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, but not in excess of levels expected to be in drinking water..

D) Achieve quantitative results on the analyses performed under subsection (q)(1)(A) 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.

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.

F) Be currently approved by USEPA or the Agency for the analyses of trihalomethanes under Subpart P.

2) See Section 611.100(e).

BOARD NOTE: Derived from 40 CFR 141.24(f)(17), amended at 56 Fed. Reg. 3578, January 30, 1991.

r) Data collected after January 30, 1991, but prior to the effective date of this Section, pursuant to Agency sample request letters, are deemed to meet the requirements of this Section, if the data are consistent with 40 CFR 141.24(f).

BOARD NOTE: Derived from 40 CFR 141.24(f)(18), amended at 56 Fed. Reg. 3578, January 30, 1991.

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.

BOARD NOTE: Derived from 40 CFR 141.24(f)(19), amended at 56 Fed. Reg. 3578, January 30, 1991.

t) To be approved for the ten organic contaminants, a laboratory 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 ten organic contaminants; and,

2) Achieve an MDL for each which is less than or equal to 0.0005 mg/L.

BOARD NOTE: Derived from 40 CFR 141.24(f)(20), amended at 56 Fed. Reg. 3578, January 30, 1991.

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

BOARD NOTE: Derived from 40 CFR 141.24(f)(21), amended at 56 Fed. Reg. 3578, January 30, 1991.

(Source: Added at 16 Ill. Reg. , effective
)

Section 611.64~~8~~7 Sampling for ~~VOCs~~Eight Organic Contaminants

Analysis of the ~~VOCs listed in Section 611.311(a)~~eight organic contaminants for purposes of determining compliance with the MCLs must be conducted as follows:

a) CWS or NTCWS suppliers using groundwater sources shall sample at points of entry to the distribution system representative of each well after any application of treatment. Sampling must be conducted at the same location(s) or more representative location(s) every three months for one year except as provided in subsection (h)(1).

b) CWS or NTCWS suppliers using surface sources shall sample at points in the distribution system representative of each source or at entry points to the distribution system after any application of treatment. SWSs and mixed systems must sample each source every three months except as provided in subsection (h)(2). Sampling must be conducted at the same location or a more representative location each quarter.

c) If the CWS or NTCWS draws water from more than one source and sources are combined before distribution, the supplier shall sample at an entry point to the distribution system during periods of normal operating conditions.

d) Time for sampling.

1) All CWS and NTNCWS suppliers serving more than 3,300 people shall analyze all distribution or entry-point samples, as appropriate, representing all source waters.

2) All other CWS and NTNCWS suppliers shall analyze distribution or entry-point samples, as required in this paragraph, representing all source waters beginning no later than January 1, 1991.

BOARD NOTE: See Section 611.100(c) for applicability to non-CWSs.

e) If the results exceed the MCL, the CWS or ~~NTCWS~~NTNCWS supplier shall initiate three additional analyses at the same sampling point within one month. The sample results must be averaged with the first sampling result and used for compliance determination in accordance with subsection (i). The Agency shall delete results of obvious sampling errors from this calculation.

BOARD NOTE: See Section 611.100(c) for applicability to non-CWSs.

f) Analysis for vinyl chloride is required only for GWSs that have detected one or more of the following two-carbon organic compounds: Trichloroethylene, tetrachloroethylene, 1,2-dichloroethane, 1,1,1-trichloroethane, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene or 1,1-dichloroethylene. The analysis for vinyl chloride is required at each distribution or entry point at which one or more of the two-carbon organic compounds were found. If the first analysis does not detect vinyl chloride, the Agency shall reduce the frequency of vinyl chloride monitoring to once every three years for that sample location or other sample locations which are more representative of the same source.

g) The Agency or suppliers may composite up to five samples from one or more suppliers. Compositing of samples is to be done in the laboratory by the procedures listed below. Samples must be analyzed within fourteen days of collection. If any ~~VOC listed in Section 611.311~~of the eight organic contaminants is detected in the original composite sample, a sample from each source that made up the composite sample must be reanalyzed individually within fourteen days from sampling. The sample for reanalysis cannot be the original sample but can be a duplicate sample. If duplicates of the original samples are not available, new samples must be taken from each source used in the original composite and analyzed for ~~VOCs~~the eight organic contaminants. Reanalysis must be accomplished within fourteen days of the second sample. To composite samples, the following procedure must be followed:

1) Compositing samples prior to GC analysis.

A) Add 5 ml or equal larger amounts of each sample (up to 5 samples are allowed) to a 25 ml glass syringe. Special precautions must be made to maintain zero headspace in the syringe.

B) The samples must be cooled at 4 degrees C during this step to minimize volatilization losses.

C) Mix well and draw out a 5-ml aliquot for analysis.

D) Follow sample introduction, purging and desorption steps described in the method.

E) If less than five samples are used for compositing, a proportionately smaller syringe may be used.

2) Compositing samples prior to GC/MS analysis.

A) Inject 5-ml or equal larger amounts of each aqueous sample (up to 5 samples are allowed) into a 25-ml purging device using the sample introduction technique described in the method.

B) The total volume of the sample in the purging device must be 25 ml.

C) Purge and desorb as described in the method.

h) Until January 1, 1993, t~~T~~he Agency shall, by ~~special exception permit~~SEP, reduce the monitoring frequency specified in subsections (a) and (b) if it makes the following determinations:

1) The monitoring frequency for GWSs is as follows:

A) ~~When VOCs are not~~If none of the eight organic contaminants are detected in the first sample (or any subsequent samples that may be taken and the CWS is not vulnerable as defined in subsection (h)(4), monitoring must be reduced to one sample and must be repeated every 5 years.

B) ~~When VOCs are not~~If none of the eight organic contaminants are detected in the first sample (or any subsequent sample that may be taken) and the CWS is vulnerable as defined in subsection (h)(4):

i) Monitoring one sample must be repeated every 3 years for CWSs with more than 500 connections.

ii) Monitoring one sample must be repeated every 5 years for CWSs with less than 500 connections.

C) ~~If VOCs are~~If one of the eight organic contaminants is detected in the first sample (or any subsequent sample that may be taken) regardless of vulnerability, monitoring must be repeated every 3 months, as required under subsection (a).

2) The repeat monitoring frequency for SWSs and mixed systems is as follows:

A) ~~When VOCs are not~~If none of the eight organic contaminants is detected in the first year of quarterly sampling (or any other subsequent sample that may be taken) and the CWS is not vulnerable as defined in subsection (h)(4), additional monitoring is not required.

B) ~~When VOCs are not~~If none of the eight organic contaminants is detected in the first year of quarterly sampling (or any other subsequent sample that may be taken) and the CWS is vulnerable as defined in subsection (h)(4):

i) Monitoring must be repeated every three years (for CWS with more than 500 connections).

ii) Monitoring must be repeated every five years (for CWS with less than 500 connections).

C) ~~When VOCs are~~If one of the eight organic contaminants is detected in the first year of quarterly sampling (or any other subsequent sample that may be taken), regardless of vulnerability, monitoring must be repeated every 3 months, as required under subsection (b).

3) The Agency shall, by ~~special exception permit~~SEP, reduce the frequency of monitoring to once per year for a GWS or SWS ~~detecting VOCs~~which detects one of the eight organic contaminants at levels consistently less than the MCL for three consecutive years, unless the levels are increasing.

4) The Agency shall, by ~~special exception permit~~SEP, determine the vulnerability of each CWS based upon an assessment of the following factors:

A) Previous monitoring results.

B) Number of persons served by CWS.

C) Proximity of a smaller CWS to a larger CWS.

D) Proximity to commercial or industrial use, disposal or storage of the ~~VOCs listed in Section 611.311~~the eight organic contaminants.

E) Protection of the water source.

5) A CWS is deemed to be vulnerable for a period of three years after any positive measurement of one

or more contaminants listed in Sections 611.650(e), 611.657(d) or 611.311(a), except for THMs or other demonstrated disinfection by-products.

i) Compliance with Section 611.311(a) is determined based on the results of running annual average of quarterly sampling for each sampling location. If one location's average is greater than the MCL, then the CWS or NTCWS is deemed to be out of compliance. If a CWS or NTCWS has a distribution system separable from other parts of the distribution system with no interconnections, only that part of the system that exceeds any MCL as specified in Section 611.311(a) is deemed out of compliance. The Agency shall, by ~~special exception permit~~SEP, reduce the public notice requirement to that portion of the CWS which is out of compliance. If any one sample result would cause the annual average to be exceeded, then the CWS is deemed to be out of compliance immediately. For CWS suppliers that only take one sample per location because ~~no VOCs~~none of the eight organic contaminants were detected, compliance is based on that one sample.

j) Analysis under this Section must be conducted using the following methods or alternatives approved pursuant to Section 611.480. These methods are contained in Organic Methods, incorporated by reference in Section 611.102:

1) Method 502.1.

2) Method 503.1.

3) Method 524.1.

4) Method 524.2.

5) Method 502.2.

k) Analysis under this Section must only be conducted by laboratories that have received conditional approval by the Agency, pursuant to Section 611.490, according to the following conditions:

1) To receive conditional approval to conduct analyses for ~~benzene, vinyl chloride, carbon tetrachloride, 1,2-dichloroethane, trichloroethylene, 1,1-dichloroethylene, 1,1,1-trichloroethane and paradichlorobenzene~~the eight organic contaminants, except vinyl chloride, the laboratory shall:

A) Analyze performance evaluation samples which include these substances provided by the Agency pursuant to 35 Ill. Adm. Code 183.125(c)(3).

B) Achieve the quantitative acceptance limits under subsection (k)(1)(C) or (D) for at least six of the ~~seven subject organic chemicals~~eight organic contaminants, except vinyl chloride.

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

D) Achieve quantitative results on the analyses performed under subsection (k)(1)(A) 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.

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

F) Be currently approved by the Agency for the analyses of THMs under Subpart P.

2) To receive conditional approval for vinyl chloride, the laboratory shall:

A) Analyze performance evaluation samples provided by the Agency. (See 35 Ill. Adm. Code 183.125(c)(3).)

B) Achieve quantitative results on the analyses performed under subsection (k)(2)(A) 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, App. B, incorporated by reference in Section 611.102.

D) Receive approval or be currently approved by the Agency under subsection (k)(1).

m) The Agency shall, by ~~special exception permit~~SEP, increase required monitoring where it determines that it is necessary to do so to detect variations within the CWS.

n) See Section 611.100(e).

o) Each approved laboratory shall determine the method detection limit (MDL), as defined in 40 CFR 136, App. B, incorporated by reference in Section 611.102, at which it is capable of detecting ~~VOCs~~each of the eight organic contaminants. The acceptable MDL is 0.0005 mg/L. This concentration is the detection level for purposes of subsections (e), (f), (g) and (h).

BOARD NOTE: Derived from 40 CFR 141.24(g) (1989).

(Source: Renumbered from Section 611.648 and amended at 16 Ill. Reg. effective)

Section 611.648 Eleven Pesticides and PCBs

Analysis of the eleven pesticides and PCBs for the purposes of determining compliance with the MCL must be conducted as follows:

a) Definitions. As used in this Section:

"Detection" is as specified in subsection (m).

"Distribution system" includes all points downstream of an "entry point".

"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 PWS, and upstream of any mixing with other water.

"GWS" is as defined in Section 611.640.

"Mixed system" is as defined in Section 611.640.

"Representative" means that a sample is expected to reflect the properties of water averaged over the period of time and portion of the PWS to be sampled. To be representative, a sample must be taken under normal seasonal operating conditions.

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

"SWS" is as defined in Section 611.640.

"Treatment" means any process: which changes the physical or chemical properties of water; which is under the control of the supplier; and, which is not a "point of use" or "point of entry treatment device" as defined in Section 611.101. "Treatment" includes, but is not limited to: aeration, coagulation, sedimentation, filtration, activated carbon, chlorination and fluoridation.

BOARD NOTE: Derived from 40 CFR 141.24(h)(1), (2) and (3), as amended at 56 Fed. Reg. 3578, January 30, 1991.

b) Required sampling. Each supplier shall take a minimum of one sample at each sampling point at the times required in subsection (g). Each sampling point must be "representative." The total number of sampling points must be representative of the water delivered to users throughout the system.

BOARD NOTE: Derived from 40 CFR 141.24(h)(1), (2) and (3), as amended at 56 Fed. Reg. 3578, January 30, 1991.

c) Sampling points.

1) Sampling points for GWSs. Unless otherwise provided by SEP, the following are the sampling points for GWSs: Each entry point.

2) Sampling points for SWSs and mixed systems. Unless otherwise provided by SEP, the following are sampling points for SWSs and mixed systems:

A) Each entry point; or

B) Points in the distribution system.

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

4) Alternative sampling points. The Agency shall, by SEP, approve alternate sampling points if the

supplier demonstrates that the points are more representative than the generally required point.

BOARD NOTE: Derived from 40 CFR 141.24(h)(1), (2) and (3), as amended at 56 Fed. Reg. 3578, January 30, 1991.

d) Monitoring frequency:

1) Each CWS and NTNCWS supplier shall take four consecutive quarterly samples for each of the eleven pesticides and PCBs during each compliance period, starting January 1, 1993.

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

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

BOARD NOTE: Derived from 40 CFR 141.24(h)(4), as amended at 56 Fed. Reg. 3578, January 30, 1991. See Section 611.100(c) for applicability to non-CWSs.

e) A CWS or NTNCWS supplier may apply for a waiver from the requirements of subsection (d).

1) The Agency shall, by SEP pursuant to Section 611.110, grant the waiver as provided in subsection (f).

2) A waiver lasts for only a single compliance period.

BOARD NOTE: Derived from 40 CFR 141.24(h)(5), as amended at 56 Fed. Reg. 3578, January 30, 1991. See Section 611.100(c) for applicability to non-CWSs.

f) Vulnerability Assessment. The Agency shall grant a waiver under subsection (e) as follows:

1) The Agency shall grant the waiver if the supplier demonstrates that there has been no previous use (including transport, storage or disposal) of the contaminant within the watershed or zone of

influence.

2) If the contaminant has been used, or if previous use of the contaminant is unknown, the Agency shall use the following factors to determine whether a waiver is granted:

A) Previous analytical results.

B) The proximity of the PWS to a potential point or non-point source of contamination. Point sources include spills and leaks of chemicals at or near a water treatment facility or at manufacturing, distribution, or storage facilities, or from hazardous and municipal waste landfills and other waste handling or treatment facilities. Non-point sources include the use of pesticides to control insect and weed pests on agricultural areas, forest lands, homes and gardens, and other land application uses

C) The environmental persistence and transport of the pesticide or PCBs.

D) How well the water source is protected against contamination due to such factors as depth of the well, the type of soil, and the integrity of the well casing.

E) Elevated nitrate levels in the water supply source.

F) Use of PCBs in equipment used in the production, storage or distribution of water (i.e. PCBs used in pumps, transformers, etc.)

BOARD NOTE: Derived from 40 CFR 141.24(h)(6), as amended at 56 Fed. Reg. 3578, January 30, 1991.

g) If one of the "eleven pesticides and PCBs" is detected in any sample, then:

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

BOARD NOTE: Derived from 40 CFR 141.24(h)(7)(i), as amended at 56 Fed. Reg. 3578, January 30, 1991.

2) Annual monitoring.

A) A supplier may request that the Agency reduce the monitoring frequency to annual. The request must be by way of a SEP application pursuant to Section 611.110.

B) The request must include the following minimal information:

i) For a GWS, two quarterly samples.

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

C) The Agency shall, by SEP, allow 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:

i) The level of the contaminant upon which the "reliably and consistently" determination was based; and

ii) The level of the contaminant which, if exceeded in any one sample, would cause the supplier to reinitiate quarterly monitoring.

BOARD NOTE: Derived from 40 CFR 141.24(h)(7)(ii) and (iii), as amended at 56 Fed. Reg. 3578, January 30, 1991.

3) Suppliers which monitor annually shall monitor during the quarter which previously yielded the highest analytical result.

BOARD NOTE: Derived from 40 CFR 141.24(h)(7)(iii), as amended at 56 Fed. Reg. 3578, January 30, 1991.

4) Suppliers which have three consecutive annual samples with no detection of a contaminant at a sampling point may apply to the Agency for a waiver with respect to that point, as specified in subsection (g).

BOARD NOTE: Derived from 40 CFR 141.24(h)(7)(iv), as amended at 56 Fed. Reg. 3578, January 30, 1991.

5) See Section 611.100(e).

BOARD NOTE: Derived from 40 CFR 141.24(h)(7)(v), as amended at 56 Fed. Reg. 3578, January 30, 1991.

h) Quarterly monitoring following MCL violations.

1) Suppliers which violate an MCL for one of the eleven pesticides and PCBs, as determined by subsection (1), 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 reduce the monitoring frequency to annual. The request must be by way of a SEP application pursuant to Section 611.110.

B) The request must include the following minimal information: four quarterly samples.

C) The Agency shall, by SEP, allow 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:

i) The level of the contaminant upon which the "reliably and consistently" determination was based; and

ii) The level of the contaminant which, if exceeded in any one sample, would cause the supplier to reinitiate quarterly monitoring.

E) The supplier shall monitor during the quarter which previously yielded the highest analytical result.

BOARD NOTE: Derived from 40 CFR 141.24(h)(8), as amended at 56 Fed. Reg. 3578, January 30, 1991.

i) Confirmation samples.

1) If any of the eleven pesticides and PCBs 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).

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

BOARD NOTE: Derived from 40 CFR 141.24(h)(9), as amended at 56 Fed. Reg. 3578, January 30, 1991.

j) See Section 611.100(e).

k) Compliance with the MCLs for the eleven pesticides and PCBs must be determined based on the analytical results obtained at each sampling point.

1) For suppliers which 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) Public notice is governed by Subpart T.

BOARD NOTE: Derived from 40 CFR 141.24(h)(11), as amended at 56 Fed. Reg. 3578, January 30, 1991.

l) Analysis for the eleven organic contaminants and PCBs must be conducted using the following methods. These methods are contained in Methods for the Determination of Organic Compounds in Drinking Water, incorporated by reference in Section 611.102.

A) 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 dibromochloropropane (DBCP) and ethylene dibromide (EDB).

B) 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, heptachlor, heptachlor epoxide, lindane, methoxychlor, and toxaphene. Method 505 can be used as a screen for PCBs.

C) 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 and atrazine.

D) Method 508, "Determination of Chlorinated Pesticides in Water by Gas Chromatography with an Electron Capture Detector." Method 508 can be used to measure chlordane, heptachlor, heptachlor epoxide, lindane and methoxychlor. Method 508 can be used as a screen for PCBs.

E) 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.

F) Method 515.1, "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, 2,4,5-TP (Silvex) and pentachlorophenol.

G) Method 525, "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, heptachlor, heptachlor epoxide, lindane, methoxychlor, and pentachlorophenol.

H) 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.

BOARD NOTE: Derived from 40 CFR 141.24(h)(12), as amended at 56 Fed. Reg. 3578, January 30, 1991.

m) Analysis for PCBs must be conducted as follows:

1) Each supplier which monitors for PCBs shall analyze each sample using either Method 505 or Method 508, above.

2) If PCBs are detected (as defined in subsection (r)) in any sample analyzed using Methods 505 or 508, the supplier shall reanalyze the sample using Method 508A to quantitate the individual Aroclors (as decachlorobiphenyl). The Aroclors are "detected" if the level is greater than or equal to the following concentrations for each Aroclor:

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

3) Compliance with the PCB MCL must be determined based upon the quantitative results of analyses using Method 508A.

BOARD NOTE: Derived from 40 CFR 141.24(h)(13), as amended at 56 Fed. Reg. 3578, January 30, 1991.

n) Data collected after January 30, 1991, but prior to the effective date of this Section, pursuant to Agency sample request letters, are deemed to meet the requirements of this Section, if the data are consistent with 40 CFR 141.24(h).

BOARD NOTE: Derived from 40 CFR 141.24(h)(14), as amended at 56 Fed. Reg. 3578, January 30, 1991.

o) 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.

BOARD NOTE: Derived from 40 CFR 141.24(h)(15), as amended at 56 Fed. Reg. 3578, January 30, 1991.

p) See Section 611.100(e).

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

BOARD NOTE: Derived from 40 CFR 141.24(h)(17), as amended at 56 Fed. Reg. 3578, January 30, 1991.

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

Contaminant	Detection Limit (mg/L)
Alachlor	0.0002
Aldicarb	0.0005
Aldicarb sulfoxide	0.0005
Aldicarb sulfone	0.0008
Atrazine	0.0001
Carbofuran	0.0009
Chlordane	0.0002
Dibromochloropropane (DBCP)	0.00002
2,4-D	0.0001
Ethylene dibromide (EDB)	0.00001
Heptachlor	0.00004
Heptachlor epoxide	0.00002
Lindane	0.00002
Methoxychlor	0.0001
Polychlorinated biphenyls (PCBs) (as decachlorobiphenyl)	0.0001
Pentachlorophenol	0.00004
Toxaphene	0.001
2,4,5-TP (Silvex)	0.0002

BOARD NOTE: Derived from 40 CFR 141.24(h)(18), as amended at 56 Fed. Reg. 3578, January 30, 1991.

(Source: Added at 16 Ill. Reg. effective)

Section 611.650 Monitoring for 36 Contaminants (Repealed)

~~a) All CWS and NTNCWS suppliers shall monitor for the contaminants listed in subsection (e) by the following dates:~~

~~1) Less than 3300 persons served: monitoring to begin no later than January 1, 1991.~~

~~2) All others: immediately.~~

~~b) Surface water systems shall sample at points in the distribution system representative of each water source or at entry points to the distribution system after any applicaiton of treatment. The minimum number of samples is one year of quarterly samples per water source.~~

~~c) Groundwater systems shall sample at points of entry to the distribution system representative of each well after any application of treatment. The minimum number of samples is one sample per entry point to the distribution system.~~

~~e) CWS and NTNCWS suppliers shall monitor for the following contaminants except as provided in subsection (f):~~

~~1) Chloroform~~

~~2) Bromodichloromethane~~

~~3) Chlorodibromomethane~~

~~4) Bromoform~~

~~5) trans-1,2-Dichloroethylene~~

~~6) Chlorobenzene~~

~~7) m-Dichlorobenzene~~

~~8) Dichloromethane~~

~~9) cis-1,2-Dichloroethylene~~

~~10) o-Dichlorobenzene~~

~~11) Dibromomethane~~

~~12) 1,1-Dichloropropene~~

~~13) Tetrachloroethylene~~

~~14) Toluene~~

~~15) p-Xylene~~

~~16) o-Xylene~~

~~17) m-Xylene~~

~~18) 1,1-Dichloroethane~~

~~19) 1,2-Dichloropropane~~

~~20) 1,1,2,2-Tetrachloroethane~~

~~21) Ethylbenzene~~

~~22) 1,3-Dichloropropane~~

~~23) Styrene~~

~~24) Chloromethane~~

~~25) Bromomethane~~

~~26) 1,2,3-Trichloropropane~~

~~27) 1,1,1,2-Tetrachloroethane~~

~~28) Chloroethane~~

~~29) 1,1,2-Trichloroethane~~

~~30) 2,2-Dichloropropane~~

~~31) o-Chlorotoluene~~

~~32) p-Chlorotoluene~~

~~33) Bromobenzene~~

~~34) 1,3-Dichloropropene~~

~~35) Ethylene dibromide (EDB)~~

~~36) 1,2-Dibromo-3-chloropropane (DBCP)~~

~~f) CWS and NTNCWS suppliers shall monitor for EDB and DBCP only if the Agency or, for non-CWSs, Public Health determines they are vulnerable to contamination by either or both of these substances. For the purpose of this subsection, a "vulnerable system" is defined as a system which is potentially contaminated by EDB and DBCP, including surface water systems where these two compounds are applied, manufactured, stored, disposed of or shipped upstream, and for groundwater systems in areas where the compounds are applied, manufactured, stored, disposed of or shipped in the groundwater recharge basin, or for groundwater systems that are in proximity to underground storage tanks that contain leaded gasoline.~~

~~BOARD NOTE: Derived from 40 CFR 141.40(a) through (f) (1989).~~

(Source: Repealed at 16 Ill. Reg. , effective)

Section 611.657 Analytical Methods for 36 Contaminants (Repealed)

~~a) Analysis under Section 611.650 must be conducted using the following methods found in Organic Methods, incorporated by reference in Section 611.102:~~

~~1) Method 502.1;~~

~~2) Method 503.1;~~

~~3) Method 524.1;~~

~~4) Method 524.2;~~

~~5) Method 502.2; or~~

~~6) Method 504.~~

~~b) Analysis under this Section must only be conducted by laboratories approved under Section 611.648(k). In addition to the requirements of that Section, each laboratory analyzing for EDB and DBCP shall achieve a method detection limit for EDB and DBCP of 0.00002 mg/L, according to the procedures in 40 CFR 136, App. B, incorporated by reference in Section 611.102.~~

~~c) Suppliers may use monitoring data collected any time after January 1, 1983 to meet the requirements for unregulated monitoring, provided that the monitoring program was consistent with the requirements of this Section. In addition, PWSs may use monitoring data collected any time after January 1, 1983, provided the monitoring was consistent with this Section.~~

~~e) Instead of performing the monitoring required by this Section, a CWS or NTNCWS supplier serving fewer than 150 service connections may send a letter to the Agency or, for non-CWSs, Public Health stating that the PWS is available for sampling. This letter must be sent no later than January 1, 1991. The supplier shall not send such samples to the Agency, unless requested to do so by the Agency.~~

~~f) All CWS and NTNCWS suppliers shall repeat the monitoring required in Section 611.650 no less~~

~~frequently than every five years from the dates specified in Section 611.650(a).~~

~~g) The Agency or suppliers may composite up to five samples when monitoring for substances in Section 611.650(e).~~

~~BOARD NOTE: Derived from 40 CFR 141.40(g-m) (1989).~~

(Source: Repealed at 16 Ill. Reg. , effective
)

Section 611.658 Special Monitoring for Organic Chemicals

Monitoring of the contaminants listed in subsection (k) must be conducted as follows:

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

BOARD NOTE: Derived from 40 CFR 141.40(n)(1), as amended at 56 Fed. Reg. 3578, January 30, 1991. See Section 611.100(c) for applicability to non-CWSs.

b) See Section 611.100(e).

c) Each CWS and NTNCWS supplier may apply to the Agency for a waiver from the requirements of subsection (a).

BOARD NOTE: Derived from 40 CFR 141.40(n)(3), as amended at 56 Fed. Reg. 3578, January 30, 1991. See Section 611.100(c) for applicability to non-CWSs.

d) The Agency may grant a waiver for the requirement of subsection (a), based on the criteria specified in Section 611.648(f).

BOARD NOTE: Derived from 40 CFR 141.40(n)(4), as amended at 56 Fed. Reg. 3578, January 30, 1991.

e) Definitions. As used in this Section:

"Distribution system" includes all points downstream of an "entry point".

"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 PWS, and upstream of any mixing with other water.

"GWS" is as defined in Section 611.640.

"Mixed system" is as defined in Section 611.640.

"Representative" means that a sample is expected to reflect the properties of water averaged over the period of time and portion of the PWS to be sampled. To be representative, a sample must be taken under normal seasonal operating conditions.

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

"SWS" is as defined in Section 611.640.

"Treatment" means any process: which changes the physical or chemical properties of water; which is under the control of the supplier; and, which is not a "point of use" or "point of entry treatment device" as defined in Section 611.101. "Treatment" includes, but is not limited to: aeration, coagulation, sedimentation, filtration, activated carbon, chlorination and fluoridation.

BOARD NOTE: Derived from 40 CFR 141.40(n)(5), (6) and (7), as amended at 56 Fed. Reg. 3578, January 30, 1991.

f) Required sampling. Each supplier shall take a minimum of one sample at each sampling point at the times required in subsection (a). Each sampling point must be "representative." The total number of sampling points must be representative of the water delivered to users throughout the system.

BOARD NOTE: Derived from 40 CFR 141.40(n)(5), (6) and (7), as amended at 56 Fed. Reg. 3578, January 30, 1991.

g) Sampling points.

1) Sampling points for GWSs. Unless otherwise provided by SEP, the following are the sampling points for GWSs: Each entry point.

2) Sampling points for SWSs and mixed systems. Unless otherwise provided by SEP, the following

are sampling points for SWSs and mixed systems:

A) Each entry point; or

B) Points in the distribution system.

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

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

BOARD NOTE: Derived from 40 CFR 141.40(n)(5), (6) and (7), as amended at 56 Fed. Reg. 3578, January 30, 1991.

h) See Section 611.100(e).

i) See Section 611.100(e).

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

BOARD NOTE: Derived from 40 CFR 141.40(n)(10), as amended at 56 Fed. Reg. 3578, January 30, 1991. See Section 611.100(c) for applicability to non-CWSs.

k) List of Organic Contaminants:

	Organic Methods
Organic Contaminants	Method
Aldrin	505, 508, 525
Benzo(a)pyrene	525, 550, 550.1
Butachlor	507, 525
Carbaryl	531.1
Dalapon	515.1
Di(2-ethylhexyl)adipate	506, 525
Di(2-ethylhexyl)phthalates	506, 525
Dicamba	515.1
Dieldrin	505, 508, 525
Dinoseb	515.1

Diquat	549
Endothall	548
Glyphosate	547
Hexachlorobenzene	505, 508, 525
Hexachlorocyclopentadiene	505, 525
3-Hydroxycarbofuran	531.1
Methomyl	531.1
Metolachlor	507, 525
Metribuzin	507, 508, 525
Oxamyl (vydate)	531.1
Picloram	515.1
Propachlor	507, 525
Simazine	505, 507, 525
2,3,7,8-TCDD (Dioxin)	513

BOARD NOTE: Derived from 40 CFR 141.40(n)(11), as amended at 56 Fed. Reg. 3578, January 30, 1991.

(Source: Added at 16 Ill. Reg. , effective
)

SUBPART T: REPORTING, PUBLIC NOTIFICATION AND RECORDKEEPING

Section 611.851 Reporting MCL and other Violations

A supplier which 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 ~~special exception permit~~SEP that the ~~PWS~~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 <u>or nitrite</u> in Section 611.300(b).

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 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.

BOARD NOTE: Derived from 40 CFR 141.32(a) ~~(1989), as amended at 54 Fed. Reg. 27526, June 29, 1989, and at 54 Fed. Reg. 27562, June 29, 1989~~(1990), as amended at 56 Fed. Reg. 3578, January 30, 1991. See Section 611.100(c) for applicability to non-CWSs.

(Source: Amended at 16 Ill. Reg. effective
)

Section 611.Appendix A Mandatory Health Effects Information

1) Trichloroethylene. The United States Environmental Protection Agency (USEPA) sets drinking water standards and has determined that trichloroethylene is a health concern at certain levels of exposure. ~~t~~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 ~~ot~~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. USEPA 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 (USEPA) 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. USEPA 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 (USEPA) 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. USEPA 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 (USEPA) 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 ~~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. USEPA 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 (USEPA) 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. Dringking 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. USEPA 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 (USEPA) 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 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. USEPA 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 (USEPA) 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. USEPA 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 (USEPA) 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. ~~Sime~~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. USEPA 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.

BOARD NOTE: Derived from 40 CFR 141.32(e)~~(1989), as amended at 54 Fed. Reg. 27526, June 29, 1989, and at 54 Fed. Reg. 27562, June 29, 1989~~(1) - (8) (1990).

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 ~~(1989)~~(1990).

10) Microbiological contaminants (for use when there is a violation of the treatment technique requirements for filtration and disinfection in Subpart B). The United States Environmental Protection Agency (USEPA) 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 ~~euased~~caused by a number of factors other than your drinking water. USEPA 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 USEPA 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 (USEPA) 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 ~~eontaminated~~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. USEPA 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 (USEPA) 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~~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. USEPA 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) See Section 611.100(e).

14) See Section 611.100(e).

15) Asbestos. The United States Environmental Protection Agency (USEPA) 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. USEPA 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 USEPA standard is associated with little to none of this risk and should be considered safe with respect to asbestos.

16) See Section 611.100(e).

17) Cadmium. The United States Environmental Protection Agency (USEPA) 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. USEPA 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 USEPA 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 (USEPA) 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. USEPA 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 USEPA 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 (USEPA) 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. USEPA 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 USEPA 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 (USEPA) 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, a 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. USEPA has set the drinking water standard at 10 parts per million (ppm) for nitrate to protect against the risk of these adverse effects. USEPA 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, USEPA has also established a standard for the sum of nitrate and nitrite at 10 ppm. Drinking water that meets the USEPA 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 (USEPA) 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. USEPA has set the drinking water standard at 1 part per million (ppm) for nitrite to protect against the risk of these adverse effects. USEPA 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 USEPA 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 (USEPA) 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

<u>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. USEPA 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 USEPA standard is associated with little to none of this risk and is considered safe with respect to selenium.</u>

<u>23)</u> <u>Acrylamide. The United States Environmental Protection Agency (USEPA) 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. USEPA 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.</u>

<u>24)</u> <u>Alachlor. The United States Environmental Protection Agency (USEPA) 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 ground water. 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. USEPA has set the drinking water standard for alachlor at 0.002 parts per million (ppm) to reduce the risk of cancer or</u>

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) See Section 611.100(e).

26) See Section 611.100(e).

27) See Section 611.100(e).

28) Atrazine. The United States Environmental Protection Agency (USEPA) 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 ground water. This chemical has been shown to affect offspring of rats and the heart of dogs. USEPA 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 USEPA 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 (USEPA) 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 ground water. 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. USEPA 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 USEPA 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 (USEPA) 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 to 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. USEPA 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 USEPA 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 (USEPA) 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, dibromochloropropane may get into drinking water by runoff into surface water or by leaching into ground water. 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. USEPA 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 USEPA 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 (USEPA) 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. USEPA 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 USEPA 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 (USEPA) 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. USEPA 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 USEPA 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 (USEPA) 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. USEPA 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 USEPA 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 (USEPA) 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 ground water. 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. USEPA 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 USEPA 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 a general notice under Section 611.854.

37) Epichlorohydrin. The United States Environmental Protection Agency (USEPA) 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. USEPA 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 (USEPA) 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. USEPA 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 USEPA 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 (USEPA) 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 ground water. 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. USEPA 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 a general notice under Section 611.854.

41) Heptachlor epoxide. This contaminant is subject to a "additional State requirement". The supplier shall give a general notice under Section 611.854.

42) Lindane. The United States Environmental Protection Agency (USEPA) 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 ground water. 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. USEPA 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 USEPA 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 (USEPA) 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 ground water. 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. USEPA 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 USEPA 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 (USEPA) 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. USEPA 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 USEPA 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 (USEPA) 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. USEPA 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) See Section 611.100(e).

47) Styrene. The United States Environmental Protection Agency (USEPA) 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. USEPA 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 USEPA 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 (USEPA) 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. USEPA 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 (USEPA) 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. USEPA 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 USEPA 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 (USEPA) 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 ground water. 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. USEPA 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 (USEPA) 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 ground water. 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. USEPA 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 USEPA 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 (USEPA) 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. USEPA 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 USEPA standard is associated with little to none of this risk and is considered safe with respect to xylene.

BOARD NOTE: Derived from 40 CFR 141.32(e) ~~(1989), as amended at 54 Fed. Reg. 27526, June 29, 1989, and at 54 Fed. Reg. 27562, June 29, 1989.~~(10) - (52) (1990), as amended at 56 Fed. Reg. 3578, January 30, 1991.

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