ILLINOIS POLLUTION CONTROL BOARD
November 19, 1992

IN THE MATTER OF:)
) R91-3
SAFE DRINKING WATER ACT) (Identical in Substance Rules)
UPDATE, PHASE II AND COLIFORM)
RULES (7/1/90 - 1/31/91))

IN THE MATTER OF :) R92-9
SAFE DRINKING WATER ACT) (Identical in Substance Rules)
PHASE I CORRECTIONS) (Consolidated)

Adopted Rule. Final Order.

ORDER OF THE BOARD (by J. Anderson):

Pursuant to Sections 17.5 of the Environmental Protection Act (Act), the Board is amending the Safe Drinking Water Act (SDWA) regulations.

Section 17.5 provides for quick adoption of regulations which are "identical in substance" to federal regulations and that Title VII of the Act and Section 5 of the 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 federal SDWA regulations are found at 40 CFR 141 and 142. This rulemaking updates SDWA rules to correspond with major federal amendments more fully outlined in the accompanying Opinion.

This order is supported by an opinion adopted on the same day. The Board received public comment on the proposal for a period of 45 days following its publication in the Illinois Register on April 10, 1992 (Part 611, at 16 Ill. Reg. 55826). The complete text of the adopted rules follows.

IT IS SO ORDERED.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, do hereby certify that the above order was adopted by the Board on the 19th day of November, 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

SUBPART B: FILTRATION AND DISINFECTION

SUBPART C: USE OF NON-CENTRALIZED TREATMENT DEVICES

SUBPART D: TREATMENT TECHNIQUES

SUBPART F: MAXIMUM CONTAMINANT LEVELS (MCL's)

SUBPART K: GENERAL MONITORING AND ANALYTICAL REQUIREMENTS

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SUBPART M: TURBIDITY MONITORING AND ANALYTICAL REQUIREMENTS

SUBPART N: INORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

SUBPART O: ORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

Section

SUBPART P: THM MONITORING AND ANALYTICAL REQUIREMENTS

Section

SUBPART Q: RADIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

Section

SUBPART 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. 1991, ch. 111½, 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. 19~~8~~91, ch. 111~~-1/2~~½, par. 1001 et seq.)

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

"Ai" means "inactivation ratio".

"Best available technology" or "BAT" means the best technology, treatment techniques or other means ~~which~~that 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~~8~~91).

"Board" means the Illinois Pollution Control Board.

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

"CT" or "CT~~calc~~$_{calc}$" is the product of "residual disinfectant concentration" (RDC or C) in mg/L determined before or at the first customer, and the corresponding "disinfectant contact time" (T) in minutes. If a supplier applies disinfectants at more than one point prior to the first customer, it shall determine the CT of each 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 "CT~~99.9~~$_{99.9}$")
BOARD NOTE: Derived from 40 CFR 141.2 (19~~8~~91)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

"CT~~99.9~~$_{99.9}$" is the CT value required for 99.9 percent (3-log) inactivation of Giardia lamblia cysts. CT~~99.9~~$_{99.9}$ for a variety of disinfectants and conditions appear in Tables 1.1-1.6, 2.1 and 3.1 of Section 611.Appendix B. (See "Inactivation Ratio".)
BOARD NOTE: Derived from the definition of "CT" in 40 CFR 141.2 (19~~8~~91)~~, 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~~8~~91)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

"Community Water System" ~~(~~or "CWS"~~)~~ means a public water system (PWS) ~~which~~that serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.
BOARD NOTE: Derived from 40 CFR 141.2 (19~~8~~91). This definition differs slightly from that of Section 3.05 of the Act.

"Compliance cycle" means the nine-year calendar year cycle during which public water systems (PWSs) must monitor. Each compliance cycle consists of three three-year compliance periods. The first calendar cycle begins January 1, 1993, and ends December 31, 2001; the second begins January 1, 2002 and ends December 31, 2010; the third begins January 1, 2011, and ends December 31, 2019.
BOARD NOTE: Derived from 40 CFR 141.2 (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 (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~~8~~91)~~, 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~~8~~91).

"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~~8~~91)~~, 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~~8~~91)~~, 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~~8~~91)~~, 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~~8~~91)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

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

> Where only one RDC is measured, T is the time in minutes that it takes for water to move from the point of disinfectant application to a point before or at where RDC is measured.
>
> Where more than one RDC is measured, T is:
>
>> For the first measurement of RDC, the time in minutes that it takes for water to move from the first or only point of disinfectant application to a point before or at the point where the first RDC is measured and
>>
>> For subsequent measurements of RDC, the time in minutes that it takes for water to move from the previous RDC measurement point to the RDC measurement point for which the particular T is being calculated.
>
> T in pipelines must be calculated based on "plug flow" by dividing the internal volume of the pipe by the maximum hourly flow rate through that pipe.
>
> T within mixing basins and storage reservoirs must be determined by tracer studies or an equivalent demonstration.
>
> BOARD NOTE: Derived from 40 CFR 141.2 (19~~8~~91)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

"Disinfection" means a process ~~which~~that inactivates pathogenic organisms in water by chemical oxidants or equivalent agents.
BOARD NOTE: Derived from 40 CFR 141.2 (19~~8~~91)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

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

"Domestic or other non-distribution system plumbing problem" means a coliform contamination problem in a

PWS with more than one service connection that is limited to the specific service connection from which the coliform-positive sample was taken.
BOARD NOTE: Derived from 40 CFR 141.2 (19~~8~~91)~~, 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~~8~~91).

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

"Filtration" means a process for removing particulate matter from water by passage through porous media.
BOARD NOTE: Derived from 40 CFR 141.2 (19~~8~~91)~~, 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~~8~~91)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

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

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

"Gross alpha particle activity" means the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample.
BOARD NOTE: Derived from 40 CFR 141.2 (19~~8~~91).

"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~~8~~91).

"Groundwater under the direct influence of surface water" is as determined in Section 611.21~~1~~2.
BOARD NOTE: Derived from 40 CFR 141.2 (19~~8~~91)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

"GWS" means "groundwater system", a public water supply (PWS) that uses only groundwater sources.
BOARD NOTE: Drawn from 40 CFR 141.23(b)(2) & 141.24(f)(2) note (1991).

"Halogen" means one of the chemical elements chlorine, bromine or iodine.
BOARD NOTE: Derived from 40 CFR 141.2 (19~~8~~91).

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

"Inactivation Ratio" (Ai) means:

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

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

B = SUM(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~~8~~91)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

"Initial compliance period" means the three-year compliance period begins January 1, 1993.
BOARD NOTE: Derived from 40 CFR 141.2 (1991).

"L" means "liter".

"Legionella" means a genus of bacteria, some species of which have caused a type of pneumonia called Legionnaires Disease.
BOARD NOTE: Derived from 40 CFR 141.2 (19~~8~~91)~~, 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~~1).

"Maximum contaminant level" ("MCL") See Section 611.121
BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~1).

"Maximum Total Trihalomethane Potential" or ~~(~~"MTP~~)~~" means the maximum concentration of total trihalomethanes (TTHMs) produced in a given water containing a disinfectant residual after 7 days at a temperature of 25~~ deg.~~° C or above.
BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~1).

"MFL" means millions of fibers per liter larger than 10 micrometers.
BOARD NOTE: Derived from 40 CFR 141.23(a)(4)(i) (1991).

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

"mg/L" means milligrams per liter.

"Mixed system" means a PWS that uses both groundwater and surface water sources.
BOARD NOTE: Drawn from 40 CFR 141.23(b)(2) and 141.24(f)(2) note (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 public water system (PWS) treatment facility, as measured by water transport time within the distribution system.
BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~1)~~, as amended at 54 Fed. Reg. 27562, June 29, 1989~~.

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

"Non-community water system" ~~(~~or "NCWS" or "non-CWS"~~)~~ means a public water system (PWS) ~~which~~that is not a community water system (CWS).
BOARD NOTE: Derived from the definition of "public water system" in 40 CFR 141.2 (19~~89~~1).

"Non-transient non-community water system" ~~(~~or "NTNCWS"~~)~~ means a public water system (PWS) that is not

a community water system (CWS) and that regularly serves at least 25 of the same persons over 6 months per year.
BOARD NOTE: Derived from 40 CFR 141.2 (19~~8~~91).

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

"NTU" means "nephelometric turbidity units".

"Old MCL" means one of the inorganic maximum contaminant levels (MCLs), codified at Section 611.300, or organic MCLs, codified at Section 611.310, including any marked as "additional state requirements."
BOARD NOTE: Old MCLs are those derived prior to the implementation of the USEPA "Phase II" regulations. The Section 611.640 definition of this term, which applies only to Subpart O, differs from this definition in that that definition does not include the Section 611.300 inorganic MCLs.

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

"Performance evaluation sample" means a reference sample provided to a laboratory for the purpose of demonstrating that the laboratory can successfully analyze the sample within limits of performance specified by the Agency~~,~~; or, for ~~non-CWSs~~bacteriological laboratories, Public Health; or, for radiological laboratories, the Illinois Department of Nuclear Safety. The true value of the concentration of the reference material is unknown to the laboratory at the time of the analysis.
BOARD NOTE: Derived from 40 CFR 141.2 (19~~8~~91).

"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~~8~~91).

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

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

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

"Picocurie" or ~~(~~"pCi~~)~~" means the quantity of radioactive material producing 2.22 nuclear transformations per minute.
BOARD NOTE: Derived from 40 CFR 141.2 (19~~8~~91).

"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~~8~~91)~~, 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~~8~~91).

"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~~8~~91).

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

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

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

Any collection or pretreatment storage facilities not under such control ~~which~~that 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~~8~~91).

"Reliably and consistently" below a specified level for a contaminant means an Agency determination based on analytical results following the initial detection of a contaminant to determine the qualitative condition of water from an individual sampling point or source. The Agency shall bse this determination on the consistency of analytical results, the degree below the MCL, the susceptability of source water to variation, and other vulnerability factors pertinent to the contaminant detected that may influence the quality of water.
BOARD NOTE: Derived from 40 CFR 141.23(b)(9), 141.24(f)(11)(ii), and 141.24(f)(11)(iii) (1991).

"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~~8~~91).

"Repeat compliance period" means a~~n~~ compliance period that begins after the initial compliance period.
BOARD NOTE: Derived from 40 CFR 141.2 (1991).

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

"Residual disinfectant concentration" ("RDC" or "C" in CT calculations) means the concentration of disinfectant measured in mg/L in a representative sample of water. For purposes of the requirement of Section 611.241(d) of maintaining a detectable RDC in the distribution system, "RDC" means a residual of free or combined chlorine.
BOARD NOTE: Derived from 40 CFR 141.2 (19~~8~~91)~~, 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~~8~~91).

"Sanitary survey" means an onsite review of the water source, facilities, equipment, operation and

maintenance of a public water system (PWS) for the purpose of evaluating the adequacy of such source, facilities, equipment, operation and maintenance for producing and distributing safe drinking water.
BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~1).

"Sedimentation" means a process for removal of solids before filtration by gravity or separation.
BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~1)~~, 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 meters per hour (m/h)) resulting in substantial particulate removal by physical and biological mechanisms.
BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~1)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

"SOC" or "Synthetic organic chemical contaminant" refers to that group of contaminants designated as "SOCs", or "synthetic organic chemicals" or "synthetic organic contaminants", in USEPA regulatory discussions and guidance documents. "SOCs" include alachlor, atrazine, carbofuran, chlordane, dibromoethylene (ethylene dibromide or EDB), dibromochloropropane (DBCP), heptachlor, heptachlor epoxide, lindane, methoxychlor, toxaphene, polychlorinated biphenyls (PCBs), 2,4-D, and 2,4,5-TP.

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

"Standard sample" means the aliquot of finished drinking water that is examined for the presence of coliform bacteria.
BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~1).

"Supplier of water" or "supplier" means any person who owns or operates a public water system (PWS). This term includes the "official custodian".
BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~1).

"Surface water" means all water ~~which~~that is open to the atmosphere and subject to surface runoff.
BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~1)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

"SWS" means "surface water system", a public water supply (PWS) that uses only surface water sources,

including "groundwater under the direct influence of surface water".
BOARD NOTE: Drawn from 40 CFR 141.23(b)(2) and 141.24(f)(2) note (1991).

"System with a single service connection" means a system ~~which~~that supplies drinking water to consumers via a single service line.
BOARD NOTE: Derived from 40 CFR 141.2 (19~~89~~1)~~, 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~~1)~~, as amended at 54 Fed. Reg. 27562, June 29, 1989~~.

"Total trihalomethanes" ~~(~~or "TTHM~~)~~" means the sum of the concentration of trihalomethanes (THMs), in milligrams per liter (mg/L), rounded to two significant figures.
BOARD NOTE: Derived from the definition of "total trihalomethanes" in 40 CFR 141.2 (19~~89~~1).See the definition of THMs for a listing of the four compounds that USEPA considers TTHMs to comprise.

"Transient, non-community water system" or "transient non-CWS" or "TNCWS" means a public water system (PWS) that is neither a community water system (CWS) nor a non-transient, noncommunity water system (NTNCWS).
BOARD NOTE: The federal regulations apply to all "public water systems", which are defined as all systems having at least 15 service connections or regularly serving water to at least 25 persons. See 42 U.S.C. §300f(4). The Act mandates that the Board and the Agency regulate "public water supplies", which it defines as having at least 15 service connections or regularly serving 25 persons daily at least 60 days per year. See Ill. Rev. Stat. 1991 ch. 111½, par. 1003.28. The Department of Public Health regulates transient non-community water systems.

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

"Trihalomethane" ~~(~~or "THM~~)~~" means one of the family of organic compounds, named as derivatives of methane, in which three of the four hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure. The THMs are:

Trichloromethane (chloroform),

Dibromochloromethane,

Bromodichloromethane and

Tribromomethane (bromoform)

BOARD NOTE: Derived from the definitions of "total trihalomethanes" and "trihalomethanes" in 40 CFR 141.2 (19~~8~~91).

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

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

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

"VOC" ~~means~~or "volatile organic chemical contaminant" refers to that group of contaminants designated as "VOCs", or "volatile organic chemicals" or "volatile organic contaminants", in USEPA regulatory discussions and guidance documents. "VOCs" include benzene, tetrachloromethane (carbon tetrachloride), trichloroethylene, vinyl chloride, 1,1,1-trichloroethane (methyl chloroform), 1,1-dichloroethylene, 1,2-dichloroethane, cis-1,2-dichloroethylene, ethylbenzene, monochlorobenzene, o-dichlorobenzene, styrene, tetrachloroethylene, toluene, trans-1,2-dichloroethylene, xylene, and 1,2-dichloropropane.
BOARD NOTE: Derived from 40 CFR 141.2 (19~~8~~91)~~, 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 public water system (PWS) ~~which~~that is deficient in treatment, as determined by the appropriate local or State agency.
BOARD NOTE: Derived from 40 CFR 141.2 (19~~8~~91)~~, 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~~8~~91)~~,~~

~~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 in this Part to refer to 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-O~~3~~$_3$ 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 and ORD Publications.

"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-~~7~~88A 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 D3557-78A or B, "Standard Test Methods for Cadmium in Water", approved July 28, 1978.~~

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

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

ASTM Method D3867-~~79~~90~~A 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 214A, Turbidity, Nephelometric Method -- Nephelometric Turbidity Units.

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.~~

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

~~Method 404A, Arsenic/ Silver Diethyldithiocarbamate Method.~~

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

Method 41~~3~~2D, 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 307A, Arsenic, Atomic Absorbtion Spectrophotometric Method.

Method 307B, Arsenic, Silver Diethyldithiocarbamate Method.

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

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

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

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

Method 410B, Chlorine Dioxide, Amperometric Method.

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

Method 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~~pH Value.

Method 907A, Pour Plate Method.

Method 908, Multiple Tube Fermentation Technique for Members of the Coliform Group.

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

Method 908B, Application of Tests to Routine Examinations.

Method 908C, Fecal Coliform MPN Procedure.

Method 908D, Estimation of Bacterial Density.

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

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

Method 909A, Standard Total Coliform Membrane Filter Procedure.

Method 909B, Delayed Incubation Total Coliform Procedure.

Method 909C, Fecal Coliform Membrane Filter Procedure.

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

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

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~~.~~ or (800) 336-4700:

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

"Methods of 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, for all methods referenced except methods 180.1 (turbidity, Section 611.560) and 273.1

and 273.2 (sodium, Section 611.630).

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

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

"Methods for the Determination of Organic Compounds in Drinking Water", EPA/600/4-88/039, December, 1988, Doc. No. PB89-220461. (For the purposes of Sections 611.646 and 611.648 only; including Method 515.1, revision 5.0 and Method 525.1, revision 3.0 (May, 1991).)

"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.

ORD Publications, CERI, EPA, Cincinnati, OH 45268:

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

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

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~~EMSL, EPA, Cincinnati, OH 45268:

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

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

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

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

"Methods for the Determination of Organic Compounds in 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 and ORD Publications.

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 ~~s~~Substances in Water and Fluvial Sediments", Open-File Report 85-495, 19~~7~~89.

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

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

40 CFR 136, Appendix B and C (19~~8~~91).

40 CFR 141.22(a) (19~~8~~91).

40 CFR 141.23(f)(10), footnotes 6 and 7 (19~~8~~91).

40 CFR 141.24(e), footnote 6 (19~~8~~91).

40 CFR 141.25(b)(2) (19~~8~~91).

40 CFR 141, Subpart C, Appendix C (19~~8~~91).

40 CFR 142, Subpart G (1991).

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.

  BOARD NOTE: The Board does not intend to mandate by any provision of this Part that the Agency exercise its discretion and initiate a SEP pursuant to subsection (d)(2). Rather, the Board intends to clarify by this subsection that the Agency may opt to initiate a SEP without receiving a request from the supplier.

e) The Agency shall evaluate a request for a SEP from the monitoring requirements of Section 611.646(e) and (f) (Phase I VOCs and Phase II VOCs), Section 611.648(a) (for Phase II SOCs) and Section 611.510(a) (for unregulated organic contaminants) on the basis of knowledge of previous use (including transport, storage, or disposal) of the contaminant in the watershed or zone of influence of the system, as determined pursuant to 35 Ill. Adm. Code 671:

  1) If the Agency determines that there was no prior use of the contaminant, it shall grant the SEP, or

  2) If the contaminant was previously used or the previous use was unknown, the Agency shall consider the following factors:

    A) Previous analytical results;

    B) The proximity of the system to any possible point source of contamination (including spills or leaks at or near a water treatment facility; at manufacturing, distribution, or storage facilities; from hazardous and municipal waste land fills; or from waste handling or treatment facilities) or non-point source of contamination (including the use of pesticides and other land application uses of the contaminant);

C) The environmental persistence and transport of the contaminant;

D) How well the water source is protected against contamination, including whether it is a SWS or a GWS:

i) A GWS must consider well depth, soil type, and well casing integrity, and

ii) A SWS must consider watershed protection; and

E) For Phase II SOCs and unregulated organic contaminants (pursuant to Section 611.631 or 611.648):

i) Elevated nitrate levels at the water source; and

ii) The use of PCBs in equipment used in the production, storage, or distribution of water (including pumps, transformers, etc.); and

F) For Phase I VOCs and Phase II VOCs (pursuant to Section 611.646): the number of persons served by the PWS and the proximity of a smaller system to a larger one.

BOARD NOTE: Subsection (e) derived from 40 CFR 141.24(f)(8) and (h)(6) (1991).

(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~~that are reasonably available to the system, the supplier cannot meet the MCL or other requirement; and

2) The system has applied BAT as identified in Subpart G. 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

from fecal or pathogenic contamination, from a treatment lapse or deficiency, or from a problem in the operation or maintenance of the distribution system.

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

BOARD NOTE: Derived from 40 CFR 141.4 (19~~89~~1)~~, as amended at 54 Fed. Reg. 27562, June 29, 1989~~, 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, during the period ending on the date when compliance is required, of each additional control measure for each contaminant~~,~~ subject to the MCL or treatment technique requirement~~, 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~~that cannot be completed within 12 months;

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

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

2) In the case of a PWS with 500 or fewer service connections~~, and which~~that needs financial assistance for the necessary improvements, a variance under subsections (d)(1)(A) or (d)(1)(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 from fecal or pathogenic contamination, from a treatment lapse or deficiency, or from a problem in the operation or maintenance of the distribution system.

2) ~~or f~~From any of the treatment technique requirements of Subpart B.

3) From the residual disinfectant concentration (RDC) requirements of Sections 611.241(c) and 611.242(b).

BOARD NOTE: Derived from 40 CFR 141.4 (19~~89~~1)~~, as amended at 54 Fed. Reg. 27562, June 29, 1989~~.

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

Section 611.113 Alternative Treatment Techniques

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

a) Pursuant to this Section, the Board may grant an adjusted standard from a treatment technique requirement.

b) The supplier seeking an adjusted standard shall file a petition pursuant to 35 Ill. Adm. Code 106.Subpart G.

c) As justification the supplier shall demonstrate that an alternative treatment technique is at least as effective in lowering the level of the contaminant with respect to which the treatment technique requirement was prescribed.

d) As a condition of any adjusted standard, the Board will require the use of the alternative treatment technique.

e) The Board will grant adjusted standards for alternative treatment techniques subject to the following conditions:

1) All adjusted standards shall be subject to the limitations of 40 CFR 142, Subpart G, incorporated by reference in Section 611.102, and

2) All adjusted standards shall be subject to review and approval by USEPA pursuant to 40 CFR 142.46 before they become effective.

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

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

Section 611.121 Maximum Contaminant Levels and Finished Water Quality

a) Maximum Contaminant Levels: No person shall cause or allow water that is delivered to any user ~~at a specified measurement point~~ to exceed the MCL for any contaminant.

~~b)~~ ~~Measurement point: Except as otherwise provided, samples for determining compliance with an MCL must be~~

~~taken at the following points:~~

~~1) For turbidity, at the point of entry to the distribution system.~~

~~2) For other contaminants, at the free flowing outlet of the ultimate user of a PWS~~

b) Finished Water Quality:

1) The finished water delivered to any user at any point in the distribution system shall contain no impurity at a concentration that may be hazardous to the health of the consumer or that would be excessively corrosive or otherwise deleterious to the water supply. Drinking water delivered to any user at any point in the distribution system shall contain no impurity that could reasonably be expected to cause offense to the sense of sight, taste, or smell.

2) No substance used in treatment should remain in the water at a concentration greater than that required by good practice. A substance that may have a deleterious physiological effect, or one for which physiological effects are not known, shall not be used in a manner that would permit it to reach the consumer.

~~c) There is no violation of the MCL for contaminants added to the water under circumstances controlled by the user, except those resulting from corrosion of piping and plumbing caused by water quality.~~

c) A MCL for a particular contaminant shall apply in lieu of any finished water quality narrative standard.

BOARD NOTE: Derived from the definition of "MCL" in 40 CFR 141.2 (19~~8~~91) and former 35 Ill. Adm. Code 604.201, repealed in R88-26, at 14 Ill. Reg. 16435, effective September 20, 1990.

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

SUBPART B: FILTRATION AND DISINFECTION

Section 611.220 General Requirements

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

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

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

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

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

2) It meets the filtration requirements in Section 611.2~~3~~50 and the disinfection requirements in Section 611.2~~3~~42.

c) Each supplier using a surface water source or a groundwater source under the direct influence of surface water shall have a certified operator pursuant to 35 Ill. Adm. Code 603.103 and Ill. Rev. Stat. 19~~8~~91, ch. 111~~-1/2~~½, par. 501 et seq.

BOARD NOTE: Derived from 40 CFR 141.70 (19~~8~~91)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

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

Section 611.232 Site-specific Conditions

The Agency shall consider the following site specific criteria in determining whether to require filtration pursuant to Section 611.211:

a) Disinfection.

1) The supplier shall meet the requirements of Section 611.241(a) at least 11 of the 12 previous months that the system served water to the public, on an ongoing basis, unless the system fails to meet the requirements during 2 of the 12 previous months that the system served water to the public, and the Agency determines that at least one of these failures was caused by circumstances that were unusual and unpredictable.

2) The supplier shall meet the following requirements at the times specified for each:

A) The requirements of Section 611.241(b)(1), at all times the system serves water to the public; and

B) The requirements of Section 611. 241(b)(2) at all times the system serves water to the public, unless the Agency determines that any such failure was caused by circumstances that were unusual and unpredictable.

3) The supplier shall meet the requirements of Section 611.241(c) at all times the system serves water to the public unless the Agency determines that any such failure was caused by circumstances that were unusual and unpredictable.

4) The supplier shall meet the requirements of Section 611.241(d) on an ongoing basis unless the Agency determines that failure to meet these requirements was not caused by a deficiency in treatment of the source water.

b) Watershed control program. The supplier shall maintain a watershed control program which minimizes the potential for contamination by Giardia lamblia cysts and viruses in the source water. The Agency shall determine whether the watershed control program is adequate to meet this goal. The Agency shall determine the adequacy of a watershed control program based on:

1) The comprehensiveness of the watershed review;

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

3) The the extent to which the water system has maximized land ownership or controlled land use within the watershed. At a minimum, the watershed control program must:

   A) Characterize the watershed hydrology and land ownership;

   B) Identify watershed characteristics and activities which may have an adverse effect on source water quality; and

   C) Monitor the occurrence of activities which may have an adverse effect on source water quality.

4) 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 microbiological quality of the source water. The supplier shall submit an annual 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. For systems using a groundwater source under the direct influence of surface water, an approved wellhead protection program may be used, if appropriate, to meet these requirements.

c) On-site inspection. The supplier shall be subject to an annual on-site inspection to assess the watershed control program and disinfection treatment process. ~~Either t~~The Agency ~~or a unit of local government delegated pursuant to Section 611.108~~ shall conduct the inspection. A report of the on-site inspection summarizing all findings must be prepared every year. The on-site inspection must demonstrate that the watershed control program and disinfection treatment process are adequately designed and maintained. The on-site inspection must include:

1) A review of the effectiveness of the watershed control program;

2) A review of the physical condition of the source intake and how well it is protected;

3) A review of the system's equipment maintenance program to ensure there is low probability for failure of the disinfection process;

4) An inspection of the disinfection equipment for physical deterioration;

5) A review of operating procedures;

6) A review of data records to ensure that all required tests are being conducted and recorded and disinfection is effectively practiced; and

7) Identification of any improvements which are needed in the equipment, system maintenance and operation or data collection.

d) Absence of waterborne disease outbreaks. The PWS must not have been identified as a source of a waterborne disease outbreak, or if it has been so identified, the system must have been modified sufficiently to prevent another such occurrence.

e) Total Coliform MCL. The supplier shall comply with the MCL for total coliforms in Section 611.325 at least 11 months of the 12 previous months that the system served water to the public, on an ongoing basis, unless the Agency determines that failure to meet this requirement was not caused by a deficiency in treatment of the source water.

f) TTHM MCL. The supplier shall comply with the MCL for TTHM in Section 611.310.

BOARD NOTE: Derived from 40 CFR 141.71(b) (19~~8~~91)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

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

Section 611.241 Unfiltered PWSs

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

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

1) If a system uses a disinfectant other than chlorine, the system may demonstrate to the Agency, through the use of an Agency-approved protocol for on-site disinfection challenge studies or other information, that CT~~99.9~~$_{99.9}$ values other than those specified in Section 611.Appendix B, Tables 2.1 and 3.1 or other operational parameters are adequate to demonstrate that the system is achieving minimum inactivation rates required by this subsection.

2) The demonstration must be made by way of special exception permit application.

b) The disinfection system must have either:

1) Redundant components, including an auxiliary power supply with automatic start-up and alarm to ensure that disinfectant application is maintained continuously while water is being delivered to the distribution system; or

2) Automatic shut-off of delivery of water to the distribution system whenever there is less than 0.2 mg/L of RDC in the water. If the Agency determines, by special exception permit, that automatic shut-off would cause unreasonable risk to health or interfere with fire protection, the system shall comply with subsection (b)(1).

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

d) RDC in the distribution system.

1) The RDC in the distribution system, measured as total chlorine, combined chlorine or chlorine dioxide, as specified in Section Section 611.531(e) and 611.532(~~e~~f), cannot be undetectable in more than 5 percent of the samples each month for any two consecutive months that the system

serves water to the public. Water in the distribution system with HPC less than or equal to 500/ml, measured as specified in Section 611.531(c), is deemed to have a detectable RDC for purposes of determining compliance with this requirement. Thus, the value "V" in the following formula cannot exceed 5 percent in one month, for any two consecutive months.

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

where:

a = Number of instances where the RDC is measured.

b = Number of instances where the RDC is not measured, but HPC is measured.

c = Number of instances where the RDC is measured but not detected and no HPC is measured.

d = Number of instances where the RDC is measured but not detected, and where the HPC is greater than 500/ml. And,

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

2) Subsection (d)(1) does not apply if the Agency determines, pursuant to Section 611.213, that a supplier has no means for having a sample analyzed for HPC.

BOARD NOTE: Derived from 40 CFR 141.72(a) (19891)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

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

Section 611.250 Filtration

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

a) Conventional filtration treatment or direct filtration.

1) For systems using conventional filtration or direct filtration, the turbidity level of representative samples of a system's filtered water must be less than or equal to 0.5 NTU in at least 95 percent of the measurements taken each month, except that, if the Agency determines, by special exception permit, that the system is capable of achieving at least 99.9 percent removal or inactivation of Giardia lamblia cysts at some turbidity level higher than 0.5 NTU in at least 95 percent of the measurements taken each month, the Agency shall substitute this higher turbidity limit for that system. However, in no case ~~shall~~may the Agency approve a turbidity limit that allows more than 1 NTU in more than 5 percent of the samples taken each month.

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

b) Slow sand filtration.

1) For systems using slow sand filtration, the turbidity level of representative samples of a system's filtered water must be less than or equal to 1 NTU in at least 95 percent of the measurements taken each month, except that if the Agency determines, by special exception permit, that there is no significant interference with disinfection at a higher level, the Agency shall substitute the higher turbidity limit for that system.

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

c) Diatomaceous earth filtration.

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

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

d) Other filtration technologies. A supplier may use a filtration technology not listed in subsections (a) through (c) if it demonstrates, by special exception permit application, to the Agency, using pilot plant studies or other means, that the alternative filtration technology, in combination with disinfection treatment that meets the requirements of Section 611.242, consistently achieves 99.9 percent removal or inactivation of Giardia lamblia cysts and 99.99 percent removal or inactivation of viruses. For a system that makes this demonstration, the requirements of subsection (b) apply.

e) Turbidity is measured as specified in Sections 611.531(d) and 611.533(a).

BOARD NOTE: Derived from 40 CFR 141.73 (19~~8~~91)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

(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 (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 in subsection (b). The product of monomer level and dose are computed 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:

b) Maximum Product of monomer level and dose:

1) For acrylamide, P = 0.05; and

2) For epichlorohydrin, P = 0.20.

c) Suppliers' certifications may rely on manufacturers or third parties, as approved by the Agency.

BOARD NOTE: Derived from 40 CFR 141.111 (1991).

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

SUBPART F: MAXIMUM CONTAMINANT LEVELS (MCL'S)

Section 611.300 Old MCLs for Inorganic Chemicals

a) The old MCL for nitrate is applicable to both CWS suppliers and non-CWS suppliers except as provided by in subsection (d). The level for the other inorganic chemicals apply only to CWS suppliers. The levels for additional State requirements apply only to CWSs. Compliance with old MCLs for inorganic chemicals is calculated pursuant to ~~Subpart N~~Section 611.635. The MCLs for barium and lead shall remain effective until repealed or amended in a later rulemaking.

BOARD NOTE: Derived from 40 CFR 141.11(a) (19~~8~~91). USEPA has given an expiration date of December 7, 1992 for the MCL for lead and January 1, 1993 for barium because these are the effective dates for the federal lead and copper (56 Fed. Reg. 2460 (June 7, 1991)) and Phase IIB (56 Fed. Reg. 30266 (July 1, 1991)) rules, respectively. The Board will repeal the lead and barium MCLs, as appropriate, when the Illinois lead and copper and Phase IIB rule package becomes effective.

b) The following are the old MCL's for inorganic chemicals:

Contaminant	Level, mg/L	Additional State Requirement (*)

Arsenic	0.05	
Barium	1.	
~~Cadmium~~	~~0.010~~	
~~Chromium~~	~~0.05~~	
Copper	5.	*
Cyanide	0.2	*
Fluoride	4.0	
Iron	1.0	*
Lead	0.05	
Manganese	0.15	*
~~Mercury~~	~~0.002~~	
~~Nitrate (as N)~~	~~10.~~	
~~Selenium~~	~~0.01~~	
~~Silver~~	~~0.05~~	
Zinc	5.	*

BOARD NOTE: Derived from 40 CFR 141.11(b) ~~and 141.62~~ (19~~8~~91). This provision, which corresponds with 40 CFR 141.11, was formerly the only listing of MCLs for inorganic parameters. However, USEPA added another listing of inorganic MCLs at 40 CFR 141.62 at 56 Fed. Reg. 3594 (Jan. 30, 1991). Following the changing USEPA codification scheme creates two listings of MCLs: one at this Section and one at Section 611.301. This also causes fluoride to appear in both listings with the same MCL. The impact of the two listings are distinct.

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

BOARD NOTE: Derived from 40 CFR 141.11(c) (19~~8~~91).

d) Nitrate.

1) The Board incorporates by reference 40 CFR 141.11(d) (19~~8~~91). This incorporation includes no later editions or amendments.

2) ~~If allowed by Public Health, n~~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~~8~~91). Public Health regulations may impose a nitrate limitation requirement. Those regulations are at 77 Ill. Adm. Code 900.50.

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

1) CWS suppliers ~~which~~that serve a population of 1000

or less, or 300 service connections or less, are exempt from the standards for iron and manganese.

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

BOARD NOTE: This is an additional State requirement.

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

Section 611.301 Revised MCLs for Inorganic Chemicals

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

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

Contaminant	MCL	Units
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

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

	DDF
	CC
Barium	IX
	LIME
	RO
	ED
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 or equal to (≤) 10 µg/L
	GAC
	LIME, BAT only if influent Hg concentrations ≤ 10 µ/L
	RO, BAT only if influent Hg concentrations ≤ 10 µ/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 (1991).

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

Section 611.310 Old MCLs for 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.

Contaminant	Level (mg/L)	Additional State Requirement (*)
a) Chlorinated hydrocarbons:		
Aldrin	0.001	*
~~Chlordane~~	~~0.003~~	~~*~~
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) (1991). This provision, which corresponds with 40 CFR 141.12, was formerly the only listing of MCLs for organic parameters. However, USEPA added another listing of organic MCLs at 40 CFR 141.61, at 56 Fed. Reg. 3593 (Jan. 30, 1991). The USEPA codification scheme creates two listings of MCLs: the counterpart to one of which appears at this Section and the other appears at Section 611.311. This also causes heptachlor, heptachlor epoxide, and 2,4-D to appear in both lists with a different MCL in each list. The heptachlor, heptachlor epoxide, and 2,4-D MCLs in this list are Illinois limitations that are more stringent than the federal requirements. However, detection of these contaminants or violation of their federally-derived revised MCLs imposes more stringent monitoring, reporting, and notice requirements.

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

~~2,4,5-TP (Silvex) 0.01~~

BOARD NOTE: Derived from 40 CFR 141.12(b) (19~~8~~91). See the preceding Board Note regarding the dual listing of MCLs for 2,4-D.

c) TTHM 0.10 *

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

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

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

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

a) Volatile organic chemical contaminants. The following MCLs ~~levels for VOCs~~for volatile organic chemical contaminants (VOCs) apply to CWS suppliers and NTNCWS suppliers.

CAS No.	Contaminant	MCL (mg/L)
~~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
106-46-7	p-Dichlorobenzene	0.075
107-06-2	1,2-Dichloroethane	0.005
75-35-4	1,1-Dichloroethylene	0.007
156-59-2	cis-1,2-Dichloroethylene	0.07
156-60-5	trans-1,2-Dichloroethylene	0.1
78-87-5	1,2-Dichloropropane	0.005
100-41-4	Ethylbenzene	0.7
108-90-7	Monochlorobenzene	0.1
100-42-5	Styrene	0.1

127-18-4	Tetrachloroethylene	0.005
108-88-3	Toluene	1
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

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 volatile organic chemical contaminants and synthetic organic chemical contaminants in subsections (a) and (c).

15972-60-8	Alachlor	GAC
116-06-3	Aldicarb	GAC
1646-88-4	Aldicarb sulfone	GAC
1646-87-3	Aldicarb sulfoxide	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
94-75-7	2,4-D	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
76-44-8	Heptachlor	GAC
1024-57-3	Heptachlor epoxide	GAC
58-89-9	Lindane	GAC
72-43-5	Methoxychlor	GAC
108-90-7	Monochlorobenzene	GAC, PTA
1336-36-3	Polychlorinated biphenyls (PCB)	GAC
87-86-5	Pentachlorophenol	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
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) Synthetic organic chemical contaminants. The following MCLs for synthetic organic chemical contaminants (SOCs) apply to CWS and NTNCWS suppliers.

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
94-75-7	2,4-D	0.07
96-12-8	Dibromochloropropane	0.0002
106-93-4	Ethylene dibromide	0.00005
76-44-8	Heptachlor	0.0004
1024-57-3	Heptachlor epoxide	0.0002
58-89-9	Lindane	0.0002
72-43-5	Methoxychlor	0.04
1336-36-3	Polychlorinated biphenyls (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 (19~~8~~91). More stringent state MCLs for 2,4-D, heptachlor, and heptachlor epoxide appear at Section 611.310. See the Board Note at that provision.

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

Section 611.320 Turbidity

This Section applies to unfiltered PWSs until December 30, 1991, unless the Agency or Public Health has determined, pursuant to Section 611.211, prior to that date that filtration is required. This Section applies to filtered systems until June 29, 1993. This Section applies to unfiltered systems that the Agency has determined, pursuant to Section 611.211, must install filtration, until June 29, 1993, or until filtration is installed, whichever is later. The MCLs for turbidity are applicable to both CWS suppliers and non-CWS suppliers using surface water sources in whole or in part. The MCLs for turbidity in drinking water, measured at a representative entry point(s) to the distribution system, are:

a) One turbidity unit, as determined by a monthly average pursuant to Subpart M, except that five or fewer turbidity units are allowed if the supplier demonstrates, by special exception permit application, that the higher turbidity does not do any of the following:

1) Interfere with disinfection;

2) Prevent maintenance of an effective disinfectant agent throughout the distribution system; or

3) Interfere with microbiological determinations.

b) Five turbidity units based on an average for two consecutive days pursuant to Subpart M.

BOARD NOTE: Derived from 40 CFR 141.13 (19~~8~~91)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

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

SUBPART K: GENERAL MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.510 Special Monitoring for Unregulated Contaminants

Monitoring of the unregulated inorganic contaminants listed in subsection (k) and the unregulated inorganic contaminants listed in subsection (l) shall 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.

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.

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

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

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

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

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

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

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

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

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

BOARD NOTE: Subsection (i) corresponds with duplicate segments of 40 CFR 141.40(n)(5) and (n)(6) (1991), which correspond with subsections (e) and (f). The Board has adopted no counterpart to 40 CFR 141.40(n)(9), an optional provision that pertains to composite sampling. Otherwise, the structure of this Section directly corresponds with 40 CFR 141.40(n) (1991).

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.

k) List of unregulated organic contaminants:

Contaminant	Organic Methods
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

l) List of unregulated 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) (1991).

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

SUBPART L: MICROBIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.522 Repeat Coliform Monitoring

a) If a routine sample is total coliform-positive, the supplier shall collect a set of repeat samples within 24 hours of being notified of the positive result. A supplier ~~which~~that collects more than one routine sample per month shall collect no fewer than three repeat samples for each total coliform-positive sample found. A supplier ~~which~~that collects one routine sample per month or fewer shall collect no fewer than four repeat samples for each total coliform-positive sample found. The Agency shall extend the 24-hour limit on a case-by-case basis if it determines that the supplier has a logistical problem in collecting the repeat samples within 24 hours that is beyond its control. In the case of an extension, the Agency shall specify how much time the supplier has to collect the repeat samples.

b) The supplier shall collect at least one repeat sample from the sampling tap where the original total coliform-positive sample was taken, and at least one repeat sample at a tap within five service connections upstream and at least one repeat sample at a tap within five service connections downstream of the original sampling site. If a total coliform-positive sample is at the end of the distribution system, or one away from the end of the distribution system, the Agency may waive the requirement to collect at least one repeat sample upstream or downstream of the original sampling site.

c) The supplier shall collect all repeat samples on the same day, except that the Agency shall allow a supplier with a single service connection to collect the required set of repeat samples over a four-day period or to collect a larger volume repeat sample(s) in one or more sample containers of any size, as long as the total volume collected is at least 400 ml (300 ml for PWSs ~~which~~that collect more than one routine sample per month).

d) If one or more repeat samples in the set is total coliform-positive, the supplier shall collect an additional set of repeat samples in the manner specified in subsections (a) through (c). The additional samples must be collected within 24 hours of being notified of the positive result, unless the Agency extends the limit as provided in subsection (a). The supplier shall repeat this process until either total coliforms are not detected in one complete set of repeat samples or the supplier determines that the MCL for total coliforms in Section 611.325 has been exceeded and notifies the Agency.

e) If a supplier collecting fewer than five routine samples/month has one or more total coliform-positive samples and the Agency does not invalidate the sample(s) under Section 611.523, the supplier shall collect at least five routine samples during the next month the supplier provides water to the public, unless the Agency determines that the conditions of subsection (e)(1) or (2) are met. This does not apply to the requirement to collect repeat samples in subsections (a) through (d). The supplier does not have to collect the samples if:

1) The Agency performs a site visit before the end of the next month the supplier provides water to the public. Although a sanitary survey need not be performed, the site visit must be sufficiently detailed to allow the Agency to determine whether additional monitoring or any corrective action is needed.

2) The Agency has determined why the sample was total coliform-positive and establishes that the supplier has corrected the problem or will correct the problem before the end of the next month the supplier serves water to the public.

A) The Agency shall document this decision in writing, and make the document available to USEPA and the public. The written documentation must describe the specific cause of the total coliform-positive sample and what action the supplier has taken or will take to correct the problem.

B) The Agency cannot waive the requirement to collect five routine samples the next month the supplier provides water to the public solely on the grounds that all repeat samples are total coliform-negative.

C) Under this subsection, a supplier shall still take at least one routine sample before the end of the next month it serves water to the public and use it to determine compliance with the MCL for total coliforms in Section 611.325, unless the Agency has determined that the supplier has corrected the contamination problem before the supplier took the set of repeat samples required in subsections (a) through (d), and all repeat samples were total coliform-negative.

f) After a supplier collects a routine sample and before it learns the results of the analysis of that sample, if it collects another routine sample(s) from within five adjacent service connections of the initial sample, and the initial sample, after analysis, is found to contain total coliforms, then the supplier may count the subsequent sample(s) as a repeat sample instead of as a routine sample.

g) Results of all routine and repeat samples not invalidated pursuant to Section 611.523 must be included in determining compliance with the MCL for total coliforms in Section 611.325.

BOARD NOTE: Derived from 40 CFR 141.21(b) (1989)~~, as amended at 54 Fed. Reg. 27562, June 29, 1989~~.

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

Section 611.523 Invalidation of Total Coliform Samples

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

a) The Agency shall invalidate a total coliform-positive sample only if the conditions of subsection (a)(1), (a)(2), or (a)(3) are met.

1) The laboratory establishes that improper sample analysis caused the total coliform-positive result.

2) The Agency, on the basis of the results of repeat samples collected as required by Section 611.522(a) through (d) determines that the total coliform-positive sample resulted from a domestic or other non-distribution system plumbing problem. The Agency cannot invalidate a sample on the basis of repeat sample results unless all repeat sample(s) collected at the same tap as the original total coliform-positive sample are also total coliform-positive, and all repeat samples collected within five service connections of the original tap are total coliform-negative (e.g., Agency cannot invalidate a total coliform-positive sample on the basis of repeat samples if all the repeat samples are total coliform-negative, or if

the supplier has only one service connection).

3) The Agency determines that there are substantial grounds to believe that a total coliform-positive result is due to a circumstance or condition which does not reflect water quality in the distribution system. In this case, the supplier shall still collect all repeat samples required under Section 611.522(a) through (d) and use them to determine compliance with the MCL for total coliforms in Section 611.325. To invalidate a total coliform-positive sample under this subsection, the decision with the rationale for the decision must be documented in writing. The Agency shall make this document available to USEPA and the public. The written documentation must state the specific cause of the total coliform-positive sample, and what action the supplier has taken, or will take, to correct this problem. The Agency shall not invalidate a total coliform-positive sample solely on the grounds that all repeat samples are total coliform-negative.

b) A laboratory shall invalidate a total coliform sample (unless total coliforms are detected) if the sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined (e.g., the Multiple-Tube Fermentation Technique), produces a turbid culture in the absence of an acid reaction in the P-A Coliform Test, or exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter (e.g., Membrane Filter Technique). If a laboratory invalidates a sample because of such interference, the supplier shall collect another sample from the same location as the original sample within 24 hours of being notified of the interference problem, and have it analyzed for the presence of total coliforms. The supplier shall continue to re-sample within 24 hours and have the samples analyzed until it obtains a valid result. The Agency shall waive the 24-hour time limit on a case-by-case basis, if it is not possible to collect the sample within that time.

BOARD NOTE: Derived from 40 CFR 141.21(c) (198~~9~~1)~~, as amended at 54 Fed. Reg. 27562, June 29, 1989~~.

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

Section 611.526 Analytical Methodology

a) The standard sample volume required for total coliform analysis, regardless of analytical method used, is 100 ~~ml~~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. The MMO-MUG test with hepes buffer in lieu of phosphate buffer is an acceptable minor revision.

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

1) EC medium supplemented with 50 μg/L of MUG (final concentration). EC medium is as described in subsection (e). MUG may be added to EC medium before autoclaving. EC medium supplemented with 50 μg/L MUG is commercially available. At least 10 mL of EC medium supplemented with MUG must be used. The inner inverted fermentation tube may be omitted. The procedure for transferring a total coliform-positive culture to EC medium supplemented with MUG is as in subsection (e) for transferring a total coliform-positive culture to

EC medium. Observe fluorescence with an ultraviolet light (366 nm) in the dark after incubating tube at 44.5±2° C for 24±2 hours; or

2) Nutrient agar supplemented with 100 μg/L MUG (final concentration). Nutrient Agar is described in Standard Methods: 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 μg/L MUG (final concentration). After incubating the agar plate at 35° Celsius for 4 hours, observe the colony or colonies under ultraviolet light (366 nm) in the dark for fluorescence. If fluorescence is visible, E. coli are present.

3) Minimal Medium ONPG-MUG (MMO-MUG) Test, as set forth in Section 611.Appendix D. (The Autoanalysis Coliert System is a MMO-MUG test.) If the MMO-MUG test is total coliform positive after a 24-hour incubation, test the medium for fluorescence with a 366-nm ultraviolet light (preferably with a 6-watt lamp) in the dark. If fluorescence is observed, the sample is E. coli-positive. If fluorescence is questionable (cannot be definitively read) after 24 hours incubation, incubate the culture for an additional four hours (but not to exceed 28 hours total), and again test the medium for fluorescence. The MMO-MUG test with hepes buffer is the only approved formulation for the detection of E. coli.

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

BOARD NOTE: Derived from 40 CFR 141.21(f) (19~~8~~91), as amended at 5~~4~~6 Fed. Reg. ~~27562, June 29, 1989~~642, January 8, 1991, 57 Fed. Reg. 1852, January 15, 1992, and 57 Fed. Reg. 24747, June 10, 1992.

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

SUBPART M: TURBIDITY MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.560 Turbidity

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

a) Suppliers shall take samples at representative entry point(s) to the distribution system at least once per day, for the purposes of making turbidity measurements to determine compliance with Section 611.320.

1) If Public Health determines that a reduced sampling frequency in a non-CWS will not pose a risk to public health, it ~~shall~~may reduce the required sampling frequency. The option of reducing the turbidity frequency will be permitted only in those suppliers that practice disinfection and which maintain an active RDC in the distribution system, and in those cases where Public Health has indicated in writing that no unreasonable risk to health existed under the circumstances of this option.

2) The turbidity measurements must be made in accordance with the following methods, incorporated by reference in Section 611.102:

A) By the Nephelometric Method:

i) Standard Methods~~,~~: ~~16th Edition,~~ Method 214A; or

ii) Inorganic Methods~~,~~: Method 180.1.

B) Calibration of the turbidimeter must be made either by the use of a formazin standard as specified in the cited references, or a styrene divinylbenzene polymer standard (Amco-AEPA-1 Polymer).

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

c) Sampling for non-CWSs must begin by June 29, 1991.

d) This Section applies only to suppliers ~~which~~that use water obtained in whole or in part from surface sources.

BOARD NOTE: Derived from 40 CFR 141.22 (19~~8~~91)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989~~.

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

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

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

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

BOARD NOTE: This is an additional State requirement.

(Source: Renumbered from Section 611.602 and amended at 16 Ill.

Reg. , effective

Section 611.592 Frequency of State Monitoring

This Section applies to old MCLs ~~which~~that are marked as "additional State requirements" at Section 611.300, and for which no specific monitoring, reporting or public notice requirements are specified below.

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 and amended at 16 Ill. Reg. , effective)

Section 611.600 Applicability

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

a) CWS suppliers.

b) NTNCWS suppliers.

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

BOARD NOTE: Derived from 40 CFR 141.23 (preamble) (1991).

d) 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 Section 611.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; Using concentration technique in Appendix A to Inorganic Method 200.7.	0.001
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 preamble and paragraph (a)(4)(i) (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 shall be conducted as follows:

a) Required sampling.

1) Each supplier shall take a minimum of one sample at each sampling point at the times required by Section 611.610 beginning January 1, 1993.

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

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

b) Sampling points.

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

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

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

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

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

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

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

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

d) The frequency of monitoring for the following contaminants must be in accordance with the following 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) (1991).

(Source: Renumbered to Section 611.635 and new Section 611.601 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.

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

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

1) Potential asbestos contamination of the water source; and

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

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

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

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

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

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

i) Reduction of quarterly monitoring.

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

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

A) For a GWS: two quarterly samples.

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

3) In issuing a SEP, the Agency shall specify the level of the contaminant upon which the "reliably and consistently" determination was based. All SEPs that allow less frequent monitoring based on an Agency "reliably and consitently" determination shall include a condition requiring the supplier to resume quarterly monitoring pursuant to subsection (h) if it violates the MCL specified by Section 611.609.

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

BOARD NOTE: Derived from 40 CFR 141.23(b) (1991).

(Source: Renumbered to Section 611.591 and new Section 611.602 added 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 revised MCLs in Section 611.301 for barium, cadmium, chromium, fluoride, mercury, and selenium is as follows:

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

1) For GWSs: at least one sample during each compliance period;

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

BOARD NOTE: Derived from 40 CFR 141.23(c)(1) (1991).

b) SEP Application. The supplier may apply to the Agency for a SEP that allows reduction from the monitoring frequencies specified in subsection (a) pursuant to subsections (d) through (f) and Section 611.110.

BOARD NOTE: Drawn from 40 CFR 141.23(c)(2) and (c)(6) (1991).

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

BOARD NOTE: Drawn from 40 CFR 141.23(c)(6) (1991).

d) Standard for SEP reduction in monitoring. The Agency shall grant a SEP that allows a reduction in the monitoring frequency if the supplier demonstrates that all previous analytical results were less than the MCL, provided the supplier meets the following minimum data requirements:

1) For GWS suppliers: a minimum of three rounds of monitoring.

2) For SWS and mixed system suppliers: annual monitoring for at least three years.

3) At least one sample must have been taken since January 1, 1990.

BOARD NOTE: Drawn from 40 CFR 141.23(c)(4) (1991).

e) Standard for SEP monitoring conditions. As a condition of any SEP, the Agency shall require that the supplier take a minimum of one sample during the term of the SEP. In determining the appropriate reduced monitoring frequency, the Agency shall consider:

1) Reported concentrations from all previous monitoring;

2) The degree of variation in reported concentrations; and

3) Other factors may affect contaminant concentrations, such as changes in groundwater pumping rates, changes in the CWSs configuration, the CWS's operating procedures, or changes in

stream flows or characteristics.

BOARD NOTE: Drawn from 40 CFR 141.23(c)(3) and (c)(5) (1991).

f) SEP Conditions and Revision.

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

BOARD NOTE: Drawn from 40 CFR 141.23(c)(3) (1991).

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

BOARD NOTE: Drawn from 40 CFR 141.23(c)(6) (1991).

g) A supplier that exceeds the MCL for barium, cadmium, chromium, fluoride, mercury, or selenium, as determined in Section 611.609, shall monitor quarterly for that contaminant, beginning in the next quarter after the violation occurred.

BOARD NOTE: Derived from 40 CFR 141.23(c)(7) (1991).

h) Reduction of quarterly monitoring.

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

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

A) For a GWS: two quarterly samples.

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

3) In issuing the SEP, the Agency shall specify the level of the contaminant upon which the "reliably

and consistently" determination was based. All SEPs that allow less frequent monitoring based on an Agency "reliably and consitently" determination shall include a condition requiring the supplier to resume quarterly monitoring for any contaminant pursuant to subsection (g) if it violates the MCL specified by Section 611.609 for that contaminant.

BOARD NOTE: Derived from 40 CFR 141.23(c)(8) (1991).

(Source: Section 611.603 renumbered to Section 611.592, new Section 611.603 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) (1991).

2) Transient non-CWSs: annually.

BOARD NOTE: Drawn from 40 CFR 141.23(d)(4) (1991).

b) Quarterly monitoring for GWSs.

1) A CWS or NTNCWS supplier that is a GWS shall initiate quarterly monitoring in the quarter following any one sample that has a nitrate concentration equal to or greater than 50 percent of the MCL.

2) The Agency shall grant a SEP pursuant to Section 611.110 that reduces the monitoring frequency to annual after the supplier has completed quarterly sampling for at least four quarters if it determines that the sampling point is reliably and consistently below the MCL.

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

B) In issuing the SEP, the Agency shall specify the level of the contaminant upon which the "reliably and consistently" determination was based. All SEPs that allow less frequent monitoring based on an Agency "reliably and consitently" determination shall include a condition requiring the supplier to resume quarterly monitoring pursuant to subsection (b)(1) if it violates the MCL specified by Section 611.301 for nitrate.

BOARD NOTE: Derived from 40 CFR 141.23(d)(2) (1991).

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

1) The Agency shall grant a SEP pursuant to Section 611.110 that allows a CWS or NTNCWS supplier that is a SWS or mixed system to reduce its monitoring frequency to annually if it determines that all analytical results from four consecutive quarters are less than 50 percent of the MCL.

2) 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) (1991).

d) This subsection corresponds with 40 CFR 141.23(d)(4), which the Board has codified at subsection (a)(2). This statement maintains structural consistency with USEPA rules.

e) After completion of four consecutive quarters of monitoring, each CWS or NTNCWS supplier monitoring annually shall take samples during the quarter(s) that resulted in the highest analytical result.

BOARD NOTE: Drawn from 40 CFR 141.23(d)(5) (1991).

(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) All suppliers shall take one sample at each sampling point during the compliance period beginning January 1, 1993 and ending December 31, 1995.

b) This subsection corresponds with 40 CFR 141.23(e)(2), a provision by which USEPA refers to state requirements that do not exist in Illinois. This statement maintains structural consistency with USEPA rules.

c) Repeat monitoring frequency.

1) Quarterly monitoring.

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

B) A supplier required to begin quarterly monitoring pursuant to subsection (c)(1)(A) shall continue on a quarterly basis for a minimum of one year following any one sample exceeding the 50 percent of the MCL, after which the supplier may discontinue quarterly monitoring pursuant to subsection (c)(2).

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

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

B) In issuing the SEP, the Agency shall specify the level of the contaminant upon which the "reliably and consistently" determination was based. All SEPs that allow less frequent monitoring based on an Agency "reliably and consitently" determination shall include a condition requiring the supplier to resume quarterly monitoring for nitrite pursuant to subsection (c)(1) if it equals or exceeds 50 percent of the MCL specified by Section 611.301 for nitrite.

d) A supplier that is monitoring annually shall take samples during the quarter(s) which previously resulted in the highest analytical result.

BOARD NOTE: Derived from 40 CFR 141.23(e) (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 no later than two weeks after the initial sample was taken) at the same sampling point.

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

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

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

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

BOARD NOTE: Derived from 40 CFR 141.23(f) (1991).

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

Section 611.607 ~~Fluoride Monitoring~~More Frequent Monitoring and Confirmation Sampling

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

~~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 analysed 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 and new Section 611.607 added 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) (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 that monitor 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 method detection limit must be calculated at zero for the purpose of determining the annual average.

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

b) For suppliers that monitor annually or less frequently, compliance with the MCLs for 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, Section 611.606 requires confirmation sampling, and compliance is determined based on the average of the initial and confirmation samples.

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

BOARD NOTE: Derived from 40 CFR 141.23(i) (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) (1991).

(Source: Renumbered to Section 611.630 and new Section 611.610 added 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 defined by Section 611.102(a). Other abbreviations are defined in Section 611.101.

a) Analysis for asbestos, barium, cadmium, chromium, mercury, nitrate, nitrite, and selenium pursuant to Sections 611.600 through 611.604 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: Method 208.2, or

ii) Standard Methods: Method 304;

B) Atomic absorption, direct aspiration:

i) Inorganic Methods: Method 208.1, or

ii) Standard Methods: Method 303C; or

C) Inductively-coupled plasma arc furnace, Inductively Coupled Plasma Method: Method 200.7, as supplemented by Method 200.7A.

3) Cadmium:

A) Atomic absorption, furnace technique:

i) Inorganic Methods: Method 213.2, or

ii) Standard Methods: Method 304; or

B) Inductively-coupled plasma arc furnace, Inductively Coupled Plasma Method, Method 200.7, as supplemented by Method 200.7A.

4) Chromium:

A) Atomic absorption, furnace technique:

i) Inorganic Methods: Method 218.2, or

ii) Standard Methods: Method 304 (The addition of 1 mL of 30% hydrogen peroxide to each 100 mL of standards and samples is required before analysis.); or

B) Inductively-coupled plasma arc furnace, Inductively Coupled Plasma Method, Method 200.7, as supplemented by Method 200.7A.

5) Mercury:

A) Manual cold vapor technique:

i) Inorganic Methods: Method 245.1,

ii) ASTM D3223-86, or

iii) Standard Methods: Method 303F; or

B) Automated cold vapor technique, Inorganic Methods: Method 245.2.

6) Nitrate:

A) Manual cadmium reduction:

i) Inorganic Methods: Method 353.3,

ii) ASTM D3867-90, or

iii) Standard Methods: Method 418C;

B) Automated hydrazine reduction: Inorganic Methods: Method 353.1;

C) Automated cadmium reduction:

i) Inorganic Methods: Method 353.2,

ii) ASTM D3867-90, or

iii) Standard Methods: Method 418F;

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

E) Ion chromatography:

i) Inorganic Methods: Method 300.0, or

ii) B-1011, available from Millipore Corporation.

7) Nitrite:

A) Spectrophotometric: Inorganic Methods: Method 354.1;

B) Automated cadmium reduction:

i) Inorganic Methods: Method 353.2,

ii) ASTM D3867-90, or

iii) Standard Methods: Method 418F;

C) Manual cadmium reduction:

i) Inorganic Methods: Method 353.3,

ii) ASTM D3867-90, or

iii) Standard Methods: Method 418C.

D) Ion chromatography:

i) Inorganic Methods: Method 300.0, or

ii) Method B-1011, available from Millipore Corporation.

8) Selenium:

A) Atomic absorption, gaseous hydride: ASTM D3859-88A; or

B) Atomic absorption, furnace technique:

i) Inorganic Methods: Method 270.2,

ii) ASTM D3859-88B, or

iii) Standard Methods: 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: Method 206.2;

2) Atomic absorption, gaseous hydride:

A) Inorganic Methods: Method 206.3,

B) ASTM D2972-88B,

C) Standard Methods:

i) Method 307A (referencing Methods 303E and 304), or

ii) Method 307B

D) USGS Methods: I-1062-85;

3) Spectrophotometric, silver diethyldithiocarbamate:

A) Inorganic Methods: Method 206.4,

B) ASTM D 2972-88A, or

C) Standard Methods: Method 307B; or

4) Inductively-coupled plasma arc furnace, Inductively Coupled Plasma Method, Method 200.7, as supplemented by Method 200.7A.

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

1) Colorimetric SPADNS, with distillation:

A) Inorganic Methods: Method 340.1,

B) ASTM D1179-72A, or

C) Standard Methods: Methods 413A and 413C;

BOARD NOTE: 40 CFR 141.23(k)(3) cites methods "43 A and C", an obvious error that the Board has corrected to "413A and 413C".

2) Potentiometric, ion selective electrode:

A) Inorganic Methods: Method 340.2,

B) ASTM D1179-72B, or

C) Standard Methods: Method 413B;

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

A) Inorganic Methods: Method 340.3,

B) Standard Methods: Method 413E, or

C) Technicon Methods: Method 129-71W; or

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

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

1) Asbestos:

A) Preservative: Cool to 4° C.

B) Plastic 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) Plastic or glass (hard or soft).

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

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) Plastic or glass (hard or soft).

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

4) Chromium:

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

B) Plastic or glass (hard or soft).

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

5) Fluoride:

A) Preservative: None.

B) Plastic or glass (hard or soft).

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

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) Plastic or glass (hard or soft).

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

7) Nitrate, chlorinated:

A) Preservative: Cool to 4° C.

B) Plastic or glass (hard or soft).

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

8) Nitrate, non-chlorinated:

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

B) Plastic or glass (hard or soft).

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

9) Nitrite:

A) Preservative: Cool to 4° C.

B) Plastic or glass (hard or soft).

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

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) Plastic or glass (hard or soft).

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

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

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

   A) 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.

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

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

Section 611.6~~01~~12 Monitoring Requirements for Old Inorganic MCLs

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

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

      ~~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.~~This subsection corresponds with 40 CFR 141.23(l)(3) (1991), which requires monitoring for the repealed old MCL for nitrate at a frequency specified by the state. The Board has followed the USEPA lead and repealed that old MCL. This statement maintains structural consistency with USEPA rules

4) This subsection corresponds with 40 CFR 141.23(l)(4) (1991), which authorizes the state to determine compliance and initiate enforcement action. This authority exists through the authorization of the Act, not thorugh federal rules. This statement maintains structural consistency with USEPA rules.

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 old MCL, the supplier shall report to the Agency within 7 days and initiate three additional analyses at the same sampling point within one month.

~~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 old MCL for the substance in question, exceeds the old MCL, the supplier shall notify the Agency and give notice to the public pursuant to Subpart T. Monitoring after public notification must be at a frequency designated by the Agency by a SEP granted pursuant to Section 611.110 and must continue until the old MCL has not been exceeded in two successive samples or until a different monitoring schedule becomes effective as a condition to a variance, an adjusted standard, a site specific rule, ~~or~~ an enforcement action, or another SEP granted pursuant to Section 611.110 ~~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.~~This subsection corresponds with 40 CFR 141.23(o) (1991), which pertains to monitoring for the repealed old MCL for nitrate. The Board has followed the USEPA action and repealed that old MCL. This statement maintains structural consistency with USEPA rules.

(e) This subsection corresponds with 40 CFR 141.23(p) (1991), which pertains to the use of existing data up until a date long since expired. The Board did not adopt the original provision in R88-26. This statement maintains structural consistency with USEPA rules.

(f) Analyses conducted to determine compliance with the old MCLs of Section 611.300 must be made in accordance with the following methods, incorporated by reference in Section 611.102.

1) Arsenic:

A) ASTM:

i) Method D2972-88A, or

ii Method D2972-88B;

B) Standard Methods:

i) Method 307A, or

ii) Method 307B;

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

D) Inorganic Methods:

i) Method 206.2, or

ii) Method 206.3; or

E) Inductively Coupled Plasma Method 200.7, as supplemented by appendix 200.7A.

2) Barium:

- A) Standard Methods: Method 308;
- B) Inorganic Methods:
  - i) Method 208.1, or
  - ii) Method 208.2; or
- C) Inductively Coupled Plasma Method 200.7, as supplemented by appendix 200.7A.

3) Lead:

- A) ASTM;
  - i) Method D3559-78A, or
  - ii) Method D3559-78B;
- B) Standard Methods:
  - i) Method 301A (II), or
  - ii) Method 301A (III);
- C) Inorganic Methods:
  - i) Method 239.1, or
  - ii) Method 239.2; or
- D) Inductively Coupled Plasma Method 200.7, as supplemented by appendix 200.7A.

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

5) Copper:

- A) ASTM:
  - i) Method D1688-84D, or
  - ii) Method D1688-84E;
- B) Standard Methods:
  - i) Method 303A,
  - ii) Method 303B, or

iii) Method 304;

C) Inorganic Methods:

i) Method 220.1, or

ii) Method 220.2; or

D) Inductively Coupled Plasma Method 200.7, as supplemented by appendix 200.7A.

6) Cyanide:

A) Standard Methods: Method 412D, or

B) Inorganic Methods: Method 335.2.

7) Iron:

A) Standard Methods: Method 303A;

B) Inorganic Methods:

i) Method 236.1, or

ii) Method 236.2; or

C) Inductively Coupled Plasma Method 200.7, as supplemented by appendix 200.7A.

8) Manganese:

A) ASTM: Method D858-84;

B) Standard Methods: Method 303A;

C) Inorganic Methods:

i) Method 243.1, or

ii) Method 243.2; or

D) Inductively Coupled Plasma Method 200.7, as supplemented by appendix 200.7A.

9) Zinc:

A) Standard Methods: Method 303A; or

B) Inorganic Methods:

i) Method 289.1, or

ii) Method 289.2.

BOARD NOTE: The provisions of subsections (a) through (f) apply to additional state requirements. Subsections (a) through (f)(3) d~~D~~erived from 40 CFR 141.23(~~a~~l) through (~~d~~g) (19~~8~~91). The Board has deleted several analytical methods codified by USEPA at 40 CFR 141.23(g) (formerly 40 CFR 141.23(f)) because the MCLs of 40 CFR 141.11 expired for those contaminants on July 30, 1992. Subsection (f)(4) relates to a contaminant for which USEPA specifies an MCL, but for which it repealed the analytical method. Subsections (f)(5) through (f)(9) relate exclusively to additional state requirements. The predecessor to subsections (a) through (e) was formerly codified as Section 611.601. The predecessor to subsection (f) was formerly codified as Section 611.606.

(Source: Renumbered from Section 611.601 and amended at 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 ~~special exception permit~~ 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,~~ Methods 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 D1428-64.

BOARD NOTE: Derived from 40 CFR 141.41 (19~~8~~91).

(Source: Section 611.630 renumbered from Section 611.610 and amended at 16 Ill. Reg. , effective)

Section 611.631 Special Monitoring for Inorganic Chemicals

Section 611.510 sets forth requirements for the special monitoring of unregulated inorganic contaminants.

(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.

"Old MCL" means an MCL in Section 611.310. These include the MCLs identified as "additional state requirements" and those derived from 40 CFR 141.12, but excluding TTHM. "Old MCLs" includes the Section 611.310 MCLs for the following contaminants:

Aldrin
2,4-D
DDT
Dieldrin
Endrin
Heptachlor
Heptachlor epoxide
BOARD NOTE: 2,4-D, heptachlor, and heptachlor epoxide are also "Phase II SOCs". The additional state requirements of Section 611.310 impose a more stringent "old MCL" for each of these compounds than that imposed on them as Phase II SOCs by Section 611.311. However, the requirements for sampling and monitoring for these compounds as Phase II SOCs and the consequences of their detection and violation of their revised MCLs is more stringent as Phase II SOCs.

"Phase II SOCs" means:

Alachlor
Atrazine
Carbofuran
Chlordane
Dibromochloropropane
Ethylene dibromide
Heptachlor
Heptachlor epoxide
Lindane
Methoxychlor
Polychlorinated biphenyls
Toxaphene
2,4-D
2,4,5-TP
BOARD NOTE: These are organic contaminants regulated at 40 CFR 141.61(c)(1) through (c)(18) (1991). The MCLs for these contaminants are located at Section 611.311. More stringent MCLs for heptachlor, heptachlor epoxide, and 2,4-D are found as "additional state requirements" in Section 611.310.

"Phase I VOCs" 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) through (a)(8) (1991). The MCLs for these contaminants are located at Section 611.311(a).

"Phase II VOCs" means:

o-Dichlorobenzene
cis-1,2-Dichloroethylene
trans-1,2-Dichloroethylene
1,2-Dichloropropane
Ethylbenzene
Monochlorobenzene
Styrene
Tetrachloroethylene
Toluene
Xylenes (total)
BOARD NOTE: These are organic contaminants regulated at 40 CFR 141.61(a)(9) through (a)(18) (1991). The MCLs for these contaminants are in Section 611.311(a).

"Revised MCL" means an MCL in Section 611.311. This term includes MCLs for "Phase I VOCs", "Phase II VOCs" and "Phase II SOCs".

Source: 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 of 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)~~ exceeds ~~the~~its old MCL, the CWS supplier shall report to the Agency within 7 days and initiate three additional analyses within one month.

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

BOARD NOTE: Derived from 40 CFR 141.24(a) through (d) (19~~89~~1).

(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 following methods, incorporated by reference in Section 611.102, or alternative methods approved pursuant to Section 611.480:~~the appropriate methods specified in Section 611.648(1).

~~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~~

~~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~~) (19~~8~~91).

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

Section 611.646 Phase I and Phase II Volatile Organic Contaminants

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

a) Definitions. As used in this Section:

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

"Detection limit" means 0.0005 mg/L.

BOARD NOTE: Derived from 40 CFR 141.24(f)(7), (f)(11), (f)(14)(i), and (f)(20) (1991). This is a "trigger level" for Phase I VOCs and Phase II VOCs inasmuch as it prompts further action. The use of the term "detect" in this section is not intended to include any analytical capability of quantifying lower levels of any contaminant, or the "method detection limit". Note, however that certain language at the end of federal paragraph (f)(20) is capable of meaning that the "method detection limit" is used to derive the "detection limit". The Board has chosen to disregard that language at the end of paragraph (f)(20) in favor of the more direct language of paragraphs (f)(7) and (f)(11).

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

BOARD NOTE: Derived from 40 CFR 136, Appendix B (1991). The method detection limit is determined by the procedure set forth in 40 CFR 136, Appendix B. See subsection (t).

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

c) Sampling points.

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

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

A) Each entry point after treatment; or

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

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

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

BOARD NOTE: Subsections (b) and (c) derived from 40 CFR 141.24(f)(1) through (f)(3) (1991).

d) Each CWS and NTNCWS supplier shall take four consecutive quarterly samples for each of the Phase I VOCs, excluding vinyl chloride, and Phase II VOCs during each compliance period, beginning in the compliance period starting January 1, 1993.

e) Reduction to annual monitoring frequency. If the initial monitoring for the Phase I VOCs and Phase II VOCs as allowed in subsection (r)(1) has been completed by December 31, 1992, and the supplier did not detect any of the Phase I VOCs, including vinyl chloride, or Phase II VOCs, then the supplier shall take one sample annually beginning January 1, 1993.

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

g) A CWS or NTNCWS supplier that has completed the initial round of monitoring required by subsection (d) and which did not detect any of the Phase I VOCs, including vinyl chloride, and Phase II VOCs may apply to the Agency for a SEP pursuant to Section 611.110 that releases it from the requirements of subsection (e) or (f).

BOARD NOTE: Derived from 40 CFR 141.24(f)(7) and (f)(10) (1991). Provisions concerning the term of the waiver appear below in subsections (i) and (j). The definition of "detect", parenthetically added to the federal counterpart paragraph is in subsection (a).

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

i) A SEP issued to a GWS pursuant to subsection (g) is for a maximum of six years. As a condition of a SEP, the supplier shall, within 30 months after the beginning of the period for which the waiver was issued, reconfirm its vulnerability assessment required by subsection (h) and submitted pursuant to subsection (g), by taking one sample at each sampling point and reapplying for a SEP pursuant to subsection (g). Based on this application, the Agency shall either:

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

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

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

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

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

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

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

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

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

2) Annual monitoring.

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

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

i) For a GWS, two quarterly samples.

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

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

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

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

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

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

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

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

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

l) Quarterly monitoring following MCL violations.

1) Suppliers that violate an MCL for one of the Phase I VOCs, including vinyl chloride, or Phase II VOCs, 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) The Agency shall grant a SEP pursuant to Section 611.110 that allows a supplier to reduce the monitoring frequency to annually if it determines that the sampling point is reliably and consistently below the MCL.

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

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

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

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

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

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

3) The Agency shall delete the original or

confirmation sample if it determines that a sampling error occurred, in which case the confirmation sample will replace the original or confirmation sample.

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

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

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

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

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

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

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

  3) Public notice for a supplier out of compliance is governed by Subpart T.

p) Analyses for the Phase I VOCs and Phase II VOCs 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."

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

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

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

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

C) Achieve quantitative results on the analyses performed under subsection (g)(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 (g)(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; and

E) Achieve a method detection limit of 0.0005 mg/L, according to the procedures in 40 CFR

136, appendix B, incorporated by reference in Section 611.102.

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

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

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

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

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

r) Use of existing data.

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

2) The Agency shall grant a SEP pursuant to Section 611.110 that allows a supplier to monitor annually beginning January 1, 1993 if it determines that the supplier did not detect any Phase I VOC or Phase II VOC using existing data allowed pursuant to subsection (r)(1).

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

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

1) Determine the method detection limit (MDL), as defined in 40 CFR 136, Appendix B, incorporated by

reference in Section 611.102, at which it is capable of detecting the Phase I VOCs and Phase II VOCs; and,

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

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

BOARD NOTE: Derived from 40 CFR 141.24(f) (1991).

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

Section 611.647 Sampling for ~~VOCs~~Phase I Volatile Organic Contaminants

~~A~~For systems in operation before January 1, 1993, for purposes of initial monitoring, analysis of ~~the VOCs listed in Section 611.311(a)~~Phase I VOCs for purposes of determining compliance with the MCLs must be conducted as follows:

a) ~~CWS or NTCWS suppliers using groundwater sources~~GWS suppliers shall sample at entry 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~~SWS and mixed system suppliers using surface sources shall sample at points in the distribution system representative of each source or at entry points to the distribution system after any application of treatment. SWSs and mixed system suppliers ~~must~~shall 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~~system draws water from more than one source and sources are combined before distribution, the supplier shall sample at an entry point to the distribution system during periods of normal operating conditions.

d) Time for sampling.

1) All CWS and NTNCWS suppliers serving more than 3,300 people shall analyze all distribution or

entry-point samples, as appropriate, representing all source waters.

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

e) If the results exceed the MCL, the CWS or ~~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.

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~~that are more representative of the same source.

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

1) Compositing samples prior to GC analysis.

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

B) The samples must be cooled at 4~~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 Phase I VOCs 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 Phase I VOCs 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 or fewer connections.

C) ~~If VOCs are~~If one of the Phase I VOCs 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 Phase I VOCs 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 Phase I VOCs 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 or fewer connections).

C) ~~When VOCs are~~If one of the Phase I VOCs 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 Phase I VOCs 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 Phase I VOCs.

   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 NTNCWS is deemed to be out of compliance. If a CWS or NTNCWS has a distribution system separable from other parts of the distribution system with no interconnections, only that part of the system that exceeds any MCL as specified in Section 611.311(a) is deemed out of compliance. The Agency shall, by ~~special exception permit~~SEP, reduce the public notice requirement to that portion of the CWS ~~which~~that is out of compliance. If any one sample result would cause the annual average to be exceeded, then the CWS is deemed to be out of compliance immediately. For CWS suppliers that only take one sample per location because ~~no VOCs~~none of the Phase I VOCs were detected, compliance is based on that one sample.

j) Analysis under this Section must be conducted using the following methods or alternatives approved pursuant to Section 611.480. These methods are contained in 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 Phase I VOCs, except vinyl chloride, the laboratory shall:

A) Analyze performance evaluation samples ~~which~~that 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~~Phase I VOCs, 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~~l) 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~~m) ~~See Section 611.100(e)~~This subsection corresponds with 40 CFR 141.24(g)(14), an optional USEPA provision relating to compositing of samples that USEPA does not require for state programs. This statement maintains structural consistency with USEPA rules.

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 Phase I VOCs. The acceptable MDL is 0.0005 mg/L. This concentration is the detection level for purposes of subsections (e), (f), (g) and (h).

BOARD NOTE: Derived from 40 CFR 141.24(g) (19~~8~~91).

(Source: Section 611.648 renumbered to Section 611.647 and amended at 16 Ill. Reg. , effective)

Section 611.648 Phase II Synthetic Organic Contaminants

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

a) Definitions. As used in this Section:

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

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

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

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

c) Sampling points.

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

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

A) Each entry point after treatment; or

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

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

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

BOARD NOTE: Subsections (b) and (c) derived from 40 CFR 141.24(h)(1) through (h)(3) (1991).

d) Monitoring frequency:

1) Each CWS and NTNCWS supplier shall take four

consecutive quarterly samples for each of the Phase II SOCs during each compliance period, beginning in the three-year compliance period starting January 1, 1993.

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

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

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

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

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

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

2) Annual monitoring.

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

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

i) For a GWS, two quarterly samples.

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

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

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

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

4) Suppliers that have three consecutive annual samples with no detection of a contaminant at a sampling point may apply to the Agency for a SEP with respect to that point, as specified in subsections (e) and (f).

5) Monitoring for related contaminants.

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

B) Related contaminants:

i) first group:

aldicarb
aldicarb sulfone
aldicarb sulfoxide

ii) second group:

heptachlor
heptachlor epoxide.

h) Quarterly monitoring following MCL violations.

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

2) Annual monitoring.

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

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

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

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

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

i) Confirmation samples.

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

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

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

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

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

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

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

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

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

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

3) Public notice for a supplier out of compliance is governed by Subpart T.

BOARD NOTE: Derived from 40 CFR 141.24(h)(11) (1991).

l) Analysis for Phase II SOCs 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.

1) Method 504, "1,2-Dibromoethane (EDB) and 1,2-Dibromo-3-chloropropane (DBCP) in Water by Microextraction and Gas Chromatography." Method 504 can be used to measure 1,2-Dibromo-3-chloropropane (dibromochloropropane or DBCP) and 1,2-Dibromoethane (ethylene dibromide or EDB).

2) Method 505, "Analysis of Organohalide Pesticides and Commercial Polychlorinated Biphenyl Products (Aroclors) in Water by Microextraction and Gas Chromatography." Method 505 can be used to measure alachlor, atrazine, chlordane, DDT, dieldrin, endrin, heptachlor, heptachlor epoxide, lindane, methoxychlor, and toxaphene. Method 505 can be used as a screen for PCBs.

3) Method 507, "Determination of Nitrogen- and Phosphorus-Containing Pesticides in Ground Water by Gas Chromatography with a Nitrogen-Phosphorus Detector." Method 507 can be used to measure alachlor and atrazine.

4) Method 508, "Determination of Chlorinated Pesticides in Water by Gas Chromatography with an Electron Capture Detector." Method 508 can be used to measure chlordane, DDT, dieldrin, endrin, heptachlor, heptachlor epoxide, lindane, methoxychlor, and toxaphene. Method 508 can be used as a screen for PCBs.

5) Method 508A, "Screening for Polychlorinated Biphenyls by Perchlorination and Gas Chromatography." Method 508A is used to quantitate PCBs as decachlorobiphenyl if detected in Methods 505 or 508.

6) Method 515.1, revison 5.0 (May, 1991), "Determination of Chlorinated Acids in Water by Gas Chromatography with an Electron Capture Detector." Method 515.1 can be used to measure 2,4-D, 2,4,5-TP (Silvex) and pentachlorophenol.

7) Method 525.1, revision 3.0 (May, 1991), "Determination of Organic Compounds in Drinking Water by Liquid-Solid Extraction and Capillary Column Gas Chromatography/Mass Spectrometry." Method 525 can be used to measure alachlor, atrazine, chlordane, heptachlor, heptachlor epoxide, lindane, methoxychlor, and pentachlorophenol.

8) Method 531.1, "Measurement of N-Methyl Carbamoyloximes and N-Methyl Carbamates in Water by Direct Aqueous Injection HPLC with Post-Column Derivatization." Method 531.1 can be used to measure aldicarb, aldicarb sulfoxide, aldicarb sulfone, and carbofuran.

m) Analysis for PCBs must be conducted as follows:

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

2) If PCBs are detected 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).

3) Compliance with the PCB MCL must be determined

based upon the quantitative results of analyses using Method 508A.

n) Use of existing data.

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

2) The Agency shall grant a SEP pursuant to Section 611.110 that allows a supplier to monitor annually beginning January 1, 1993 if it determines that the supplier did not detect any Phase I VOC or Phase II VOC using existing data allowed pursuant to subsection (n)(1).

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

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

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

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

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

1) for PCBs (Aroclors):

Aroclor	Detection Limit (mg/L)
1016	0.00008
1221	0.02
1232	0.0005

1242	0.0003
1248	0.0001
1254	0.0001
1260	0.0002

2) for other Phase II SOCs:

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) (1991).

s) Laboratory Certification.

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

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

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

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

C) Acceptance limits:

SOC	Acceptance Limits
Alachlor	± 45%
Aldicarb	2 standard deviations
Aldicarb sulfone	2 standard deviations
Aldicarb sulfoxide	2 standard deviations
Atrazine	± 45%
Carbofuran	± 45%
Chlordane	± 45%
Dibromochloropropane (DBCP)	± 40%
Ethylene dibromide (EDB)	± 40%
Heptachlor	± 45%
Heptachlor epoxide	± 45%
Lindane	± 45%
Methoxychlor	± 45%
PCBs (as Decachlorobiphenyl)	0-200%
Pentachlorophenol	± 50%
Toxaphene	± 45%
2,4,5-TP (Silvex)	± 50%
2,4-D	± 50%

(Source: Section 611.648 renumbered to Section 611.647, new Section 611.648 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 <u>(Repealed)</u>

~~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

Section 611.510 sets forth requirements for the special monitoring for unregulated organic contaminants.

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

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

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

2) By mail delivery (by direct mail or with the water bill), or by hand delivery, not later than 45 days after the violation or failure. This is not required if the Agency determines by ~~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 or nitrite in Section 611.300~~(b)~~1.

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

D) Occurrence of a waterborne disease outbreak.

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

c) Alternative methods of notice.

1) In lieu of the requirements of subsections (a) and (b), a CWS supplier in an area that is not served by a daily or weekly newspaper of general circulation shall give notice by hand delivery or by continuous posting in conspicuous places within the area served by the CWS. Notice by hand delivery or posting must begin as soon as possible, but no later than 72 hours after the violation or failure for acute violations (as defined in subsection (a)(3)) or 14 days after the violation or failure (for any other violation). Posting must continue for as long as the violation or failure exists. Notice by hand delivery must be repeated at least every three months for as long as the violation or failure exists.

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

BOARD NOTE: Derived from 40 CFR 141.32(a) (19~~8~~91)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989, and at 54 Fed. Reg. 27562, June 29, 1989~~.

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

Section 611.852 Reporting other Violations

A supplier ~~which~~that fails to perform monitoring required by this Part, which fails to comply with a testing procedure established by this Part, or which is subject to a variance or adjusted standard under Section 611.111, 611.112 or 611.113 shall notify persons served by the PWS as follows:

a) Except as provided in subsection (c) or (d), the supplier shall give notice, within three months of the violation or granting of a variance or adjusted standard, by publication in a daily newspaper of general circulation in the area served by the PWS. If the area served by a PWS is not served by a daily newspaper of general circulation, notice must instead be given by publication in a weekly newspaper of general circulation serving the area.

b) Except as provided in subsection (c) or (d), following the initial notice given under subsection (a), the supplier shall give notice at least once every three months by mail delivery (by direct mail or with the water bill) or by hand delivery, for as long as the violation exists. Repeat notice of the existence of a variance or adjusted standard (Section 611.111 through 611.113) must be given every three months for as long as the variance or adjusted standard remains in effect.

c) Alternative methods of notice.

1) In lieu of the requirements of subsections (a) and (b), a CWS supplier in an area that is not served by a daily or weekly newspaper of general circulation shall give notice, within three months of the violation or granting of the variance or adjusted standard, by hand delivery or by continuous posting in conspicuous places with the area served by the CWS. Posting must continue for as long as the violation exists or a variance or adjusted standard remains in effect. The CWS supplier shall repeat the notice by hand delivery every three months for as long as the variance or adjusted standard remains in effect.

2) In lieu of the requirements of subsections (a) and (b), a non-CWS supplier may give notice, within three months of the violation or the granting of the variance or adjusted standard, by hand delivery or by continuous posting in conspicuous

places within the area served by the ~~P~~non-CWS. Posting must continue for as long as the violation exists, or a variance or adjusted standard remains in effect. Notice by hand delivery must be repeated at least every three months for as long as the violation exists or a variance or adjusted standard remains in effect.

BOARD NOTE: Derived from 40 CFR 141.32(b) (19~~89~~1).

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

Section 611.855 Mandatory Health Effects Language

When providing the information on potential adverse health effects required by Section 611.85~~3(b)~~4 in notices of violations of MCLs or treatment technique requirements, or notices of the granting or the continued existence of adjusted standards or variances, or notices of failure to comply with a variance or adjusted standard schedule, the supplier shall include the language specified in Section 611.Appendix A for each contaminant. (If language for a particular contaminant is not specified at the time notice is required, this Section does not apply).

BOARD NOTE: Derived from 40 CFR 141.32(e) (19~~89~~1)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989, and at 54 Fed. Reg. 27562, June 29, 1988~~.

(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.~~

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 (19~~8~~91).

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 ~~contaminated~~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) This subsection corresponds with 40 CFR 141.32(e)(13), reserved by USEPA. This statement maintains structural consistency with USEPA rules.

14) This subsection corresponds with 40 CFR 141.32(e)(14), reserved by USEPA. This statement maintains structural consistency with USEPA rules.

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) This subsection corresponds with 40 CFR 141.32(e)(16), reserved by USEPA. This statement maintains structural consistency with USEPA rules.

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, 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 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.

23) 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.

24) 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 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) This subsection corresponds with 40 CFR 141.32(e)(25), reserved by USEPA. This statement maintains structural consistency with USEPA rules.

26) This subsection corresponds with 40 CFR 141.32(e)(26), reserved by USEPA. This statement maintains structural consistency with USEPA rules.

27) This subsection corresponds with 40 CFR 141.32(e)(27), reserved by USEPA. This statement maintains structural consistency with USEPA rules.

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 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, DBCP 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 the following notice if the level exceeds the Section 611.311 MCL. If the level exceeds the Section 611.310 MCL, but not that of Section 611.311, the supplier shall give a general notice under Section 611.854.

The United States Environmental Protection Agency (USEPA) sets drinking water standards and has determined that 2,4-D is a health concern at certain levels of exposure. This organic chemical is used as a herbicide and to control algae in reservoirs. When soil and climatic conditions are favorable, 2,4-D may get into drinking water by runoff into surface water or by leaching into ground water. This chemical has been shown to damage the liver and kidney of laboratory animals such as rats exposed at high levels during their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. USEPA has set the drinking water standard for 2,4-D at 0.07 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the USEPA standard is associated with little to none of this risk and is considered safe with respect to 2,4-D.

37) Epichlorohydrin. The United States Environmental Protection Agency (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 the following notice if the level exceeds the Section 611.311 MCL. If the level exceeds the Section 611.310 MCL, but not that of Section 611.311, the supplier shall give a general notice under Section 611.854.

The United States Environmental Protection Agency (USEPA) sets drinking water standards and has determined that heptachlor is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, heptachlor may get into drinking water by runoff into surface water or by leaching into 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 standards for heptachlor at 0.0004 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to heptachlor.

41) Heptachlor epoxide. This contaminant is subject to a "additional State requirement". The supplier shall give the following notice if the level exceeds the Section 611.311 MCL. If the level exceeds the Section 611.310 MCL, but not that of Section 611.311, the supplier shall give a general notice under Section 611.854.

The United States Environmental Protection Agency (USEPA) sets drinking water standards and has determined that heptachlor epoxide is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, heptachlor epoxide may get into drinking water by runoff into surface water or by leaching into 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 standards for heptachlor epoxide at 0.0002 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to heptachlor epoxide.

42) Lindane. The United States Environmental Protection Agency (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) This subsection corresponds with 40 CFR 141.32(e)(46), reserved by USEPA. This statement maintains structural consistency with USEPA rules.

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) (19~~8~~91)~~, as amended at 54 Fed. Reg. 27526, June 29, 1989, and at 54 Fed. Reg. 27562, June 29, 1989~~.

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

Section 611.Appendix D Defined Substrate Method for the Simultaneous Detection of Total Coliforms and Escherichia Coli from Drinking Water

Autoanalysis Colilert Presence-Absence (AC P-A) Method.

The AC P-A test format must be either a 100-mL 10-tube most probable number test (1 tube positive denoting the presence of total coliforms in that sample) or a single vessel containing sufficient reagent to receive 100 mL of sample. The reagent is available from Access Medical Systems, Branford Connecticut.

The AC P-A method must be performed as follows:

1. For the 10-tube method, add 10 mL of water sample to each test tube. For the single-vessel method, add 100 mL of

water sample to the vessel.

2. Dissolve the reagent powder by agitation. (This should produce a colorless solution.)

3. Incubate the test tubes or vessel at 35°C for 24 hours.

4. Development of yellow during incubation denotes the presence of total coliforms in either the test tube or the vessel.

5. Expose each positive (yellow) test tube or vessel to a fluorescent (366 nm) light source. Fluorescence specifically demonstrates the presence of Escherichia coli.

BOARD NOTE: Derived from S. Edberg, M. Allen & D. Smith, "National Field Evaluation of a Defined Substrate Method for the Simultaneous Detection of Total Coliforms and Escherichia coli from Drinking Water: Comparison with Presence-Absence Techniques", Applied and Environmental Microbiology, vol. 55, pp. 1003-1008, as incorporated by reference at 40 CFR 141.21(f)(6)(iii), as amended at 57 Fed. Reg. 24747 (June 10, 1992). This method is for use in conjunction with the requirements of Section 611.526.

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

Section 611.Table B Fecal or Total Coliform Density Measurements

System Size (Persons Served)	Samples per Week
~~Less than~~ 500 or fewer	1
501 to 3300	2
3301 to 10,000	3
10,001 to 25,000	4
More than 25,000	5

Samples must be taken on separate days.

BOARD NOTE: Derived from 40 CFR 141.74(b)(1) (1991)~~, as amended at 54 Fed. Reg. 27562, June 29, 1989~~.

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

Section 611.Table C Frequency of RDC Measurement

System Size (Persons Served)	Samples per Day
~~Less than~~ 500 or fewer	1

501 to 1000	2
1001 to 2,500	3
2501 to 3,300	4

The day's samples cannot be taken at the same time. The sampling intervals are subject to Agency review and approval by special exception permit.

BOARD NOTE: Derived from 40 CFR 141.74(b)(5) and (c)(2) (1991)~~, as amended at 54 Fed. Reg. 27562, June 29, 1989~~.

(Source: Amended at 16 Ill. Reg. , effective
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Section 611.Table D Federal Effective Dates

The following are the effective dates of the federal MCLs:

Fluoride (40 CFR 141.60(b)(1)) (corresponding with Section 611.301(b))	October 2, 1987
Phase I VOCs (40 CFR 141.60(a)(1)) (corresponding with Section 611.311(a)) (benzene, carbon tetrachloride, p-dichlorobenzene., 1,2-Dichloroethane, 1,1-dichloroethylene, 1,1,1-trichloroethane, trichloroethylene, and vinyl chloride)	July 9, 1989
Phase II IOCs (40 CFR 141.60(b)(2)) (corresponding with Section 611.301(b)) (asbestos, barium, cadmium, chromium, mercury, nitrate, nitrite, and selenium)	July 30, 1992
Phase II VOCs (40 CFR 141.60(a)(2)) (corresponding with Section 611.311(a)) (o-dichlorobenzene, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene , 1,2-dichloropropane, ethylbenzene, monochlorobenzene, styrene, tetrachloroethylene, toluene, and xylenes (total))	July 30, 1992
Phase II SOCs (40 CFR 141.60(a)(2)) (corresponding with Section 611.311(c)) (alachlor, atrazine, carbofuran, chlordane, dibromochloropropane, ethylene dibromide, heptachlor, heptachlor epoxide, lindane, methoxychlor, polychlorinated biphenyls, toxaphene, 2,4-D, and 2,4,5-TP (Silvex))	July 30, 1992

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