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

PART 611
PRIMARY DRINKING WATER STANDARDS

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AUTHORITY: Implementing Sections 7.2, 17, and 17.5 and authorized by Section 27 of the Environmental Protection Act [415 ILCS 5/7.2, 17, 17.5, and 27].

SOURCE: Adopted in R88-26 at 14 Ill. Reg. 16517, effective September 20, 1990; amended in R90-21 at 14 Ill. Reg. 20448, effective December 11, 1990; amended in R90-13 at 15 Ill. Reg. 1562, effective January 22, 1991; amended in R91-3 at 16 Ill. Reg. 19010, effective December 1, 1992; amended in R92-3 at 17 Ill. Reg. 7796, effective May 18, 1993; amended in R93-1 at 17 Ill. Reg. 12650, effective July 23, 1993; amended in R94-4 at 18 Ill. Reg. 12291, effective July 28, 1994; amended in R94-23 at 19 Ill. Reg. 8613, effective June 20, 1995; amended in R95-17 at 20 Ill. Reg. 14493, effective October 22, 1996; amended in R98-2 at 22 Ill. Reg. 5020, effective March 5, 1998; amended in R99-6 at 23 Ill. Reg. 2756, effective February 17, 1999; amended in R99-12 at 23 Ill. Reg. 10348, effective August 11, 1999; amended in R00-8 at 23 Ill. Reg. 14715, effective December 8, 1999; amended in R00-10 at 24 Ill. Reg. 14226, effective September 11, 2000; amended in R01-7 at 25 Ill. Reg. 1329, effective January 11, 2001; amended in R01-20 at 25 Ill. Reg. 13611, effective October 9, 2001; amended in R02-5 at 26 Ill. Reg. 3522, effective February 22, 2002; amended in R03-4 at 27 Ill. Reg. 1183, effective January 10, 2003; amended in R03-15 at 27 Ill. Reg. 16447, effective October 10, 2003; amended in R04-3 at 28 Ill. Reg. 5269, effective March 10, 2004; amended in R04-13 at 28 Ill. Reg. 12666, effective August 26, 2004; amended in R05-6 at 29 Ill. Reg. 2287, effective January 28, 2005; amended in R06-15 at 30 Ill. Reg. 17004, effective October 13, 2006; amended in R07-2/R07-11 at 31 Ill. Reg. 11757, effective July 27, 2007; amended in R08-7/R08-13 at 33 Ill. Reg. 633, effective December 30, 2008; amended in R10-1/R10-17/R11-6 at 34 Ill. Reg. 19848, effective December 7, 2010; amended in R12-4 at 36 Ill. Reg. 36 Ill. Reg. 7110, effective April 25, 2012; amended in R13-2 at 37 Ill. Reg. 1978, effective February 4, 2013; amended in R14-8 at 38 Ill. Reg. 3608, effective January 27, 2014; amended in R14-9 at 38 Ill. Reg. 9792, effective April 21, 2014; amended in R15-6 at 39 Ill. Reg. 3713, effective February 24, 2015; amended in R15-23 at 39 Ill. Reg.15144, effective November 9, 2015; amended in R16-4 at 39 Ill. Reg. 15352, effective November 13, 2015.

SUBPART A: GENERAL

Section 611.100 Purpose, Scope, and Applicability

a) This Part satisfies the requirement of Section 17.5 of the Environmental Protection Act (Act) [415 ILCS 5/17.5] that the Board adopt regulations that are identical in substance with federal regulations promulgated by the United States Environmental Protection Agency (USEPA) pursuant to Sections 1412(b), 1414(c), 1417(a), and 1445(a) of the Safe Drinking Water Act (SDWA) (42 USC 300g-1(b), 300g-3(c), 300g-6(a), and 300j-4(a)).

b) This Part establishes primary drinking water regulations (NPDWRs) pursuant to the SDWA, and also includes additional, related State requirements that are consistent with and more stringent than the USEPA regulations (Section 7.2(a)(6) of the Act [415 ILCS 5/7.2(a)(6)]). The latter provisions are specifically marked as "additional State requirements." They apply only to community water systems (CWSs).

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

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

2) Non-CWS suppliers are subject to additional regulations promulgated by the Illinois Department of Public Health (Public Health or DPH) pursuant to Section 9 of the Illinois Groundwater Protection Act [415 ILCS 55/9], including 77 Ill. Adm. Code 900.

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

BOARD NOTE: Derived from 40 CFR 141.1 (2003).

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

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

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

3) The PWS does not sell water to any person; and

4) The PWS is not a carrier that conveys passengers in interstate commerce.

BOARD NOTE: Derived from 40 CFR 141.3 (2003). The text of 40 CFR 141.3 is nearly identical to Section 1411 of the federal SDWA (42 USC 300g). On December 23, 2003 (at 68 Fed. Reg. 74233), USEPA announced a change in its policy relating to Section 1411. USEPA determined that a property owner that is not otherwise subject to the SDWA national primary drinking water standards "submeters" water, and does not "sell" water within the meaning of Section 1411(3) if the property owner meters water to tenants on its property and bills the tenants for the water. USEPA charged the State with determining whether water is "submetered" or "sold" in a particular situation. USEPA stated that eligibility for exclusion requires that the owner obtain water from a regulated water system. USEPA set forth factors for consideration to aid the State in making such a determination: the property has a limited distribution system with no known backflow or cross-connection issues; the majority of the plumbing is within a structure, rather than in the ground; and property ownership is single or within an association of owners. USEPA cited apartment buildings, co-ops, and condominiums as examples of eligible properties. USEPA further stated that it does not intend the policy to apply to a large distribution system, to one that serves a large population, or one that serves a mixed commercial and residential population. USEPA cited "many military installations/facilities" and large mobile home parks as examples of systems to which the policy would not apply.

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

(Source: Amended at 28 Ill. Reg. 12666, effective August 26, 2004)

Section 611.101 Definitions

As used in this Part, the following terms have the given meanings:

"Act" means the Environmental Protection Act [415 ILCS 5].

"Agency" means the Illinois Environmental Protection Agency.
BOARD NOTE: The Department of Public Health (Public Health or DPH) regulates non-community water supplies ("non-CWSs," including non-transient,

non-community water supplies ("NTNCWSs") and transient non-community water supplies ("transient non-CWSs")). "Agency" will mean Public Health where implementation by Public Health occurs with regard to non-CWS suppliers.

"Approved source of bottled water," for the purposes of Section 611.130(d)(4), means a source of water and the water therefrom, whether it be from a spring, artesian well, drilled well, municipal water supply, or any other source, that has been inspected and the water sampled, analyzed, and found to be a safe and sanitary quality according to applicable laws and regulations of State and local government agencies having jurisdiction, as evidenced by the presence in the plant of current certificates or notations of approval from each government agency or agencies having jurisdiction over the source, the water it bottles, and the distribution of the water in commerce.
BOARD NOTE: Derived from 40 CFR 142.62(g)(2) and 21 CFR 129.3(a) (2013). The Board cannot compile an exhaustive listing of all federal, State, and local laws to which bottled water and bottling water may be subjected. However, the statutes and regulations of which the Board is aware are the following: the Illinois Food, Drug and Cosmetic Act [410 ILCS 620], the Bottled Water Act [815 ILCS 310], the DPH Water Well Construction Code (77 Ill. Adm. Code 920), the DPH Water Well Pump Installation Code (77 Ill. Adm. Code 925), the federal bottled water quality standards (21 CFR 103.35), the federal drinking water processing and bottling standards (21 CFR 129), the federal Current Good Manufacturing Practice in Manufacturing, Packing, or Holding Human Food (21 CFR 110), the federal Fair Packaging and Labeling Act (15 USC 1451 et seq.), and the federal Fair Packaging and Labeling regulations (21 CFR 201).

"Bag filters" means pressure-driven separation devices that remove particulate matter larger than one micrometer using an engineered porous filtration media. They are typically constructed of a non-rigid, fabric filtration media housed in a pressure vessel in which the direction of flow is from the inside of the bag to outside.

"Bank filtration" means a water treatment process that uses a well to recover surface water that has naturally infiltrated into groundwater through a river bed or banks. Infiltration is typically enhanced by the hydraulic gradient imposed by a nearby pumping water supply or other wells.

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

"Bin classification" or "bin" means, for the purposes of Subpart Z of this Part, the appropriate of the four treatment categories (Bin 1, Bin 2, Bin 3, or Bin 4) that is assigned to a filtered system supplier pursuant to Section 611.1010 based on the results of the source water Cryptosporidium monitoring described in the previous section. This bin classification determines the degree of additional Cryptosporidium treatment, if any, the filtered PWS must provide.
BOARD NOTE: Derived from 40 CFR 141.710 (2013) and the preamble discussion at 71 Fed. Reg. 654, 657 (Jan. 5, 2006).

"Board" means the Illinois Pollution Control Board.

"Cartridge filters" means pressure-driven separation devices that remove particulate matter larger than 1 micrometer using an engineered porous filtration media. They are typically constructed as rigid or semi-rigid, self-supporting filter elements housed in pressure vessels in which flow is from the outside of the cartridge to the inside.

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

"Clean compliance history" means, for the purposes of Subpart AA of this Part, a record of no MCL violations under Section 611.325; no monitoring violations under Subpart L or Subpart AA of this Part; and no coliform treatment technique trigger exceedances or treatment technique violations under Subpart AA of this Part.

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

"$CT_{99.9}$" is the CT value required for 99.9 percent (3-log) inactivation of Giardia lamblia cysts. $CT_{99.9}$ for a variety of disinfectants and conditions appear in Tables 1.1-1.6, 2.1 and 3.1 of Appendix B of this Part. (See "Inactivation Ratio.")
BOARD NOTE: Derived from the definition of "CT" in 40 CFR 141.2 (2013).

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

"Combined distribution system" means the interconnected distribution system consisting of the distribution systems of wholesale systems and of the consecutive systems that receive finished water.

"Community water system" or "CWS" means a public water system (PWS) that serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.
BOARD NOTE: 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 began January 1, 1993, and ended December 31, 2001; the second began January 1, 2002, and ends December 31, 2010; the third begins January 1, 2011, and ends December 31, 2019.

"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 ran 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.

"Comprehensive performance evaluation" or "CPE" is a thorough review and analysis of a treatment plant's performance-based capabilities and associated administrative, operation, and maintenance practices. It is conducted to identify factors that may be adversely impacting a plant's capability to achieve compliance and emphasizes approaches that can be implemented without significant capital improvements.
BOARD NOTE: The final sentence of the definition of "comprehensive performance evaluation" in 40 CFR 141.2 is codified as Section 611.160(a)(2), since it contains substantive elements that are more appropriately codified in a substantive provision.

"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.

“Consecutive system” means a public water system that receives some or all of its finished water from one or more wholesale systems. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.

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

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

“Diatomaceous earth filtration” means a process resulting in substantial particulate removal in which the following occur:

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

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

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

“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.

“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 the point where RDC is measured.

Where more than one RDC is measured, T is as follows:

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.

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

"Disinfection byproduct" or "DBP" means a chemical byproduct that forms when disinfectants used for microbial control react with naturally occurring compounds already present in source water. DBPs include, but are not limited to, bromodichloromethane, bromoform, chloroform, dichloroacetic acid, bromate, chlorite, dibromochloromethane, and certain haloacetic acids.

"Disinfection profile" is a summary of daily Giardia lamblia inactivation through the treatment plant. The procedure for developing a disinfection profile is contained in Section 611.742.

"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.

“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).

“Dual sample set” means a set of two samples collected at the same time and same location, with one sample analyzed for TTHM and the other sample analyzed for HAA5. Dual sample sets are collected for the purposes of conducting an IDSE under Subpart W of this Part and determining compliance with the TTHM and HAA5 MCLs under Subpart Y of this Part.

“E. coli” means Escherichia coli, a species of bacteria used as a specific indicator of fecal contamination and potential harmful pathogens.
BOARD NOTE: Derived from the discussion at 78 Fed. Reg. 10270, 10271 (Feb. 13, 2013)

“Enhanced coagulation” means the addition of sufficient coagulant for improved removal of disinfection byproduct (DBP) precursors by conventional filtration treatment.

“Enhanced softening” means the improved removal of disinfection byproduct (DBP) precursors by precipitative softening.

“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.

“Filter profile” is a graphical representation of individual filter performance, based on continuous turbidity measurements or total particle counts versus time for an entire filter run, from startup to backwash inclusively, that includes an assessment of filter performance while another filter is being backwashed.

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

“Finished water” means water that is introduced into the distribution system of a public water system which is intended for distribution and consumption without

further treatment, except that treatment which is necessary to maintain water quality in the distribution system (e.g., booster disinfection, addition of corrosion control chemicals, etc.).

“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.

“Flowing stream” means a course of running water flowing in a definite channel.

“40/30 certification” means the certification, submitted by the supplier to the Agency pursuant to Section 611.923, that the supplier had no TTHM or HAA5 monitoring violations, and that no individual sample from its system exceeded 0.040 mg/ℓ TTHM or 0.030 mg/ℓ HAA5 during eight consecutive calendar quarters.
BOARD NOTE: Derived from 40 CFR 141.603(a) (2013).

“GAC10” means granular activated carbon (GAC) filter beds with an empty-bed contact time of 10 minutes based on average daily flow and a carbon reactivation frequency of every 180 days, except that the reactivation frequency for GAC10 that is used as a best available technology for compliance with the MCLs set forth in Subpart Y of this Part pursuant to Section 611.312(b)(2) is 120 days.

“GAC20” means granular activated carbon filter beds with an empty-bed contact time of 20 minutes based on average daily flow and a carbon reactivation frequency of every 240 days.

“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.

“Gross beta particle activity” means the total radioactivity due to beta particle emission as inferred from measurements on a dry sample.

"Groundwater system" or "GWS" means a public water supply (PWS) that uses only groundwater sources, including a consecutive system that receives finished groundwater.
BOARD NOTE: Derived from 40 CFR 141.23(b)(2) and 141.24(f)(2) note and 40 CFR 141.400(b) (2013).

"Groundwater under the direct influence of surface water" means any water beneath the surface of the ground with significant occurrence of insects or other macroorganisms, algae, or large-diameter pathogens, such as Giardia lamblia or Cryptosporidium, or significant and relatively rapid shifts in water characteristics, such as turbidity, temperature, conductivity, or pH, that closely correlate to climatological or surface water conditions. "Groundwater under the direct influence of surface water" is as determined in Section 611.212.

"Haloacetic acids (five)" or "HAA5" means the sum of the concentrations in milligrams per liter (mg/ℓ) of five haloacetic acid compounds (monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid), rounded to two significant figures after addition.

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

"HPC" means "heterotrophic plate count," measured as specified in Section 611.531(a)(2)(C).

"Hydrogeologic sensitivity assessment," for the purposes of Subpart S of this Part, means a determination of whether a GWS supplier obtains water from a hydrogeologically sensitive setting.
BOARD NOTE: Derived from 40 CFR 141.400(c)(5) (2013).

"Inactivation ratio" or "Ai" means as follows:

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

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

$$B = \sum(Ai)$$

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 (2013).

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

"Initial distribution system evaluation" or "IDSE" means the evaluation, performed by the supplier pursuant to Section 611.921(c), to determine the locations in a distribution system that are representative of high TTHM and HAA5 concentrations throughout the distribution system. An IDSE is used in conjunction with, but is distinct from, the compliance monitoring undertaken to identify and select monitoring locations used to determine compliance with Subpart I of this Part.

BOARD NOTE: Derived from 40 CFR 141.601(c) (2013).

"Inorganic contaminants" or "IOCs" refers to that group of contaminants designated as such in United States Environmental Protection Agency (USEPA) regulatory discussions and guidance documents. IOCs include antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, mercury, nickel, nitrate, nitrite, selenium, and thallium.

BOARD NOTE: The IOCs are derived from 40 CFR 141.23(a)(4) (2013).

"ℓ" means "liter."

"Lake or reservoir" means a natural or man made basin or hollow on the Earth's surface in which water collects or is stored that may or may not have a current or single direction of flow.

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

"Level 1 assessment" means an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and

(when possible) the likely reason that the system triggered the assessment. A Level 1 assessment is conducted by the system operator or owner. Minimum elements include review and identification of atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., whether a groundwater system is disinfected); existing water quality monitoring data; and inadequacies in sample sites, sampling protocol, and sample processing. The supplier must conduct the assessment consistent with any Agency-imposed permit conditions that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system.

"Level 2 assessment" means an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and (when possible) the likely reason that the system triggered the assessment. A Level 2 assessment provides a more detailed examination of the system (including the system's monitoring and operational practices) than does a Level 1 assessment through the use of more comprehensive investigation and review of available information, additional internal and external resources, and other relevant practices. A Level 2 assessment is conducted by a person approved by a SEP granted by the Agency pursuant to Section 611.130, and that person may include the system operator. Minimum elements include review and identification of atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., whether a groundwater system is disinfected); existing water quality monitoring data; and inadequacies in sample sites, sampling protocol, and sample processing. The supplier must conduct the assessment consistent with any Agency-imposed permit conditions that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system. The supplier must comply with any expedited actions or additional actions required by a SEP granted by the Agency pursuant to Section 611.130 in the instance of an E. coli MCL violation.

"Locational running annual average" or "LRAA" means the average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters.

"Man-made beta particle and photon emitters" means all radionuclides emitting beta particles 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.

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

"Maximum contaminant level goal" or "MCLG" means the maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. MCLGs are nonenforceable health goals.
BOARD NOTE: The Board has not routinely adopted the regulations relating to the federal MCLGs because they are outside the scope of the Board's identical-in-substance mandate under Section 17.5 of the Act [415 ILCS 5/17.5].

"Maximum residual disinfectant level" or "MRDL" means the maximum permissible level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects. MRDLs are enforceable in the same manner as are MCLs. (See Section 611.313 and Section 611.383.)

"Maximum residual disinfectant level goal" or "MRDLG" means the maximum level of a disinfectant added for water treatment at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. MRDLGs are nonenforceable health goals and do not reflect the benefit of the addition of the chemical for control of waterborne microbial contaminants.

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

"Membrane filtration" means a pressure or vacuum driven separation process in which particulate matter larger than one micrometer is rejected by an engineered barrier, primarily through a size exclusion mechanism, and which has a measurable removal efficiency of a target organism that can be verified through the application of a direct integrity test. This definition includes the common

membrane technologies of microfiltration, ultrafiltration, nanofiltration, and reverse osmosis.

"MFL" means millions of fibers per liter larger than 10 micrometers.
BOARD NOTE: Derived from 40 CFR 141.23(a)(4)(i) (2013).

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

"mg/ℓ" means milligrams per liter.

"Mixed system" means a PWS that uses both groundwater and surface water sources.
BOARD NOTE: Derived from 40 CFR 141.23(b)(2) and 141.24(f)(2) note (2013).

"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.

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

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

"Non-transient, non-community water system" or "non-transient, non-CWS" 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 six months per year.

"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 of this Part, differs from this definition in that the definition does not include the Section 611.300 inorganic MCLs.

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

"Paired sample" means two samples of water for Total Organic Carbon (TOC). One sample is of raw water taken prior to any treatment. The other sample is taken after the point of combined filter effluent and is representative of the treated water. These samples are taken at the same time. (See Section 611.382.)

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

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

"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.

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

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

"Plant intake" means the works or structures at the head of a conduit through which water is diverted from a source (e.g., a river or lake) into the treatment plant.

"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.

"Point-of-entry treatment device" or "POE" 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.

"Point-of-use treatment device" or "POU" is a treatment device applied to a single tap used for the purpose of reducing contaminants in drinking water at that one tap.

"Presedimentation" means a preliminary treatment process used to remove gravel, sand, and other particulate material from the source water through settling before the water enters the primary clarification and filtration processes in a treatment plant.

"Public Health" or "DPH" means the Illinois Department of Public Health.
BOARD NOTE: See the definition of "Agency" in this Section.

"Public water system" or "PWS" means a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. A PWS is either a community water system (CWS) or a non-community water system (non-CWS). A PWS does not include any facility defined as "special irrigation district." Such term includes the following:

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

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

BOARD NOTE: Where used in Subpart F of this Part, "public water supply" means the same as "public water system."

"Radioactive contaminants" refers to that group of contaminants designated "radioactive contaminants" in USEPA regulatory discussions and guidance documents. "Radioactive contaminants" include tritium, strontium-89, strontium-90, iodine-131, cesium-134, gross beta emitters, and other nuclides.

BOARD NOTE: Derived from 40 CFR 141.25(c) Table B (2013). These radioactive contaminants must be reported in Consumer Confidence Reports under Subpart U of this Part when they are detected above the levels indicated in Section 611.720(c)(3).

"Reliably and consistently" below a specified level for a contaminant means an Agency determination based on analytical results following the initial detection of a contaminant to determine the qualitative condition of water from an individual sampling point or source. The Agency must base this determination on the consistency of analytical results, the degree below the MCL, the susceptibility of source water to variation, and other vulnerability factors pertinent to the contaminant detected that may influence the quality of water.

BOARD NOTE: Derived from 40 CFR 141.23(b)(9), 141.24(f)(11)(ii), and 141.24(f)(11)(iii) (2013).

"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.

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

"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.

“Safe Drinking Water Act” or “SDWA” means the Public Health Service Act, as amended by the Safe Drinking Water Act, Pub. L. 93-523, 42 USC 300f et seq.

“Sanitary defect” means a defect that could provide a pathway of entry for microbial contamination into the distribution system or which is indicative of a failure or imminent failure in a barrier to microbial contamination that is already in place.

“Sanitary survey” means an onsite review of the delineated WHPAs (identifying sources of contamination within the WHPAs and evaluations or the hydrogeologic sensitivity of the delineated WHPAs conducted under source water assessments or utilizing other relevant information where available), facilities, equipment, operation, maintenance, and monitoring compliance of a public water system (PWS) to evaluate the adequacy of the system, its sources, and operations for the production and distribution of safe drinking water.
BOARD NOTE: Derived from 40 CFR 141.2 and 40 CFR 142.16(o)(2) (2013).

“Seasonal system” means a non-CWS that is not operated as a PWS on a year-round basis and which starts up and shuts down at the beginning and end of each operating season.

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

“SEP” means special exception permit (Section 611.110).

“Service connection,” as used in the definition of public water system, does not include a connection to a system that delivers water by a constructed conveyance other than a pipe if any of the following is true:

The water is used exclusively for purposes other than residential use (consisting of drinking, bathing, and cooking, or other similar uses);

The Agency determines by issuing a SEP that alternative water for residential use or similar uses for drinking and cooking is provided to achieve the equivalent level of public health protection provided by the applicable national primary drinking water regulations; or

The Agency determines by issuing a SEP that the water provided for residential use or similar uses for drinking, cooking, and bathing is centrally treated or treated at the point of entry by the provider, a pass-through entity, or the user to achieve the equivalent level of protection provided by the applicable national primary drinking water regulations.

BOARD NOTE: See sections 1401(4)(B)(i)(II) and (4)(B)(i)(III) of SDWA (42 USC 300f(4)(B)(i)(II) and (4)(B)(i)(III) (2011)).

"Significant deficiency" means a deficiency identified by the Agency in a groundwater system pursuant to Section 611.803. A significant deficiency might include, but is not limited to, a defect in system design, operation, or maintenance or a failure or malfunction of the sources, treatment, storage, or distribution system that the Agency determines to be causing or have potential for causing the introduction of contamination into the water delivered to consumers.

BOARD NOTE: Derived from 40 CFR 142.16(o)(2)(iv) (2013). The Agency must submit to USEPA a definition and description of at least one significant deficiency in each of the eight sanitary survey elements listed in Section 611.801(c) as part of the federal primacy requirements. The Board added the general description of what a significant deficiency might include in non-limiting terms, in order to provide this important definition within the body of the Illinois rules. No Agency submission to USEPA can provide definition within the context of Board regulations.

"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.

"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, aldicarb, aldicarb sulfone, aldicarb sulfoxide, atrazine, benzo(a)pyrene, carbofuran, chlordane, dalapon, dibromoethylene (ethylene dibromide or EDB), dibromochloropropane (DBCP), di(2-ethylhexyl)adipate, di(2-ethylhexyl)phthalate, dinoseb, diquat, endothall, endrin, glyphosate, heptachlor, heptachlor epoxide, hexachlorobenzene, hexachlorocyclopentadiene, lindane, methoxychlor, oxamyl, pentachlorophenol, picloram, simazine, toxaphene, poly-chlorinated biphenyls (PCBs), 2,4-D, 2,3,7,8-TCDD, and 2,4,5-TP.

BOARD NOTE: See the Board note appended to Section 611.311 for information relating to implementation of requirements relating to aldicarb, aldicarb sulfone, and aldicarb sulfoxide.

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

“Special irrigation district” means an irrigation district in existence prior to May 18, 1994 that provides primarily agricultural service through a piped water system with only incidental residential use or similar use, where the system or the residential users or similar users of the system comply with either of the following exclusion conditions:

The Agency determines by issuing a SEP that alternative water is provided for residential use or similar uses for drinking or cooking to achieve the equivalent level of public health protection provided by the applicable national primary drinking water regulations; or

The Agency determines by issuing a SEP that the water provided for residential use or similar uses for drinking, cooking, and bathing is centrally treated or treated at the point of entry by the provider, a pass-through entity, or the user to achieve the equivalent level of protection provided by the applicable national primary drinking water regulations.

BOARD NOTE: Derived from 40 CFR 141.2 (2013) and sections 1401(4)(B)(i)(II) and (4)(B)(i)(III) of SDWA (42 USC 300f(4)(B)(i)(II) and (4)(B)(i)(III) (2011)).

“Standard monitoring” means the monitoring, performed by the supplier pursuant to Section 611.921(a) and (b), at various specified locations in a distribution system including near entry points, at points that represent the average residence time in the distribution system, and at points in the distribution system that are representative of high TTHM and HAA5 concentrations throughout the distribution system.

BOARD NOTE: Derived from 40 CFR 141.601(a) and (b) (2013).

“Standard sample” means the aliquot of finished drinking water that is examined for the presence of coliform bacteria.

“Subpart B system” means a public water system that uses surface water or groundwater under the direct influence of surface water as a source and which is subject to the requirements of Subpart B of this Part and the analytical and monitoring requirements of Sections 611.531, 611.532, 611.533, Appendix B of this Part, and Appendix C of this Part.

“Subpart I compliance monitoring” means monitoring required to demonstrate compliance with disinfectant residuals, disinfection byproducts, and disinfection byproduct precursors requirements of Subpart I of this Part.

“Subpart I system” means a public water system that uses surface water or groundwater as a source and which is subject to the disinfectant residuals, disinfection byproducts, and disinfection byproduct precursors requirements of Subpart I of this Part.

“Subpart Y compliance monitoring” means monitoring required to demonstrate compliance with Stage 2 disinfection byproducts requirements of Subpart Y of this Part.

“Supplier of water” or “supplier” means any person who owns or operates a public water system (PWS). This term includes the “official custodian.”

“Surface water” means all water that is open to the atmosphere and subject to surface runoff.

“SUVA” means specific ultraviolet absorption at 254 nanometers (nm), which is an indicator of the humic content of water. It is a calculated parameter obtained by dividing a sample’s ultraviolet absorption at a wavelength of 254 nm (UV_{254}) (in m^{-1}) by its concentration of dissolved organic carbon (in mg/ℓ).

“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: Derived from 40 CFR 141.23(b)(2) and 141.24(f)(2) note (2013).

“System-specific study plan” means the plan, submitted by the supplier to the Agency pursuant to Section 611.922, for studying the occurrence of TTHM and HAA5 in a supplier’s distribution system based on either monitoring results or modelling of the system.
BOARD NOTE: Derived from 40 CFR 141.602 (2013).

“System with a single service connection” means a system that supplies drinking water to consumers via a single service line.

"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.

"Total organic carbon" or "TOC" means total organic carbon (in mg/ℓ) measured using heat, oxygen, ultraviolet irradiation, chemical oxidants, or combinations of these oxidants that convert organic carbon to carbon dioxide, rounded to two significant figures.

"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: See the definition of "trihalomethanes" for a listing of the four compounds that USEPA considers TTHMs to comprise.

"Transient, non-community water system" or "transient non-CWS" means a non-CWS that does not regularly serve at least 25 of the same persons over six months of the year.
BOARD NOTE: The federal regulations apply to all "public water systems," which are defined as all systems that have at least 15 service connections or which regularly serve water to at least 25 persons. (See 42 USC 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 Section 3.28 of the Act [415 ILCS 5/3.28].) The Department of Public Health regulates transient, non-community water systems.

"Treatment" means any process that changes the physical, chemical, microbiological, or radiological properties of water, is under the control of the supplier, and is not a point-of-use treatment device or a 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 the following compounds:

Trichloromethane (chloroform),

Dibromochloromethane,

Bromodichloromethane, and

Tribromomethane (bromoform)

"Two-stage lime softening" means a process in which chemical addition and hardness precipitation occur in each of two distinct unit clarification processes in series prior to filtration.

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

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

"Uncovered finished water storage facility" is a tank, reservoir, or other facility that is used to store water which will undergo no further treatment to reduce microbial pathogens except residual disinfection and which is directly open to the atmosphere.

"Very small system waiver" means the conditional waiver from the requirements of Subpart W of this Part applicable to a supplier that serves fewer than 500 persons and which has taken TTHM and HAA5 samples pursuant to Subpart I of this Part.
BOARD NOTE: Derived from 40 CFR 141.604 (2013).

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

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

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

"Wellhead protection area" or "WHPA" means the surface and subsurface recharge area surrounding a community water supply well or well field, delineated outside of any applicable setback zones (pursuant to Section 17.1 of the Act [415 ILCS 5/17.1]) pursuant to Illinois' Wellhead Protection Program, through which contaminants are reasonably likely to move toward such well or well field.
BOARD NOTE: The Agency uses two guidance documents for identification of WHPAs:

"Guidance Document for Groundwater Protection Needs Assessments," Illinois Environmental Protection Agency, Illinois State Water Survey, and Illinois State Geologic Survey joint report, January 1995; and

"The Illinois Wellhead Protection Program Pursuant to Section 1428 of the Federal Safe Drinking Water Act," Illinois Environmental Protection Agency, No. 22480, October 1992.

"Wellhead protection program" means the wellhead protection program for the State of Illinois, approved by USEPA under Section 1428 of the SDWA, 42 USC 300h-7.
BOARD NOTE: Derived from 40 CFR 141.71(b) (2013). The wellhead protection program includes the "groundwater protection needs assessment" under Section 17.1 of the Act [415 ILCS 5/17.1] and 35 Ill. Adm. Code 615-617.

"Wholesale system" means a public water system that treats source water as necessary to produce finished water, which then delivers some or all of that finished water to another public water system. Delivery by a wholesale system may be through a direct connection or through the distribution system of one or more consecutive systems.

BOARD NOTE: Derived from 40 CFR 141.2 (2013).

(Source: Amended at 38 Ill. Reg. 3608, effective January 27, 2014)

Section 611.102 Incorporations by Reference

a) Abbreviations and short-name listing of references. The following names and abbreviated names, presented in alphabetical order, are used in this Part to refer to materials incorporated by reference:

"AMI Turbiwell Method" means "Continuous Measurement of Turbidity Using a SWAN AMI Turbiwell Turbidimeter," available from NEMI or

from SWAN Analytische Instrumente AG.

“ASTM Method” means a method published by and available from the American Society for Testing and Materials (ASTM).

“ChlordioX Plus Test” means “Chlorine Dioxide and Chlorite in Drinking Water by Amperometry using Disposable Sensors,” available from Palintest Ltd.

“Charm Fast Phage” means “Fast Phage Test Procedure. Presence/Absence for Coliphage in Ground Water with Same Day Positive Prediction,” version 009 (Nov. 2012), available from Charm Sciences Inc.

“Colilert® Test” means Standard Methods, 21st ed., Method 9223 B, Chromogenic Substrate Coliform Test (using IDEXX Laboratories, Inc. Colilert® medium).

“Colilert-18® Test” means Standard Methods, 21st ed., Method 9223 B, Chromogenic Substrate Coliform Test (using IDEXX Laboratories, Inc. Colilert-18® medium).

“Colisure™ Test” means “Colisure Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia Coli in Drinking Water,” available from IDEXX Laboratories, Inc.

“Colitag® Test” means “Colitag® Product as a Test for Detection and Identification of Coliforms and E. coli Bacteria in Drinking Water and Source Water as Required in National Primary Drinking Water Regulations,” available from CPI International.

“Chromocult® Method” means “Chromocult® Coliform Agar Presence/Absence Membrane Filter Test Method for Detection and Identification of Coliform Bacteria and Escherichia coli in Finished Waters,” available from EMD Millipore.

“Determination of Inorganic Oxyhalide” means “Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography with the Addition of a Postcolumn Reagent for Trace Bromate Analysis,” available from NTIS.

“Dioxin and Furan Method 1613” means “Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope-Dilution HRGC/HRMS,” available from NTIS.

“E*Colite Test” means “Charm E*Colite Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia coli in Drinking Water,” available from Charm Sciences, Inc. and USEPA, Water Resource Center.

“EC-MUG” means “Method 9221 F: Multiple-Tube Fermentation Technique for Members of the Coliform Group, Escherichia coli Procedure (Proposed),” available from American Public Health Association and American Waterworks Association.

“EML Procedures Manual” means “EML Procedures Manual, HASL 300,” available from USDOE, EML.

“Enterolert” means “Evaluation of Enterolert for Enumeration of Enterococci in Recreational Waters,” available from American Society for Microbiology.

“Georgia Radium Method” means “The Determination of Radium-226 and Radium-228 in Drinking Water by Gamma-ray Spectrometry Using HPGE or Ge(Li) Detectors,” Revision 1.2, December 2004, available from the Georgia Tech Research Institute.

“GLI Method 2” means GLI Method 2, “Turbidity,” Nov. 2, 1992, available from Great Lakes Instruments, Inc.

“Guidance Manual for Filtration and Disinfection” means “Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems using Surface Water Sources,” March 1991, available from USEPA, NSCEP.

“Hach FilterTrak Method 10133” means “Determination of Turbidity by Laser Nephelometry,” available from Hach Co.

“Hach Method 10260” means “Hach Method 10260—Determination of Chlorinated Oxidants (Free and Total) in Water Using Disposable Planar

Reagent-filled Cuvettes and Mesofluic Channel Colorimetry," available from the Hach Company.

"Hach SPDANS 2 Method 10225" means "Hach Company SPADNS 2 (Arsenic-free) Fluoride Method 10225—Spectrophotometric Measurement of Fluoride in Water and Wastewater," available from the Hach Co.

"Hach TNTplus 835/836 Method 10206" means "Hach Company TNTplus 835/836 Nitrate Method 10206—Spectrophotometric Measurement of Nitrate in Water and Wastewater," available from the Hach Co.

"ITS Method D99-003" means Method D99-003, Revision 3.0, "Free Chlorine Species ($HOCl^-$ and OCl^-) by Test Strip," available from Industrial Test Systems, Inc.

"Kelada 01" means "Kelada Automated Test Methods for Total Cyanide, Acid Dissociable Cyanide, And Thiocyanate," Revision 1.2, available from NTIS.

"m-ColiBlue24 Test" means "Total Coliforms and E. coli Membrane Filtration Method with m-ColiBlue24® Broth," available from USEPA, Water Resource Center and Hach Company.

"Method ME355.01" means "Determination of Cyanide in Drinking Water by GC/MS Headspace Analysis," available from NEMI or from H&E Testing Laboratory.

"Mitchell Method M5271" means "Determination of Turbidity by Laser Nephelometry," available from NEMI and Leck Mitchell, PhD.

"Mitchell Method M5331" means "Determination of Turbidity by LED Nephelometry," available from NEMI and Leck Mitchell, PhD.

"Modified Colitag™ Test" means "Modified Colitag™ Test Method for Simultaneous Detection of E. coli and other Total Coliforms in Water," available from NEMI and CPI International.

“NA-MUG” means “Method 9222 G: Membrane Filter Technique for Members of the Coliform Group, MF Partition Procedures,” available from American Public Health Association and American Waterworks Association.

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

“New Jersey Radium Method” means “Determination of Radium 228 in Drinking Water,” available from the New Jersey Department of Environmental Protection.

“New York Radium Method” means “Determination of Ra-226 and Ra-228 (Ra-02),” available from the New York Department of Public Health.

“OI Analytical Method OIA-1677” means “Method OIA-1677, DW Available Cyanide by Flow Injection, Ligand Exchange, and Amperometry,” available from ALPKEM, Division of OI Analytical.

“ONPG-MUG Test” (meaning “minimal medium ortho-nitrophenyl-beta-d-galactopyranoside-4-methyl-umbelliferyl-beta-d-glucuronide test”), also called the “Colilert® Test,” is Method 9223, available in “Standard Methods for the Examination of Water and Wastewater,” 18th, 19th, 20th, or 21st ed., from American Public Health Association and the American Water Works Association.

“Orion Method AQ4500” means “Determination of Turbidity by LED Nephelometry,” available from Thermo Scientific.

“Palintest ChloroSense” means “Measurement of Free and Total Chlorine in Drinking Water by Palintest ChloroSense,” available from NEMI or Palintest Ltd.

“Palintest Method 1001” means “‘Lead in Drinking Water by Differential Pulse Anodic Stripping Voltammetry,’ Method Number 1001,” available from Palintest, Ltd. or the Hach Company.

“QuikChem Method 10–204–00–1-X” means “Digestion and distillation

of total cyanide in drinking and wastewaters using MICRO DIST and determination of cyanide by flow injection analysis," available from Lachat Instruments.

"Readycult® 2000" means "Readycult Coliforms 100 Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia coli in Finished Waters," v. 1.0, available from EMD Millipore.

"Readycult® 2007" means "Readycult® Coliforms 100 Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia coli in Finished Waters," v. 1.1, available from EMD Millipore.

"SimPlate Method" means "IDEXX SimPlate TM HPC Test Method for Heterotrophs in Water," available from IDEXX Laboratories, Inc.

"Standard Methods" means "Standard Methods for the Examination of Water and Wastewater," available from the American Public Health Association or the American Waterworks Association.

"Standard Methods Online" means the website maintained by the Standard Methods Organization (at www.standardmethods.org) for purchase of the latest versions of methods in an electronic format.

"Syngenta AG-625" means "Atrazine in Drinking Water by Immunoassay," February 2001 is available from Syngenta Crop Protection, Inc.

"Systea Easy (1-Reagent)" means "Systea Easy (1-Reagent) Nitrate Method," available from NEMI or Systea Scientific LLC.

"Technical Bulletin 601" means "Technical Bulletin 601, Standard Method of Testing for Nitrate in Drinking Water," July 1994, available from Thermo Scientific.

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

"Tecta EC/TC P-A Test" means "TECTA™ EC/TC medium and the

TECTA™ Instrument: a Presence/Absence Method for Simultaneous Detection of Total Coliforms and Escherichia coli (E.coli) in Drinking Water," available from Veolia Water Solutions and Technologies.

"USEPA Asbestos Method 100.1" means Method 100.1, "Analytical Method for Determination of Asbestos Fibers in Water," September 1983, available from NTIS.

"USEPA Asbestos Method 100.2" means Method 100.2, "Determination of Asbestos Structures over 10-mm in Length in Drinking Water," June 1994, available from NTIS.

"USEPA Environmental Inorganic Methods" means "Methods for the Determination of Inorganic Substances in Environmental Samples," August 1993, available from NTIS.

"USEPA Environmental Metals Methods" means "Methods for the Determination of Metals in Environmental Samples," available from NTIS.

"USEPA Inorganic Methods" means "Methods for Chemical Analysis of Water and Wastes," March 1983, available from NTIS.

"USEPA Interim Radiochemical Methods" means "Interim Radiochemical Methodology for Drinking Water," EPA 600/4-75/008 (revised), March 1976. Available from NTIS.

"USEPA Method 1600" means "Method 1600: Enterococci in Water by Membrane Filtration Using Membrane-Enterococcus Indoxyl–b–D–Glucoside Agar (mEI)," available from USEPA, Water Resource Center.

"USEPA Method 1601" means "Method 1601: Male-specific (F^+) and Somatic Coliphage in Water by Two-step Enrichment Procedure," available from USEPA, Water Resource Center.

"USEPA Method 1602" means "Method 1602: Male-specific (F^+) and Somatic Coliphage in Water by Single Agar Layer (SAL) Procedure," available from USEPA, Water Resource Center.

“USEPA Method 1604” means “Method 1604: Total Coliforms and Escherichia coli in Water by Membrane Filtration Using a Simultaneous Detection Technique (MI Medium),” available from USEPA, Water Resource Center.

“USEPA NERL Method 200.5 (rev. 4.2)” means Method 200.5, Revision 4.2, “Determination of Trace Elements in Drinking Water by Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry,” October 2003, EPA 600/R-06/115. Available from USEPA, Office of Research and Development.

“USEPA NERL Method 415.3 (rev. 1.1)” means Method 415.3, Revision 1.1, “Determination of Total Organic Carbon and Specific UV Absorbance at 254 nm in Source Water and Drinking Water,” USEPA, February 2005, EPA 600/R-05/055. Available from USEPA, Office of Research and Development.

“USEPA NERL Method 415.3 (rev. 1.2)” means Method 415.3, Revision 1.2, “Determination of Total Organic Carbon and Specific UV Absorbance at 254 nm in Source Water and Drinking Water,” USEPA, September 2009, EPA 600/R-09/122. Available from USEPA, Office of Research and Development.

“USEPA NERL Method 525.3 (ver. 1.0)” means Method 525.3, Version 1.0, “Determination of Total Semivolatile Organic Chemicals in Drinking Water by Solid Phase Extraction and Capillary Column Gas Chromatography/Mass Spectrometry (GC/MS),” USEPA, February 2012, EPA 600/R-12/010. Available from USEPA, Office of Research and Development.

“USEPA NERL Method 549.2” means Method 549.2, Revision 1.0, “Determination of Diquat and Paraquat in Drinking Water by Liquid-Solid Extraction and High Performance Liquid Chromatography with Ultraviolet Detection,” June 1997. Available from USEPA, Office of Research and Development.

“USEPA OGWDW Methods” means the methods listed as available from the USEPA, Office of Ground Water and Drinking Water (Methods 302.0, 317.0 (rev. 2.0), 326.0 (rev. 1.0), 327.0 (rev. 1.1), 334.0, 515.4 (rev. 1.0), 523 (rev. 1.0), 524.3 (rev. 1.0), 524.4, 531.2 (rev. 1.0), 536 (rev. 1.0), 552.3 (rev. 1.0), 557, 1622 (99), 1622 (01), 1622 (05), 1623 (99), 1623

(01), 1623 (05), and 1623.1). Available from NTIS; USEPA, NSCEP; or USEPA, OGWDW.

"USEPA Organic Methods" means "Methods for the Determination of Organic Compounds in Drinking Water," December 1988 (revised July 1991) (Methods 508A (rev. 1.0) and 515.1 (rev. 4.0)); "Methods for the Determination of Organic Compounds in Drinking Water—Supplement I," July 1990 (Methods 547, 550, and 550.1); "Methods for the Determination of Organic Compounds in Drinking Water—Supplement II," August 1992 (Methods 548.1 (rev. 1.0), 552.1 (rev. 1.0), and 555 (rev. 1.0)); and "Methods for the Determination of Organic Compounds in Drinking Water—Supplement III," August 1995 (Methods 502.2 (rev. 2.1), 504.1 (rev. 1.1), 505 (rev. 2.1), 506 (rev. 1.1), 507 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 515.2 (rev. 1.1), 524.2 (rev. 4.1), 525.2 (rev. 2.0), 531.1 (rev. 3.1), 551.1 (rev. 1.0), and 552.2 (rev. 1.0)). Available from NTIS; USEPA, NSCEP; or USEPA, EMSL.

"USEPA Organic and Inorganic Methods" means "Methods for the Determination of Organic and Inorganic Compounds in Drinking Water, Volume 1," EPA 815/R-00/014, PB2000-106981, August 2000. Available from NTIS.

"USEPA Radioactivity Methods" means "Prescribed Procedures for Measurement of Radioactivity in Drinking Water," EPA 600/4-80/032, August 1980. Available from NTIS.

"USEPA Radiochemical Analyses" means "Radiochemical Analytical Procedures for Analysis of Environmental Samples," March 1979. Available from NTIS.

"USEPA Radiochemistry Procedures" means "Radiochemistry Procedures Manual," EPA 520/5-84/006, December 1987. Available from NTIS.

"USEPA Technical Notes" means "Technical Notes on Drinking Water Methods," available from NTIS and USEPA, NSCEP.

"USGS Methods" means "Methods of Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of Inorganic and Organic Constituents in Water and Fluvial Sediments," available from NTIS and USGS.

BOARD NOTE: The USGS Methods are available in three volumes published in 1977, 1989, and 1993, as outlined in subsection (b) of this Section.

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

b) The Board incorporates the following publications by reference:

ALPKEM, Division of OI Analytical, P.O. Box 9010, College Station, TX 77842-9010, telephone: 979-690-1711, Internet: www.oico.com.

"Method OIA-1677 DW, Available Cyanide by Flow Injection, Ligand Exchange, and Amperometry," EPA 821/R-04/001, January 2004 (referred to as "OI Analytical Method OIA-1677"), referenced in Section 611.611.

BOARD NOTE: Also available online for download from www.epa.gov/waterscience/methods/method/cyanide/1677-2004.pdf.

APHA. American Public Health Association, 1015 Fifteenth Street NW, Washington, DC 20005 202-777-2742.

"Standard Methods for the Examination of Water and Wastewater," 16th Edition, 1985 (referred to as "Standard Methods, 16th ed."). See the methods listed separately for the same references under American Waterworks Association.

"Standard Methods for the Examination of Water and Wastewater," 17th Edition, 1989 (referred to as "Standard Methods, 17th ed."). See the methods listed separately for the same references under American Waterworks Association.

"Standard Methods for the Examination of Water and Wastewater," 18th Edition, 1992, including "Supplement to the 18th Edition of Standard Methods for the Examination of Water and Wastewater," 1994 (collectively referred to as "Standard

Methods, 18th ed.”). See the methods listed separately for the same references under American Waterworks Association.

“Standard Methods for the Examination of Water and Wastewater,” 19th Edition, 1995 (referred to as “Standard Methods, 19th ed.”). See the methods listed separately for the same references under American Waterworks Association.

“Standard Methods for the Examination of Water and Wastewater,” 20th Edition, 1998 (referred to as “Standard Methods, 20th ed.”). See the methods listed separately for the same references under American Waterworks Association.

“Standard Methods for the Examination of Water and Wastewater,” 21st Edition, 2005 (referred to as “Standard Methods, 21st ed.”). See the methods listed separately for the same references under American Waterworks Association.

“Standard Methods for the Examination of Water and Wastewater,” 22nd Edition, 2012 (referred to as “Standard Methods, 22nd ed.”). See the methods listed separately for the same references under American Waterworks Association.

American Society for Microbiology, 1752 N Street N.W., Washington, DC 20036, 202-737-3600:

“Evaluation of Enterolert for Enumeration of Enterococci in Recreational Waters,” Applied and Environmental Microbiology, Oct. 1996, vol. 62, no. 10, p. 3881 (referred to as “Enterolert”), referenced in Section 611.802.

BOARD NOTE: At the table to 40 CFR 141.402(c)(2), USEPA approved the method as described in the above literature review. The method itself is embodied in the printed instructions to the proprietary kit available from IDEXX Laboratories, Inc. (accessible on-line and available by download from www.asm.org, as “Enterolert™ Procedure”). ASTM approved the method as “Standard Test Method for Enterococci in Water Using Enterolert™,” which is available in two versions from ASTM: ASTM Method D6503-99 (superceded) and ASTM Method

D6503-99. While it is more conventional to incorporate the method as presented in the kit instructions or as approved by ASTM by reference, the Board is constrained to incorporate the version that appears in the technical literature by reference, which is the version that USEPA has explicitly approved.

AWWA. American Water Works Association et al., 6666 West Quincy Ave., Denver, CO 80235 (303-794-7711).

"National Field Evaluation of a Defined Substrate Method for the Simultaneous Enumeration of Total Coliforms and Escherichia coli for Drinking Water: Comparison with the Standard Multiple Tube Fermentation Method," S.C. Edberg, M.J. Allen & D.B. Smith, Applied Environmental Microbiology, vol. 54, iss. 6, pp 1595-1601 (1988), referenced in Appendix D to this Part.

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

Method 302, Gross Alpha and Gross Beta Radioactivity in Water (Total, Suspended, and Dissolved), referenced in Section 611.720.

Method 303, Total Radioactive Strontium and Strontium 90 in Water, referenced in Section 611.720.

Method 304, Radium in Water by Precipitation, referenced in Section 611.720.

Method 305, Radium 226 by Radon in Water (Soluble, Suspended, and Total), referenced in Section 611.720.

Method 306, Tritium in Water, referenced in Section 611.720.

"Standard Methods for the Examination of Water and Wastewater," 16th Edition, 1985 (referred to as "Standard Methods, 16th ed.").

Method 907A, Heterotrophic Plate Count, Pour Plate Method, referenced in Section 611.213.

"Standard Methods for the Examination of Water and Wastewater," 17th Edition, 1989 (referred to as "Standard Methods, 17th ed.").

Method 7110 B, Gross Alpha and Gross Beta Radioactivity in Water (Total, Suspended, and Dissolved), referenced in Section 611.720.

Method 7500-Cs B, Radioactive Cesium, Precipitation Method, referenced in Section 611.720.

Method 7500-^{3}H B, Tritium in Water, referenced in Section 611.720.

Method 7500-I B, Radioactive Iodine, Precipitation Method, referenced in Section 611.720.

Method 7500-I C, Radioactive Iodine, Ion-Exchange Method, referenced in Section 611.720.

Method 7500-I D, Radioactive Iodine, Distillation Method, referenced in Section 611.720.

Method 7500-Ra B, Radium in Water by Precipitation, referenced in Section 611.720.

Method 7500-Ra C, Radium 226 by Radon in Water (Soluble, Suspended, and Total), referenced in Section 611.720.

Method 7500-Ra D, Radium, Sequential Precipitation Method (Proposed), referenced in Section 611.720.

Method 7500-Sr B, Total Radioactive Strontium and Strontium 90 in Water, referenced in Section 611.720.

Method 7500-U B, Uranium, Radiochemical Method (Proposed), referenced in Section 611.720.

Method 7500-U C, Uranium, Isotopic Method (Proposed), referenced in Section 611.720.

"Standard Methods for the Examination of Water and Wastewater," 18th Edition, 1992 (referred to as "Standard Methods, 18th ed.").

Method 2130 B, Turbidity, Nephelometric Method, referenced in Section 611.531.

Method 2320 B, Alkalinity, Titration Method, referenced in Section 611.611.

Method 2510 B, Conductivity, Laboratory Method, referenced in Section 611.611.

Method 2550, Temperature, Laboratory and Field Methods, referenced in Section 611.611.

Method 3111 B, Metals by Flame Atomic Absorption Spectrometry, Direct Air-Acetylene Flame Method, referenced in Sections 611.611 and 611.612.

Method 3111 D, Metals by Flame Atomic Absorption Spectrometry, Direct Nitrous Oxide-Acetylene Flame Method, referenced in Section 611.611.

Method 3112 B, Metals by Cold-Vapor Atomic Absorption Spectrometry, Cold-Vapor Atomic Absorption Spectrometric Method, referenced in Section 611.611.

Method 3113 B, Metals by Electrothermal Atomic Absorption Spectrometry, Electrothermal Atomic Absorption Spectrometric Method, referenced in Sections 611.611 and 611.612.

Method 3114 B, Metals by Hydride Generation/Atomic Absorption Spectrometry, Manual Hydride Generation/Atomic Absorption Spectrometric Method, referenced in Section 611.611.

Method 3120 B, Metals by Plasma Emission Spectroscopy, Inductively Coupled Plasma (ICP) Method, referenced in Sections 611.611 and 611.612.

Method 3500-Ca D, Calcium, EDTA Titrimetric Method, referenced in Section 611.611.

Method 3500-Mg E, Magnesium, Calculation Method, referenced in Section 611.611.

Method 4110 B, Determination of Anions by Ion Chromatography, Ion Chromatography with Chemical Suppression of Eluent Conductivity, referenced in Section 611.611.

Method 4500-CN^- C, Cyanide, Total Cyanide after Distillation, referenced in Section 611.611.

Method 4500-CN^- E, Cyanide, Colorimetric Method, referenced in Section 611.611.

Method 4500-CN^- F, Cyanide, Cyanide-Selective Electrode Method, referenced in Section 611.611.

Method 4500-CN^- G, Cyanide, Cyanides Amenable to Chlorination after Distillation, referenced in Section 611.611.

Method 4500-Cl D, Chlorine, Amperometric Titration Method, referenced in Section 611.531.

Method 4500-Cl E, Chlorine, Low-Level Amperometric Titration Method, referenced in Section 611.531.

Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric Method, referenced in Section 611.531.

Method 4500-Cl G, Chlorine, DPD Colorimetric Method, referenced in Section 611.531.

Method 4500-Cl H, Chlorine, Syringaldazine (FACTS) Method, referenced in Section 611.531.

Method 4500-Cl I, Chlorine, Iodometric Electrode Method, referenced in Section 611.531.

Method 4500-ClO_2 C, Chlorine Dioxide, Amperometric Method I, referenced in Section 611.531.

Method 4500-ClO_2 D, Chlorine Dioxide, DPD Method, referenced in Section 611.531.

Method 4500-ClO_2 E, Chlorine Dioxide, Amperometric Method II (Proposed), referenced in Section 611.531.

Method 4500-F^- B, Fluoride, Preliminary Distillation Step, referenced in Section 611.611.

Method 4500-F^- C, Fluoride, Ion-Selective Electrode Method, referenced in Section 611.611.

Method 4500-F^- D, Fluoride, SPADNS Method, referenced in Section 611.611.

Method 4500-F^- E, Fluoride, Complexone Method, referenced in Section 611.611.

Method 4500-H^+ B, pH Value, Electrometric Method, referenced in Section 611.611.

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

Method, referenced in Section 611.611.

Method 4500-NO_3^- D, Nitrogen (Nitrate), Nitrate Electrode Method, referenced in Section 611.611.

Method 4500-NO_3^- E, Nitrogen (Nitrate), Cadmium Reduction Method, referenced in Section 611.611.

Method 4500-NO_3^- F, Nitrogen (Nitrate), Automated Cadmium Reduction Method, referenced in Section 611.611.

Method 4500-O_3 B, Ozone (Residual) (Proposed), Indigo Colorimetric Method, referenced in Section 611.531.

Method 4500-P E, Phosphorus, Ascorbic Acid Method, referenced in Section 611.611.

Method 4500-P F, Phosphorus, Automated Ascorbic Acid Reduction Method, referenced in Section 611.611.

Method 4500-Si D, Silica, Molybdosilicate Method, referenced in Section 611.611.

Method 4500-Si E, Silica, Heteropoly Blue Method, referenced in Section 611.611.

Method 4500-Si F, Silica, Automated Method for Molybdate-Reactive Silica, referenced in Section 611.611.

Method 6651 B, Glyphosate Herbicide (Proposed), referenced in Section 611.645.

Method 7110 B, Gross Alpha and Beta Radioactivity (Total, Suspended, and Dissolved), Evaporation Method for Gross Alpha-Beta, referenced in Section 611.720.

Method 7110 C, Gross Alpha and Beta Radioactivity (Total, Suspended, and Dissolved), Coprecipitation Method for Gross Alpha Radioactivity in Drinking Water (Proposed), referenced in Section 611.720.

Method 7500-Cs B, Radioactive Cesium, Precipitation Method, referenced in Section 611.720.

Method 7500-^{3}H B, Tritium, Liquid Scintillation Spectrometric Method, referenced in Section 611.720.

Method 7500-I B, Radioactive Iodine, Precipitation Method, referenced in Section 611.720.

Method 7500-I C, Radioactive Iodine, Ion-Exchange Method, referenced in Section 611.720.

Method 7500-I D, Radioactive Iodine, Distillation Method, referenced in Section 611.720.

Method 7500-Ra B, Radium, Precipitation Method, referenced in Section 611.720.

Method 7500-Ra C, Radium, Emanation Method, referenced in Section 611.720.

Method 7500-Ra D, Radium, Sequential Precipitation Method (Proposed), referenced in Section 611.720.

Method 7500-Sr B, Total Radioactive Strontium and Strontium 90, Precipitation Method, referenced in Section 611.720.

Method 7500-U B, Uranium, Radiochemical Method (Proposed), referenced in Section 611.720.

Method 7500-U C, Uranium, Isotopic Method (Proposed), referenced in Section 611.720.

Method 9215 B, Heterotrophic Plate Count, Pour Plate Method, referenced in Section 611.531.

Method 9221 A, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Introduction, referenced in Sections 611.526 and 611.531.

Method 9221 B, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Standard Total Coliform Fermentation Technique, referenced in Sections 611.526 and 611.531.

Method 9221 C, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Estimation of Bacterial Density, referenced in Sections 611.526 and 611.531.

Method 9221 D, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Presence-Absence (P-A) Coliform Test, referenced in Section 611.526.

Method 9221 E, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Fecal Coliform Procedure, referenced in Sections 611.526 and 611.531.

Method 9222 A, Membrane Filter Technique for Members of the Coliform Group, Introduction, referenced in Sections 611.526 and 611.531.

Method 9222 B, Membrane Filter Technique for Members of the Coliform Group, Standard Total Coliform Membrane Filter Procedure, referenced in Sections 611.526 and 611.531.

Method 9222 C, Membrane Filter Technique for Members of the Coliform Group, Delayed-Incubation Total Coliform Procedure, referenced in Sections 611.526 and 611.531.

Method 9222 D, Membrane Filter Technique for Members

of the Coliform Group, Fecal Coliform Membrane Filter Procedure, referenced in Section 611.531.

Method 9223, Chromogenic Substrate Coliform Test (Proposed) (also referred to as the variations “Colilert® Test” and “Colisure™ Test”), referenced in Sections 611.526 and 611.531.

Method 9223 B, Chromogenic Substrate Coliform Test (Proposed), referenced in Section 611.1004.

“Supplement to the 18th Edition of Standard Methods for the Examination of Water and Wastewater,” American Public Health Association, 1994.

Method 6610, Carbamate Pesticide Method, referenced in Section 611.645.

“Standard Methods for the Examination of Water and Wastewater,” 19th Edition, 1995 (referred to as “Standard Methods, 19th ed.”).

Method 2130 B, Turbidity, Nephelometric Method, referenced in Section 611.531.

Method 2320 B, Alkalinity, Titration Method, referenced in Section 611.611.

Method 2510 B, Conductivity, Laboratory Method, referenced in Section 611.611.

Method 2550, Temperature, Laboratory, and Field Methods, referenced in Section 611.611.

Method 3111 B, Metals by Flame Atomic Absorption Spectrometry, Direct Air-Acetylene Flame Method, referenced in Sections 611.611 and 611.612.

Method 3111 D, Metals by Flame Atomic Absorption Spectrometry, Direct Nitrous Oxide-Acetylene Flame Method, referenced in Section 611.611.

Method 3112 B, Metals by Cold-Vapor Atomic Absorption Spectrometry, Cold-Vapor Atomic Absorption Spectrometric Method, referenced in Section 611.611.

Method 3113 B, Metals by Electrothermal Atomic Absorption Spectrometry, Electrothermal Atomic Absorption Spectrometric Method, referenced in Sections 611.611 and 611.612.

Method 3114 B, Metals by Hydride Generation/Atomic Absorption Spectrometry, Manual Hydride Generation/Atomic Absorption Spectrometric Method, referenced in Section 611.611.

Method 3120 B, Metals by Plasma Emission Spectroscopy, Inductively Coupled Plasma (ICP) Method, referenced in Sections 611.611 and 611.612.

Method 3500-Ca D, Calcium, EDTA Titrimetric Method, referenced in Section 611.611.

Method 3500-Mg E, Magnesium, Calculation Method, referenced in Section 611.611.

Method 4110 B, Determination of Anions by Ion Chromatography, Ion Chromatography with Chemical Suppression of Eluent Conductivity, referenced in Section 611.611.

Method 4500-Cl D, Chlorine, Amperometric Titration Method, referenced in Sections 611.381 and 611.531.

Method 4500-Cl E, Chlorine, Low-Level Amperometric Titration Method, referenced in Sections 611.381 and 611.531.

Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric Method, referenced in Sections 611.381 and 611.531.

Method 4500-Cl G, Chlorine, DPD Colorimetric Method, referenced in Sections 611.381 and 611.531.

Method 4500-Cl H, Chlorine, Syringaldazine (FACTS) Method, referenced in Sections 611.381 and 611.531.

Method 4500-Cl I, Chlorine, Iodometric Electrode Method, referenced in Sections 611.381 and 611.531.

Method 4500-ClO_2 C, Chlorine Dioxide, Amperometric Method I, referenced in Section 611.531.

Method 4500-ClO_2 D, Chlorine Dioxide, DPD Method, referenced in Sections 611.381 and 611.531.

Method 4500-ClO_2 E, Chlorine Dioxide, Amperometric Method II, referenced in Sections 611.381 and 611.531.

Method 4500-CN^- C, Cyanide, Total Cyanide after Distillation, referenced in Section 611.611.

Method 4500-CN^- E, Cyanide, Colorimetric Method, referenced in Section 611.611.

Method 4500-CN^- F, Cyanide, Cyanide-Selective Electrode Method, referenced in Section 611.611.

Method 4500-CN^- G, Cyanide, Cyanides Amenable to Chlorination after Distillation, referenced in Section 611.611.

Method 4500-F^- B, Fluoride, Preliminary Distillation Step, referenced in Section 611.611.

Method 4500-F^- C, Fluoride, Ion-Selective Electrode Method, referenced in Section 611.611.

Method 4500-F^- D, Fluoride, SPADNS Method, referenced in Section 611.611.

Method 4500-F^- E, Fluoride, Complexone Method, referenced in Section 611.611.

Method 4500-H^+ B, pH Value, Electrometric Method, referenced in Section 611.611.

Method 4500-NO_2^- B, Nitrogen (Nitrite), Colorimetric Method, referenced in Section 611.611.

Method 4500-NO_3^- D, Nitrogen (Nitrate), Nitrate Electrode Method, referenced in Section 611.611.

Method 4500-NO_3^- E, Nitrogen (Nitrate), Cadmium Reduction Method, referenced in Section 611.611.

Method 4500-NO_3^- F, Nitrogen (Nitrate), Automated Cadmium Reduction Method, referenced in Section 611.611.

Method 4500-O_3 B, Ozone (Residual) (Proposed), Indigo Colorimetric Method, referenced in Section 611.531.

Method 4500-P E, Phosphorus, Ascorbic Acid Method, referenced in Section 611.611.

Method 4500-P F, Phosphorus, Automated Ascorbic Acid Reduction Method, referenced in Section 611.611.

Method 4500-Si D, Silica, Molybdosilicate Method, referenced in Section 611.611.

Method 4500-Si E, Silica, Heteropoly Blue Method, referenced in Section 611.611.

Method 4500-Si F, Silica, Automated Method for Molybdate-Reactive Silica, referenced in Section 611.611.

Method 5910 B, UV Absorbing Organic Constituents, Ultraviolet Absorption Method, referenced in Section 611.381.

Method 6251 B, Disinfection Byproducts: Haloacetic Acids and Trichlorophenol, Micro Liquid-Liquid Extraction Gas Chromatographic Method, referenced in Section 611.381.

Method 6610, Carbamate Pesticide Method, referenced in Section 611.645.

Method 6651 B, Glyphosate Herbicide, referenced in Section 611.645.

Method 7110 B, Gross Alpha and Gross Beta Radioactivity, Evaporation Method for Gross Alpha-Beta, referenced in Section 611.720.

Method 7110 C, Gross Alpha and Beta Radioactivity (Total, Suspended, and Dissolved), Coprecipitation Method for Gross Alpha Radioactivity in Drinking Water (Proposed), referenced in Section 611.720.

Method 7120, Gamma-Emitting Radionuclides, referenced in Section 611.720.

Method 7500-Cs B, Radioactive Cesium, Precipitation Method, referenced in Section 611.720.

Method 7500-^{3}H B, Tritium, Liquid Scintillation Spectrometric Method, referenced in Section 611.720.

Method 7500-I B, Radioactive Iodine, Precipitation Method, referenced in Section 611.720.

Method 7500-I C, Radioactive Iodine, Ion-Exchange Method, referenced in Section 611.720.

Method 7500-I D, Radioactive Iodine, Distillation Method, referenced in Section 611.720.

Method 7500-Ra B, Radium, Precipitation Method, referenced in Section 611.720.

Method 7500-Ra C, Radium, Emanation Method, referenced in Section 611.720.

Method 7500-Ra D, Radium, Sequential Precipitation Method, referenced in Section 611.720.

Method 7500-Sr B, Total Radiactive Strontium and Strontium 90, Precipitation Method, referenced in Section 611.720.

Method 7500-U B, Uranium, Radiochemical Method, referenced in Section 611.720.

Method 7500-U C, Uranium, Isotopic Method, referenced in Section 611.720.

Method 9215 B, Heterotrophic Plate Count, Pour Plate Method, referenced in Section 611.531.

Method 9221 A, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Introduction, referenced in Sections 611.526 and 611.531.

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

611.526 and 611.531.

Method 9221 C, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Estimation of Bacterial Density, referenced in Sections 611.526 and 611.531.

Method 9221 D, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Presence-Absence (P-A) Coliform Test, referenced in Section 611.526.

Method 9221 E, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Fecal Coliform Procedure, referenced in Sections 611.526 and 611.531.

Method 9222 A, Membrane Filter Technique for Members of the Coliform Group, Introduction, referenced in Sections 611.526 and 611.531.

Method 9222 B, Membrane Filter Technique for Members of the Coliform Group, Standard Total Coliform Membrane Filter Procedure, referenced in Sections 611.526 and 611.531.

Method 9222 C, Membrane Filter Technique for Members of the Coliform Group, Delayed-Incubation Total Coliform Procedure, referenced in Sections 611.526 and 611.531.

Method 9222 D, Membrane Filter Technique for Members of the Coliform Group, Fecal Coliform Membrane Filter Procedure, referenced in Section 611.531.

Method 9222 G, Membrane Filter Technique for Members of the Coliform Group, MF Partition Procedures, referenced in Section 611.526.

Method 9223, Chromogenic Substrate Coliform Test (also referred to as the variations “Colilert® Test” and “Colisure™ Test”), referenced in Sections 611.526 and

611.531.

Method 9223 B, Chromogenic Substrate Coliform Test (Proposed), referenced in Section 611.1004.

"Supplement to the 19th Edition of Standard Methods for the Examination of Water and Wastewater," American Public Health Association, 1996.

Method 5310 B, TOC, Combustion-Infrared Method, referenced in Section 611.381.

Method 5310 C, TOC, Persulfate-Ultraviolet Oxidation Method, referenced in Section 611.381.

Method 5310 D, TOC, Wet-Oxidation Method, referenced in Section 611.381.

"Standard Methods for the Examination of Water and Wastewater," 20th Edition, 1998 (referred to as "Standard Methods, 20th ed.").

Method 2130 B, Turbidity, Nephelometric Method, referenced in Section 611.531.

Method 2320 B, Alkalinity, Titration Method, referenced in Section 611.611.

Method 2510 B, Conductivity, Laboratory Method, referenced in Section 611.611.

Method 2550, Temperature, Laboratory, and Field Methods, referenced in Section 611.611.

Method 3120 B, Metals by Plasma Emission Spectroscopy, Inductively Coupled Plasma (ICP) Method, referenced in Sections 611.611 and 611.612.

Method 3125, Metals by Inductively Coupled Plasma/Mass Spectrometry, referenced in Section 611.720.

Method 3500-Ca B, Calcium, EDTA Titrimetric Method, referenced in Section 611.611.

Method 3500-Mg B, Magnesium, EDTA Titrimetric Method, referenced in Section 611.611.

Method 4110 B, Determination of Anions by Ion Chromatography, Ion Chromatography with Chemical Suppression of Eluent Conductivity, referenced in Section 611.611.

Method 4500-CN^- C, Cyanide, Total Cyanide after Distillation, referenced in Section 611.611.

Method 4500-CN^- E, Cyanide, Colorimetric Method, referenced in Section 611.611.

Method 4500-CN^- F, Cyanide, Cyanide-Selective Electrode Method, referenced in Section 611.611.

Method 4500-CN^- G, Cyanide, Cyanides Amenable to Chlorination after Distillation, referenced in Section 611.611.

Method 4500-Cl D, Chlorine, Amperometric Titration Method, referenced in Section 611.531.

Method 4500-Cl E, Chlorine, Low-Level Amperometric Titration Method, referenced in Section 611.531.

Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric Method, referenced in Section 611.531.

Method 4500-Cl G, Chlorine, DPD Colorimetric Method, referenced in Section 611.531.

Method 4500-Cl H, Chlorine, Syringaldazine (FACTS) Method, referenced in Section 611.531.

Method 4500-Cl I, Chlorine, Iodometric Electrode Method, referenced in Section 611.531.

Method 4500-ClO_2 C, Chlorine Dioxide, Amperometric Method I, referenced in Section 611.531.

Method 4500-ClO_2 D, Chlorine Dioxide, DPD Method, referenced in Section 611.531.

Method 4500-ClO_2 E, Chlorine Dioxide, Amperometric Method II (Proposed), referenced in Section 611.531.

Method 4500-F^- B, Fluoride, Preliminary Distillation Step, referenced in Section 611.611.

Method 4500-F^- C, Fluoride, Ion-Selective Electrode Method, referenced in Section 611.611.

Method 4500-F^- D, Fluoride, SPADNS Method, referenced in Section 611.611.

Method 4500-F^- E, Fluoride, Complexone Method, referenced in Section 611.611.

Method 4500-H^+ B, pH Value, Electrometric Method, referenced in Section 611.611.

Method 4500-NO_2^- B, Nitrogen (Nitrite), Colorimetric Method, referenced in Section 611.611.

Method 4500-NO_3^- D, Nitrogen (Nitrate), Nitrate Electrode Method, referenced in Section 611.611.

Method 4500-NO_3^- E, Nitrogen (Nitrate), Cadmium

Reduction Method, referenced in Section 611.611.

Method 4500-NO_3^- F, Nitrogen (Nitrate), Automated Cadmium Reduction Method, referenced in Section 611.611.

Method 4500-O_3 B, Ozone (Residual) (Proposed), Indigo Colorimetric Method, referenced in Section 611.531.

Method 4500-P E, Phosphorus, Ascorbic Acid Method, referenced in Section 611.611.

Method 4500-P F, Phosphorus, Automated Ascorbic Acid Reduction Method, referenced in Section 611.611.

Method 4500-SiO_2 C, Silica, Molybdosilicate Method, referenced in Section 611.611.

Method 4500-SiO_2 D, Silica, Heteropoly Blue Method, referenced in Section 611.611.

Method 4500-SiO_2 E, Silica, Automated Method for Molybdate-Reactive Silica, referenced in Section 611.611.

Method 5310 B, TOC, Combustion-Infrared Method, referenced in Section 611.381.

Method 5310 C, TOC, Persulfate-Ultraviolet Oxidation Method, referenced in Section 611.381.

Method 5310 D, TOC, Wet-Oxidation Method, referenced in Section 611.381.

Method 5910 B, UV-Absorbing Organic Constituents, Ultraviolet Absorption Method, referenced in Sections 611.381 and 611.382.

Method 6251 B, Disinfection By-Products: Haloacetic Acids and Trichlorophenol, Micro Liquid-Liquid Extraction Gas Chromatographic Method, referenced in Section 611.381.

Method 6610 B, Carbamate Pesticide Method, referenced in Section 611.645.

Method 6651 B, Glyphosate Herbicide, Liquid Chromatographic Post-Column Fluorescence Method, referenced in Section 611.645.

Method 7110 B, Gross Alpha and Gross Beta Radioactivity, Evaporation Method for Gross Alpha-Beta, referenced in Section 611.720.

Method 7110 C, Gross Alpha and Beta Radioactivity (Total, Suspended, and Dissolved), Coprecipitation Method for Gross Alpha Radioactivity in Drinking Water (Proposed), referenced in Section 611.720.

Method 7120, Gamma-Emitting Radionuclides, referenced in Section 611.720.

Method 7500-Cs B, Radioactive Cesium, Precipitation Method, referenced in Section 611.720.

Method 7500-^{3}H B, Tritium, Liquid Scintillation Spectrometric Method, referenced in Section 611.720.

Method 7500-I B, Radioactive Iodine, Precipitation Method, referenced in Section 611.720.

Method 7500-I C, Radioactive Iodine, Ion-Exchange Method, referenced in Section 611.720.

Method 7500-I D, Radioactive Iodine, Distillation Method, referenced in Section 611.720.

Method 7500-Ra B, Radium, Precipitation Method, referenced in Section 611.720.

Method 7500-Ra C, Radium, Emanation Method, referenced in Section 611.720.

Method 7500-Ra D, Radium, Sequential Precipitation Method, referenced in Section 611.720.

Method 7500-Sr B, Total Radioactive Strontium and Strontium 90, Precipitation Method, referenced in Section 611.720.

Method 7500-U B, Uranium, Radiochemical Method, referenced in Section 611.720.

Method 7500-U C, Uranium, Isotopic Method, referenced in Section 611.720.

Method 9060 A, Samples, Collection, referenced in Section 611.1052.

Method 9215 B, Heterotrophic Plate Count, Pour Plate Method, referenced in Section 611.531.

Method 9221 A, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Introduction, referenced in Sections 611.526 and 611.531.

Method 9221 B, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Standard Total Coliform Fermentation Technique, referenced in Sections 611.526, 611.531, and 611.1052.

Method 9221 C, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Estimation of Bacterial Density, referenced in Sections 611.526, 611.531, and 611.1052.

Method 9221 D, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Presence-Absence (P-A) Coliform Test, referenced in Sections 611.526 and 611.1052.

Method 9221 E, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Fecal Coliform Procedure, referenced in Sections 611.526 and 611.531.

Method 9221 F, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Escherichia Coli Procedure (Proposed), referenced in Section 611.802.

Method 9222 A, Membrane Filter Technique for Members of the Coliform Group, Introduction, referenced in Sections 611.526 and 611.531.

Method 9222 B, Membrane Filter Technique for Members of the Coliform Group, Standard Total Coliform Membrane Filter Procedure, referenced in Sections 611.526, 611.531, and 611.1052.

Method 9222 C, Membrane Filter Technique for Members of the Coliform Group, Delayed-Incubation Total Coliform Procedure, referenced in Sections 611.526 and 611.531.

Method 9222 D, Membrane Filter Technique for Members of the Coliform Group, Fecal Coliform Membrane Filter Procedure, referenced in Section 611.531.

Method 9222 G, Membrane Filter Technique for Members of the Coliform Group, MF Partition Procedures, referenced in Section 611.526.

Method 9223, Chromogenic Substrate Coliform Test (also referred to as the variations “Colilert® Test” and “Colisure™ Test”), referenced in Sections 611.526 and 611.531.

Method 9223 B, Chromogenic Substrate Coliform Test (also referred to as the variations “Colilert® Test” and “Colisure™ Test”), referenced in Sections 611.526, 611.802, 611.1004, and 611.1052.

Method 9230 B, Fecal Streptococcus and Enterococcus Groups, Multiple Tube Techniques, referenced in Section 611.802.

Method 9230 C, Fecal Streptococcus and Enterococcus Groups, Membrane Filter Techniques, referenced in Section 611.802.

“Standard Methods for the Examination of Water and Wastewater,” 21st Edition, 2005 (referred to as “Standard Methods, 21st ed.”).

Method 2130 B, Turbidity, Nephelometric Method, referenced in Section 611.531.

Method 2320 B, Alkalinity, Titration Method, referenced in Section 611.611.

Method 2510 B, Conductivity, Laboratory Method, referenced in Section 611.611.

Method 2550, Temperature, Laboratory, and Field Methods, referenced in Section 611.611.

Method 3111 B, Metals by Flame Atomic Absorption Spectrometry, Direct Air-Acetylene Flame Method, referenced in Sections 611.611 and 611.612.

Method 3111 D, Metals by Flame Atomic Absorption Spectrometry, Direct Nitrous Oxide-Acetylene Flame Method, referenced in Section 611.611.

Method 3112 B, Metals by Cold-Vapor Atomic Absorption

Spectrometry, Cold-Vapor Atomic Absorption Spectrometric Method, referenced in Section 611.611.

Method 3113 B, Metals by Electrothermal Atomic Absorption Spectrometry, Electrothermal Atomic Absorption Spectrometric Method, referenced in Sections 611.611 and 611.612.

Method 3114 B, Metals by Hydride Generation/Atomic Absorption Spectrometry, Manual Hydride Generation/Atomic Absorption Spectrometric Method, referenced in Section 611.611.

Method 3120 B, Metals by Plasma Emission Spectroscopy, Inductively Coupled Plasma (ICP) Method, referenced in Sections 611.611 and 611.612.

Method 3125, Metals by Inductively Coupled Plasma/Mass Spectrometry, referenced in Section 611.720.

Method 3500-Ca B, Calcium, EDTA Titrimetric Method, referenced in Section 611.611.

Method 3500-Mg B, Magnesium, Calculation Method, referenced in Section 611.611.

Method 4110 B, Determination of Anions by Ion Chromatography, Ion Chromatography with Chemical Suppression of Eluent Conductivity, referenced in Section 611.611.

Method 4500-Cl D, Chlorine, Amperometric Titration Method, referenced in Section 611.381.

Method 4500-Cl E, Chlorine, Low-Level Amperometric Titration Method, referenced in Section 611.381.

Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric

Method, referenced in Section 611.381.

Method 4500-Cl G, Chlorine, DPD Colorimetric Method, referenced in Section 611.381.

Method 4500-Cl H, Chlorine, Syringaldazine (FACTS) Method, referenced in Section 611.381.

Method 4500-Cl I, Chlorine, Iodometric Electrode Method, referenced in Section 611.381.

Method 4500-ClO_2 C, Chlorine Dioxide, Amperometric Method I, referenced in Section 611.531.

Method 4500-ClO_2 E, Chlorine Dioxide, Amperometric Method II (Proposed), referenced in Section 611.381.

Method 4500-CN^- E, Cyanide, Colorimetric Method, referenced in Section 611.611.

Method 4500-CN^- F, Cyanide, Cyanide-Selective Electrode Method, referenced in Section 611.611.

Method 4500-CN^- G, Cyanide, Cyanides Amenable to Chlorination after Distillation, referenced in Section 611.611.

Method 4500-F^- B, Fluoride, Preliminary Distillation Step, referenced in Section 611.611.

Method 4500-F^- C, Fluoride, Ion-Selective Electrode Method, referenced in Section 611.611.

Method 4500-F^- D, Fluoride, SPADNS Method, referenced in Section 611.611.

Method 4500-F^- E, Fluoride, Complexone Method,

referenced in Section 611.611.

Method 4500-H^+ B, pH Value, Electrometric Method, referenced in Section 611.611.

Method 4500-NO_2^- B, Nitrogen (Nitrite), Colorimetric Method, referenced in Section 611.611.

Method 4500-NO_3^- D, Nitrogen (Nitrate), Nitrate Electrode Method, referenced in Section 611.611.

Method 4500-NO_3^- E, Nitrogen (Nitrate), Cadmium Reduction Method, referenced in Section 611.611.

Method 4500-NO_3^- F, Nitrogen (Nitrate), Automated Cadmium Reduction Method, referenced in Section 611.611.

Method 4500-O_3 B, Ozone (Residual) (Proposed), Indigo Colorimetric Method, referenced in Section 611.531.

Method 4500-P E, Phosphorus, Ascorbic Acid Method, referenced in Section 611.611.

Method 4500-P F, Phosphorus, Automated Ascorbic Acid Reduction Method, referenced in Section 611.611.

Method 4500-SiO_2 C, Silica, Molybdosilicate Method, referenced in Section 611.611.

Method 4500-SiO_2 D, Silica, Heteropoly Blue Method, referenced in Section 611.611.

Method 4500-SiO_2 E, Silica, Automated Method for Molybdate-Reactive Silica, referenced in Section 611.611.

Method 5310 B, TOC, Combustion-Infrared Method,

referenced in Section 611.381.

Method 5310 C, TOC, Persulfate-Ultraviolet Oxidation Method, referenced in Section 611.381.

Method 5310 D, TOC, Wet-Oxidation Method, referenced in Section 611.381.

Method 5910 B, UV-Absorbing Organic Constituents, Ultraviolet Absorption Method, referenced in Sections 611.381 and 611.382.

Method 6251 B, Disinfection By-Products: Haloacetic Acids and Trichlorophenol, Micro Liquid-Liquid Extraction Gas Chromatography Method, referenced in Section 611.381.

Method 6610 B, Carbamate Pesticide Method, High-Performance Liquid Chromatographic Method, referenced in Section 611.645.

Method 6640 B, Acidic Herbicide Compounds, Micro Liquid-Liquid Extraction Gas Chromatographic Method, referenced in Section 611.645.

Method 6651 B, Glyphosate Herbicide, Liquid Chromatographic Post-Column Fluorescence Method, referenced in Section 611.645.

Method 7110 B, Gross Alpha and Gross Beta Radioactivity, Evaporation Method for Gross Alpha-Beta, referenced in Section 611.720.

Method 7110 C, Gross Alpha and Beta Radioactivity (Total, Suspended, and Dissolved), Coprecipitation Method for Gross Alpha Radioactivity in Drinking Water (Proposed), referenced in Section 611.720.

Method 7120, Gamma-Emitting Radionuclides, referenced in Section 611.720.

Method 7500-Cs B, Radioactive Cesium, Precipitation Method, referenced in Section 611.720.

Method 7500-^{3}H B, Tritium, Liquid Scintillation Spectrometric Method, referenced in Section 611.720.

Method 7500-I B, Radioactive Iodine, Precipitation Method, referenced in Section 611.720.

Method 7500-I C, Radioactive Iodine, Ion-Exchange Method, referenced in Section 611.720.

Method 7500-I D, Radioactive Iodine, Distillation Method, referenced in Section 611.720.

Method 7500-Ra B, Radium, Precipitation Method, referenced in Section 611.720.

Method 7500-Ra C, Radium, Emanation Method, referenced in Section 611.720.

Method 7500-Ra D, Radium, Sequential Precipitation Method, referenced in Section 611.720.

Method 7500-Sr B, Total Radioactive Strontium and Strontium 90, Precipitation Method, referenced in Section 611.720.

Method 7500-U B, Uranium, Radiochemical Method, referenced in Section 611.720.

Method 7500-U C, Uranium, Isotopic Method, referenced in Section 611.720.

Method 9060 A, Samples, Collection, referenced in Section 611.1052.

Method 9215 B, Heterotrophic Plate Count, Pour Plate Method, referenced in Section 611.531.

Method 9221 A, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Introduction, referenced in Sections 611.526 and 611.531.

Method 9221 B, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Standard Total Coliform Fermentation Technique, referenced in Sections 611.526, 611.531, and 611.1052.

Method 9221 C, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Estimation of Bacterial Density, referenced in Sections 611.526, 611.531, and 611.1052.

Method 9221 D, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Presence-Absence (P-A) Coliform Test, referenced in Section 611.526 and 611.1052.

Method 9221 E, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Fecal Coliform Procedure, referenced in Sections 611.526 and 611.531.

Method 9221 F, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Escherichia Coli Procedure (Proposed), referenced in Section 611.802.

Method 9222 A, Membrane Filter Technique for Members of the Coliform Group, Introduction, referenced in Sections 611.526 and 611.531.

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

Filter Procedure, referenced in Sections 611.526, 611.531, and 611.1052.

Method 9222 C, Membrane Filter Technique for Members of the Coliform Group, Delayed-Incubation Total Coliform Procedure, referenced in Sections 611.526 and 611.531.

Method 9222 D, Membrane Filter Technique for Members of the Coliform Group, Fecal Coliform Membrane Filter Procedure, referenced in Section 611.531.

Method 9222 G, Membrane Filter Technique for Members of the Coliform Group, MF Partition Procedures, referenced in Section 611.526.

Method 9223, Chromogenic Substrate Coliform Test (also referred to as the variations "Colilert® Test " and "Colisure™ Test"), referenced in Sections 611.526 and 611.531.

Method 9223 B, Chromogenic Substrate Coliform Test (also referred to as the variations "Colilert® Test," "Colisure™ Test," and "Colilert-18® Test", based on the particular medium used, available from IDEXX Laboratories, Inc.), referenced in Sections 611.526, 611.802, 611.1004, and 611.1052.

BOARD NOTE: See the Board note appended to Standard Methods Online in this Section about methods that appear in Standard Methods, 21st ed. which USEPA has cited as available from Standard Methods Online.

"Standard Methods for the Examination of Water and Wastewater," 22nd Edition, 2012 (referred to as "Standard Methods, 22nd ed."). See the methods listed separately for the same references under American Waterworks Association.

Method 2130 B, Turbidity, Nephelometric Method, referenced in Section 611.531.

Method 2320 B, Alkalinity, Titration Method, referenced in Section 611.611.

Method 2510 B, Conductivity, Laboratory Method, referenced in Section 611.611.

Method 2550, Temperature, Laboratory, and Field Methods, referenced in Section 611.611.

Method 3111 B, Metals by Flame Atomic Absorption Spectrometry, Direct Air-Acetylene Flame Method, referenced in Sections 611.611 and 611.612.

Method 3111 D, Metals by Flame Atomic Absorption Spectrometry, Direct Nitrous Oxide-Acetylene Flame Method, referenced in Section 611.611.

Method 3112 B, Metals by Cold-Vapor Atomic Absorption Spectrometry, Cold-Vapor Atomic Absorption Spectrometric Method, referenced in Section 611.611.

Method 3113 B, Metals by Electrothermal Atomic Absorption Spectrometry, Electrothermal Atomic Absorption Spectrometric Method, referenced in Sections 611.611 and 611.612.

Method 3114 B, Metals by Hydride Generation/Atomic Absorption Spectrometry, Manual Hydride Generation/Atomic Absorption Spectrometric Method, referenced in Section 611.611.

Method 3120 B, Metals by Plasma Emission Spectroscopy, Inductively Coupled Plasma (ICP) Method, referenced in Sections 611.611 and 611.612.

Method 3500-Ca B, Calcium, EDTA Titrimetric Method, referenced in Section 611.611.

Method 3500-Mg B, Magnesium, Calculation Method, referenced in Section 611.611.

Method 4110 B, Determination of Anions by Ion Chromatography, Ion Chromatography with Chemical Suppression of Eluent Conductivity, referenced in Section 611.611.

Method 4500-Cl D, Chlorine, Amperometric Titration Method, referenced in Section 611.381.

Method 4500-Cl E, Chlorine, Low-Level Amperometric Titration Method, referenced in Section 611.381.

Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric Method, referenced in Section 611.381.

Method 4500-Cl G, Chlorine, DPD Colorimetric Method, referenced in Section 611.381.

Method 4500-Cl H, Chlorine, Syringaldazine (FACTS) Method, referenced in Section 611.381.

Method 4500-Cl I, Chlorine, Iodometric Electrode Method, referenced in Section 611.381.

Method 4500-ClO_2 C, Chlorine Dioxide, Amperometric Method I, referenced in Section 611.531.

Method 4500-ClO_2 E, Chlorine Dioxide, Amperometric Method II (Proposed), referenced in Section 611.381.

Method 4500-CN^- E, Cyanide, Colorimetric Method, referenced in Section 611.611.

Method 4500-CN^- F, Cyanide, Cyanide-Selective Electrode Method, referenced in Section 611.611.

Method 4500-CN^- G, Cyanide, Cyanides Amenable to Chlorination after Distillation, referenced in Section 611.611.

Method 4500-F^- B, Fluoride, Preliminary Distillation Step, referenced in Section 611.611.

Method 4500-F^- C, Fluoride, Ion-Selective Electrode Method, referenced in Section 611.611.

Method 4500-F^- D, Fluoride, SPADNS Method, referenced in Section 611.611.

Method 4500-F^- E, Fluoride, Complexone Method, referenced in Section 611.611.

Method 4500-H^+ B, pH Value, Electrometric Method, referenced in Section 611.611.

Method 4500-NO_2^- B, Nitrogen (Nitrite), Colorimetric Method, referenced in Section 611.611.

Method 4500-NO_3^- D, Nitrogen (Nitrate), Nitrate Electrode Method, referenced in Section 611.611.

Method 4500-NO_3^- E, Nitrogen (Nitrate), Cadmium Reduction Method, referenced in Section 611.611.

Method 4500-NO_3^- F, Nitrogen (Nitrate), Automated Cadmium Reduction Method, referenced in Section 611.611.

Method 4500-O_3 B, Ozone (Residual) (Proposed), Indigo Colorimetric Method, referenced in Section 611.531.

Method 4500-P E, Phosphorus, Ascorbic Acid Method, referenced in Section 611.611.

Method 4500-P F, Phosphorus, Automated Ascorbic Acid Reduction Method, referenced in Section 611.611.

Method 4500-SiO_2 C, Silica, Molybdosilicate Method, referenced in Section 611.611.

Method 4500-SiO_2 D, Silica, Heteropoly Blue Method, referenced in Section 611.611.

Method 4500-SiO_2 E, Silica, Automated Method for Molybdate-Reactive Silica, referenced in Section 611.611.

Method 5310 B, TOC, Combustion-Infrared Method, referenced in Section 611.381.

Method 5310 C, TOC, Persulfate-Ultraviolet Oxidation Method, referenced in Section 611.381.

Method 5310 D, TOC, Wet-Oxidation Method, referenced in Section 611.381.

Method 5910 B, UV-Absorbing Organic Constituents, Ultraviolet Absorption Method, referenced in Sections 611.381 and 611.382.

Method 6251 B, Disinfection By-Products: Haloacetic Acids and Trichlorophenol, referenced in Section 611.381.

Method 6610 B, Carbamate Pesticide Method, High-Performance Liquid Chromatographic Method, referenced in Section 611.645.

Method 6640 B, Acidic Herbicide Compounds, Micro Liquid-Liquid Extraction Gas Chromatographic Method, referenced in Section 611.645.

Method 6651 B, Glyphosate Herbicide, Liquid Chromatographic Post-Column Fluorescence Method,

referenced in Section 611.645.

Method 7110 B, Gross Alpha and Gross Beta Radioactivity, Evaporation Method for Gross Alpha-Beta, referenced in Section 611.720.

Method 7110 C, Gross Alpha and Beta Radioactivity (Total, Suspended, and Dissolved), Coprecipitation Method for Gross Alpha Radioactivity in Drinking Water (Proposed), referenced in Section 611.720.

Method 7120, Gamma-Emitting Radionuclides, referenced in Section 611.720.

Method 7500-Cs B, Radioactive Cesium, Precipitation Method, referenced in Section 611.720.

Method 7500-^{3}H B, Tritium, Liquid Scintillation Spectrometric Method, referenced in Section 611.720.

Method 7500-I B, Radioactive Iodine, Precipitation Method, referenced in Section 611.720.

Method 7500-I C, Radioactive Iodine, Ion-Exchange Method, referenced in Section 611.720.

Method 7500-I D, Radioactive Iodine, Distillation Method, referenced in Section 611.720.

Method 7500-Ra B, Radium, Precipitation Method, referenced in Section 611.720.

Method 7500-Ra C, Radium, Emanation Method, referenced in Section 611.720.

Method 7500-Ra D, Radium, Sequential Precipitation Method, referenced in Section 611.720.

Method 7500-Sr B, Total Radioactive Strontium and Strontium 90, Precipitation Method, referenced in Section 611.720.

Method 7500-U B, Uranium, Radiochemical Method, referenced in Section 611.720.

Method 7500-U C, Uranium, Isotopic Method, referenced in Section 611.720.

Method 9060 A, Samples, Collection, referenced in Section 611.1052.

Method 9215 B, Heterotrophic Plate Count, Pour Plate Method, referenced in Section 611.531.

Method 9221 A, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Introduction, referenced in Sections 611.526 and 611.531.

Method 9221 B, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Standard Total Coliform Fermentation Technique, referenced in Sections 611.526, 611.531, and 611.1052.

Method 9221 C, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Estimation of Bacterial Density, referenced in Sections 611.526 and 611.531.

Method 9221 E, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Fecal Coliform Procedure, referenced in Sections 611.526 and 611.531.

Method 9221 F, Multiple-Tube Fermentation Technique for Members of the Coliform Group, Escherichia Coli Procedure (Proposed), referenced in Section 611.802 and 611.1052.

Method 9222 A, Membrane Filter Technique for Members of the Coliform Group, Introduction, referenced in Sections 611.526 and 611.531.

Method 9222 B, Membrane Filter Technique for Members of the Coliform Group, Standard Total Coliform Membrane Filter Procedure, referenced in Sections 611.526 and 611.531.

Method 9222 C, Membrane Filter Technique for Members of the Coliform Group, Delayed-Incubation Total Coliform Procedure, referenced in Sections 611.526 and 611.531.

Method 9222 D, Membrane Filter Technique for Members of the Coliform Group, Fecal Coliform Membrane Filter Procedure, referenced in Section 611.531.

Method 9223 B, Chromogenic Substrate Coliform Test (also referred to as the variations "Colilert® Test," "Colisure™ Test," and "Colilert-18® Test", based on the particular medium used, available from IDEXX Laboratories, Inc.), referenced in Sections 611.526, 611.802, 611.1004, and 611.1052.

BOARD NOTE: See the Board note appended to Standard Methods Online in this Section about methods that appear in Standard Methods, 22nd ed., which USEPA has cited as available from Standard Methods Online.

BOARD NOTE: Individual Methods from Standard Methods are available online from Standard Methods Online.

ASTM. American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 (610-832-9585).

ASTM Method D511-93 A and B, "Standard Test Methods for Calcium and Magnesium in Water," "Test Method A—Complexometric Titration" & "Test Method B—Atomic Absorption Spectrophotometric," approved 1993, referenced in Section 611.611.

ASTM Method D511-03 A and B, “Standard Test Methods for Calcium and Magnesium in Water,” “Test Method A—Complexometric Titration” & “Test Method B—Atomic Absorption Spectrophotometric,” approved 2003, referenced in Section 611.611.

ASTM Method D511-09 A and B, “Standard Test Methods for Calcium and Magnesium in Water,” “Test Method A—Complexometric Titration” & “Test Method B—Atomic Absorption Spectrophotometric,” approved 2009, referenced in Section 611.611.

ASTM Method D515-88 A, “Standard Test Methods for Phosphorus in Water,” “Test Method A—Colorimetric Ascorbic Acid Reduction,” approved August 19, 1988, referenced in Section 611.611.

ASTM Method D859-94, “Standard Test Method for Silica in Water,” approved 1994, referenced in Section 611.611.

ASTM Method D859-00, “Standard Test Method for Silica in Water,” approved 2000, referenced in Section 611.611.

ASTM Method D859-05, “Standard Test Method for Silica in Water,” approved 2005, referenced in Section 611.611.

ASTM Method D859-10, “Standard Test Method for Silica in Water,” approved 2010, referenced in Section 611.611.

ASTM Method D1067-92 B, “Standard Test Methods for Acidity or Alkalinity in Water,” “Test Method B—Electrometric or Color-Change Titration,” approved May 15, 1992, referenced in Section 611.611.

ASTM Method D1067-02 B, “Standard Test Methods for Acidity or Alkalinity in Water,” “Test Method B—Electrometric or Color-Change Titration,” approved in 2002, referenced in Section 611.611.

ASTM Method D1067-06 B, “Standard Test Methods for Acidity or Alkalinity in Water,” “Test Method B—Electrometric or Color-Change Titration,” approved in 2006, referenced in Section 611.611.

ASTM Method D1067-11 B, “Standard Test Methods for Acidity or Alkalinity in Water,” “Test Method B—Electrometric or Color-Change Titration,” approved in 2011, referenced in Section 611.611.

ASTM Method D1125-95(1999) A, “Standard Test Methods for Electrical Conductivity and Resistivity of Water,” “Test Method A—Field and Routine Laboratory Measurement of Static (Non-Flowing) Samples,” approved 1995, reapproved 1999, referenced in Section 611.611.

ASTM Method D1179-93 B, “Standard Test Methods for Fluoride in Water,” “Test Method B—Ion Selective Electrode,” approved 1993, referenced in Section 611.611.

ASTM Method D1179-99 B, “Standard Test Methods for Fluoride in Water,” “Test Method B—Ion Selective Electrode,” approved 1999, referenced in Section 611.611.

ASTM Method D1179-04 B, “Standard Test Methods for Fluoride in Water,” “Test Method B—Ion Selective Electrode,” approved 2004, referenced in Section 611.611.

ASTM Method D1179-10 B, “Standard Test Methods for Fluoride in Water,” “Test Method B—Ion Selective Electrode,” approved 2010, referenced in Section 611.611.

ASTM Method D1253-86, “Standard Test Method for Residual Chlorine in Water,” reapproved 1992, referenced in Section 611.381.

ASTM Method D1253-96, “Standard Test Method for Residual Chlorine in Water,” approved 1996, referenced in Section 611.381.

ASTM Method D1253-03, “Standard Test Method for Residual Chlorine in Water,” approved 2003, referenced in Sections 611.381 and 611.531.

ASTM Method D1253-08, “Standard Test Method for Residual Chlorine in Water,” approved 2008, referenced in Sections 611.381 and 611.531.

ASTM Method D1293-95 A or B, “Standard Test Methods for pH of Water,” “Test Method A—Precise Laboratory Measurement” & “Test Method B—Routine or Continuous Measurement,” approved 1995, referenced in Section 611.611.

ASTM Method D1293-99 A or B, “Standard Test Methods for pH of Water,” “Test Method A—Precise Laboratory Measurement” & “Test Method B—Routine or Continuous Measurement,” approved 1999, referenced in Section 611.611.

ASTM Method D1293-12, “Standard Test Methods for pH of Water,” approved 2012, referenced in Section 611.611.

ASTM Method D1688-95 A or C, “Standard Test Methods for Copper in Water,” “Test Method A—Atomic Absorption, Direct” & “Test Method C—Atomic Absorption, Graphite Furnace,” approved 1995, referenced in Section 611.611.

ASTM Method D1688-02 A or C, “Standard Test Methods for Copper in Water,” “Test Method A—Atomic Absorption, Direct” & “Test Method C—Atomic Absorption, Graphite Furnace,” approved 2002, referenced in Section 611.611.

ASTM Method D1688-07 A or C, “Standard Test Methods for Copper in Water,” “Test Method A—Atomic Absorption, Direct” & “Test Method C—Atomic Absorption, Graphite Furnace,” approved 2007, referenced in Section 611.611.

ASTM Method D2036-98 A or B, “Standard Test Methods for Cyanide in Water,” “Test Method A—Total Cyanides after Distillation” & “Test Method B—Cyanides Amenable to Chlorination by Difference,” approved 1998, referenced in Section

611.611.

ASTM Method D2036-06 A or B, “Standard Test Methods for Cyanide in Water,” “Test Method A—Total Cyanides after Distillation” & “Test Method B—Cyanides Amenable to Chlorination by Difference,” approved 2006, referenced in Section 611.611.

ASTM Method D2459-72, “Standard Test Method for Gamma Spectrometry in Water,” approved July 28, 1972, discontinued 1988, referenced in Section 611.720.

ASTM Method D2460-97, “Standard Test Method for Radionuclides of Radium in Water,” approved 1997, referenced in Section 611.720.

ASTM Method D2460-07, “Standard Test Method for Radionuclides of Radium in Water,” approved 2007, referenced in Section 611.720.

ASTM Method D2907-97, “Standard Test Methods for Microquantities of Uranium in Water by Fluorometry,” approved 1997, referenced in Section 611.720.

ASTM Method D2972-97 B or C, “Standard Test Methods for Arsenic in Water,” “Test Method B—Atomic Absorption, Hydride Generation” & “Test Method C—Atomic Absorption, Graphite Furnace,” approved 1997, referenced in Section 611.611.

ASTM Method D2972-03 B or C, “Standard Test Methods for Arsenic in Water,” “Test Method B—Atomic Absorption, Hydride Generation” & “Test Method C—Atomic Absorption, Graphite Furnace,” approved 2003, referenced in Section 611.611.

ASTM Method D2972-08 B or C, “Standard Test Methods for Arsenic in Water,” “Test Method B—Atomic Absorption, Hydride Generation” & “Test Method C—Atomic Absorption, Graphite Furnace,” approved 2008, referenced in Section 611.611.

ASTM Method D3223-97, “Standard Test Method for Total Mercury in Water,” approved 1997, referenced in Section 611.611.

ASTM Method D3223-02, “Standard Test Method for Total Mercury in Water,” approved 2002, referenced in Section 611.611.

ASTM Method D3223-12, “Standard Test Method for Total Mercury in Water,” approved 2012, referenced in Section 611.611.

ASTM Method D3454-97, “Standard Test Method for Radium-226 in Water,” approved 1997, referenced in Section 611.720.

ASTM Method D3454-05, “Standard Test Method for Radium-226 in Water,” approved 2005, referenced in Section 611.720.

ASTM Method D3559-96 D, “Standard Test Methods for Lead in Water,” “Test Method D—Atomic Absorption, Graphite Furnace,” approved August 6, 1990, referenced in Section 611.611.

ASTM Method D3559-03 D, “Standard Test Methods for Lead in Water,” “Test Method D—Atomic Absorption, Graphite Furnace,” approved 2003, referenced in Section 611.611.

ASTM Method D3559-08 D, “Standard Test Methods for Lead in Water,” “Test Method D—Atomic Absorption, Graphite Furnace,” approved 2008, referenced in Section 611.611.

ASTM Method D3645-97 B, “Standard Test Methods for Beryllium in Water,” “Method B—Atomic Absorption, Graphite Furnace,” approved 1997, referenced in Section 611.611.

ASTM Method D3645-03 B, “Standard Test Methods for Beryllium in Water,” “Method B—Atomic Absorption, Graphite Furnace,” approved 2003, referenced in Section 611.611.

ASTM Method D3645-08 B, “Standard Test Methods for Beryllium in Water,” “Method B—Atomic Absorption, Graphite Furnace,” approved 2008, referenced in Section 611.611.

ASTM Method D3649-91, “Standard Test Method for High-Resolution Gamma-Ray Spectrometry of Water,” approved 1991, referenced in Section 611.720.

ASTM Method D3649-98a, “Standard Test Method for High-Resolution Gamma-Ray Spectrometry of Water,” approved 1998, referenced in Section 611.720.

ASTM Method D3649-06, “Standard Test Method for High-Resolution Gamma-Ray Spectrometry of Water,” approved 2006, referenced in Section 611.720.

ASTM Method D3697-92, “Standard Test Method for Antimony in Water,” approved 1992, referenced in Section 611.611.

ASTM Method D3697-02, “Standard Test Method for Antimony in Water,” approved 2002, referenced in Section 611.611.

ASTM Method D3697-07, “Standard Test Method for Antimony in Water,” approved 2007, referenced in Section 611.611.

ASTM Method D3859-98 A and B, “Standard Test Methods for Selenium in Water,” “Method A—Atomic Absorption, Hydride Method” & “Method B—Atomic Absorption, Graphite Furnace,” approved 1998, referenced in Section 611.611.

ASTM Method D3859-03 A and B, “Standard Test Methods for Selenium in Water,” “Method A—Atomic Absorption, Hydride Method” & “Method B—Atomic Absorption, Graphite Furnace,” approved 2003, referenced in Section 611.611.

ASTM Method D3859-08 A and B, “Standard Test Methods for Selenium in Water,” “Method A—Atomic Absorption, Hydride Method” & “Method B—Atomic Absorption, Graphite Furnace,” approved 2008, referenced in Section 611.611.

ASTM Method D3867-90 A and B, “Standard Test Methods for Nitrite-Nitrate in Water,” “Test Method A—Automated Cadmium Reduction” & “Test Method B—Manual Cadmium Reduction,”

approved January 10, 1990, referenced in Section 611.611.

ASTM Method D3972-97, “Standard Test Method for Isotopic Uranium in Water by Radiochemistry,” approved 1997, referenced in Section 611.720.

ASTM Method D3972-02, “Standard Test Method for Isotopic Uranium in Water by Radiochemistry,” approved 2002, referenced in Section 611.720.

ASTM Method D3972-09, “Standard Test Method for Isotopic Uranium in Water by Radiochemistry,” approved 2009, referenced in Section 611.720.

ASTM Method D4107-91, “Standard Test Method for Tritium in Drinking Water,” approved 1991, referenced in Section 611.720.

ASTM Method D4107-98, “Standard Test Method for Tritium in Drinking Water,” approved 1998, referenced in Section 611.720.

ASTM Method D4107-08, “Standard Test Method for Tritium in Drinking Water,” approved 2008, referenced in Section 611.720.

ASTM Method D4327-97, “Standard Test Method for Anions in Water by Ion Chromatography,” approved 1997, referenced in Section 611.611.

ASTM Method D4327-03, “Standard Test Method for Anions in Water by Ion Chromatography,” approved 2003, referenced in Section 611.611.

ASTM Method D4327-11, “Standard Test Method for Anions in Water by Ion Chromatography,” approved 2011, referenced in Section 611.611.

ASTM Method D4785-93, “Standard Test Method for Low-Level Iodine-131 in Water,” approved 1993, referenced in Section 611.720.

ASTM Method D4785-98, “Standard Test Method for Low-Level Iodine-131 in Water,” approved 1998, referenced in Section 611.720.

ASTM Method D4785-08, “Standard Test Method for Low-Level Iodine-131 in Water,” approved 2008, referenced in Section 611.720.

ASTM Method D5174-97, “Standard Test Method for Trace Uranium in Water by Pulsed-Laser Phosphorimetry,” approved 1997, referenced in Section 611.720.

ASTM Method D5174-02, “Standard Test Method for Trace Uranium in Water by Pulsed-Laser Phosphorimetry,” approved 2002, referenced in Section 611.720.

ASTM Method D5174-07, “Standard Test Method for Trace Uranium in Water by Pulsed-Laser Phosphorimetry,” approved 2007, referenced in Section 611.720.

ASTM Method D5317-93, “Standard Test Method for Determination of Chlorinated Organic Acid Compounds in Water by Gas Chromatography with an Electron Capture Detector,” approved 1993, referenced in Section 611.645.

ASTM Method D5317-98(2003), “Standard Test Method for Determination of Chlorinated Organic Acid Compounds in Water by Gas Chromatography with an Electron Capture Detector,” approved 1998 (reapproved 2003), referenced in Section 611.645.

ASTM Method D5673-03, “Standard Test Method for Elements in Water by Inductively Coupled Plasma-Mass Spectrometry,” approved 2003, referenced in Section 611.720.

ASTM Method D5673-05, “Standard Test Method for Elements in Water by Inductively Coupled Plasma-Mass Spectrometry,” approved 2005, referenced in Section 611.720.

ASTM Method D5673-10, “Standard Test Method for Elements in

Water by Inductively Coupled Plasma-Mass Spectrometry," approved 2010, referenced in Section 611.720.

ASTM Method D6239-09, "Standard Test Method for Uranium in Drinking Water by High-Resolution Alpha-Liquid-Scintillation Spectrometry," approved 2009, referenced in Section 611.720.

ASTM Method D6508-00(2005), "Standard Test Method for Determination of Dissolved Inorganic Anions in Aqueous Matrices Using Capillary Ion Electrophoresis and Chromate Electrolyte," approved 2000 (revised 2005), referenced in Section 611.611.

ASTM Method D6581-00, "Standard Test Method for Bromate, Bromide, Chlorate, and Chlorite in Drinking Water by Chemically Suppressed Ion Chromatography," approved 2000, referenced in Section 611.381.

ASTM Method D6581-08 A and B, "Standard Test Method for Bromate, Bromide, Chlorate, and Chlorite in Drinking Water by Suppressed Ion Chromatography," "Test Method A—Chemically Suppressed Ion Chromatography" & "Test Method B—Electrolytically Suppressed Ion Chromatography," approved 2008, referenced in Section 611.381.

ASTM Method D6919-03, "Standard Test Method for Determination of Dissolved Alkali and Alkaline Earth Cations and Ammonium in Water and Wastewater by Ion Chromatography," approved 2003, referenced in Section 611.611.

ASTM Method D6919-09, "Standard Test Method for Determination of Dissolved Alkali and Alkaline Earth Cations and Ammonium in Water and Wastewater by Ion Chromatography," approved 2009, referenced in Section 611.611.

ASTM Method D6888-04, "Standard Test Method for Available Cyanide with Ligand Displacement and Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection," approved 2004, referenced in Section 611.611.

BOARD NOTE: The most recent version of ASTM methods are

available for paid download from the ASTM at www.astm.org. Note that the most recent version of an ASTM method may not be the version approved for use by USEPA and incorporated by reference in subsection (b) of this Section.

Bran & Luebbe, 1025 Busch Parkway, Buffalo Grove, IL 60089.

"Fluoride in Water and Wastewater," Industrial Method #129-71W, December 1972 (referred to as "Technicon Methods, Method #129-71W"). See 40 CFR 141.23(k)(1), footnote 11 (2014), referenced in Section 611.611.

"Fluoride in Water and Wastewater," #380-75WE, February 1976 (referred to as "Technicon Methods, Method #380-75WE"). See 40 CFR 141.23(k)(1), footnote 11 (2014), referenced in Section 611.611.

Charm Sciences, Inc., 659 Andover St., Lawrence, MA 01843–1032:

"Charm E*Colite Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia coli in Drinking Water," January 9, 1998 (referred to as "E*Colite Test"), referenced in Section 611.802 and 611.1052 (also available from USEPA, Water Resource Center).

"Fast Phage Test Procedure. Presence/Absence for Coliphage in Ground Water with Same Day Positive Prediction," version 009 (Nov. 2012) (referred to as "Charm Fast Phage Test"), referenced in Section 611.802.

CPI International, Inc., 5580 Skylane Blvd., Santa Rosa, CA 95403 (800-878-7654/fax: 707-545-7901/Internet address: www.cpiinternational.com).

"Colitag® Product as a Test for Detection and Identification of Coliforms and E. coli Bacteria in Drinking Water and Source Water as Required in National Primary Drinking Water Regulations," August 2001, referenced in Section 611.526.

"Modified Colitag™ Test Method for Simultaneous Detection of E. coli and other Total Coliforms in Water (ATP D05-0035)," August 2009 (referred to as "Modified Colitag™ Test"), referenced in Sections 611.526 and 611.802. See also NEMI.

EMD Millipore (division of Merck KGgA, Darmstadt, Germany), 290 Concord Road, Billerica, MA 01821 (800-645-5476 or 781-533-6000).

"Chromocult® Coliform Agar Presence/Absence Membrane Filter Test Method for Detection and Identification of Coliform Bacteria and Escherichia coli in Finished Waters," November 2000 (referred to as "Chromocult® Method, Version 1.0"), referenced in Sections 611.526, 611.802, and 611.1052.

"Readycult Coliforms 100 Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia coli in Finished Waters," November 2000 (referred to as "Readycult® 2000"), Version 1.0, referenced in Section 611.526.

"Readycult Coliforms 100 Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia coli in Finished Waters," Version 1.1, January 2007 (referred to as "Readycult® 2007"), referenced in Section 611.802 and 611.1052.

Georgia Tech Research Institute, Robert Rosson, 925 Dalney Road, Atlanta, GA 30332 (404–407–6339).

"The Determination of Radium-226 and Radium-228 in Drinking Water by Gamma-ray Spectrometry Using HPGE or Ge(Li) Detectors," Revision 1.2, December 2004 (called "Georgia Radium Method"), referenced in Section 611.720.

Great Lakes Instruments, Inc., 8855 North 55th Street, Milwaukee, WI 53223.

GLI Method 2, "Turbidity," Nov. 2, 1992, referenced in Section 611.531.

H&E Testing Laboratory, 221 State Street, Augusta, ME 04333 (207-287-

2727).

Method ME355.01, Revision 1, “Determination of Cyanide in Drinking Water by GC/MS Headspace Analysis,” May 2009, referenced in Section 611.611. See also NEMI.

The Hach Company, P.O. Box 389, Loveland, CO 80539-0389 (800-227-4224/Internet address: www.hach.com).

“Lead in Drinking Water by Differential Pulse Anodic Stripping Voltammetry,” Method 1001, August 1999, referenced in Section 611.611.

“Determination of Turbidity by Laser Nephelometry,” January 2000, Revision 2.0 (referred to as “Hach FilterTrak Method 10133”), referenced in Section 611.531.

“Total Coliforms and E. coli Membrane Filtration Method with m-ColiBlue24® Broth,” Method No. 10029, Revision 2, August 17, 1999 (referred to as “m-ColiBlue24 Test”), referenced in Sections 611.802 and 611.1052 (also available from USEPA, Water Resource Center).

“Fluoride, USEPA SPADNS 2 Method 10225,” revision 2.0, January 2011 (referred to as “Hach SPADNS 2 Method 10225”), referenced in Section 611.611.

“Hach Company TNTplus 835/836 Nitrate Method 10206—Spectrophotometric Measurement of Nitrate in Water and Wastewater,” revision 2.0, January 2011 (referred to as “Hach TNTplus 835/836 Method 10206”), referenced in Section 611.611.

“Hach Method 10260—Determination of Chlorinated Oxidants (Free and Total) in Water Using Disposable Planar Reagent-filled Cuvettes and Mesofluic Channel Colorimetry,” April 2013 (referred to as “Hach Method 10260”), referenced in Sections 611.381 and 611.531.

IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, Maine 04092

(800-321-0207).

"Colisure Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia Coli in Drinking Water," February 28, 1994 (referred to as "Colisure™ Test"), referenced in Section 611.526.

"IDEXX SimPlate TM HPC Test Method for Heterotrophs in Water," November 2000 (referred to as "SimPlate method"), referenced in Section 611.531.

Industrial Test Systems, Inc., 1875 Langston St., Rock Hill, SC 29730.

Method D99-003, Revision 3.0, "Free Chlorine Species ($HOCl^-$ and OCl^-) by Test Strip," November 21, 2003 (referred to as "ITS Method D99-003"), referenced in Section 611.381.

Lachat Instruments, 6645 W. Mill Rd., Milwaukee, WI 53218 (414–358–4200).

"Digestion and distillation of total cyanide in drinking and wastewaters using MICRO DIST and determination of cyanide by flow injection analysis," Revision 2.1, November 30, 2000 (referred to as "QuikChem Method 10-204-00-1-X"), referenced in Section 611.611.

Leck Mitchell, PhD, PE, 656 Independence Valley Dr., Grand Junction, CO 81507. See also NEMI.

Mitchell Method M5271, "Determination of Turbidity by Laser Nephelometry," March 2009, referenced in Section 611.531.

Mitchell Method M5331, "Determination of Turbidity by LED Nephelometry," March 2009, referenced in Section 611.531.

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

NCRP Report Number 22, “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, referenced in Section 611.101.

NEMI. National Environmental Method Index (on-line at www.nemi.gov).

AMI Turbiwell Method, “Continuous Measurement of Turbidity Using a SWAN AMI Turbiwell Turbidimeter,” August 2009. See also SWAN Analytische Instrumente AG.

Method ME355.01, Revision 1, “Determination of Cyanide in Drinking Water by GC/MS Headspace Analysis,” May 2009, referenced in Section 611.611. See also H&E Testing Laboratory.

Mitchell Method M5271, “Determination of Turbidity by Laser Nephelometry,” March 2009, referenced in Section 611.531. See also Leck Mitchell, PhD, PE.

Mitchell Method M5331, “Determination of Turbidity by LED Nephelometry,” March 2009, referenced in Section 611.531. See also Leck Mitchell, PhD, PE

Modified Colitag™ Method, “Modified Colitag™ Test Method for Simultaneous Detection of E. coli and other Total Coliforms in Water (ATP D05-0035),” August 2009, referenced in Sections 611.526 and 611.802. See also CPI International, Inc.

Orion Method AQ4500, “Determination of Turbidity by LED Nephelometry,” May 2009, referenced in Section 611.531. See also Thermo Scientific.

Palintest ChloroSense, “Measurement of Free and Total Chlorine in Drinking Water by Palintest ChloroSense,” September 2009 (referred to as “Palintest ChloroSense”), referenced in Sections 611.381 and 611.531. See also Palintest.

“Systea Easy (1-Reagent) Nitrate Method,” February 2009,

referenced in Section 611.611. See also Systea Scientific, LLC.

NSF. National Sanitation Foundation International, 3475 Plymouth Road, PO Box 130140, Ann Arbor, Michigan 48113-0140 (734-769-8010).

NSF Standard 61, section 9, November 1998, referenced in Sections 611.126 and 611.356.

NTIS. National Technical Information Service, U.S. Department of Commerce, 5301 Shawnee Road, Alexandria, VA 22312 (703-605-6000 or 800-553-6847, www.ntis.gov).

Dioxin and Furan Method 1613, Revision B, "Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution HRGC/HRMS," October 1994, Revision B, EPA 821/B-94/005, Doc. No. 94-104774, referenced in Section 611.645. See also USEPA, NSCEP.

Kelada 01, "Kelada Automated Test Methods for Total Cyanide, Acid Dissociable Cyanide, and Thiocyanate," Revision 1.2, August 2001, EPA 821/B–01-009, referenced in Section 611.611.

"Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and in Water for Occupational Exposure," NBS (National Bureau of Standards) Handbook 69, as amended August 1963, U.S. Department of Commerce, referenced in Section 611.330.

"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, referenced in Section 611.720.

USEPA Asbestos Method 100.1, "Analytical Method for Determination of Asbestos Fibers in Water," EPA 600/4-83-043, September 1983, Doc. No. PB83-260471, referenced in Section 611.611. See also USEPA, NSCEP.

USEPA Asbestos Method 100.2, "Determination of Asbestos

Structures over 10-mm in Length in Drinking Water," EPA 600/R-94-134, June 1994, Doc. No. PB94-201902, referenced in Section 611.611. See also USEPA, NSCEP.

USEPA Environmental Inorganic Methods, "Methods for the Determination of Inorganic Substances in Environmental Samples," August 1993, EPA 600/R-93-100, Doc. No. PB94-121811, referenced in Sections 611.381, 611.531, and 611.611. (Methods 180.1 (rev. 2.0), 300.0 (rev. 2.1), 335.4 (rev. 1.0), 353.2 (rev. 2.0), and 365.1 (rev. 2.0) only.) See also USEPA, NSCEP.

USEPA Environmental Metals Methods, "Methods for the Determination of Metals in Environmental Samples—Supplement I," May 1994, EPA 600/R-94-111, Doc. No. PB95-125472, referenced in Sections 611.611, 611.612, and 611.720. (Methods 200.7 (rev. 4.4), 200.8 (rev. 5.3), 200.9 (rev. 2.2), and 245.1 (rev. 3.0) only.) See also USEPA, NSCEP.

USEPA Inorganic Methods, "Methods for Chemical Analysis of Water and Wastes," March 1983, EPA 600/4-79-020, Doc. No. PB84-128677, referenced in Section 611.611. (Methods 150.1, 150.2, and 245.2 only.) See also USEPA, NSCEP.

USEPA Interim Radiochemical Methods, "Interim Radiochemical Methodology for Drinking Water," EPA 600/4-75-008 (revised), Doc. No. PB253258, March 1976, referenced in Section 611.720.

USEPA OGWDW Methods, Method 326.0, Revision 1.0, "Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography Incorporating the Addition of a Suppressor Acidified Postcolumn Reagent for Trace Bromate Analysis," June 2002, EPA 815/R-03/007, Doc. No. PB2003-107402, referenced in Sections 611.381 and 611.382. See also USEPA, NSCEP and USEPA, OGWDW.

USEPA Organic and Inorganic Methods, "Methods for the Determination of Organic and Inorganic Compounds in Drinking Water, Volume 1," August 2000, EPA 815/R-00/014, Doc. No. PB2000-106981, referenced in Section 611.381. (For methods 300.1 (rev. 1.0), 321.8 (rev. 1.0), and 515.3 (rev. 1.0).) See also USEPA, NSCEP.

USEPA Organic Methods, “Methods for the Determination of Organic Compounds in Drinking Water,” December 1988 (revised July 1991), EPA 600/4-88/039, Doc. No. PB91-231480, referenced in Sections 611.645 and 611.648 (Methods 508A (rev. 1.0) and 515.1 (rev. 4.0) only); “Methods for the Determination of Organic Compounds in Drinking Water—Supplement I,” July 1990, EPA 600/4-90/020, Doc. No. PB91-146027, referenced in Section 611.645 (Methods 547, 550, and 550.1 only); “Methods for the Determination of Organic Compounds in Drinking Water—Supplement II,” August 1992, EPA 600/R-92/129, Doc. No. PB92-207703, referenced in Sections 611.381 and 611.645. (Methods 548.1 (rev. 1.0), 552.1 (rev. 1.0), and 555 (rev. 1.0) only); and “Methods for the Determination of Organic Compounds in Drinking Water—Supplement III,” August 1995, EPA 600/R-95/131, Doc. No. PB95-261616, referenced in Sections 611.381, 611.645, and 611.648 (Methods 502.2 (rev. 2.1), 504.1 (rev. 1.1), 505 (rev. 2.1), 506 (rev. 1.1), 507 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 515.2 (rev. 1.1), 524.2 (rev. 4.1), 525.2 (rev. 2.0), 531.1 (rev. 3.1), 551.1 (rev. 1.0), and 552.2 (rev. 1.0) only.) See also USEPA, EMSL and USEPA, NSCEP.

USEPA Radioactivity Methods, “Prescribed Procedures for Measurement of Radioactivity in Drinking Water,” EPA 600/4-80/032, August 1980, Doc. No. PB80-224744, referenced in Section 611.720 (Methods 900.0, 901.0, 901.1, 902.0, 903.0, 903.1, 904.0, 905.0, 906.0, 908.0, 908.1). See also USEPA, NSCEP.

USEPA Radiochemical Analyses, “Radiochemical Analytical Procedures for Analysis of Environmental Samples,” March 1979, Doc. No. EMSL LV 053917, referenced in Section 611.720. (Pages 1-5, 19-32, 33-48, 65-73, 87-91, and 92-95 only.)

USEPA Radiochemistry Procedures, “Radiochemistry Procedures Manual,” EPA 520/5-84-006, August 1984, Doc. No. PB84-215581, referenced in Section 611.720. (Methods 00-01, 00-02, 00-07, H-02, Ra-03, Ra-04, Ra-05, Sr-04 only.)

USEPA Technical Notes, “Technical Notes on Drinking Water Methods,” EPA 600/R-94/173, October 1994, Doc. No. PB95-104766, referenced in Sections 611.531, 611.611, and 611.645. See also USEPA, NSCEP.

BOARD NOTE: USEPA made the following assertion with regard to this reference at 40 CFR 141.23(k)(1) and 141.24(e) and (n)(11) (2014): "This document contains other analytical test procedures and approved analytical methods that remain available for compliance monitoring until July 1, 1996." Also available online at http://nepis.epa.gov/EPA/html/Pubs/pubtitleORD.htm under the document designation "600R94173."

New Jersey Department of Environment, Division of Environmental Quality, Bureau of Radiation and Inorganic Analytical Services, 9 Ewing Street, Trenton, NJ 08625.

"Determination of Radium 228 in Drinking Water," August 1990 (referred to as "New Jersey Radium Method"), referenced in Section 611.720.

New York Department of Health, Radiological Sciences Institute, Center for Laboratories and Research, Empire State Plaza, Albany, NY 12201.

"Determination of Ra-226 and Ra-228 (Ra-02)," January 1980, Revised June 1982 (referred to as "New York Radium Method"), referenced in Section 611.720.

Palintest, Ltd., 1455 Jamike Avenue, Suite 100, Erlanger, KY (800-835-9629).

ChlordioX Plus Test, "Chlorine Dioxide and Chlorite in Drinking Water by Amperometry using Disposable Sensors," November 2013, referenced in Sections 611.381 and 611.531.

Palintest Method 1001, "Lead in Drinking Water by Differential Pulse Anodic Stripping Voltammetry," Method 1001, August 1999, referenced in Section 611.611.

Palintest ChloroSense, "Measurement of Free and Total Chlorine in Drinking Water by Palintest ChloroSense," September 2009 (referred to as "Palintest ChloroSense"), referenced in Sections 611.381 and 611.531. See also NEMI.

Standard Methods Online, available online from the Standard Methods Organization at www.standardmethods.org.

Method 3113 B-04, Metals by Electrothermal Atomic Absorption Spectrometry, Electrothermal Atomic Absorption Spectrometric Method, referenced in Sections 611.611 and 611.612.

Method 9230 B-04, Fecal Streptococcus and Enterococcus Groups, Multiple Tube Techniques, referenced in Section 611.802.

BOARD NOTE: Where, in appendix A to subpart C of 40 CFR 141 (2014), USEPA has authorized use of an approved alternative method from Standard Methods Online, and that version of the method appears also in Standard Methods, 21st or 22nd ed., the Board cites only to Standard Methods, 21st or 22nd ed. for that method. The methods that USEPA listed as available from Standard Methods Online, and which are listed above as in Standard Methods, 21st or 22nd edition, are the following: 2320 B-97 (for alkalinity), 3112 B-09 (for mercury), 3114 B-09 (for arsenic and selenium), 4500-P E-99 and 4500-P F-99; (for orthophosphate); 4500-SO_4^{-2} C-97, 4500-SO_4^{-2} D-97, 4500-SO_4^{-2} E-97, and 4500-SO_4^{-2} F-97 (for sulfate); 6640 B-01 (for 2,4-D, 2,4,5-TP (silvex), dalapon, dinoseb, pentachlorophenol, and picloram); 5561 B-00 (for glyphosate); and 9223 B-97 (for E. coli). Since each method is the same version from both sources, the Board views a copy from Standard Methods Online as equivalent to a copy from Standard Methods Online, even though the Board does not also cite to Standard Methods Online. The Board intends that use of the version of the method that is incorporated by reference is acceptable from either source.

SWAN Analytische Instrumente AG, Studbachstrasse 13, CH-8340, Hinwil, Switzerland.

AMI Turbiwell Method, "Continuous Measurement of Turbidity Using a SWAN AMI Turbiwell Turbidimeter," August 2009, referenced in Section 611.531. See also NEMI.

Syngenta Crop Protection, Inc., 410 Swing Road, Post Office Box 18300, Greensboro, NC 27419 (336-632–6000).

"Atrazine in Drinking Water by Immunoassay," February 2001 (referred to as "Syngenta AG-625"), referenced in Section 611.645.

Systea Scientific LLC, 900 Jorie Blvd., Suite 35, Oak Brook, IL 60523.

Systea Easy (1-Reagent), "Systea Easy (1-Reagent) Nitrate Method," February 2009, referenced in Section 611.611. See also NEMI.

Thermo Scientific, 166 Cummings Center, Beverly, MA 01915 (800-225-1480 or www.thermo.com).

Orion Method AQ4500, "Determination of Turbidity by LED Nephelometry," May 2009, referenced in Section 611.531. See also NEMI.

Technical Bulletin 601, "Standard Method of Testing for Nitrate in Drinking Water," July, 1994, PN 221890-001 (referred to as "Technical Bulletin 601"), referenced in Section 611.611.

USDHS, STD. United States Department of Homeland Security, Science and Technology Directorate (formerly United States Department of Energy, Environmental Measurements Laboratory), currently available on-line in the 28th edition only, at www.nbl.doe.gov/EML_Legacy_Website/procman.htm.

"EML Procedures Manual," HASL 300, 27th Edition, Volume 1, 1990 (referred to as "EML Procedures Manual (27th ed.)"), referenced in Section 611.720.

"EML Procedures Manual," HASL 300, 28th ed., 1997 (referred to as "EML Procedures Manual (28th ed.)"), referenced in Section 611.720.

BOARD NOTE: Although only the 28th edition is currently available, USEPA has approved use of the methods from the 27th edition also. The Board has retained the reference to the 27th edition for the benefit of any laboratory that may be using that edition.

USEPA, EMSL. United States Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Cincinnati, OH 45268 (513-569-7586).

USEPA Interim Radiochemical Methods, "Interim Radiochemical Methodology for Drinking Water," EPA 600/4-75/008 (revised), March 1976, referenced in Section 611.720. See also NTIS.

USEPA Organic Methods, "Methods for the Determination of Organic Compounds in Drinking Water," December 1988 (revised July 1991), EPA 600/4-88/039, referenced in Sections 611.645 and 611.648 (Methods 508A (rev. 1.0) and 515.1 (rev. 4.0) only); "Methods for the Determination of Organic Compounds in Drinking Water—Supplement I," July 1990, EPA 600/4-90/020, referenced in Sections 611.645 and 611.648 (Methods 547, 550, and 550.1 only); "Methods for the Determination of Organic Compounds in Drinking Water—Supplement II," August 1992, EPA 600/R-92/129, referenced in Sections 611.381 and 611.645 (Methods 548.1 (rev. 1.0), 552.1 (rev. 1.0), and 555 (rev. 1.0) only); "Methods for the Determination of Organic Compounds in Drinking Water—Supplement III," August 1995, EPA 600/R-95/131, referenced in Sections 611.381, 611.645, and 611.648 (Methods 502.2 (rev. 2.1), 504.1 (rev. 1.1), 505 (rev. 2.1), 506 (rev. 1.1), 507 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 515.2 (rev. 4.1), 524.2 (rev. 4.1), 525.2 (rev. 2.0), 551.1 (rev. 1.0), and 552.2 (rev. 1.0) only). See also NTIS and USEPA, NSCEP.

"Procedures for Radiochemical Analysis of Nuclear Reactor Aqueous Solutions," EPA-R4-73-014, May 1973, referenced in Section 611.720. See also NTIS.

USEPA, NSCEP. United States Environmental Protection Agency, National Service Center for Environmental Publications, P.O. Box 42419, Cincinnati, OH 45242-0419 (accessible on-line and available by download from http://www.epa.gov/nscep/).

Dioxin and Furan Method 1613, Revision B, "Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution HRGC/HRMS," October 1994, EPA 821/B-94/005, referenced in Section 611.645. See also NTIS.

Guidance Manual for Filtration and Disinfection, "Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems Using Surface Water Sources," March 1991, EPA 570/3-91-001, referenced in Section 611.111.

USEPA Asbestos Method 100.1, "Analytical Method for Determination of Asbestos Fibers in Water," September 1983, EPA 600/4-83-043, referenced in Section 611.611. See also NTIS.

USEPA Asbestos Method 100.2, "Determination of Asbestos Structures over 10-mm in Length in Drinking Water," June 1994, EPA 600/R-94-134, referenced in Section 611.611. See also NTIS.

USEPA Environmental Inorganic Methods, "Methods for the Determination of Inorganic Substances in Environmental Samples," August 1993, EPA 600/R-93-100, referenced in Sections 611.381, 611.531, and 611.611. (Methods 180.1 (rev. 2.0), 300.0 (rev. 2.1), 335.4 (rev. 1.0), 353.2 (rev. 2.0), and 365.1 (rev. 2.0) only.) See also NTIS.

USEPA Environmental Metals Methods, "Methods for the Determination of Metals in Environmental Samples—Supplement I," May 1994, EPA 600/R-94-111, referenced in Sections 611.611, 611.612, and 611.720. (Methods 200.7 (rev. 4.4), 200.8 (rev. 5.3), 200.9 (rev. 2.2), and 245.1 (rev. 3.0) only.) See also NTIS.

USEPA Inorganic Methods, "Methods for Chemical Analysis of Water and Wastes," March 1983, EPA 600/4-79-020, referenced in Section 611.611. (Methods 150.1, 150.2, and 245.2 only.) See also NTIS.

USEPA OGWDW Methods, Method 302.0, "Determination of Bromate in Drinking Water Using Two-Dimensional Ion Chromatography with Suppressed Conductivity Detection," September 2009, EPA 815/B-09/014, referenced in Sections 611.381 and 611.382. See also USEPA, OGWDW.

USEPA OGWDW Methods, Method 317.0, rev. 2.0, "Determination of Inorganic Oxyhalide Disinfection By-Products

in Drinking Water Using Ion Chromatography with the Addition of a Postcolumn Reagent for Trace Bromate Analysis," July 2001, EPA 815/B-01/001, referenced in Sections 611.381 and 611.382. See also USEPA, OGWDW.

USEPA OGWDW Methods, Method 326.0, rev. 1.0, "Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography Incorporating the Addition of a Suppressor Acidified Postcolumn Reagent for Trace Bromate Analysis," June 2002, EPA 815/R-03/007, referenced in Sections 611.381 and 611.382. See also NTIS and USEPA, OGWDW.

USEPA OGWDW Methods, Method 327.0, rev. 1.1, "Determination of Chlorine Dioxide and Chlorite Ion in Drinking Water Using Lissamine Green B and Horseradish Peroxidase with Detection by Visible Spectrophotometry," May 2005, EPA 815/R-05/008, referenced in Sections 611.381 and 611.531. See also USEPA, OGWDW.

USEPA OGWDW Methods, Method 334.0, "Determination of Residual in Drinking Water Using an On-line Chlorine Analyzer," August 2009, EPA 815/B-09/013, referenced in Section 611.531. See also USEPA, OGWDW.

USEPA OGWDW Methods, Method 523, ver. 1.0, "Determination of Triazine Pesticides and Other Degradates in Drinking Water by Gas Chromatography/Mass Spectrometry (GC/MS)," February 2011, EPA 815/R-11/002, referenced in Section 611.645. See also USEPA, OGWDW.

USEPA OGWDW Methods, Method 531.2, rev. 1.0, "Measurement of N-methylcarbamoyloximes and N-methylcarbamates in Water by Direct Aqueous Injection HPLC with Postcolumn Derivatization," September 2001, EPA 815/B-01/002 (document file name "met531_2.pdf"), referenced in Section 611.645. See also USEPA, OGWDW.

USEPA OGWDW Methods, Method 552.3, rev. 1.0, "Determination of Haloacetic Acids and Dalapon in Drinking Water by Liquid-Liquid Microextraction, Derivatization, and Gas

Chromatography with Electron Capture Detection," July 2003, EPA 815/B-03/002, referenced in Sections 611.381 and 611.645.

USEPA OGWDW Methods, Method 557, "Determination of Haloacetic Acids, Bromate, and Dalapon in Drinking Water by Ion Chromatography Electrospray Ionization Tandem Mass Spectrometry," July 2003, EPA 815/B-03/002, referenced in Sections 611.381, 611.382, and 611.645. See also USEPA, OGWDW.

USEPA OGWDW Methods, Method 1622 (01), "Cryptosporidium in Water by Filtration/IMS/FA," April 2001, EPA 821/R-01/026, referenced in Section 611.1007. See also USEPA, OGWDW.

USEPA Organic and Inorganic Methods, "Methods for the Determination of Organic and Inorganic Compounds in Drinking Water, Volume 1," August 2000, EPA 815/R-00/014, referenced in Section 611.381. (Methods 300.1 (rev. 1.0), 321.8 (rev. 1.0), and 515.3 (rev. 1.0) only.) See also NTIS.

USEPA Organic Methods, "Methods for the Determination of Organic Compounds in Drinking Water," December 1988, revised July 1991, EPA 600/4-88/039, referenced in Sections 611.645 and 611.648 (Methods 508A (rev. 1.0) and 515.1 (rev. 4.0) only); "Methods for the Determination of Organic Compounds in Drinking Water—Supplement I," July 1990, EPA 600/4-90/020, referenced in Section 611.645 and 611.648 (Methods 547, 550, and 550.1 only); "Methods for the Determination of Organic Compounds in Drinking Water—Supplement II," August 1992, EPA 600/R-92/129, referenced in Sections 611.381 and 611.645 (Methods 548.1 (rev. 1.0), 552.1 (rev. 1.0), and 555 (rev. 1.0) only); "Methods for the Determination of Organic Compounds in Drinking Water—Supplement III," August 1995, EPA 600/R-95/131, referenced in Sections 611.381, 611.645, and 611.648 (Methods 502.2 (rev. 2.1), 504.1 (rev. 1.1), 505 (rev. 2.1), 506 (rev. 1.1), 507 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 515.2 (rev. 4.1), 524.2 (rev. 4.1), 525.2 (rev. 2.0), 531.1 (rev. 3.1), 551.1 (rev. 1.0), and 552.2 (rev. 1.0) only). See also NTIS and USEPA, EMSL.

USEPA Radioactivity Methods, "Prescribed Procedures for Measurement of Radioactivity in Drinking Water," August 1980,

EPA 600/4-80/032, referenced in Section 611.720. (For methods 900.0, 901, 901.1, 902, 903, 903.1, 904, 905, 906, 908, 908.1 only.) See also NTIS.

USEPA Technical Notes, "Technical Notes on Drinking Water Methods," October 1994, EPA 600/R-94/173, referenced in Sections 611.531, 611.611, and 611.645. See also NTIS.

BOARD NOTE: USEPA made the following assertion with regard to this reference at 40 CFR 141.23(k)(1) and 141.24(e) and (n)(11) (2014): "This document contains other analytical test procedures and approved analytical methods that remain available for compliance monitoring until July 1, 1996." Also available online at http://nepis.epa.gov/EPA/html/Pubs/pubtitleORD.htm under the document designation "600R94173."

USEPA, OGWDW. United States Environmental Protection Agency, Office of Ground Water and Drinking Water (accessible on-line and available by download from http://www.epa.gov/safewater/methods/).

USEPA OGWDW Methods, Method 302.0, "Determination of Bromate in Drinking Water Using Two-Dimensional Ion Chromatography with Suppressed Conductivity Detection," September 2009, EPA 815/B-09/014, referenced in Section 611.381. See also USEPA, NSCEP.

USEPA OGWDW Methods, Method 317.0, rev. 2.0, "Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography with the Addition of a Postcolumn Reagent for Trace Bromate Analysis," USEPA, July 2001, EPA 815/B-01/001, referenced in Section 611.381. See also USEPA, NSCEP.

USEPA OGWDW Methods, Method 326.0, rev. 1.0, "Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography Incorporating the Addition of a Suppressor Acidified Postcolumn Reagent for Trace Bromate Analysis," USEPA, June 2002, EPA 815/R-03/007, referenced in Section 611.381. See also NTIS and USEPA, NSCEP.

USEPA OGWDW Methods, Method 327.0, rev. 1.1, "Determination of Chlorine Dioxide and Chlorite Ion in Drinking Water Using Lissamine Green B and Horseradish Peroxidase with Detection by Visible Spectrophotometry," USEPA, May 2005, EPA 815/R-05/008, referenced in Sections 611.381 and 611.531. See also USEPA, NSCEP.

USEPA OGWDW Methods, Method 334.0, "Determination of Residual in Drinking Water Using an On-line Chlorine Analyzer," USEPA, August 2009, EPA 815/B-09/013, referenced in Section 611.531. See also USEPA, NSCEP.

USEPA OGWDW Methods, Method 515.4, rev. 1.0, "Determination of Chlorinated Acids in Drinking Water by Liquid-Liquid Microextraction, Derivatization and Fast Gas Chromatography with Electron Capture Detection," April 2000, EPA 815/B-00/001 (document file name "met515_4.pdf"), referenced in Section 611.645.

USEPA OGWDW Methods, Method 523, ver. 1.0, "Determination of Triazine Pesticides and Other Degradates in Drinking Water by Gas Chromatography/Mass Spectrometry (GC/MS)," February 2011, EPA 815/R-11/002, referenced in Section 611.645. See also USEPA, NSCEP.

USEPA OGWDW Methods, Method 524.3, rev. 1.0, "Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/Mass Spectrometry," June 2009, EPA 815/B-09/009, referenced in Sections 611.381 and 611.645.

USEPA OGWDW Methods, Method 524.4, "Measurement of Purgeable Organic Compounds in Water by Gas Chromatography/ Mass Spectrometry Using Nitrogen Purge Gas," May 2013, EPA 815/R-13/002, referenced in Sections 611.381 and 611.645.

USEPA OGWDW Methods, Method 531.2, rev. 1.0, "Measurement of N-methylcarbamoyloximes and N-methylcarbamates in Water by Direct Aqueous Injection HPLC with Postcolumn Derivatization," September 2001, EPA 815/B-01/002 (document file name "met531_2.pdf"), referenced in

Section 611.645. See also USEPA, NSCEP.

USEPA OGWDW Methods, Method 536, ver. 1.0, "Determination of Triazine Pesticides and Other Degradates in Drinking Water by Liquid Chromatography Electrospray Ionization Tandem Mass Spectrometry (LC/ESI-MS/MS)," October 2007, EPA 815/R-07/002, referenced in Section 611.645.

USEPA OGWDW Methods, Method 552.3, rev. 1.0, "Determination of Haloacetic Acids and Dalapon in Drinking Water by Liquid-liquid Microextraction, Derivatization, and Gas Chromatography with Electron Capture Detection," USEPA, July 2003, EPA 815/B-03/002, referenced in Sections 611.381 and 611.645.

USEPA OGWDW Methods, Method 557, "Determination of Haloacetic Acids, Bromate, and Dalapon in Drinking Water by Ion Chromatography Electrospray Ionization Tandem Mass Spectrometry," July 2003, EPA 815/B-03/002, referenced in Sections 611.381 and 611.645. See also USEPA, NSCEP.

USEPA OGWDW Methods, Method 1622 (05), "Method 1622: Cryptosporidium in Water by Filtration/IMS/FA," December 2005, EPA 815/R-05/001, referenced in Sections 611.1004 and 611.1007.

USEPA OGWDW Methods, Method 1622 (01), "Method 1622: Cryptosporidium in Water by Filtration/IMS/FA," April 2001, EPA 821/R-01/026, referenced in Section 611.1007. See also USEPA, NSCEP.

USEPA OGWDW Methods, Method 1622 (99), "Method 1622: Cryptosporidium in Water by Filtration/IMS/FA," April 1999, EPA 821/R-99/001, referenced in Section 611.1007.

USEPA OGWDW Methods, Method 1623 (05), "Method 1623: Cryptosporidium and Giardia in Water by Filtration/IMS/FA," December 2005, EPA 815/R-05/002, referenced in Sections 611.1004 and 611.1007.

USEPA OGWDW Methods, Method 1623 (01), "Method 1623:

Cryptosporidium and Giardia in Water by Filtration/IMS/FA," April 2001, EPA 821/R-01/025, referenced in Section 611.1007.

USEPA OGWDW Methods, Method 1623 (99), "Method 1623: Cryptosporidium and Giardia in Water by Filtration/IMS/FA," January 1999, EPA 821/R-99/006, referenced in Section 611.1007.

USEPA OGWDW Methods, Method 1623.1, "Method 1623.1: Cryptosporidium and Giardia in Water by Filtration/IMS/FA," January 2012, EPA 816/R-12/001, referenced in Section 611.1004.

BOARD NOTE: Many of the above-listed documents available from the USEPA, Office of Ground Water and Drinking Water are also listed as available from NTIS.

USEPA, ORD. USEPA, Office of Research and Development, National Exposure Research Laboratory, Microbiological & Chemical Exposure Assessment Research Division (accessible on-line and available by download from http://www.epa.gov/nerlcwww/ordmeth.htm).

USEPA NERL Method 200.5, rev. 4.2, "Determination of Trace Elements in Drinking Water by Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry," October 2003, EPA 600/R-06/115, referenced in Sections 611.611 and 611.612.

USEPA NERL Method 415.3, rev. 1.1, "Determination of Total Organic Carbon and Specific UV Absorbance at 254 nm in Source Water and Drinking Water," February 2005, EPA 600/R–05/055, referenced in Section 611.381.

USEPA NERL Method 415.3, rev. 1.2, "Determination of Total Organic Carbon and Specific UV Absorbance at 254 nm in Source Water and Drinking Water," September 2009, EPA 600/R–09/122, referenced in Section 611.381.

USEPA NERL Method 525.3, ver. 1.0, "Determination of Total Semivolatile Organic Chemicals in Drinking Water by Solid Phase Extraction and Capillary Column Gas Chromatography/Mass Spectrometry (GC/MS)," February 2012, EPA 600/R-12/010, referenced in Section 611.645.

USEPA NERL Method 549.2, rev. 1.0, "Determination of Diquat and Paraquat in Drinking Water by Liquid-Solid Extraction and High Performance Liquid Chromatography with Ultraviolet Detection," June 1997, referenced in Section 611.645.

USEPA, Water Resource Center (RC-4100T), 1200 Pennsylvania Avenue, NW, Washington, DC 20460:

E*Colite Test, "Charm E*Colite Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia coli in Drinking Water," January 9, 1998, referenced in Sections 611.802 and 611.1052. See also Charm Sciences, Inc.

m-ColiBlue24 Test, "Total Coliforms and E. coli Membrane Filtration Method with m-ColiBlue24® Broth," Method No. 10029, rev. 2, August 17, 1999, referenced in Sections 611.802 and 611.1052. See also The Hach Company.

USEPA Method 1600, "Method 1600: Enterococci in Water by Membrane Filtration Using Membrane-Enterococcus Indoxyl–b–D–Glucoside Agar (mEI)," September 2002, EPA 821/R–02/022 is an approved variation of Standard Methods, Method 9230 C, "Fecal Streptococcus and Enterococcus Groups, Membrane Filter Techniques" (which has not itself been approved for use by USEPA) (accessible on-line and available by download from http://www.epa.gov/nerlcwww/1600sp02.pdf), referenced in Section 611.802.

USEPA Method 1601, "Method 1601: Male-specific (F^+) and Somatic Coliphage in Water by Two-step Enrichment Procedure," April 2001, EPA 821/R–01/030 (accessible on-line and available by download from http://www.epa.gov/nerlcwww/1601ap01.pdf), referenced in Section 611.802.

USEPA Method 1602, "Method 1602: Male-specific (F^+) and Somatic Coliphage in Water by Single Agar Layer (SAL) Procedure," April 2001, EPA 821/R–01/029 (accessible on-line and available by download from http://www.epa.gov/nerlcwww/1602ap01.pdf), referenced in Section 611.802.

USEPA Method 1604, "Method 1604: Total Coliforms and *Escherichia coli* in Water by Membrane Filtration Using a Simultaneous Detection Technique (MI Medium)," September 2002, EPA 821/R-02/024 (accessible on-line and available by download from http://www.epa.gov/nerlcwww/1604sp02.pdf), referenced in Sections 611.802 and 611.1052.

USGS. United States Geological Survey, Federal Center, Box 25286, Denver, CO 80225-0425.

Method available upon request by method number from "Methods for Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of Inorganic and Organic Constituents in Water and Fluvial Sediments," Open File Report 93-125, 1993 (referred to as "USGS Methods").

I-2601-90, referenced in Section 611.611.

Methods available upon request by method number from Book 5, Chapter A-1, "Methods for Determination of Inorganic Substances in Water and Fluvial Sediments," 3rd ed., USGS Techniques of Water-Resource Investigation: 05-A1, 1989 (referred to as "USGS Methods").

I-1030-85, referenced in Section 611.611.

I-1601-85, referenced in Section 611.611.

I-1700-85, referenced in Section 611.611.

I-2598-85, referenced in Section 611.611.

I-2700-85, referenced in Section 611.611.

I-3300-85, referenced in Section 611.611.

Methods available upon request by method number from "Methods for Determination of Radioactive Substances in Water and Fluvial

Sediments," Chapter A5 in Book 5 of "Techniques of Water-Resources Investigations of the United States Geological Survey," 1977.

R-1110-76, referenced in Section 611.720.

R-1111-76, referenced in Section 611.720.

R-1120-76, referenced in Section 611.720.

R-1140-76, referenced in Section 611.720.

R-1141-76, referenced in Section 611.720.

R-1142-76, referenced in Section 611.720.

R-1160-76, referenced in Section 611.720.

R-1171-76, referenced in Section 611.720.

R-1180-76, referenced in Section 611.720.

R-1181-76, referenced in Section 611.720.

R-1182-76, referenced in Section 611.720.

BOARD NOTE: USGS methods are freely available for download in an electronic format from the USGS Publications Warehouse, at pubs.er.usgs.gov/. Sections 611.611 and 611.720 do not distinguish the volume in which each USGS method appears. The distinction as to which volume where a particular method appears is made in this incorporation by reference.

Veolia Water Solutions and Technologies, Suite 4697, Biosciences Complex, 116 Barrie Street, Kingston, Ontario, Canada K7L 3N6.

"Tecta EC/TC P-A Test, "TECTA™ EC/TC medium and the TECTA™ Instrument: a Presence/Absence Method for Simultaneous Detection of Total Coliforms and Escherichia coli (E.coli) in Drinking Water," April 2014, referenced in Section 611.526.

Waters Corporation, Technical Services Division, 34 Maple St., Milford, MA 01757 (800-252-4752 or 508-478-2000, www.waters.com).

"Waters Test Method for Determination of Nitrite/Nitrate in Water Using Single Column Ion Chromatography," Method B-1011, August 1987 (referred to as "Waters Method B-1011"), referenced in Section 611.611.

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

40 CFR 3.2 (2014) (How Does This Part Provide for Electronic Reporting?), referenced in Section 611.105.

40 CFR 3.3 (2014) (What Definitions Are Applicable to This Part?), referenced in Section 611.105.

40 CFR 3.10 (2014) (What Are the Requirements for Electronic Reporting to EPA?), referenced in Section 611.105.

40 CFR 3.2000 (2014) (What Are the Requirements Authorized State, Tribe, and Local Programs' Reporting Systems Must Meet?), referenced in Section 611.105.

40 CFR 136.3(a) (2014), referenced in Section 611.1004.

Appendix B to 40 CFR 136 (2014), referenced in Sections 611.359, 611.609, and 611.646.

40 CFR 142.20(b)(1) (2014), referenced in Section 611.112.

Subpart G of 40 CFR 142 (2014), referenced in Section 611.113.

d) This Part incorporates no later amendments or editions.

(Source: Amended at 39 Ill. Reg. 15352, effective November 13, 2015)

Section 611.103 Severability

If any provision of this Part is adjudged invalid, or if its application to any person or in any circumstance is adjudged invalid, such invalidity does not affect the validity of this Part as a whole, or any other Subpart, Section, subsection, sentence, or clause not adjudged invalid.

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.105 Electronic Reporting

The submission of any document pursuant to any provision of this Part as an electronic document in lieu of a paper document is subject to this Section.

a) Scope and Applicability.

1) The USEPA, the Board, or the Agency may allow for the submission of electronic documents in lieu of paper documents. This Section does not require submission of electronic documents in lieu of paper documents. This Section sets forth the requirements for the optional electronic submission of any document that must be submitted to the appropriate of the following:

A) To USEPA directly under Title 40 of the Code of Federal Regulations; or

B) To the Board or the Agency pursuant to any provision of 35 Ill. Adm. Code 702 through 705, 720 through 728, 730, 733, 738, or 739.

2) Electronic document submission under this Section can occur only as follows:

A) For submissions of documents to USEPA, submissions may occur only after USEPA has published a notice in the Federal Register announcing that USEPA is prepared to receive, in an electronic format, documents required or permitted by the identified part or subpart of Title 40 of the Code of Federal Regulations; or

B) For submissions of documents to the State, submissions may occur only under the following circumstances:

i) As to any existing electronic document receiving system (i.e., one in use or substantially developed on or before October 13, 2005) for which an electronic reporting application has not been submitted on behalf of the Board or the Agency to USEPA pursuant to 40 CFR 3.1000, the Board or the Agency may use that system until October 13, 2007, or until such later date as USEPA has approved in writing as the extended deadline for submitting the application;

ii) As to any existing electronic document receiving system (i.e., one in use or substantially developed on or before October 13, 2005) for which an electronic reporting application has been submitted on behalf of the Board or the Agency to USEPA pursuant to 40 CFR 3.1000 on or before October 13, 2007, or on or before such later date as USEPA has approved in writing as the extended deadline for submitting the application, the Board or the Agency may use that system until USEPA disapproves its use in writing; or

iii) The Board or the Agency may use any electronic document receiving system for which USEPA has granted approval pursuant to 40 CFR 3.1000, so long as the system complies with 40 CFR 3.2000, incorporated by reference in Section 611.102(c), and USEPA has not withdrawn its approval of the system in writing.

3) This Section does not apply to any of the following documents, whether or not the document is a document submitted to satisfy the requirements cited in subsection (a)(1) of this Section:

A) Any document submitted via fascimile;

B) Any document submitted via magnetic or optical media, such as diskette, compact disc, digital video disc, or tape; or

C) Any data transfer between USEPA, any state, or any local government and either the Board or the Agency as part of administrative arrangements between the parties to the transfer to share data.

4) Upon USEPA conferring written approval for the submission of any types of documents as electronic documents in lieu of paper documents, as

described in subsection (a)(2)(B)(iii) of this Section, the Agency or the Board, as appropriate, must publish a Notice of Public Information in the Illinois Register that describes the documents approved for submission as electronic documents, the electronic document receiving system approved to receive them, the acceptable formats and procedures for their submission, and, as applicable, the date on which the Board or the Agency will begin to receive those submissions. In the event of written cessation of USEPA approval for receiving any type of document as an electronic document in lieu of a paper document, the Board or the Agency must similarly cause publication of a Notice of Public Information in the Illinois Register.

BOARD NOTE: Subsection (a) of this Section is derived from 40 CFR 3.1, 3.2, 3.10, 3.20, and 3.1000 (2010).

b) Definitions. For the purposes of this Section, terms will have the meaning attributed them in 40 CFR 3.3, incorporated by reference in 35 Ill. Adm. Code 611.102(c).

c) Procedures for submission of electronic documents in lieu of paper documents to USEPA. Except as provided in subsection (a)(3) of this Section, any person who is required under Title 40 of the Code of Federal Regulations to create and submit or otherwise provide a document to USEPA may satisfy this requirement with an electronic document, in lieu of a paper document, provided the following conditions are met:

1) The person satisfies the requirements of 40 CFR 3.10, incorporated by reference in Section 611.102(c); and

2) USEPA has first published a notice in the Federal Register as described in subsection (a)(2)(A) of this Section.

BOARD NOTE: Subsection (c) of this Section is derived from 40 CFR 3.2(a) and subpart B of 40 CFR 3 (2010).

d) Procedures for submission of electronic documents in lieu of paper documents to the Board or the Agency.

1) The Board or the Agency may, but is not required to, establish procedural rules for the electronic submission of documents. The Board or the Agency must establish any such procedural rules under the Administrative Procedure Act [5 ILCS 100/Art. 5].

2) The Board or the Agency may accept electronic documents under this Section only as provided in subsection (a)(2)(B) of this Section.

BOARD NOTE: Subsection (d) of this Section is derived from 40 CFR 3.2(b) and subpart D of 40 CFR 3 (2010).

e) Effects of submission of an electronic document in lieu of paper documents.

1) If a person who submits a document as an electronic document fails to comply with the requirements of this Section, that person is subject to the penalties prescribed for failure to comply with the requirement that the electronic document was intended to satisfy.

2) Where a document submitted as an electronic document to satisfy a reporting requirement bears an electronic signature, the electronic signature legally binds, obligates, and makes the signer responsible to the same extent as the signer's handwritten signature would on a paper document submitted to satisfy the same reporting requirement.

3) Proof that a particular signature device was used to create an electronic signature will suffice to establish that the individual uniquely entitled to use the device did so with the intent to sign the electronic document and give it effect.

4) Nothing in this Section limits the use of electronic documents or information derived from electronic documents as evidence in enforcement or other proceedings.

BOARD NOTE: Subsection (e) of this Section is derived from 40 CFR 3.4 and 3.2000(c) (2010).

f) Public document subject to State laws. Any electronic document filed with the Board is a public document. The document, its submission, its retention by the Board, and its availability for public inspection and copying are subject to various State laws, including, but not limited to, the following:

1) The Administrative Procedure Act [5 ILCS 100];

2) The Freedom of Information Act [5 ILCS 140];

3) The State Records Act [5 ILCS 160];

4) The Electronic Commerce Security Act [5 ILCS 175];

5) The Environmental Protection Act [415 ILCS 5];

6) Regulations relating to public access to Board records (2 Ill. Adm. Code 2175); and

7) Board procedural rules relating to protection of trade secrets and confidential information (35 Ill. Adm. Code 130).

g) Nothing in this Section or in any provisions adopted pursuant to subsection (d)(1) of this Section will create any right or privilege to submit any document as an electronic document.

BOARD NOTE: Subsection (g) of this Section is derived from 40 CFR 3.2(c) (2010).

BOARD NOTE: Derived from 40 CFR 3, as added, and 40 CFR 142.10(g) (2010).

(Source: Amended at 34 Ill. Reg. 19848, effective December 7, 2010)

Section 611.107 Agency Inspection of PWS Facilities

a) THE AGENCY SHALL HAVE AUTHORITY TO CONDUCT A PROGRAM OF CONTINUING SURVEILLANCE AND OF REGULAR OR PERIODIC INSPECTION OF PUBLIC WATER SUPPLIES. (Section 4(c) of the Act [415 ILCS 5/4(c)].)

b) IN ACCORDANCE WITH CONSTITUTIONAL LIMITATIONS, THE AGENCY SHALL HAVE AUTHORITY TO ENTER AT ALL REASONABLE TIMES UPON ANY PRIVATE OR PUBLIC PROPERTY FOR THE PURPOSE OF INSPECTING AND INVESTIGATING TO ASCERTAIN POSSIBLE VIOLATIONS OF THE ACT OR OF REGULATIONS THEREUNDER, OR OF PERMITS OR CONDITIONS THEREOF. (Section 4(d) of the Act [415 ILCS 5/4(d)].)

BOARD NOTE: In setting forth this provision to make clear the Agency's statutory authority to conduct inspections, the Board does not intend to either broaden or circumscribe that authority or to modify it in any way. Rather, the Board sets this provision forth to make that authority clear for the benefit of the regulated community.

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.108 Delegation to Local Government

The Agency may delegate portions of its inspection, investigating and enforcement functions to units of local government pursuant to Section 4(r) of the Act [415 ILCS 5/4(r)].

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.109 Enforcement

a) Any person may file an enforcement action pursuant to Title VIII of the Act [415 ILCS 5/Title VIII].

b) The results of monitoring required under this Part may be used in an enforcement action.

BOARD NOTE: Derived from 40 CFR 141.22(e) and 141.23(a)(4) (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

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 [415 ILCS 5/39(a)]. Such permit is titled a "special exception" permit ("SEP").

b) No person may cause or allow the violation of any condition of a SEP.

c) The supplier may appeal the denial of or the conditions of a SEP to the Board pursuant to Section 40 of the Act [415 ILCS 5/40].

d) A SEP may be initiated in either of the following ways:

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 this subsection (d)(2). Rather, the Board intends to clarify by this subsection (d)(2) that the Agency may opt to initiate a SEP without receiving a request from the supplier.

e) The Agency must evaluate a request for a SEP from the monitoring requirements of Section 611.601, 611.602, or 611.603 (IOCs, excluding the Section 611.603 monitoring frequency requirements for cyanide); Section 611.646(e) and (f) (Phase I, Phase II, and Phase V VOCs); Section 611.646(d), only as to initial monitoring for 1,2,4-trichlorobenzene; Section 611.648(d) (for Phase II, Phase IIB, and Phase V SOCs); or Section 611.510 (for unregulated organic contaminants) on the basis of knowledge of previous use (including transport, storage, or disposal) of the contaminant in the watershed or zone of influence of the system, as determined pursuant to 35 Ill. Adm. Code 671.

BOARD NOTE: The Agency must grant a SEP from the Section 611.603 monitoring frequency requirements for cyanide only on the basis of subsection (g) of this Section, not on the basis of this subsection (e).

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

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

A) Previous analytical results;

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

C) The environmental persistence and transport of the contaminant;

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

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

ii) A SWS must consider watershed protection;

E) For Phase II, Phase IIB, and Phase V SOCs, as follows:

i) Elevated nitrate levels at the water source; and

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

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

f) If a supplier refuses to provide any necessary additional information requested by the Agency, or if a supplier delivers any necessary information late in the

Agency's deliberations on a request, the Agency may deny the requested SEP or grant the SEP with conditions within the time allowed by law.

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

BOARD NOTE: Subsection (e) of this Section is derived from 40 CFR 141.24(f)(8) and (h)(6) (2003). Subsection (f) of this Section is derived from 40 CFR 141.82(d)(2), and 141.83(b)(2) (2003). Subsection (g) is derived from 40 CFR 141.23(c)(2) (2003). USEPA has reserved the discretion, at 40 CFR 142.18 (2003), to review and nullify Agency determinations of the types made pursuant to Sections 611.510, 611.602, 611.603, 611.646, and 611.648 and the discretion, at 40 CFR 141.82(i), 141.83(b)(7), and 142.19 (2003), to establish federal standards for any supplier, superseding any Agency determination made pursuant to Sections 611.352(d), 611.352(f), 611.353(b)(2), and 611.353(b)(4).

(Source: Amended at 28 Ill. Reg. 5269, effective March 10, 2004)

Section 611.111 Relief Equivalent to SDWA Section 1415(a) Variances

This Section is intended to describe how the Board grants State relief equivalent to that available from USEPA under section 1415(a)(1)(A) and (a)(1)(B) of the SDWA (42 USC 300g-4(a)(1)(A) and (a)(1)(B)). SDWA section 1415 variances do not require ultimate compliance within five years in every situation. Variances under Sections 35through 37 of the Act [415 ILCS 5/35-37] do require compliance within five years in every case. Consequently, a PWS may have the option of seeking State regulatory relief equivalent to a SDWA section 1415 variance through one of three procedural mechanisms: a variance under Sections 35through 37 of the Act [415 ILCS 5/35-37] and Subpart B of 35 Ill. Adm. Code 104; a site-specific rule under Sections 27and 28 of the Act [415 ILCS 5/27-28] and 35 Ill. Adm. Code 102; or an adjusted standard under Section 28.1 of the Act [415 ILCS 5/28.1] and Subpart D of 35 Ill. Adm. Code 104.

a) The Board will grant a PWS a variance, a site-specific rule, or an adjusted standard from an MCL or a treatment technique pursuant to this Section.

1) The PWS must file a petition pursuant to 35 Ill. Adm. Code 102 or 104, as applicable.

2) If a State requirement does not have a federal counterpart, the Board may grant relief from the State requirements without following this Section.

b) Relief from an MCL.

1) As part of the justification for relief from an MCL under this Section, the PWS must demonstrate the following:

A) Because of characteristics of the raw water sources and alternative sources that are reasonably available to the system, the PWS cannot meet the MCL; and

B) The PWS will install or has installed the best available technology (BAT) (as identified in Subpart F of this Part), treatment technique, or other means that the Agency finds available. BAT may vary depending on the following:

i) The number of persons served by the system;

ii) Physical conditions related to engineering feasibility; and

iii) Costs of compliance; and

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

2) In any order granting relief under this subsection, the Board will prescribe a schedule for the following:

A) Compliance, including increments of progress, by the PWS, with each MCL with respect to which the relief was granted; and

B) Implementation by the PWS of each additional control measure for each MCL with respect to which the relief is granted, during the period ending on the date compliance with such requirement is required.

3) Schedule of compliance for relief from an MCL.

A) A schedule of compliance will require compliance with each MCL with respect to which the relief was granted as expeditiously as practicable.

B) If the Board prescribes a schedule requiring compliance with an MCL for which the relief is granted later than five years from the date of issuance of the relief, the Board will do the following:

i) Document its rationale for the extended compliance schedule;

ii) Discuss the rationale for the extended compliance schedule in the required public notice and opportunity for public hearing; and

iii) Provide the shortest practicable time schedule feasible under the circumstances.

c) Relief from a treatment technique requirement.

1) As part of the justification for relief from a treatment technique requirement under this Section, the PWS must demonstrate that the treatment technique is not necessary to protect the health of persons served because of the nature of the raw water source.

2) The Board may prescribe monitoring and other requirements as a condition for relief from a treatment technique requirement.

d) The Board will hold at least one public hearing. In addition the Board will accept comments as appropriate pursuant to 35 Ill. Adm. Code 102 or 104.

e) The Board will not grant relief from any of the following:

1) From the MCLs for total coliforms and E. coli. Until March 31, 2016, the Board may grant a variance from the total coliform MCL of Section 611.325 for PWSs that prove that the violation of the total coliform MCL is due to persistent growth of total coliform 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. Effective March 31, 2016, when the total coliform MCL is no longer effective, the Board can no longer grant relief from the total coliform MCL.

BOARD NOTE: As provided in Section 611.131(c)(1) and 40 CFR 142.304(a), a small system variance is not available for rules that address microbial contaminants, which include Subparts B, R, S, X, Z, and AA of this Part.

2) From any of the treatment technique requirements of Subpart B of this Part.

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

f) The Agency must promptly send USEPA the opinion and order of the Board granting relief pursuant to this Section. The Board may reconsider and modify a grant of relief, or relief conditions, if USEPA notifies the Board of a finding pursuant to section 1415 of the SDWA (42 USC 300g-4).

g) In addition to the requirements of this Section, the provisions of Section 611.130 or 611.131 may apply to relief granted pursuant to this Section.

BOARD NOTE: Derived from 40 CFR 141.4 (2013), from section 1415(a)(1)(A) and (a)(1)(B) of the SDWA (42 USC 300g-4(a)(1)(A) and (a)(1)(B) (2011)) and from the "Guidance Manual for Filtration and Disinfection," incorporated by reference in Section 611.102 and available from USEPA, NSCEP. USEPA has established a procedure at 40 CFR 142.23 (2013) to review and potentially modify or nullify state determinations granting relief from NPDWRs where USEPA finds that the state has abused its discretion or failed to prescribe required schedules for compliance in a substantial number of instances.

(Source: Amended at 38 Ill. Reg. 3608, effective January 27, 2014)

Section 611.112 Relief Equivalent to SDWA Section 1416 Exemptions

This Section is intended to describe how the Board grants State relief equivalent to that available from USEPA under section 1416 of the SDWA (42 USC 300g-5). SDWA section 1416 exemptions do not require ultimate compliance within five years in every situation. Variances under Sections 35through 37 of the Act [415 ILCS 5/35-37] do require compliance within five years in every case. Consequently, a PWS may have the option of seeking State regulatory relief equivalent to a SDWA section 1416 exemption through one of three procedural mechanisms: a variance under Sections 35through 37 of the Act [415 ILCS 5/35-37] and Subpart B of 35 Ill. Adm. Code 104; a site-specific rule under Sections 27and 28 of the Act [415 ILCS 5/27-28] and 35 Ill. Adm. Code 102; or an adjusted standard under Section 28.1 of the Act [415 ILCS 5/28.1] and Subpart D of 35 Ill. Adm. Code 104.

a) The Board will grant a PWS a variance, a site-specific rule, or an adjusted standard from an MCL or treatment technique requirement, or from both, pursuant to this Section.

1) The PWS must file a petition pursuant to 35 Ill. Adm. Code 102 or 104, as applicable.

2) If a State requirement does not have a federal counterpart, the Board may grant relief from the State requirements without following this Section.

b) As part of the justification for relief under this Section, the PWS must demonstrate the following:

1) Due to compelling factors (which may include economic factors), the PWS is unable to comply with the MCL or treatment technique requirement, or to implement measures to develop an alternative source of water supply;

2) The PWS was either of the following:

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 PWS;

3) The relief will not result in an unreasonable risk to health; and

4) Management or restructuring changes cannot reasonably be made that will result in compliance with the NPDWR or, if compliance cannot be achieved, improve the quality of the drinking water.

BOARD NOTE: In determining that management or restructuring changes cannot reasonably be made that will result in compliance with the NPDWR, the Board will consider the factors required by USEPA under 40 CFR 142.20(b)(1), incorporated by reference in Section 611.102(c).

c) In any order granting relief under this Section, the Board will prescribe a schedule for the following:

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

2) Implementation by the PWS, of each additional control measure for each contaminant subject to the MCL or treatment technique requirement, with respect to which relief is granted.

d) Schedule of compliance. A schedule of compliance will require compliance with each MCL or treatment technique requirement with respect to which relief was granted as expeditiously as practicable, but not later than three years after the otherwise applicable compliance date established in section 1412(b)(10) of the SDWA (42 USC 300g-1(b)(10)), except as follows:

1) No relief may be granted unless the PWS establishes that it is taking all practicable steps to meet the NPDWR; and

A) The PWS cannot meet the NPDWR without capital improvements that cannot be completed within 12 months;

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

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

2) In the case of a PWS that serves 3,300 or fewer persons that needs financial assistance for the necessary improvements, relief may be renewed for one or more additional two year periods, not to exceed a total of six years, if the PWS establishes that it is taking all practicable steps to meet the final date for compliance.

3) A PWS may not receive relief under this Section if the PWS was granted relief under Section 611.111 or 611.131.

e) The Board will hold at least one public hearing. In addition the Board will accept comments as appropriate pursuant to 35 Ill. Adm. Code 102 or 104.

f) The Agency must promptly send USEPA the Opinion and Order of the Board granting relief pursuant to this Section. The Board may reconsider and modify a grant of relief, or relief conditions, if USEPA notifies the Board of a finding pursuant to section 1416 of the SDWA (42 USC 300g-5).

BOARD NOTE: Derived from section 1416 of the SDWA (42 USC 300g-5 (2011)).

g) The Board will not grant relief from any of the following:

1) From the MCLs for total coliforms and E. coli. Until March 31, 2016, the Board may grant relief from the total coliform MCL of Section 611.325 for PWSs that prove 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. Effective March 31, 2016, when the total coliform MCL is no longer effective, the Board can no longer grant relief from the total coliform MCL.

BOARD NOTE: As provided in Section 611.131(c)(1) and 40 CFR 142.304(a) a small system variance is not available for rules that address microbial contaminants, which include Subparts B, R, S, X, Z, and AA of this Part.

2) From any of the treatment technique requirements of Subpart B of this Part.

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

h) In addition to the requirements of this Section, the provisions of Section 611.130 or 611.131 may apply to relief granted pursuant to this Section.

BOARD NOTE: Derived from 40 CFR 141.4 (2013). USEPA has established a procedure at 40 CFR 142.23 (2013) to review and potentially modify or nullify state determinations granting

relief from NPDWRs where USEPA finds that the state has abused its discretion or failed to prescribe required schedules for compliance in a substantial number of instances.

(Source: Amended at 38 Ill. Reg. 3608, effective January 27, 2014)

Section 611.113 Alternative Treatment Techniques

This Section is intended to be equivalent to section 1415(a)(3) of the SDWA (42 USC 300g-4(a)(3)).

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

b) The supplier seeking an adjusted standard must file a petition pursuant to Subpart D of 35 Ill. Adm. Code 104.

c) As justification the supplier must 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 must be subject to the limitations of 40 CFR 142, Subpart G, incorporated by reference in Section 611.102; and

2) All adjusted standards must 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 (42 USC 300g-4(a)(3)).

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

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.114 Siting Requirements

Before a person enters into a financial commitment for or initiates construction of a new PWS or increases the capacity of an existing PWS, the person must obtain a construction permit pursuant

to 35 Ill. Adm. Code 602.101 and, to the extent practicable, avoid locating part or all of the new or expanded facility at a site of which the following is true:

a) Is subject to a significant risk from earthquakes, floods, fires, or other disasters that could cause a breakdown of the PWS or a portion of the PWS. As used in this subsection, "significant risk" means a greater risk to the new or expanded facility than would exist at other locations within the area served by the PWS; or

b) Except for intake structures, is within the floodplain of a 100-year flood.

BOARD NOTE: Derived from 40 CFR 141.5 (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.115 Source Water Quantity

a) Surface Supply. The quantity of surface water at the source must be adequate to supply the total water demand of that CWS, as well as a reasonable surplus for anticipated growth.

b) Groundwater supply. The quantity of groundwater from the source of supply must be adequate to supply the total water demand of that CWS, as well as a reasonable surplus for anticipated growth, without excessive depletion of the aquifer.

c) In determining the adequacy of supply for compliance with this Section, each individual CWS must be considered in relation to the percentage of the total requirements it is expected to provide.

BOARD NOTE: This is an additional State requirement.

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.120 Effective Dates

Except as otherwise provided, this Part becomes effective when filed.

BOARD NOTE: Derived from 40 CFR 141.60 (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.121 Maximum Contaminant Levels and Finished Water Quality

a) Maximum Contaminant Levels: No person may cause or allow water that is delivered to any user to exceed the MCL for any contaminant.

b) Finished Water Quality.

1) The finished water delivered to any user at any point in the distribution system must 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 must 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, must not be used in a manner that would permit it to reach the consumer.

c) An MCL for a particular contaminant applies in lieu of any finished water quality narrative standard.

BOARD NOTE: Derived from the definition of "MCL" in 40 CFR 141.2 (2002) and former 35 Ill. Adm. Code 604.201, repealed in R88-26, at 14 Ill. Reg. 16435, effective September 20, 1990.

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.125 Fluoridation Requirement

All CWSs that are required to add fluoride to the water must maintain a fluoride ion concentration, reported as F, of 0.7 mg/L in its distribution system.

BOARD NOTE: This is an additional State requirement.

(Source: Amended at 39 Ill. Reg.15144, effective November 9, 2015)

Section 611.126 Prohibition on Use of Lead

a) In general. Prohibition. Any pipe, any pipe or plumbing fitting or fixture, any solder or any flux must be lead free, as defined by subsection (b) of this Section, if it is used after June 19, 1986 in the installation or repair of either of the following:

1) Any PWS; or

2) Any plumbing in a residential or nonresidential facility providing water for human consumption that is connected to a PWS. This subsection (a) does not apply to leaded joints necessary for the repair of cast iron pipes.

b) Definition of lead free. For purposes of this Section, the term "lead free" means as follows:

1) When used with respect to solders and flux, refers to solders and flux containing not more than 0.2 percent lead;

2) When used with respect to pipes and pipe fittings, refers to pipes and pipe fittings containing not more than 8.0 percent lead; and

3) When used with respect to plumbing fittings and fixtures that are intended by the manufacturer to dispense water for human ingestion, refers to plumbing fittings and fixtures in compliance with NSF Standard 61, section 9, incorporated by reference in Section 611.102.

BOARD NOTE: Derived from 40 CFR 141.43(a) and (d) (2002), and section 1417 of SDWA, 42 USC 300g-6(a)(1) (2000). USEPA has stated that NSF Standard 61 is the standard for plumbing fittings and fixtures developed pursuant to 42 USC 300g-6(e). See 62 Fed. Reg. 44684 (Aug. 22, 1997).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.130 Special Requirements for Certain Variances and Adjusted Standards

a) Relief from the fluoride MCL.

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

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

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

i) A modification of lime softening;

ii) Alum coagulation;

iii) Electrodialysis;

iv) Anion exchange resins;

v) Well field management;

vi) The use of alternative sources of raw water; and

vii) Regionalization; and

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

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

4) Best available technology for fluoride reduction is as follows:

A) Activated alumina absorption centrally applied; and

B) Reverse osmosis centrally applied.

BOARD NOTE: Subsection (a) derived from 40 CFR 142.61 (2014).

b) Relief from an IOC, VOC, or SOC MCL.

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

BOARD NOTE: USEPA lists BAT for each SOC and VOC at 40 CFR 142.62(a), for the purposes of variances and exemptions (adjusted standards). That list is identical to the list at 40 CFR 141.61(b).

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

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

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

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

BOARD NOTE: Subsection (b) derived from 40 CFR 142.62(a) through (e) (2014).

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

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

2) Relief from corrosion control treatment. The Board may, when granting an adjusted standard from the corrosion control treatment requirements for lead and copper of Sections 611.351 and 611.352, impose a condition that requires a supplier to use bottled water, a point-of-use treatment device, or other means, but not a point-of-entry treatment device, to avoid an unreasonable risk to health.

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

BOARD NOTE: Subsection (c) derived from 40 CFR 142.62(f) (2014).

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

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

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

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

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

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

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

C) and that the bottled water does not exceed any MCLs or quality limits as set out in 21 CFR 165.110, 110, and 129.

5) The supplier must provide the certification required by subsection (d)(4) of this Section to the Agency during the first quarter after it begins supplying bottled water and annually thereafter.

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

BOARD NOTE: Subsection (d) derived from 40 CFR 142.62(g) (2014).

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

1) That the supplier will operate and maintain the device;
2) That the device provides health protection equivalent to that provided by central treatment;
3) That the supplier will maintain the microbiological safety of the water at all times;
4) That the supplier has established standards for performance, conducted a rigorous engineering design review, and field tested the device;
5) That the operation and maintenance of the device will account for any potential for increased concentrations of heterotrophic bacteria resulting through the use of activated carbon, by backwashing, post-contactor disinfection, and heterotrophic plate count monitoring;
6) That buildings connected to the supplier's distribution system have sufficient devices properly installed, maintained, and monitored to assure that all consumers are protected; and
7) That the use of the device will not cause increased corrosion of lead and copper bearing materials located between the device and the tap that could increase contaminant levels at the tap.

BOARD NOTE: Subsection (e) derived from 40 CFR 142.62(h) (2014).

f) Relief from the maximum contaminant levels for radionuclides.

1) Relief from the maximum contaminant levels for combined radium-226 and radium-228, uranium, gross alpha particle activity (excluding radon and uranium), and beta particle and photon radioactivity.
   A) Section 611.330(g) sets forth what USEPA has identified as the best available technology (BAT), treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for the radionuclides listed in Section 611.330(b), (c), (d), and (e), for the purposes of issuing relief equivalent to a federal section 1415 variance or a section 1416 exemption.
   B) In addition to the technologies listed in Section 611.330(g), Section 611.330(h) sets forth what USEPA has identified as the BAT, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for the radionuclides listed in Section 611.330(b), (c), (d), and (e), for the purposes of issuing relief equivalent to a federal section 1415 variance or a section 1416 exemption to small drinking water systems, defined here as those serving 10,000 persons or fewer, as shown in the second table set forth at Section 611.330(h).
2) The Board will require a CWS supplier to install and use any treatment technology identified in Section 611.330(g), or in the case of small water systems (those serving 10,000 persons or fewer), listed in Section

611.330(h), as a condition for granting relief equivalent to a federal section 1415 variance or a section 1416 exemption, except as provided in subsection (f)(3) of this Section. If, after the system's installation of the treatment technology, the system cannot meet the MCL, that system will be eligible for relief.

3) If a CWS supplier can demonstrate through comprehensive engineering assessments, which may include pilot plant studies, that the treatment technologies identified in this Section would only achieve a de minimus reduction in the contaminant level, the Board may issue a schedule of compliance that requires the system being granted relief equivalent to a federal section 1415 variance or a section 1416 exemption to examine other treatment technologies as a condition of obtaining the relief.

4) If the Agency determines that a treatment technology identified under subsection (f)(3) of this Section is technically feasible, it may request that the Board require the supplier to install and use that treatment technology in connection with a compliance schedule issued pursuant to Section 36 of the Act [415 ILCS 5/36]. The Agency's determination must be based upon studies by the system and other relevant information.

5) The Board may require a CWS to use bottled water, point-of-use devices, point-of-entry devices, or other means as a condition of granting relief equivalent to a federal section 1415 variance or a section 1416 exemption from the requirements of Section 611.330, to avoid an unreasonable risk to health.

6) A CWS supplier that uses bottled water as a condition for receiving relief equivalent to a federal section 1415 variance or a section 1416 exemption from the requirements of Section 611.330 must meet the requirements specified in subsection (d)(6) of this Section and either subsections (d)(1) through (d)(3) or (d)(4) and (d)(5) of this Section.

7) A CWS supplier that uses point-of-use or point-of-entry devices as a condition for obtaining relief equivalent to a federal section 1415 variance or a section 1416 exemption from the radionuclides NPDWRs must meet the conditions in subsections (e)(1) through (e)(6) of this Section.

BOARD NOTE: Subsection (f) derived from 40 CFR 142.65 (2014).

(Source: Amended at 39 Ill. Reg. 3713, effective March 13, 2015)

Section 611.131 Relief Equivalent to SDWA Section 1415(e) Small System Variance

This Section is intended as a State equivalent of section 1415(e) of the federal SDWA (42 USC 300g-4(e)).

a) Variances may be obtained from the requirement to comply with an MCL or treatment technique to a PWS serving fewer than 10,000 persons in this Section. The PWS must file a variance petition pursuant to Subpart B of 35 Ill. Adm. Code 104, except as modified or supplemented by this Section.

b) The Board will grant a small system variance to a PWS serving fewer than 3,300 persons. The Board will grant a small system variance to a PWS serving more than 3,300 persons but fewer than 10,000 persons with the approval of the USEPA. In determining the number of persons served by the PWS, the Board will include persons served by consecutive systems. A small system variance granted to a PWS also applies to any consecutive system served by it.

c) Availability of a variance.

1) A small system variance is not available under this Section for an NPDWR for a microbial contaminant (including a bacterium, virus, or other organism) or an indicator or treatment technique for a microbial contaminant.

2) A small system variance under this Section is available for compliance with a requirement specifying an MCL or treatment technique for a contaminant with respect to which the following is true:

A) An NPDWR was promulgated on or after January 1, 1986; and

B) The USEPA has published a small system variance technology pursuant to section 1412(b)(15) of the federal SDWA (42 USC 300g-1(b)(15)).

BOARD NOTE: Small system variances are not available for PWSs above the pre-1986 MCL even if subsequently revised. If the USEPA revises a pre-1986 MCL and makes it more stringent, then a variance would be available for that contaminant, but only up to the pre-1986 maximum contaminant level.

d) No small system variance will be in effect until the later of the following:

1) 90 days after the Board proposes to grant the small system variance;

2) If the Board is proposing to grant a small system variance to a PWS serving fewer than 3,300 persons and the USEPA objects to the small system variance, the date on which the Board makes the recommended modifications or responds in writing to each objection; or

3) If the Board is proposing to grant a small system variance to a PWS serving a population of more than 3,300 and fewer than 10,000 persons, the date the USEPA approves the small system variance.

e) As part of the showing of arbitrary or unreasonable hardship, the PWS must prove and document the following to the Board:

1) That the PWS is eligible for a small system variance pursuant to subsection (c) of this Section;

2) That the PWS cannot afford to comply with the NPDWR for which a small system variance is sought, including by the following:

A) Treatment;

B) Alternative sources of water supply;

C) Restructuring or consolidation changes, including ownership change or physical consolidation with another PWS; or

D) Obtaining financial assistance pursuant to Section 1452 of the federal SDWA or any other federal or State program;

3) That the PWS meets the source water quality requirements for installing the small system variance technology developed pursuant to guidance published under section 1412(b)(15) of the federal SDWA (42 USC 300g-1(b)(15));

4) That the PWS is financially and technically capable of installing, operating, and maintaining the applicable small system variance technology; and

5) That the terms and conditions of the small system variance ensure adequate protection of human health, considering the following:

A) The quality of the source water for the PWS; and

B) Removal efficiencies and expected useful life of the small system variance technology.

f) Terms and Conditions.

1) The Board will set the terms and conditions of a small system variance issued under this Section and will include, at a minimum, the following requirements:

A) Proper and effective installation, operation, and maintenance of the applicable small system variance technology in accordance with guidance published by the USEPA, taking into consideration any relevant source water characteristics and any other site-specific

conditions that may affect proper and effective operation and maintenance of the technology;

B) Monitoring requirements for the contaminant for which a small system variance is sought; and

C) Any other terms or conditions that are necessary to ensure adequate protection of public health, which may include the following:

i) Public education requirements; and

ii) Source water protection requirements.

2) The Board will establish a schedule for the PWS to comply with the terms and conditions of the small system variance that will include, at a minimum, the following requirements:

A) Increments of progress, such as milestone dates for the PWS to apply for financial assistance and begin capital improvements;

B) Quarterly reporting to the Agency of the PWSs compliance with the terms and conditions of the small system variance;

C) Schedule for the Board to review the small system variance; and

BOARD NOTE: Corresponding 40 CFR 142.307(d) (2002) provides that the states must review variances no less frequently than every five years. Section 36 of the Act [415 ILCS 5/36] provides that 5 years is the maximum term of a variance.

D) Compliance with the terms and conditions of the small system variance as soon as practicable, but not later than three years after the date on which the small system variance is granted. The Board may allow up to two additional years if the Board determines that additional time is necessary for the PWS to do the following:

i) Complete necessary capital improvements to comply with the small system variance technology, secure an alternative source of water, or restructure or consolidate; or

ii) Obtain financial assistance provided pursuant to Section 1452 of the SDWA or any other federal or State program.

g) The Board will provide notice and opportunity for a public hearing as provided in Subpart B of 35 Ill. Adm. Code 104, except as modified or supplemented by this Section.

1) At least 30 days before the public hearing to discuss the proposed small system variance, the PWS must provide notice to all persons served by the PWS. For billed customers, this notice must include the information listed in subsection (g)(2) of this Section. For other persons regularly served by the PWS, notice must provide sufficient information to alert readers to the proposed variance and direct them to where to receive additional information, and must be as provided in subsection (g)(1)(B) of this Section. Notice must be by the following means:

A) Direct mail or other home delivery to billed customers or other service connections; and

B) Any other method reasonably calculated to notify, in a brief and concise manner, other persons regularly served by the PWS. Such methods may include publication in a local newspaper, posting in public places or delivery to community organizations.

2) The notice in subsection (g)(1)(A) of this Section must include, at a minimum, the following:

A) Identification of the contaminants for which a small system variance is sought;

B) A brief statement of the health effects associated with the contaminants for which a small system variance is sought, using language in Appendix H of this Part;

C) The address and telephone number at which interested persons may obtain further information concerning the contaminant and the small system variance;

D) A brief summary, in easily understandable terms, of the terms and conditions of the small system variance;

E) A description of the consumer petition process under subsection (h) of this Section and information on contacting the USEPA Regional Office;

F) A brief statement announcing the public meeting required under subsection (g)(3) of this Section, including a statement of the purpose of the meeting, information regarding the time and location

for the meeting, and the address and telephone number at which interested persons may obtain further information concerning the meeting; and

G) In communities with a large proportion of non-English-speaking residents, as determined by the Board, information in the appropriate language regarding the content and importance of the notice.

3) The Board will provide for at least one public hearing on the small system variance. The PWS must provide notice in the manner required under subsection (g)(1) of this Section at least 30 days prior to the public hearing.

4) Prior to promulgating the final variance, the Board will respond in writing to all significant public comments received relating to the small system variance. Response to public comment and any other documentation supporting the issuance of a variance will be made available to the public after final promulgation.

h) Any person served by the PWS may petition the USEPA to object to the granting of a small system variance within 30 days after the Board proposes to grant a small system variance for the PWS.

i) The Agency must promptly send the USEPA the Opinion and Order of the Board granting the proposed small system variance. The Board will make the recommended modifications, respond in writing to each objection, or withdraw the proposal to grant the small system variance if USEPA notifies the Board of a finding pursuant to section 1415 of the SDWA (42 USC 300g-4).

j) In addition to the requirements of this Section, the provisions of Section 611.111, 611.112, or 611.130 may apply to relief granted pursuant to this Section.

BOARD NOTE: Derived from 40 CFR 142, Subpart K (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.160 Composite Correction Program

a) The Agency may require in writing that a PWS conduct a Composite Correction Program (CCP). The CCP must consist of two elements: a Comprehensive Performance Evaluation (CPE) and a Comprehensive Technical Assistance (CTA).

1) A CPE is a thorough review and analysis of a plant's performance-based capabilities and associated administrative, operation, and maintenance

practices. It must identify factors that may be adversely impacting a plant's capability to achieve compliance and emphasize approaches that can be implemented without significant capital improvements.

2) For purposes of compliance with Subparts R and X of this Part, the comprehensive performance evaluation must consist of at least the following components: Assessment of plant performance; evaluation of major unit processes; identification and prioritization of performance limiting factors; assessment of the applicability of comprehensive technical assistance; and preparation of the CPE report.

BOARD NOTE: Subsection (a)(2) of this Section is derived from the third sentence of the definition of "comprehensive performance evaluation" in 40 CFR 141.2 (2006).

3) A CTA is the performance improvement phase that is implemented if the CPE results indicate improved performance potential. During the CTA phase, the PWS must identify and systematically address plant-specific factors. The CTA is a combination of utilizing CPE results as a basis for followup, implementing process control priority-setting techniques and maintaining long-term involvement to systematically train staff and administrators.

b) A PWS must implement any followup recommendations made in writing by the Agency that result as part of the CCP.

c) A PWS may appeal to the Board, pursuant to Section 40 of the Act [415 ILCS 5/40], any Agency requirement that it conduct a CCP or any followup recommendations made in writing by the Agency that result as part of the CCP, except when a CPE is required under Section 611.745(b)(4).

BOARD NOTE: Derived from 40 CFR 142.16(g) (2006).

(Source: Amended at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.161 Case-by-Case Reduced Subpart Y Monitoring for Wholesale and Consecutive Systems

The Agency may, by a SEP issued pursuant to Section 611.110, reduce the monitoring requirements of Subpart Y of this Part as they apply to a wholesale system or a consecutive system, otherwise than by use of the provisions of Section 611.500 subject to the following limitations:

a) The Agency must consider the following system-specific knowledge in making its determination:

1) The amount and percentage of finished water provided;

2) Whether finished water is provided seasonally, intermittently, or full-time;

3) Improved DBP occurrence information based on IDSE results;

4) Significant changes in the supplier's raw water quality, treatment, or distribution system after completion of the IDSE; and

4) Such other considerations as would bear on the occurrence of DBP in the distribution system and the ability of the reduced monitoring to detect DBP in the supplier's distribution system.

b) Any reduced monitoring allowed pursuant to this Section must require a minimum of one compliance monitoring location for each supplier.

c) The supplier must report any changes in its raw water quality, treatment, or distribution system or any other factors that come to its attention after the issuance of a SEP that allows reduced monitoring pursuant to this Section that would bear on the occurrence of DBP in the distribution system and the ability of the reduced monitoring to detect DBP in the supplier's distribution system.

d) The Agency may allow the reduced monitoring provided by this Section only after USEPA has approved the State program revisions involving Subparts W and Y of this Part.

BOARD NOTE: Derived from 40 CFR 142.16(m) and the preamble discussion at 71 Fed. Reg. 388, 430-31 (Jan. 4, 2006). USEPA stated that it will allow the State to elect to authorize reduced monitoring according to a procedure devised by the State. The Board borrowed from the special primacy requirements applicable to the Subpart Y provisions and the accompanying preamble discussion to derive the procedure set forth in this Section.

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

SUBPART B: FILTRATION AND DISINFECTION

Section 611.201 Requiring a Demonstration

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

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.202 Procedures for Agency Determinations

The determinations in this Subpart B are by a SEP issued pursuant to Section 611.110.

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.211 Filtration Required

The Agency must determine that filtration is required unless the PWS meets the following criteria:

a) Source water quality criteria:

1) Coliforms, see Section 611.231(a)

2) Turbidity, see Section 611.231(b)

b) Site-specific criteria:

1) Disinfection, see Section 611.241(b)

2) Watershed control, see Section 611.232(b)

3) On-site inspection, see Section 611.232(c)

4) Absence of waterborne disease outbreaks, see Section 611.232(d)

5) Total coliform MCL, see Sections 611.232(e) and 611.325

BOARD NOTE: Derived from 40 CFR 141.71 (2003) and from the preamble discussion at 54 Fed. Reg. 27505 (June 29, 1989).

(Source: Amended at 28 Ill. Reg. 5269, effective March 10, 2004)

Section 611.212 Groundwater under Direct Influence of Surface Water

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

a) Physical characteristics of the source: whether the source is obviously a surface water source, such as a lake or stream. Other sources that may be subject to

influence from surface waters include: springs, infiltration galleries, wells, or other collectors in subsurface aquifers.

b) Well construction characteristics and geology with field evaluation.

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

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

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

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

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

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

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

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

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

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

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

3) A history of known or suspected outbreaks of Giardia lamblia, Cryptosporidium or other pathogenic organisms associated with surface water that has been attributed to that source.

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

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

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

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

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

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

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

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

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

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

BOARD NOTE: Derived from the definition of "groundwater under the direct influence of surface water" in 40 CFR 141.2 (2005); from the Preamble at 54 Fed. Reg. 27489 (June 29, 1989); and from the USEPA "Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems using Surface Water Sources," incorporated by reference in Section 611.102.

(Source: Amended at 30 Ill. Reg. 17004, effective October 13, 2006)

Section 611.213 No Method of HPC Analysis

This Section is used in Sections 611.241(d)(2), 611.242(c)(2), 611.261(b)(8)(G), 611.262(b)(3)(G), 611.532(f)(2), and 611.533(c)(2). The Agency must determine that a system

has no means for having a sample analyzed for HPC if the Agency determines that such action is warranted, based on the following site-specific conditions:

a) There is no certified laboratory that can analyze the sample within the time and temperatures specified in Standard Methods, 16th Edition, Method 907A, incorporated by reference in Section 611.102, considering the following:

1) Transportation time to the nearest laboratory pursuant to Section 611.490; and

2) Based on the size of the PWS, whether it should acquire in-house laboratory capacity to measure HPC; and

b) The supplier is providing adequate disinfection in the distribution system, considering the following:

1) Other measurements that show the presence of RDC in the distribution system;

2) The size of the distribution system;

3) The adequacy of the supplier's cross connection control program.

c) The PWS cannot maintain an RDC in the distribution system.

BOARD NOTE: Derived from 40 CFR 141.72(a)(4)(ii) (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.220 General Requirements

a) The requirements of this Subpart B constitute NPDWRs. This Subpart B 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 must 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 that reliably achieve the following:

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 either of the following is true:

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

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

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

d) Additional requirements for PWSs serving 10,000 or more persons. In addition to complying with requirements in this Subpart B, PWSs serving 10,000 or more persons must also comply with the requirements in Subpart R of this Part.

e) Additional requirements for systems serving fewer than 10,000 people. In addition to complying with requirements in this Subpart B, systems serving fewer than 10,000 people must also comply with the requirements in Subpart X of this Part.

BOARD NOTE: Derived from 40 CFR 141.70 (2002). The Public Water Supply Operations Act [415 ILCS 45] applies only to CWSs, which are regulated by the Agency. It does not apply to non-CWSs, which are regulated by Public Health. Public Health has its own requirements for personnel operating water supplies that it regulates, e.g., 77 Ill. Adm. Code 900.40(e).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.230 Filtration Effective Dates

a) A supplier that uses a surface water source must meet all of the conditions of Section 611.231 and 611.232, unless the Agency has determined that filtration is required.

b) A supplier that uses a groundwater source under the direct influence of surface water must meet all of the conditions of Section 611.231 and 611.232, and is subject to Section 611.233, beginning 18 months after the Agency determines that it is under the direct influence of surface water, unless the Agency has determined that filtration is required.

c) If the Agency determined, before December 30, 1991, that filtration is required, the system must have installed filtration and must have met the criteria for filtered systems specified in Section 611.242 and Section 611.250 by June 29, 1993.

d) Within 18 months of the failure of a system using surface water or a groundwater source under the direct influence of surface water to meet any one of the requirements of Sections 611.231 and 611.232, the system must have installed filtration and meet the criteria for filtered systems specified in Sections 611.242 and 611.250.

BOARD NOTE: Derived from 40 CFR 141.71 preamble (2003).

(Source: Amended at 28 Ill. Reg. 5269, effective March 10, 2004)

Section 611.231 Source Water Quality Conditions

The Agency must consider the following source water quality conditions in determining whether to require filtration pursuant to Section 611.211:

a) The fecal coliform concentration must be equal to or less than 20/100 ml, or the total coliform concentration must be equal to or less than 100/100 ml (measured as specified in Section 611.531(a) or (b) and 611.532(a)) in representative samples of the source water immediately prior to the first or only point of disinfectant application in at least 90 percent of the measurements made for the 6 previous months that the system served water to the public on an ongoing basis. If a system measures both fecal and total coliforms, the fecal coliform criterion, but not the total coliform criterion, in this subsection, must be met.

b) The turbidity level cannot exceed 5 NTU (measured as specified in Section 611.531(a) and 611.532(b) in representative samples of the source water immediately prior to the first or only point of disinfectant application unless the following are true:

1) The Agency determines that any such event was caused by circumstances that were unusual and unpredictable; and

2) As a result of any such event there have not been more than two events in the past 12 months the system served water to the public, or more than five events in the past 120 months the system served water to the public, in

which the turbidity level exceeded 5 NTU. An "event" is a series of consecutive days during which at least one turbidity measurement each day exceeds 5 NTU.

BOARD NOTE: Derived from 40 CFR 141.71(a) (2003).

c) Each CWS must take its raw water from the best available source that is economically reasonable and technically possible.

BOARD NOTE: This is an additional State requirement.

d) Use of recycled sewage treatment plant effluent by a CWS on a routine basis must not be permitted.

BOARD NOTE: This is an additional State requirement.

(Source: Amended at 29 Ill. Reg. 2287, effective January 28, 2005)

Section 611.232 Site-Specific Conditions

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

a) Disinfection.

1) The supplier must 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 must 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 must 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 must 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 must maintain a watershed control program that minimizes the potential for contamination by Giardia lamblia cysts and viruses in the source water.

1) The Agency must determine whether the watershed control program is adequate to meet this goal. The Agency must determine the adequacy of a watershed control program based on the following:

A) The comprehensiveness of the watershed review;

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

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

i) Characterize the watershed hydrology and land ownership;

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

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

2) The supplier must demonstrate through ownership or written agreements with landowners within the watershed that it can control all human activities that may have an adverse impact on the microbiological quality of the source water. The supplier must 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 must be subject to an annual on-site inspection to assess the watershed control program and disinfection treatment process. The Agency must 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 the following:

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 supplier'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 that 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 must comply with the MCL for total coliforms in Section 611.325(a) and (b) and the MCL for E. coli in Section 611.325(c) 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. The supplier must comply with the requirements for total trihalomethanes, haloacetic acids (five), bromate, chlorite, chlorine, chloramines, and chlorine dioxide in Subpart I of this Part.

BOARD NOTE: Derived from 40 CFR 141.71(b) (2013).

(Source: Amended at 38 Ill. Reg. 3608, effective January 27, 2014)

Section 611.233 Treatment Technique Violations

a) A supplier is in violation of a treatment technique requirement if the following is true:

1) Filtration is required because either of the following:

A) The supplier fails to meet any one of the criteria in Section 611.231 and 611.232; or

B) The Agency has determined, pursuant to Section 611.211, that filtration is required; and

2) The supplier fails to install filtration by the date specified in Section 611.230.

b) A supplier that has not installed filtration is in violation of a treatment technique requirement if either of the following is true:

1) The turbidity level (measured as specified in Section 611.531(a) and 611.532(b)) in a representative sample of the source water immediately prior to the first or only point of disinfection application exceeds 5 NTU; or

2) The system is identified as a source of a waterborne disease outbreak.

BOARD NOTE: Derived from 40 CFR 141.71(c) (2003).

(Source: Amended at 29 Ill. Reg. 2287, effective January 28, 2005)

Section 611.240 Disinfection

a) A supplier that uses a surface water source and does not provide filtration treatment must provide the disinfection treatment specified in Section 611.241 beginning December 30, 1991.

b) A supplier that uses a groundwater source under the influence of surface water and does not provide filtration treatment must provide disinfection treatment specified in Section 611.241 beginning December 30, 1991, or 18 months after the Agency determines that the groundwater source is under the influence of surface water, whichever is later, unless the Agency has determined that filtration is required.

c) If the Agency determines that filtration is required, the Agency may, by a SEP issued pursuant to Section 611.110, require the supplier to comply with interim disinfection requirements before filtration is installed.

d) A system that uses a surface water source that provides filtration treatment must provide the disinfection treatment specified in Section 611.242 beginning June 29, 1993, or beginning when filtration is installed, whichever is later.

e) A system that uses a groundwater source under the direct influence of surface water and provides filtration treatment must have provided disinfection treatment as specified in Section 611.242 by June 29, 1993 or beginning when filtration is installed, whichever is later.

f) Failure to meet any requirement of the following Sections after the applicable date specified in this Section is a treatment technique violation.

BOARD NOTE: Derived from 40 CFR 141.72 preamble (2003).

g) CWS suppliers using groundwater that is not under the direct influence of surface water must chlorinate the water before it enters the distribution system, unless the Agency has granted the supplier an exemption pursuant to Section 17(b) of the Act [415 ILCS 5/17(b)].

1) All GWS supplies that are required to chlorinate pursuant to this Section must maintain residuals of free or combined chlorine at levels sufficient to provide adequate protection of human health and the ability of the

distribution system to continue to deliver potable water that complies with the requirements of this Part.

2) The Agency may establish procedures and levels for chlorination applicable to a GWS using groundwater that is not under the direct influence of surface water by a SEP pursuant to Section 610.110.

3) Those supplies having hand-pumped wells and no distribution system are exempted from the requirements of this Section.

BOARD NOTE: This is an additional State requirement originally codified at 35 Ill. Adm. Code 604.401.

(Source: Amended at 28 Ill. Reg. 5269, effective March 10, 2004)

Section 611.241 Unfiltered PWSs

Each supplier that does not provide filtration treatment must 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 must calculate the $CT_{99.9}$ value from the system's treatment parameters using the procedure specified in Section 611.532(c) and determine whether this value 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 $CT_{99.9}$ values other than those specified in Appendix B of this Part, 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 a SEP application pursuant to Section 611.110.

b) The disinfection system must have either of the following:

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 a SEP issued pursuant to Section 611.110, that automatic shut-off would cause unreasonable risk to health or interfere with fire protection, the system must comply with subsection (b)(1).

c) The RDC in the water entering the distribution system, measured as specified in Sections 611.531(b) 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 Sections 611.531(b) and 611.532(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(a), 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.

$$V = \frac{100(c + d + e)}{(a + b)}$$

where the terms mean the following:

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 by a certified laboratory under the requisite time and

temperature conditions specified by Section 611.531(a) and that the supplier is providing adequate disinfection in the distribution system.

BOARD NOTE: Derived from 40 CFR 141.72(a) (2003).

(Source: Amended at 29 Ill. Reg. 2287, effective January 28, 2005)

Section 611.242 Filtered PWSs

Each supplier that provides filtration treatment must provide disinfection treatment as follows:

a) The disinfection treatment must be sufficient to ensure that the total treatment processes of that system achieve at least 99.9 percent (3-log) inactivation or removal of Giardia lamblia cysts and at least 99.99 percent (4-log) inactivation or removal of viruses.

b) The RDC in the water entering the distribution system, measured as specified in Section 611.531(b) and 611.533(b), cannot be less than 0.2 mg/ℓ for more than 4 hours.

c) 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 611.531(b) and 611.533(c), 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(a), 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 the terms mean the following:

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 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 (c)(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 by a certified laboratory under the requisite time and temperature conditions specified by Section 611.531(a) and that the supplier is providing adequate disinfection in the distribution system.

BOARD NOTE: Derived from 40 CFR 141.72(b) (2003).

(Source: Amended at 29 Ill. Reg. 2287, effective January 28, 2005)

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 Sections 611.231 and 611.232 for avoiding filtration, must have provided treatment consisting of both disinfection, as specified in Section 611.242, and filtration treatment that complies with the requirements of subsection (a), (b), (c), (d), or (e) by June 29, 1993, or within 18 months after the failure to meet any one of the criteria for avoiding filtration in Sections 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 a system using conventional filtration or direct filtration, the turbidity level of representative samples of the 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, measured as specified in Section 611.531(a) and 611.533(a), except that if the Agency determines, by a SEP issued pursuant to Section 611.110, 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 must substitute this higher turbidity limit for that system. However, in no case may the Agency approve a turbidity limit that allows more than 1 NTU in more than five percent of the samples taken each month, measured as specified in Section 611.531(a) and 611.533(a).

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

3) Beginning January 1, 2001, a supplier serving at least 10,000 or more persons must meet the turbidity requirements of Section 611.743(a).

4) Beginning January 1, 2005, a supplier that serves fewer than 10,000 people must meet the turbidity requirements in Section 611.955.

b) Slow sand filtration.

1) For a system using slow sand filtration, the turbidity level of representative samples of the system's filtered water must be less than or equal to 1 NTU in at least 95 percent of the measurements taken each month, measured as specified in Section 611.531(a) and 611.533(a), except that if the Agency determines, by a SEP issued pursuant to Section 611.110, that there is no significant interference with disinfection at a higher level, the Agency must 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, measured as specified in Section 611.531(a) and 611.533(a).

c) Diatomaceous earth filtration.

1) For a system using diatomaceous earth filtration, the turbidity level of representative samples of the system's filtered water must be less than or equal to 1 NTU in at least 95 percent of the measurements taken each month, measured as specified in Section 611.531(a) and 611.533(a).

2) The turbidity level of representative samples of a system's filtered water must at no time exceed 5 NTU, measured as specified in Section 611.531(a) and 611.533(a).

d) Other filtration technologies. A supplier may use a filtration technology not listed in subsections (a) through (c) if it demonstrates, by a SEP application pursuant to Section 611.110, 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 supplier that makes this demonstration, the requirements of subsection (b) apply. Beginning January 1, 2002, a supplier serving 10,000 or more persons must meet the requirements for other filtration technologies in Section 611.743(b). Beginning January 1, 2005, a supplier that serves fewer than 10,000 people must meet the requirements for other filtration technologies in Section 611.955.

BOARD NOTE: Derived from 40 CFR 141.73 (2003).

(Source: Amended at 29 Ill. Reg. 2287, effective January 28, 2005)

Section 611.261 Unfiltered PWSs: Reporting and Recordkeeping

A supplier that uses a surface water source and does not provide filtration treatment must report monthly to the Agency the information specified in this Section beginning December 31, 1990, unless the Agency has determined that filtration is required, in which case the Agency must, by a SEP issued pursuant to Section 611.110, specify alternative reporting requirements, as appropriate, until filtration is in place. A supplier that uses a groundwater source under the direct influence of surface water and does not provide filtration treatment must report monthly to the Agency the information specified in this Section beginning December 31, 1990, or six months after the Agency determines that the groundwater source is under the direct influence of surface water, whichever is later, unless the Agency has determined that filtration is required, in which case the Agency must, by a SEP issued pursuant to Section 611.110, specify alternative reporting requirements, as appropriate, until filtration is in place.

a) Source water quality information must be reported to the Agency within ten days after the end of each month the system serves water to the public. Information that must be reported includes the following:

1) The cumulative number of months for which results are reported.

2) The number of fecal or total coliform samples, whichever are analyzed during the month (if a system monitors for both, only fecal coliforms must be reported), the dates of sample collection, and the dates when the turbidity level exceeded 1 NTU.

3) The number of samples during the month that had equal to or fewer than 20/100 ml fecal coliforms or equal to or fewer than 100/100 ml total coliforms, whichever are analyzed.

4) The cumulative number of fecal or total coliform samples, whichever are analyzed, during the previous six months the system served water to the public.

5) The cumulative number of samples that had equal to or fewer than 20/100 ml fecal coliforms or equal to or fewer than 100/100 ml total coliforms, whichever are analyzed, during the previous six months the system served water to the public.

6) The percentage of samples that had equal to or fewer than 20/100 ml fecal coliforms or equal to or fewer than 100/100 ml total coliforms, whichever

are analyzed, during the previous six months the system served water to the public.

7) The maximum turbidity level measured during the month, the dates of occurrence for any measurements that exceeded 5 NTU and the dates the occurrences were reported to the Agency.

8) For the first 12 months of recordkeeping, the dates and cumulative number of events during which the turbidity exceeded 5 NTU, and after one year of recordkeeping for turbidity measurements, the dates and cumulative number of events during which the turbidity exceeded 5 NTU in the previous 12 months the system served water to the public.

9) For the first 120 months of recordkeeping, the dates and cumulative number of events during which the turbidity exceeded 5 NTU, and after ten years of recordkeeping for turbidity measurements, the dates and cumulative number of events during which the turbidity exceeded 5 NTU in the previous 120 months the system served water to the public.

b) Disinfection information specified in Section 611.532 must be reported to the Agency within ten days after the end of each month the system serves water to the public. Information that must be reported includes the following:

1) For each day, the lowest measurement of RDC in mg/ℓ in water entering the distribution system.

2) The date and duration of each period when the RDC in water entering the distribution system fell below 0.2 mg/ℓ and when the Agency was notified of the occurrence.

3) The daily RDCs (in mg/ℓ) and disinfectant contact times (in minutes) used for calculating the CT values.

4) If chlorine is used, the daily measurements of pH of disinfected water following each point of chlorine disinfection.

5) The daily measurements of water temperature in degrees C following each point of disinfection.

6) The daily CTcalc and Ai values for each disinfectant measurement or sequence and the sum of all Ai values (B) before or at the first customer.

7) The daily determination of whether disinfection achieves adequate Giardia cyst and virus inactivation, i.e., whether Ai is at least 1.0 or, where disinfectants other than chlorine are used, other indicator conditions that the Agency, pursuant to Section 611.241(a)(1), determines are appropriate, are met.

8) The following information on the samples taken in the distribution system in conjunction with total coliform monitoring pursuant to Section 611.240 through 611.242:

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 no RDC is detected and where HPC is greater than 500/ml;

E) Number of instances where the RDC is not measured and HPC is greater than 500/ml;

F) For the current and previous month the system served water to the public, the value of "V" in the following formula:

$$V = \frac{100(c + d + e)}{(a + b)}$$

where the terms mean the following:

a = Value in subsection (b)(8)(A) of this Section;
b = Value in subsection (b)(8)(B) of this Section;
c = Value in subsection (b)(8)(C) of this Section;
d = Value in subsection (b)(8)(D) of this Section; and
e = Value in subsection (b)(8)(E) of this Section.

G) The requirements of subsections (b)(8)(A) through (b)(8)(F) of this Section do not apply if the Agency determines, pursuant to Section 611.213, that a system has no means for having a sample analyzed for HPC by a certified laboratory under the requisite time and temperature conditions specified by Section 611.531(a) and that the supplier is providing adequate disinfection in the distribution system.

9) A system need not report the data listed in subsections (b)(1) and (b)(3) through (b)(6) of this Section, if all data listed in subsections (b)(1) through (b)(8) of this Section remain on file at the system, and the Agency determines, by a SEP issued pursuant to Section 611.110, that the following is true:

A) The system has submitted to the Agency all the information required by subsections (b)(1) through (b)(8) of this Section for at least 12 months; and

B) The Agency has determined that the system is not required to provide filtration treatment.

c) By October 10 of each year, each system must provide to the Agency a report that summarizes its compliance with all watershed control program requirements specified in Section 611.232(b).

d) By October 10 of each year, each system must provide to the Agency a report on the on-site inspection conducted during that year pursuant to Section 611.232(c), unless the on-site inspection was conducted by the Agency. If the inspection was conducted by the Agency, the Agency must provide a copy of its report to the supplier.

e) Reporting health threats.

1) Each system, upon discovering that a waterborne disease outbreak potentially attributable to that water system has occurred, must report that occurrence to the Agency as soon as possible, but no later than by the end of the next business day.

2) If at any time the turbidity exceeds 5 NTU, the system must consult with the Agency as soon as practical, but no later than 24 hours after the exceedance is known, in accordance with the public notification requirements under Section 611.903(b)(3).

3) If at any time the RDC falls below 0.2 mg/ℓ in the water entering the distribution system, the system must notify the Agency as soon as possible, but no later than by the end of the next business day. The system also must notify the Agency by the end of the next business day whether or not the RDC was restored to at least 0.2 mg/ℓ within four hours.

BOARD NOTE: Derived from 40 CFR 141.75(a) (2014).
(Source: Amended at 39 Ill. Reg. 15352, effective November 13, 2015)

Section 611.262 Filtered PWSs: Reporting and Recordkeeping

A supplier that uses a surface water source or a groundwater source under the direct influence of surface water and provides filtration treatment must report monthly to the Agency the information specified in this Section.

a) Turbidity measurements as required by Section 611.533(a) must be reported within ten days after the end of each month the supplier serves water to the public. Information that must be reported includes the following:

1) The total number of filtered water turbidity measurements taken during the month.

2) The number and percentage of filtered water turbidity measurements taken during the month that are less than or equal to the turbidity limits specified in Section 611.250 for the filtration technology being used.

3) The date and value of any turbidity measurements taken during the month that exceed 5 NTU.

b) Disinfection information specified in Section 611.533 must be reported to the Agency within ten days after the end of each month the supplier serves water to the public. Information that must be reported includes the following:

1) For each day, the lowest measurement of RDC in mg/ℓ in water entering the distribution system.

2) The date and duration of each period when the RDC in water entering the distribution system fell below 0.2 mg/ℓ and when the Agency was notified of the occurrence.

3) The following information on the samples taken in the distribution system in conjunction with total coliform monitoring pursuant to Sections 611.240 through 611.242:

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 no RDC is detected and where HPC is greater than 500/ml;

E) Number of instances where the RDC is not measured and HPC is greater than 500/ml;

F) For the current and previous month the supplier serves water to the public,the value of “V” in the following formula:

$$V = \frac{100(c + d + e)}{(a + b)}$$

where the terms mean the following:

a = Value in subsection (b)(3)(A) of this Section;
b = Value in subsection (b)(3)(B) of this Section;
c = Value in subsection (b)(3)(C) of this Section;
d = Value in subsection (b)(3)(D) of this Section; and
e = Value in subsection (b)(3)(E) of this Section.

G) Subsections (b)(3)(A) through (b)(3)(F) of this Section do not apply if the Agency determines, pursuant to Section 611.213, that a supplier has no means for having a sample analyzed for HPC by a certified laboratory under the requisite time and temperature conditions specified by Section 611.531(a) and that the supplier is providing adequate disinfection in the distribution system.

c) Reporting health threats.

1) Each supplier, upon discovering that a waterborne disease outbreak potentially attributable to that water system has occurred, must report that occurrence to the Agency as soon as possible, but no later than by the end of the next business day.

2) If at any time the turbidity exceeds 5 NTU, the supplier must consult with the Agency as soon as practical, but no later than 24 hours after the exceedance is known, in accordance with the public notification requirements under Section 611.903(b)(3).

3) If at any time the residual falls below 0.2 mg/ℓ in the water entering the distribution system, the supplier must notify the Agency as soon as possible, but no later than by the end of the next business day. The supplier also must notify the Agency by the end of the next business day whether or not the residual was restored to at least 0.2 mg/ℓ within four hours.

BOARD NOTE: Derived from 40 CFR 141.75(b) (2014).
(Source: Amended at 39 Ill. Reg. 15352, effective November 13, 2015)

Section 611.271 Protection during Repair Work

The supplier must prevent contamination of water at the source or in the CWS during repair, reconstruction, or alteration.

BOARD NOTE: This is an additional State requirement.

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.272 Disinfection Following Repair

a) After any portion of the CWS has been repaired, reconstructed, or altered, the supplier must disinfect that portion before putting it into operation.

b) The disinfection procedure must be approved by a SEP issued pursuant to Section 611.110.

BOARD NOTE: This is an additional State requirement.

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.276 Recycle Provisions

a) Applicability. A Subpart B system supplier that employs conventional filtration or direct filtration treatment and which recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes must meet the requirements in subsections (b) through (d) of this Section.

b) Reporting. A supplier must have notified the Agency in writing by December 8, 2003, if the supplier recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes. This notification must include, at a minimum, the information specified in subsections (b)(1) and (b)(2) of this Section, as follows:

1) A plant schematic showing the origin of all flows that are recycled (including, but not limited to, spent filter backwash water, thickener supernatant, and liquids from dewatering processes), the hydraulic conveyance used to transport them, and the location where they are re-introduced back into the treatment plant.

2) Typical recycle flow in gallons per minute (gpm), the highest observed plant flow experienced in the previous year (gpm), design flow for the treatment plant (gpm), and Agency-approved operating capacity for the plant where the Agency has made such a determination.

c) Treatment technique requirement. Any supplier that recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes must return these flows through the processes of the supplier's existing conventional or direct filtration system, as defined in Section 611.101, or at an alternative location approved by a permit issued by the Agency by June 8, 2004. If capital improvements are required to modify the recycle location to meet this requirement, all capital improvements must be completed no later than June 8, 2006.

d) Recordkeeping. The supplier must collect and retain on file recycle flow information specified in subsections (d)(1) through (d)(6) of this Section for review and evaluation by the Agency beginning June 8, 2004, as follows:

1) A copy of the recycle notification and information submitted to the State under subsection (b) of this Section.

2) A list of all recycle flows and the frequency with which they are returned.

3) The average and maximum backwash flow rate through the filters and the average and maximum duration of the filter backwash process in minutes.

4) The typical filter run length and a written summary of how filter run length is determined.

5) The type of treatment provided for the recycle flow.

6) Data on the physical dimensions of the equalization or treatment units, typical and maximum hydraulic loading rates, type of treatment chemicals used and average dose and frequency of use, and frequency at which solids are removed, if applicable.

BOARD NOTE: Derived from 40 CFR 141.76 (2003).

(Source: Amended at 28 Ill. Reg. 5269, effective March 10, 2004)

SUBPART C: USE OF NON-CENTRALIZED TREATMENT DEVICES

Section 611.280 Point-of-Entry Devices

a) Suppliers may use point-of-entry devices to comply with MCLs only if they meet the requirements of this Section.

b) It is the responsibility of the supplier to operate and maintain the point-of entry treatment system.

c) The supplier must develop a monitoring plan before point-of-entry devices are installed for compliance.

1) Point-of-entry devices must provide health protection equivalent to central water treatment. "Equivalent" means that the water would meet all NPDWR and would be of acceptable quality similar to water distributed by a well-operated central treatment plant.

2) In addition to the VOCs, monitoring must include physical measurements and observations such as total flow treated and mechanical condition of the treatment equipment.

3) Use of point-of-entry devices must be approved by a SEP granted by the Agency pursuant to Section 611.110.

d) Effective technology must be properly applied under a plan approved by the Agency and the microbiological safety of the water must be maintained.

1) The Agency must require adequate certification of performance, field testing, and, if not included in the certification process, a rigorous engineering design review of the point-of-entry devices.

2) The design and application of the point-of-entry devices must consider the tendency for increase in heterotrophic bacteria concentrations in water treated with activated carbon. The Agency may require, by a SEP issued pursuant to Section 611.110, frequent backwashing, post-contactor disinfection and HPC monitoring to ensure that the microbiological safety of the water is not compromised.

e) All consumers must be protected. Every building connected to the system must have a point-of-entry device installed, maintained and adequately monitored. The Agency must be assured that every building is subject to treatment and monitoring, and that the rights and responsibilities of the PWS customer convey with title upon sale of property.

f) Use of any point-of-entry device must not cause increased corrosion of lead and copper bearing materials located between the device and the tap that could increase contaminant levels at the tap.

BOARD NOTE: Derived from 40 CFR 141.100 and 142.62(h)(7) (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.290 Use of Point-of-Use Devices or Bottled Water

a) Suppliers must not use bottled water to achieve compliance with an MCL.

b) Bottled water or point-of-use devices may be used on a temporary basis to avoid an unreasonable risk to health pursuant to a SEP granted by the Agency under Section 611.110.

c) Any use of bottled water must comply with the substantive requirements of Section 611.130(d), except that the supplier must submit its quality control plan for Agency review as part of its SEP request, rather than for Board review.

BOARD NOTE: Derived from 40 CFR 141.101 (2003).

(Source: Amended at 28 Ill. Reg. 5269, effective March 10, 2004)

SUBPART D: TREATMENT TECHNIQUES

Section 611.295 General Requirements

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

BOARD NOTE: Derived from 40 CFR 141.110 (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.296 Acrylamide and Epichlorohydrin

a) Each supplier must 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:

$$P = A \times B$$

Where the terms mean the following:

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; and

P = Product of monomer level and dose.

b) Maximum Product of monomer level and dose is the following:

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 (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.297 Corrosion Control

A supplier may be required to install and maintain optimal corrosion control pursuant to Section 611.352.

(Source: Added at 17 Ill. Reg. 7796, effective May 18, 1993)

SUBPART F: MAXIMUM CONTAMINANT LEVELS (MCLs) AND MAXIMUM RESIDUAL DISINFECTANT LEVELS (MRDLs)

Section 611.300 Old MCLs for Inorganic Chemical Contaminants

a) The old MCLs listed in subsection (b) of this Section for inorganic chemical contaminants (IOCs) apply only to CWS suppliers. Compliance with old MCLs for inorganic chemicals is calculated pursuant to Section 611.612.

BOARD NOTE: Formerly derived from 40 CFR 141.11(a), this subsection (b) has become an additional State requirement.

b) The following are the old MCLs for IOCs:

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

BOARD NOTE: Formerly derived from 40 CFR 141.11(b), thishas become an additional State requirement.

c) This subsection corresponds with 40 CFR 141.11(c), marked as reserved by USEPA. This statement maintains structural parity with the federal rules.

d) Nitrate.

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

1) The nitrate level must not exceed 20 mg/ℓ,

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

3) The NCWS supplier is meeting the public notification requirements under Section 611.909, including continuous posting of the fact that the nitrate level exceeds 10 mg/ℓ together with the potential health effects of exposure,

4) The supplier will annually notify local public health authorities and the Department of Public Health of the nitrate levels that exceed 10 mg/ℓ; and

5) No adverse public health effects result.

BOARD NOTE: Derived from 40 CFR 141.11(d) (2012). The Department of Public Health regulations may impose a nitrate limitation requirement. Those regulations are at 77 Ill. Adm. Code 900.50.

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

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

2) The Agency may, by a SEP issued pursuant to Section 611.110, 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 a SEP issued pursuant to Section 611.110.

BOARD NOTE: This subsection (e) is an additional State requirement.

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.301 Revised MCLs for Inorganic Chemical Contaminants

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
Antimony	0.006	mg/ℓ
Arsenic	0.010	mg/ℓ
Asbestos	7	MFL
Barium	2	mg/ℓ
Beryllium	0.004	mg/ℓ
Cadmium	0.005	mg/ℓ
Chromium	0.1	mg/ℓ
Cyanide (as free CN^-)	0.2	mg/ℓ
Fluoride	4.0	mg/ℓ
Mercury	0.002	mg/ℓ
Nitrate (as N)	10	mg/ℓ
Nitrite (as N)	1	mg/ℓ
Total Nitrate and Nitrite (as N)	10	mg/ℓ
Selenium	0.05	mg/ℓ
Thallium	0.002	mg/ℓ

BOARD NOTE: See Section 611.300(d) for an elevated nitrate level for non-CWSs. USEPA removed and reserved the MCL for nickel on June 29, 1995, at 60 Fed. Reg. 33932, as a result of a judicial order in Nickel Development Institute v. EPA, No. 92-1407, and Specialty Steel Industry of the U.S. v. Browner, No. 92-1410 (D.C. Cir. Feb. 23 & Mar. 6, 1995), while retaining the contaminant, analytical methodology, and detection limit listings for this contaminant.

c) USEPA has identified the following as BAT for achieving compliance with the MCL for the IOCs identified in subsection (b) of this Section, except for fluoride:

Contaminant	BATs
Antimony	C/F RO

Arsenic (BATs for As^{V}. Pre-oxidation may be required to convert As^{III} to As^{V}.)	AAL C/F IX LIME RO ED O/F (To obtain high removals, the iron to arsenic ratio must be at least 20:1)
Asbestos	C/F DDF CC
Barium	IX LIME RO ED
Beryllium	AA C/F IX LIME RO
Cadmium	C/F IX LIME RO
Chromium	C/F IX LIME, BAT for Cr^{III} only RO
Cyanide	IX RO ALK Cl_2
Mercury	C/F, BAT only if influent Hg concentrations less than or equal to 10 µg/ℓ GAC LIME, BAT only if influent Hg concentrations less than or equal to 10 µg/ℓ RO, BAT only if influent Hg concentrations less than or equal to 10 µg/ℓ

Nickel	IX LIME RO
Nitrate	IX RO ED
Nitrite	IX RO
Selenium	AAL C/F, BAT for Se^{IV} only LIME RO ED
Thallium	AAL IX

Abbreviations

AAL	Activated alumina
ALK Cl_2	Alkaline chlorination (pH $\geq$ 8.5)
C/F	Coagulation/filtration (not BAT for a system that has fewer than 500 service connections)
CC	Corrosion control
Cl_2	Oxidation (chlorine)
DDF	Direct and diatomite filtration
ED	Electrodialysis
GAC	Granular activated carbon
IX	Ion exchange
LIME	Lime softening
O/F	Oxidation/filtration
RO	Reverse osmosis

UV Ultraviolet irradiation

d) At 40 CFR 141.62(d) (2012), USEPA identified the following as the affordable technology, treatment technique, or other means available to systems serving 10,000 persons or fewer for achieving compliance with the maximum contaminant level for arsenic:

Small System Compliance Technologies (SSCTs)[1] for Arsenic[2]

Small system compliance technology	Affordable for listed small system categories[3]
Activated alumina (centralized)	All size categories
Activated alumina (point-of-use)[4]	All size categories
Coagulation/filtration[5]	501-3,300 persons, 3,301-10,000 persons
Coagulation-assisted microfiltration	501-3,300 persons, 3,301-10,000 persons
Electrodialysis reversal[6]	501-3,300 persons, 3,301-10,000 persons
Enhanced coagulation/filtration	All size categories
Enhanced lime softening (pH> 10.5)	All size categories
Ion exchange	All size categories
Lime softening[5]	501-3,300 persons, 3,301-10,000 persons
Oxidation/filtration[7]	All size categories
Reverse osmosis (centralized)[6]	501-3,300 persons, 3,301-10,000 persons
Reverse osmosis (point-of-use)[4]	All size categories

[1] Section 1412(b)(4)(E)(ii) of the federal SDWA (42 USC 300g-1(b)(4)(E)(ii)) specifies that SSCTs must be affordable and technically feasible for a small system supplier.

[2] SSCTs for As^{V}. Pre-oxidation may be required to convert As^{III} to As^{V}.

[3] The federal SDWA specifies three categories of small system suppliers: (1) those serving 25 or more, but fewer than 501 persons, (2) those serving more than 500 but fewer than 3,301 persons, and (3) those serving more than 3,300 but fewer than 10,001 persons.

[4] When POU or POE devices are used for compliance, programs to ensure proper long-term operation, maintenance, and monitoring must be provided by the water supplier to ensure adequate performance.

[5] Unlikely to be installed solely for arsenic removal. May require pH adjustment to optimal range if high removals are needed.

[6] Technologies reject a large volume of water--may not be appropriate for areas where water quantity may be an issue.

[7] To obtain high removals, iron to arsenic ratio must be at least 20:1.

BOARD NOTE: Derived from 40 CFR 141.62 (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

SUBPART I: DISINFECTANT RESIDUALS, DISINFECTION BYPRODUCTS, AND DISINFECTION BYPRODUCT PRECURSORS

Section 611.310 State-Only Maximum Contaminant Levels (MCLs) for Organic Chemical Contaminants

The following are State-only MCLs for organic chemical contaminants. The State-only MCLs for organic chemical contaminants in this Section apply to all CWSs. They are additional State requirements. Compliance with the State-only MCLs in subsections (a) and (b) is calculated pursuant to Subpart O of this Part.

Contaminant	MCL (mg/ℓ)
Aldrin	0.001
DDT	0.05
Dieldrin	0.001
Heptachlor	0.0001
Heptachlor epoxide	0.0001
2,4-D	0.01

BOARD NOTE: Originally derived from 40 CFR 141.12 (1992), USEPA removed the last entry in subsections (a) and (b) and marked them reserved at 57 Fed. Reg. 31838 (July 17, 1992). USEPA removed all of 40 CFR 141.12 and marked it “reserved” at 71 Fed. Reg. 388 (Jan. 4, 2006). USEPA added another listing of organic MCLs at 40 CFR 141.61 (2006). Heptachlor, heptachlor epoxide, and 2,4-D appear in both this Section and in Section 611.311, with a

different MCL in each Section. The heptachlor, heptachlor epoxide, and 2,4-D MCLs in this Section are Illinois limitations that are more stringent than the federal requirements. However, detection of these contaminants or violation of their federally-derived revised Section 611.311 MCLs imposes more stringent monitoring, reporting, and notice requirements.

(Source: Amended at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.311 Revised MCLs for Organic Chemical Contaminants

a) Volatile organic chemical contaminants. The following MCLs 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
56-23-5	Carbon tetrachloride	0.005
95-50-1	o-Dichlorobenzene	0.6
106-46-7	p-Dichlorobenzene	0.075
107-06-2	1,2-Dichloroethane	0.005
75-35-4	1,1-Dichloroethylene	0.007
156-59-2	cis-1,2-Dichloroethylene	0.07
156-60-5	trans-1,2-Dichloroethylene	0.1
75-09-2	Dichloromethane (methylene chloride)	0.005
78-87-5	1,2-Dichloropropane	0.005
100-41-4	Ethylbenzene	0.7
108-90-7	Monochlorobenzene	0.1
100-42-5	Styrene	0.1
127-18-4	Tetrachloroethylene	0.005
108-88-3	Toluene	1
120-82-1	1,2,4-Trichlorobenzene	0.07
71-55-6	1,1,1-Trichloroethane	0.2
79-00-5	1,1,2-Trichloroethane	0.005
79-01-6	Trichloroethylene	0.005
75-01-4	Vinyl chloride	0.002
1330-20-7	Xylenes (total)	10

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

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

15972-60-8	Alachlor	GAC

116-06-3	Aldicarb*	GAC
1646-87-4	Aldicarb sulfone*	GAC
1646-87-3	Aldicarb sulfoxide*	GAC
1912-24-9	Atrazine	GAC
71-43-2	Benzene	GAC, PTA
50-32-8	Benzo(a)pyrene	GAC
1563-66-2	Carbofuran	GAC
56-23-5	Carbon tetrachloride	GAC, PTA
57-74-9	Chlordane	GAC
94-75-7	2,4-D	GAC
75-99-0	Dalapon	GAC
96-12-8	Dibromochloropropane	GAC, PTA
95-50-1	o-Dichlorobenzene	GAC, PTA
106-46-7	p-Dichlorobenzene	GAC, PTA
107-06-2	1,2-Dichloroethane	GAC, PTA
156-59-2	cis-1,2-Dichloroethylene	GAC, PTA
156-60-5	trans-1,2-Dichoroethylene	GAC, PTA
75-35-4	1,1-Dichloroethylene	GAC, PTA
75-09-2	Dichloromethane	PTA
78-87-5	1,2-Dichloropropane	GAC, PTA
103-23-1	Di(2-ethylhexyl)adipate	GAC, PTA
117-81-7	Di(2-ethylhexyl)phthalate	GAC
88-85-7	Dinoseb	GAC
85-00-7	Diquat	GAC
145-73-3	Endothall	GAC
72-20-8	Endrin	GAC
106-93-4	Ethylene dibromide (EDB)	GAC, PTA
100-41-4	Ethylbenzene	GAC, PTA
1071-53-6	Glyphosate	OX
76-44-8	Heptachlor	GAC
1024-57-3	Heptachlor epoxide	GAC
118-74-1	Hexachlorobenzene	GAC
77-47-3	Hexachlorocyclopentadiene	GAC, PTA
58-89-9	Lindane	GAC
72-43-5	Methoxychlor	GAC
108-90-7	Monochlorobenzene	GAC, PTA
23135-22-0	Oxamyl	GAC
87-86-5	Pentachlorophenol	GAC
1918-02-1	Picloram	GAC
1336-36-3	Polychlorinated biphenyls (PCB)	GAC
122-34-9	Simazine	GAC
100-42-5	Styrene	GAC, PTA
1746-01-6	2,3,7,8-TCDD	GAC
127-18-4	Tetrachloroethylene	GAC, PTA
108-88-3	Toluene	GAC

8001-35-2	Toxaphene	GAC
120-82-1	1,2,4-trichlorobenzene	GAC, PTA
71-55-6	1,1,1-Trichloroethane	GAC, PTA
79-00-5	1,1,2-trichloroethane	GAC, PTA
79-01-6	Trichloroethylene	GAC, PTA
93-72-1	2,4,5-TP	GAC
75-01-4	Vinyl chloride	PTA
1330-20-7	Xylene	GAC, PTA

* See the Board note appended to the end of this Section.

c) Synthetic organic chemical contaminants. The following MCLs for SOCs apply to CWS and NTNCWS suppliers.

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

1746-01-6	2,3,7,8-TCDD (Dioxin)	0.00000003
8001-35-2	Toxaphene	0.003
93-72-1	2,4,5-TP	0.05

* See the Board note appended to the end of this Section.

BOARD NOTE: Derived from 40 CFR 141.61 (2012). See the definition of "initial compliance period" at Section 611.101. More stringent state MCLs for 2,4-D, heptachlor, and heptachlor epoxide appear at Section 611.310. See the Board Note at that provision. In 40 CFR 141.6(g), USEPA postponed the effectiveness of the MCLs for aldicarb, aldicarb sulfone, and aldicarb sulfoxide until it took further action on those MCLs. See 40 CFR 141.6(g) and 57 Fed. Reg. 22178 (May 27, 1992). USEPA has since stated that it anticipates taking no action until 2005 on a federal national primary drinking water regulation (NPDWR) applicable to the aldicarbs. 68 Fed. Reg. 31108 (May 27, 2003). In 2005, USEPA indicated no projected date for final action on the aldicarbs. *See* 70 Fed. Reg. 27501, 671 (May 16, 2005). An entry for the aldicarbs last appeared in USEPA's Spring 2007 semiannual regulatory agenda, indicating no projected dates for further action. *See* 72 Fed. Reg. 23156, 97 (Apr. 30, 2007); *see also* 72 Fed. Reg. 70118, 23 (Dec. 10, 2007) (the first USEPA regulatory agenda that included no entry for the aldicarbs). While the Board must maintain entries for aldicarb, aldicarb sulfoxide, and aldicarb sulfone to maintain consistency with the letter of the federal regulations (*see* 415 ILCS 5/7.2 and 17.5 (2010); 42 USC 300g-2 (2010); 40 CFR 142.10 (2012)), the Board intends that no aldicarb requirements apply in Illinois until after USEPA adopts such requirements, and the Board has removed this statement.

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.312 Maximum Contaminant Levels (MCLs) for Disinfection Byproducts (DBPs)

a) Bromate and chlorite. The maximum contaminant levels (MCLs) for bromate and chlorite are as follows:

Disinfection byproduct	MCL (mg/ℓ)
Bromate	0.010
Chlorite	1.0

1) Compliance dates for CWSs and NTNCWSs. A Subpart B system supplier that serves 10,000 or more persons must comply with this subsection (a). A Subpart B system supplier that serves fewer than 10,000 persons and systems using only groundwater not under the direct influence of surface water must comply with this subsection (a).

2) USEPA has identified the following as the best available technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for bromate and chlorite identified in this subsection (a):

Disinfection Byproduct	Best Available Technology
Bromate	Control of ozone treatment process to reduce production of bromate.
Chlorite	Control of treatment processes to reduce disinfectant demand and control of disinfection treatment processes to reduce disinfectant levels.

b) TTHM and HAA5.

1) Subpart I—Running annual average compliance.

A) Compliance dates. A Subpart B system supplier that serves 10,000 or more persons must comply with this subsection (b)(1) beginning January 1, 2002. A Subpart B system supplier that serves fewer than 10,000 persons and systems using only groundwater not under the direct influence of surface water must comply with this subsection (b)(1). All systems must comply with these MCLs until the date specified for Subpart Y compliance in Section 611.980(c).

Disinfection Byproduct	MCL (mg/ℓ)
Total trihalomethanes (TTHM)	0.080
Haloacetic acids (five) (HAA5)	0.060

B) USEPA has identified the following as the best available technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for TTHM and HAA5 identified in this subsection (b)(1):

Disinfection Byproduct	Best Available Technology
Total trihalomethanes (TTHM) and Haloacetic acids (five) (HAA5)	Enhanced coagulation or enhanced softening or GAC10, with chlorine as the primary and residual disinfectant.

2) Subpart Y—Locational running annual average compliance.

A) Compliance dates. The Subpart Y MCLs for TTHM and HAA5 must be complied with as a locational running annual average at

each monitoring location beginning the date specified for Subpart Y compliance in Section 611.980(c).

Disinfection Byproduct	MCL (mg/ℓ)
Total trihalomethanes (TTHM)	0.080
Haloacetic acids (five) (HAA5)	0.060

B) USEPA has identified the following as the best available technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for TTHM and HAA5 identified in this subsection (b)(2) for any supplier that disinfects its source water:

Disinfection Byproduct	Best Available Technology
Total trihalomethanes (TTHM) and Haloacetic acids (five) (HAA5)	Enhanced coagulation or enhanced softening, plus GAC10; or nanofiltration with a molecular weight cutoff ≤1000 Daltons; or GAC20.

C) USEPA has identified the following as the best available technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for TTHM and HAA5 identified in this subsection (b)(2) for consecutive systems and applies only to the disinfected water that a consecutive system buys or otherwise receives from a wholesale system:

Disinfection Byproduct	Best Available Technology
Total trihalomethanes (TTHM) and Haloacetic acids (five) (HAA5)	Any system that serves 10,000 or more persons: Improved distribution system and storage tank management to reduce residence time, plus the use of chloramines for disinfectant residual maintenance; or Any system that serves fewer than 10,000 persons: Improved distribution

system and storage tank management to reduce residence time.

BOARD NOTE: Derived from 40 CFR 141.64 (2006).

(Source: Amended at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.313 Maximum Residual Disinfectant Levels (MRDLs)

a) Maximum residual disinfectant levels (MRDLs) are as follows:

Disinfectant residual	MRDL (mg/ℓ)
Chlorine	4.0 (as Cl_2)
Chloramines	4.0 (as Cl_2)
Chlorine dioxide	0.8 (as ClO_2)

b) Compliance dates.

1) CWSs and NTNCWSs. A Subpart B system supplier serving 10,000 or more persons must comply with this Section beginning January 1, 2002. A Subpart B system supplier serving fewer than 10,000 persons or a supplier using only groundwater not under the direct influence of surface water must comply with this Section beginning January 1, 2004.

2) Transient NCWSs. A Subpart B system supplier serving 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning January 1, 2002. A Subpart B system supplier serving fewer than 10,000 persons and using chlorine dioxide as a disinfectant or oxidant or a supplier using only groundwater not under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning January 1, 2004.

c) The following are identified as the best technology, treatment techniques, or other means available for achieving compliance with the maximum residual disinfectant levels identified in subsection (a) of this Section: control of treatment processes to reduce disinfectant demand and control of disinfection treatment processes to reduce disinfectant levels.

BOARD NOTE: Derived from 40 CFR 141.65 (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.320 Turbidity (Repealed)

(Source: Repealed at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.325 Microbiological Contaminants

a) Until March 31, 2016, the MCL is based on the presence or absence of total coliforms in a sample, rather than coliform density.

1) For a supplier that collects at least 40 samples per month, if no more than 5.0 percent of the samples collected during a month are total coliform-positive, the supplier is in compliance with the MCL for total coliforms.

2) For a supplier that collects fewer than 40 samples per month, if no more than one sample collected during a month is a total coliform-positive, the supplier is in compliance with the MCL for total coliforms.

b) Until March 31, 2016, any fecal coliform-positive repeat sample or E. coli-positive repeat sample, or any total coliform-positive repeat sample following a fecal coliform-positive or E. coli-positive routine sample, constitutes a violation of the MCL for total coliforms. For purposes of the public notification requirements in Subpart V of this Part, this is a violation that may pose an acute risk to health.

c) Beginning April 1, 2016, a supplier is in compliance with the MCL for E. coli for samples taken under the provisions of Subpart AA of this Part, unless any of the conditions identified in subsections (c)(1) through (c)(4) of this Section occur. For purposes of the public notification requirements in Subpart V of this Part, violation of the MCL may pose an acute risk to health.

1) The supplier has an E. coli-positive repeat sample following a total coliform-positive routine sample.

2) The supplier has a total coliform-positive repeat sample following an E. coli-positive routine sample.

3) The supplier fails to take all required repeat samples following an E. coli-positive routine sample.

4) The supplier fails to test for E. coli when any repeat sample tests positive for total coliform.

d) Until March 31, 2016, a supplier must determine compliance with the MCL for total coliforms in subsections (a) and (b) of this Section for each month in which it is required to monitor for total coliforms. Beginning April 1, 2016, a supplier must determine compliance with the MCL for E. coli in subsection (c) of this Section for each month in which it is required to monitor for total coliforms.

e) BATs for achieving compliance with the MCL for total coliforms in subsections (a) and (b) of this Section and for achieving compliance with the maximum contaminant level for E. coli in subsection (c) of this Section are the following:

1) Protection of wells from fecal contamination by appropriate placement and construction;

2) Maintenance of RDC throughout the distribution system;

3) Proper maintenance of the distribution system including appropriate pipe replacement and repair procedures, main flushing programs, proper operation and maintenance of storage tanks and reservoirs, cross connection control, and continual maintenance positive water pressure in all parts of the distribution system;

4) Filtration and disinfection of surface water, as described in Subparts B, R, X, and Z of this Part, or disinfection of groundwater, as described in Subpart S of this Part, using strong oxidants such as chlorine, chlorine dioxide, or ozone; or

5) For systems using groundwater, compliance with the wellhead protection program, after USEPA approves the program.

f) USEPA has identified, pursuant to 42 USC 300g-1, the technology, treatment techniques, or other means available identified in subsection (e) of this Section as affordable technology, treatment techniques, or other means available to suppliers serving 10,000 or fewer people for achieving compliance with the MCL for total

coliforms in subsections (a) and (b) of this Section and for achieving compliance with the MCL for E. coli in subsection (c) of this Section.

BOARD NOTE: Derived from 40 CFR 141.63 (2013).

(Source: Amended at 38 Ill. Reg. 3608, effective January 27, 2014)

Section 611.330 Maximum Contaminant Levels for Radionuclides

a) This subsection corresponds with 40 CFR 141.66(a), marked reserved by USEPA. This statement maintains structural consistency with USEPA rules.

b) MCL for combined radium-226 and –228. The maximum contaminant level for combined radium-226 and radium-228 is 5 pCi/ℓ. The combined radium-226 and radium-228 value is determined by the addition of the results of the analysis for radium-226 and the analysis for radium-228.

c) MCL for gross alpha particle activity (excluding radon and uranium). The maximum contaminant level for gross alpha particle activity (including radium-226 but excluding radon and uranium) is 15 pCi/ℓ.

d) MCL for beta particle and photon radioactivity.

1) The average annual concentration of beta particle and photon radioactivity from man-made radionuclides in drinking water must not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem/year (mrem/year).

2) Except for the radionuclides listed in the following table, the concentration of man-made radionuclides causing 4 mrem total body or organ dose equivalents must be calculated on the basis of two liters per day drinking water intake, using the 168-hour data list set forth in "Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and in Water for Occupational Exposure," incorporated by reference in Section 611.102, available from the NTIS. If two or more radionuclides are present, the sum of their annual dose equivalent to the total body or to any organ must not exceed 4 mrem/year.

Average Annual Concentrations Assumed to Produce a Total Body or Organ Dose of 4 mrem/yr

Radionuclide	Critical organ	pCi per liter
1. Tritium	Total body	20,000

2. Strontium-90	Bone Marrow	8

e) MCL for uranium. The maximum contaminant level for uranium is 30 µg/ℓ.

f) Compliance dates for combined radium-226 and -228, gross alpha particle activity, gross beta particle and photon radioactivity, and uranium: A CWS supplier must comply with the MCLs listed in subsections (b) through (e) of this Section, and compliance must be determined in accordance with the requirements of Subpart Q of this Part.

g) Best available technologies (BATs) for radionuclides. USEPA has identified the technologies indicated in the following table as the BAT for achieving compliance with the MCLs for combined radium-226 and -228, uranium, gross alpha particle activity, and beta particle and photon radioactivity.

BAT for Combined Radium-226 and Radium-228, Uranium, Gross Alpha Particle Activity, and Beta Particle and Photon Radioactivity

Contaminant	BAT
1. Combined radium-226 and radium-228	Ion exchange, reverse osmosis, lime softening.
2. Uranium	Ion exchange, reverse osmosis, lime softening, coagulation/filtration.
3. Gross alpha particle activity (excluding Radon and Uranium)	Reverse osmosis.
4. Beta particle and photon radioactivity	Ion exchange, reverse osmosis.

h) Small systems compliance technologies list for radionuclides.

List of Small Systems Compliance Technologies for Radionuclides and Limitations to Use

Unit technologies	Limitations (see footnotes)	Operator skill level required[1]	Raw water quality range and considerations[1]
1. Ion exchange (IE)	(a)	Intermediate	All ground waters.
2. Point of use (POU[2]) IE	(b)	Basic	All ground waters.

3.	Reverse osmosis (RO)	(c)	Advanced	Surface waters usually require pre-filtration.
4.	POU[2] RO	(b)	Basic	Surface waters usually require pre-filtration.
5.	Lime softening	(d)	Advanced	All waters.
6.	Green sand filtration	(e)	Basic	
7.	Co-precipitation with Barium sulfate	(f)	Intermediate to Advanced	Ground waters with suitable water quality.
8.	Electrodialysis/ electrodialysis reversal		Basic to Intermediate	All ground waters.
9.	Pre-formed hydrous Manganese oxide filtration	(g)	Intermediate	All ground waters.
10.	Activated alumina	(a), (h)	Advanced	All ground waters; competing anion concentrations may affect regeneration frequency.
11.	Enhanced coagulation/ filtration	(i)	Advanced	Can treat a wide range of water qualities.

[1] National Research Council (NRC). "Safe Water from Every Tap: Improving Water Service to Small Communities," National Academy Press, Washington, D.C. 1997.

[2] A POU, or "point-of-use" technology is a treatment device installed at a single tap used for the purpose of reducing contaminants in drinking water at that one tap. POU devices are typically installed at the kitchen tap.
BOARD NOTE: USEPA refers the reader to the notice of data availability (NODA) at 66 Fed. Reg. 21576 (April 21, 2000) for more details.

Limitations Footnotes: Technologies for Radionuclides:

(a) The regeneration solution contains high concentrations of the contaminant ions. Disposal options should be carefully considered before choosing this technology.

(b) When POU devices are used for compliance, programs for long-term operation, maintenance, and monitoring must be provided by water utility to ensure proper performance.

(c) Reject water disposal options should be carefully considered before choosing this technology.

BOARD NOTE: In corresponding 40 CFR 141.66, Table C, footnote c states in part as follows: "See other RO limitations described in the SWTR Compliance Technologies Table." Table C was based in significant part on "Table 13.—Technologies for Radionuclides" that appears at 63 Fed. Reg. 42032 at 42043 (August 6, 1998), which refers to "Table 2.—SWTR Compliance Technology Table: Filtration." That Table 2 lists the limitations on RO as follows:

[d] Blending (combining treated water with untreated raw water) cannot be practiced at risk of increasing microbial concentrations in finished water.

[e] Post-disinfection recommended as a safety measure and for residual maintenance.

[f] Post-treatment corrosion control will be needed prior to distribution.

63 Fed. Reg. at 42036.

(d) The combination of variable source water quality and the complexity of the water chemistry involved may make this technology too complex for small surface water systems.

(e) Removal efficiencies can vary depending on water quality.

(f) This technology may be very limited in application to small systems. Since the process requires static mixing, detention basins, and filtration, it is most applicable to systems with sufficiently high sulfate levels that already have a suitable filtration treatment train in place.

(g) This technology is most applicable to small systems that already have filtration in place.

(h) Handling of chemicals required during regeneration and pH adjustment may be too difficult for small systems without an adequately trained operator.

(i) Assumes modification to a coagulation/filtration process already in place.

Compliance Technologies by System Size Category for Radionuclide NPDWRs

	Compliance technologies[1] for system size categories (population served)		
Contaminant	25-500	501-3,300	3,300-10,000
1. Combined radium-226 and radium-228	1, 2, 3, 4, 5, 6, 7, 8, 9	1, 2, 3, 4, 5, 6, 7, 8, 9	1, 2, 3, 4, 5, 6, 7, 8, 9
2. Gross alpha particle activity	3, 4	3, 4	3, 4
3. Beta particle activity and photon activity	1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4
4. Uranium	1, 2, 4, 10, 11	1, 2, 3, 4, 5, 10, 11	1, 2, 3, 4, 5, 10, 11

Note: [1] Numbers correspond to those technologies found listed in the table, "List of Small Systems Compliance Technologies for Radionuclides and Limitations to Use," set forth above.

BOARD NOTE: Derived from 40 CFR 141.66 (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.331 Beta Particle and Photon Radioactivity (Repealed)

(Source: Repealed at 28 Ill. Reg. 5269, effective March 10, 2004)

SUBPART G: LEAD AND COPPER

Section 611.350 General Requirements

a) Applicability and Scope

1) Applicability. The requirements of this Subpart G constitute national primary drinking water regulations for lead and copper. This Subpart G applies to all community water systems (CWSs) and non-transient, non-community water systems (NTNCWSs).

2) Scope. This Subpart G establishes a treatment technique that includes requirements for corrosion control treatment, source water treatment, lead service line replacement, and public education. These requirements are triggered, in some cases, by lead and copper action levels measured in samples collected at consumers' taps.

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

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

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

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

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

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

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

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

"Maximum permissible concentration" or "MPC" means that concentration of lead or copper for finished water entering the supplier's distribution system, designated by the Agency by a SEP pursuant to

Sections 611.110 and 611.353(b) that reflects the contaminant removal capability of the treatment properly operated and maintained.
BOARD NOTE: Derived from 40 CFR 141.83(b)(4) (2007). (See Section 611.353(b)(4)(B).)

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

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

"Method detection limit" or "MDL" is as defined at Section 611.646(a). The MDL for lead is 0.001 mg/ℓ. The MDL for copper is 0.001 mg/ℓ, or 0.020 mg/ℓ by atomic absorption direct aspiration method.
BOARD NOTE: Derived from 40 CFR 141.89(a)(1)(iii) (2007).

"Monitoring period" means any of the six-month periods of time during which a supplier must complete a cycle of monitoring under this Subpart G.
BOARD NOTE: USEPA refers to these as "monitoring periods." The Board uses "six-month monitoring period" to avoid confusion with "compliance period," as used elsewhere in this Part and defined at Section 611.101.

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

"90th percentile level" means that concentration of lead or copper contaminant exceeded by ten percent or fewer of all samples collected during a six-month monitoring period pursuant to Section 611.356 (i.e., that concentration of contaminant greater than or equal to the results obtained from 90 percent of the samples). The 90th percentile levels for copper and lead must be determined pursuant to subsection (c)(3) of this Section.
BOARD NOTE: Derived from 40 CFR 141.80(c) (2007).

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

"Practical quantitation limit" or "PQL" means the lowest concentration of a contaminant that a well-operated laboratory can reliably achieve within specified limits of precision and accuracy during routine laboratory operating conditions. The PQL for lead is 0.005 mg/ℓ. The PQL for copper is 0.050 mg/ℓ.
BOARD NOTE: Derived from 40 CFR 141.89(a)(1)(ii) and (a)(1)(iv) (2007).

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

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

"Small system" means a water system that regularly serves water to 3,300 or fewer persons.
BOARD NOTE: Derived from 40 CFR 141.2 (2007).

c) Lead and Copper Action Levels.

1) The lead action level is exceeded if the 90th percentile lead level is greater than 0.015 mg/ℓ.

2) The copper action level is exceeded if the 90th percentile copper level is greater than 1.3 mg/ℓ.

3) Suppliers must compute the 90th percentile lead and copper levels as follows:

A) List the results of all lead or copper samples taken during a six-month monitoring period in ascending order, ranging from the sample with the lowest concentration first to the sample with the highest concentration last. Assign each sampling result a number, ascending by single integers beginning with the number 1 for the sample with the lowest contaminant level. The number assigned to the sample with the highest contaminant level must be equal to the total number of samples taken.

B) Determine the number for the 90th percentile sample by multiplying the total number of samples taken during the six-month monitoring period by 0.9.

C) The contaminant concentration in the sample with the number yielded by the calculation in subsection (c)(3)(B) of this Section is the 90th percentile contaminant level.

D) For suppliers that collect five samples per six-month monitoring period, the 90th percentile is computed by taking the average of the highest and second highest concentrations.

E) For a supplier that has been allowed by the Agency to collect fewer than five samples in accordance with Section 611.356(c), the sample result with the highest concentration is considered the 90th percentile value.

d) Corrosion Control Treatment Requirements.

1) All suppliers must install and operate optimal corrosion control treatment.

2) Any supplier that complies with the applicable corrosion control treatment requirements specified by the Agency pursuant to Sections 611.351 and 611.352 is deemed in compliance with the treatment requirement of subsection (d)(1) of this Section.

e) Source water treatment requirements. Any supplier whose system exceeds the lead or copper action level must implement all applicable source water treatment requirements specified by the Agency pursuant to Section 611.353.

f) Lead service line replacement requirements. Any supplier whose system exceeds the lead action level after implementation of applicable corrosion control and source water treatment requirements must complete the lead service line replacement requirements contained in Section 611.354.

g) Public education requirements. Pursuant to Section 611.355, the supplier must provide a consumer notice of the lead tap water monitoring results to the persons served at each site (tap) that is tested. Any supplier whose system exceeds the lead action level must implement the public education requirements.

h) Monitoring and analytical requirements. Suppliers must complete all tap water monitoring for lead and copper, monitoring for water quality parameters, source water monitoring for lead and copper, and analyses of the monitoring results under this Subpart G in compliance with Sections 611.356, 611.357, 611.358, and 611.359.

i) Reporting requirements. Suppliers must report to the Agency any information required by the treatment provisions of this Subpart G and Section 611.360.

j) Recordkeeping requirements. Suppliers must maintain records in accordance with Section 611.361.

k) Violation of national primary drinking water regulations. Failure to comply with the applicable requirements of this Subpart G, including conditions imposed by the Agency by SEP pursuant to these provisions and Section 611.110, will constitute a violation of the national primary drinking water regulations for lead or copper.

BOARD NOTE: Derived from 40 CFR 141.80 (2007), as amended at 72 Fed. Reg. 57782 (October 10, 2007).

(Source: Amended at 33 Ill. Reg. 633, effective December 30, 2008)

Section 611.351 Applicability of Corrosion Control

a) Corrosion control required. Suppliers must complete the applicable corrosion control treatment requirements described in Section 611.352 on or before the deadlines set forth in this Section.

1) Large systems. Each large system supplier (one regularly serving more than 50,000 persons) must complete the corrosion control treatment steps specified in subsection (d) of this Section, unless it is deemed to have optimized corrosion control under subsection (b)(2) or (b)(3) of this Section.

2) Medium-sized and small systems. Each small system supplier (one regularly serving 3,300 or fewer persons) and each medium-sized system (one regularly serving more than 3,300 up to 50,000 persons) must complete the corrosion control treatment steps specified in subsection (e) of this Section, unless it is deemed to have optimized corrosion control under one of subsections (b)(1), (b)(2), or (b)(3) of this Section.

b) Suppliers deemed to have optimized corrosion control. A supplier is deemed to have optimized corrosion control, and is not required to complete the applicable corrosion control treatment steps identified in this Section, if the supplier satisfies one of the criteria specified in subsections (b)(1) through (b)(3) of this Section. Any such system deemed to have optimized corrosion control under this subsection, and which has treatment in place, must continue to operate and maintain optimal corrosion control treatment and meet any requirements that the Agency determines are appropriate to ensure optimal corrosion control treatment is maintained.

1) Small- or medium-sized system meeting action levels. A small system or medium-sized system supplier is deemed to have optimized corrosion control if the system meets the lead and copper action levels during each of two consecutive six-month monitoring periods with monitoring conducted in accordance with Section 611.356.

2) SEP for equivalent activities to corrosion control. The Agency must, by a SEP issued pursuant to Section 611.110, deem any supplier to have optimized corrosion control treatment if it determines that the supplier has conducted activities equivalent to the corrosion control steps applicable under this Section. In making this determination, the Agency must specify the water quality control parameters representing optimal corrosion control in accordance with Section 611.352(f). A water supplier that is deemed to have optimized corrosion control under this subsection (b)(2) must operate in compliance with the Agency-designated optimal water quality control parameters in accordance with Section 611.352(g) and must continue to conduct lead and copper tap and water quality parameter sampling in accordance with Sections 611.356(d)(3) and 611.357(d), respectively. A supplier must provide the Agency with the following information in order to support an Agency SEP determination under this subsection (b)(2):

A) The results of all test samples collected for each of the water quality parameters in Section 611.352(c)(3);

B) A report explaining the test methods the supplier used to evaluate the corrosion control treatments listed in Section 611.352(c)(1), the results of all tests conducted, and the basis for the supplier's selection of optimal corrosion control treatment;

C) A report explaining how the supplier has installed corrosion control and how the supplier maintains it to insure minimal lead and copper concentrations at consumer's taps; and

D) The results of tap water samples collected in accordance with Section 611.356 at least once every six months for one year after corrosion control has been installed.

3) Results less than practical quantitation level (PQL) for lead. Any supplier is deemed to have optimized corrosion control if it submits results of tap water monitoring conducted in accordance with Section 611.356 and source water monitoring conducted in accordance with Section 611.358

that demonstrate that for two consecutive six-month monitoring periods the difference between the 90th percentile tap water lead level, computed pursuant to Section 611.350(c)(3), and the highest source water lead concentration is less than the practical quantitation level for lead specified in Section 611.359(a)(1)(B)(i).

A) Those systems whose highest source water lead level is below the method detection limit (MDL) may also be deemed to have optimized corrosion control under this subsection (b) if the 90th percentile tap water lead level is less than or equal to the PQL for lead for two consecutive six-month monitoring periods.

B) Any water system deemed to have optimized corrosion control in accordance with this subsection (b) must continue monitoring for lead and copper at the tap no less frequently than once every three calendar years using the reduced number of sites specified in Section 611.356(c) and collecting the samples at times and locations specified in Section 611.356(d)(4)(D). Any such system that has not conducted a round of monitoring pursuant to Section 611.356(d) since September 30, 1997, must have completed a round of monitoring pursuant to this subsection (b) no later than September 30, 2000.

C) Any water system deemed to have optimized corrosion control pursuant to this subsection (b) must notify the Agency in writing pursuant to Section 611.360(a)(3) of any upcoming long-term change in treatment or the addition of a new source, as described in that Section. The Agency must review and approve the addition of a new source or any long-term change in water treatment before the addition or long-term change is implemented by the water system.

D) A supplier is not deemed to have optimized corrosion control under this subsection (b), and must implement corrosion control treatment pursuant to subsection (b)(3)(E) of this Section, unless it meets the copper action level.

E) Any supplier triggered into corrosion control because it is no longer deemed to have optimized corrosion control under this subsection must implement corrosion control treatment in accordance with the deadlines in subsection (e) of this Section. Any such large system supplier must adhere to the schedule specified in that subsection (e) for a medium-sized system supplier,

with the time periods for completing each step being triggered by the date the supplier is no longer deemed to have optimized corrosion control under this subsection (b).

c) Suppliers not required to complete corrosion control steps for having met both action levels.

1) Any small system or medium-sized system supplier, otherwise required to complete the corrosion control steps due to its exceedance of the lead or copper action level, may cease completing the treatment steps after the supplier has fulfilled both of the following conditions:

A) It has met both the copper action level and the lead action level during each of two consecutive six-month monitoring periods conducted pursuant to Section 611.356; and

B) The supplier has submitted the results for those two consecutive six-month monitoring periods to the Agency.

2) A supplier that has ceased completing the corrosion control steps pursuant to subsection (c)(1) of this Section (or the Agency, if appropriate) must resume completion of the applicable treatment steps, beginning with the first treatment step that the supplier previously did not complete in its entirety, if the supplier thereafter exceeds the lead or copper action level during any monitoring period.

3) The Agency may, by SEP, require a supplier to repeat treatment steps previously completed by the supplier where it determines that this is necessary to properly implement the treatment requirements of this Section. Any such SEP must explain the basis for this decision.

4) The requirement for any small- or medium-sized system supplier to implement corrosion control treatment steps in accordance with subsection (e) of this Section (including systems deemed to have optimized corrosion control under subsection (b)(1) of this Section) is triggered whenever any small- or medium-sized system supplier exceeds the lead or copper action level.

d) Treatment steps and deadlines for large systems. Except as provided in subsections (b)(2) and (b)(3) of this Section, large system suppliers must complete

the following corrosion control treatment steps (described in the referenced portions of Sections 611.352, 611.356, and 611.357) on or before the indicated dates.

1) Step 1: The supplier must have conducted initial monitoring (Sections 611.356(d)(1) and 611.357(b)) during two consecutive six-month monitoring periods on or before January 1, 1993.

2) Step 2: The supplier must have completed corrosion control studies (Section 611.352(c)) on or before July 1, 1994.

3) Step 3: The Agency must have approved optimal corrosion control treatment (Section 611.352(d)) by a SEP issued pursuant to Section 611.110 on or before January 1, 1995.

4) Step 4: The supplier must have installed optimal corrosion control treatment (Section 611.352(e)) by January 1, 1997.

5) Step 5: The supplier must have completed follow-up sampling (Sections 611.356(d)(2) and 611.357(c)) by January 1, 1998.

6) Step 6: The Agency must have reviewed installation of treatment and approve optimal water quality control parameters (Section 611.352(f)) by July 1, 1998.

7) Step 7: The supplier must operate in compliance with the Agency-specified optimal water quality control parameters (Section 611.352(g)) and continue to conduct tap sampling (Sections 611.356(d)(3) and 611.357(d)).

e) Treatment steps and deadlines for small- and medium-sized system suppliers. Except as provided in subsection (b) of this Section, small- and medium-sized system suppliers must complete the following corrosion control treatment steps (described in the referenced portions of Sections 611.352, 611.356, and 611.357) by the indicated time periods.

1) Step 1: The supplier must conduct initial tap sampling (Sections 611.356(d)(1) and 611.357(b)) until the supplier either exceeds the lead action level or the copper action level or it becomes eligible for reduced

monitoring under Section 611.356(d)(4). A supplier exceeding the lead action level or the copper action level must recommend optimal corrosion control treatment (Section 611.352(a)) within six months after the end of the monitoring period during which it exceeds one of the action levels.

2) Step 2: Within 12 months after the end of the monitoring period during which a supplier exceeds the lead action level or the copper action level, the Agency may require the supplier to perform corrosion control studies (Section 611.352(b)). If the Agency does not require the supplier to perform such studies, the Agency must, by a SEP issued pursuant to Section 611.110, specify optimal corrosion control treatment (Section 611.352(d)) within the appropriate of the following timeframes:

A) For medium-sized systems, within 18 months after the end of the monitoring period during which such supplier exceeds the lead action level or the copper action level; or

B) For small systems, within 24 months after the end of the monitoring period during which such supplier exceeds the lead action level or the copper action level.

3) Step 3: If the Agency requires a supplier to perform corrosion control studies under step 2 (subsection (e)(2) of this Section), the supplier must complete the studies (Section 611.352(c)) within 18 months after the Agency requires that such studies be conducted.

4) Step 4: If the supplier has performed corrosion control studies under step 2 (subsection (e)(2) of this Section), the Agency must, by a SEP issued pursuant to Section 611.110, approve optimal corrosion control treatment (Section 611.352(d)) within six months after completion of step 3 (subsection (e)(3) of this Section).

5) Step 5: The supplier must install optimal corrosion control treatment (Section 611.352(e)) within 24 months after the Agency approves such treatment.

6) Step 6: The supplier must complete follow-up sampling (Sections 611.356(d)(2) and 611.357(c)) within 36 months after the Agency approves optimal corrosion control treatment.

7) Step 7: The Agency must review the supplier's installation of treatment and, by a SEP issued pursuant to Section 611.110, approve optimal water quality control parameters (Section 611.352(f)) within six months after completion of step 6 (subsection (e)(6) of this Section).

8) Step 8: The supplier must operate in compliance with the Agency-approved optimal water quality control parameters (Section 611.352(g)) and continue to conduct tap sampling (Sections 611.356(d)(3) and 611.357(d)).

BOARD NOTE: Derived from 40 CFR 141.81 (2014).

(Source: Amended at 39 Ill. Reg. 15352, effective November 13, 2015)

Section 611.352 Corrosion Control Treatment

Each supplier must complete the corrosion control treatment requirements described below that are applicable to such supplier under Section 611.351.

a) System recommendation regarding corrosion control treatment.

1) Based on the results of lead and copper tap monitoring and water quality parameter monitoring, small- and medium-sized system suppliers exceeding the lead action level or the copper action level must recommend to the Agency installation of one or more of the corrosion control treatments listed in subsection (c)(1) of this Section that the supplier believes constitutes optimal corrosion control for its system.

2) The Agency may, by a SEP issued pursuant to Section 611.110, require the supplier to conduct additional water quality parameter monitoring in accordance with Section 611.357(b) to assist it in reviewing the supplier's recommendation.

b) Agency-required studies of corrosion control treatment. The Agency may, by a SEP issued pursuant to Section 611.110, require any small- or medium-sized system supplier that exceeds the lead action level or the copper action level to perform corrosion control studies under subsection (c) of this Section to identify optimal corrosion control treatment for its system.

c) Performance of studies.

1) Any supplier performing corrosion control studies must evaluate the effectiveness of each of the following treatments, and, if appropriate,

combinations of the following treatments, to identify the optimal corrosion control treatment for its system:

A) Alkalinity and pH adjustment;

B) Calcium hardness adjustment; and

C) The addition of a phosphate- or silicate-based corrosion inhibitor at a concentration sufficient to maintain an effective residual concentration in all test tap samples.

2) The supplier must evaluate each of the corrosion control treatments using pipe rig/loop tests; metal coupon tests; partial-system tests; or analyses based on documented analogous treatments in other systems of similar size, water chemistry, and distribution system configuration.

3) The supplier must measure the following water quality parameters in any tests conducted under this subsection (c) before and after evaluating the corrosion control treatments listed above:

A) Lead;

B) Copper;

C) pH;

D) Alkalinity;

E) Calcium;

F) Conductivity;

G) Orthophosphate (when an inhibitor containing a phosphate compound is used);

H) Silicate (when an inhibitor containing a silicate compound is used); and

I) Water temperature.

4) The supplier must identify all chemical or physical constraints that limit or prohibit the use of a particular corrosion control treatment, and document such constraints with at least one of the following:

A) Data and documentation showing that a particular corrosion control treatment has adversely affected other water treatment processes when used by another supplier with comparable water quality characteristics; or

B) Data and documentation demonstrating that the supplier has previously attempted to evaluate a particular corrosion control treatment, finding either that the treatment is ineffective or that it adversely affects other water quality treatment processes.

5) The supplier must evaluate the effect of the chemicals used for corrosion control treatment on other water quality treatment processes.

6) On the basis of an analysis of the data generated during each evaluation, the supplier must recommend to the Agency, in writing, that treatment option the corrosion control studies indicate constitutes optimal corrosion control treatment for its system. The supplier must provide a rationale for its recommendation, along with all supporting documentation specified in subsections (c)(1) through (c)(5) of this Section.

d) Agency approval of treatment.

1) Based on consideration of available information including, where applicable, studies performed under subsection (c) of this Section and a supplier's recommended treatment alternative, the Agency must, by a SEP issued pursuant to Section 611.110, either approve the corrosion control treatment option recommended by the supplier, or deny and require investigation and recommendation of alternative corrosion control treatments from among those listed in subsection (c)(1) of this Section. When approving optimal treatment, the Agency must consider the effects that additional corrosion control treatment will have on water quality parameters and on other water quality treatment processes.

2) The Agency must, in any SEP issued under subsection (d)(1) of this Section, notify the supplier of the basis for this determination.

e) Installation of optimal corrosion control. Each supplier must properly install and operate, throughout its distribution system, that optimal corrosion control treatment approved by the Agency pursuant to subsection (d) of this Section.

f) Agency review of treatment and specification of optimal water quality control parameters. The Agency must evaluate the results of all lead and copper tap samples and water quality parameter samples submitted by the supplier and

determine whether it has properly installed and operated the optimal corrosion control treatment approved pursuant to subsection (d) of this Section.

1) Upon reviewing the results of tap water and water quality parameter monitoring by the supplier, both before and after the installation of optimal corrosion control treatment, the Agency must, by a SEP issued pursuant to Section 611.110, specify the following:

A) A minimum value or a range of values for pH measured at each entry point to the distribution system;

B) A minimum pH value, measured in all tap samples. Such value must be equal to or greater than 7.0, unless the Agency determines that meeting a pH level of 7.0 is not technologically feasible or is not necessary for the supplier to optimize corrosion control;

C) If a corrosion inhibitor is used, a minimum concentration or a range of concentrations for the inhibitor, measured at each entry point to the distribution system and in all tap samples, that the Agency determines is necessary to form a passivating film on the interior walls of the pipes of the distribution system;

D) If alkalinity is adjusted as part of optimal corrosion control treatment, a minimum concentration or a range of concentrations for alkalinity, measured at each entry point to the distribution system and in all tap samples;

E) If calcium carbonate stabilization is used as part of corrosion control, a minimum concentration or a range of concentrations for calcium, measured in all tap samples.

2) The values for the applicable water quality control parameters listed in subsection (f)(1) of this Section must be those that the Agency determines reflect optimal corrosion control treatment for the supplier.

3) The Agency may, by a SEP issued pursuant to Section 611.110, approve values for additional water quality control parameters determined by the Agency to reflect optimal corrosion control for the supplier's system.

4) The Agency must, in issuing a SEP, explain these determinations to the supplier, along with the basis for its decisions.

g) Continued Operation and Monitoring. All suppliers optimizing corrosion control must continue to operate and maintain optimal corrosion control treatment, including maintaining water quality parameter values at or above minimum values

or within ranges approved by the Agency under subsection (f) of this Section, in accordance with this subsection (g) for all samples collected under Section 611.357(d) through (f). Compliance with the requirements of this subsection (g) must be determined every six months, as specified under Section 611.357(d). A water system is out of compliance with the requirements of this subsection for a six-month period if it has excursions for any Agency-specified parameter on more than nine days during the period. An excursion occurs whenever the daily value for one or more of the water quality parameters measured at a sampling location is below the minimum value or outside the range designated by the Agency. Daily values are calculated as provided in subsections (g)(1) through (g)(3) of this Section. The Agency must delete results that it determines are obvious sampling errors from this calculation.

1) On days when more than one measurement for the water quality parameter is collected at the sampling location, the daily value must be the average of all results collected during the day regardless of whether the samples are collected through continuous monitoring, grab sampling, or a combination of both.

BOARD NOTE: Corresponding 40 CFR 141.82(g)(1) further provides as follows: If USEPA approves an alternative formula under 40 CFR 142.16 in the State's application for a program revision submitted pursuant to 40 CFR 142.12, the State's formula must be used to aggregate multiple measurements taken at a sampling point for the water quality parameter in lieu of the formula in this subsection (g).

2) On days when only one measurement for the water quality parameter is collected at the sampling location, the daily value must be the result of that measurement.

3) On days when no measurement is collected for the water quality parameter at the sampling location, the daily value must be the daily value calculated on the most recent day on which the water quality parameter was measured at the sample site.

h) Modification of Agency treatment decisions.

1) On its own initiative, or in response to a request by a supplier, the Agency may, by a SEP issued pursuant to this subsection and Section 611.110, modify its determination of the optimal corrosion control treatment under subsection (d) of this Section or of the optimal water quality control parameters under subsection (f) of this Section.

2) A request for modification must be in writing, explain why the modification is appropriate, and provide supporting documentation.

3) The Agency may modify its determination where it determines that such change is necessary to ensure that the supplier continues to optimize corrosion control treatment. A revised determination must set forth the new treatment requirements, explain the basis for the Agency's decision, and provide an implementation schedule for completing the treatment modifications.

4) Any interested person may submit information to the Agency bearing on whether the Agency should, within its discretion, issue a SEP to modify its determination pursuant to subsection (h)(1) of this Section. An Agency determination not to act on a submission of such information by an interested person is not an Agency determination for the purposes of Sections 39 and 40 of the Act [415 ILCS 5/39 and 40].

i) Treatment decisions by USEPA. Pursuant to the procedures in 40 CFR 142.19, the USEPA Regional Administrator has reserved the prerogative to review treatment determinations made by the Agency under subsections (d), (f), or (h) of this Section and issue federal treatment determinations consistent with the requirements of 40 CFR 141.82(d), (e), or (h), where the Regional Administrator finds that the following is true:

1) The Agency has failed to issue a treatment determination by the applicable deadlines contained in Section 611.351 (40 CFR 141.81);

2) The Agency has abused its discretion in a substantial number of cases or in cases affecting a substantial population; or

3) The technical aspects of the Agency's determination would be indefensible in an expected federal enforcement action taken against a supplier.

BOARD NOTE: Derived from 40 CFR 141.82 (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.353 Source Water Treatment

Suppliers must complete the applicable source water monitoring and treatment requirements (described in the referenced portions of subsection (b) of this Section, and in Sections 611.356 and 611.358) by the following deadlines.

a) Deadlines for completing source water treatment steps.

1) Step 1: A supplier exceeding the lead action level or the copper action level must complete lead and copper and source water monitoring (Section

611.358(b)) and make a treatment recommendation to the Agency (subsection (b)(1) of this Section) within 180 days after the end of the monitoring period during which the supplier exceeded the pertinent action level.

2) Step 2: The Agency must, by a SEP issued pursuant to Section 611.110, make a determination regarding source water treatment (subsection (b)(2) of this Section) within six months after submission of monitoring results under step 1.

3) Step 3: If the Agency requires installation of source water treatment, the supplier must install that treatment (subsection (b)(3) of this Section) within 24 months after completion of step 2.

4) Step 4: The supplier must complete follow-up tap water monitoring (Section 611.356(d)(2)) and source water monitoring (Section 611.358(c)) within 36 months after completion of step 2.

5) Step 5: The Agency must, by a SEP issued pursuant to Section 611.110, review the supplier's installation and operation of source water treatment and specify MPCs for lead and copper (subsection (b)(4) of this Section) within six months after completion of step 4.

6) Step 6: The supplier must operate in compliance with the Agency-specified lead and copper MPCs (subsection (b)(4) of this Section) and continue source water monitoring (Section 611.358(d)).

b) Description of Source Water Treatment Requirements.

1) System treatment recommendation. Any supplier that exceeds the lead action level or the copper action level must recommend in writing to the Agency the installation and operation of one of the source water treatments listed in subsection (b)(2) of this Section. A supplier may recommend that no treatment be installed based on a demonstration that source water treatment is not necessary to minimize lead and copper levels at users' taps.

2) Agency determination regarding source water treatment.

A) The Agency must complete an evaluation of the results of all source water samples submitted by the supplier to determine whether source water treatment is necessary to minimize lead or copper levels in water delivered to users' taps.

B) If the Agency determines that treatment is needed, the Agency must, by a SEP issued pursuant to Section 611.110, either require installation and operation of the source water treatment recommended by the supplier (if any) or require the installation and operation of another source water treatment from among the following:

i) ion exchange;

ii) reverse osmosis;

iii) lime softening; or

iv) coagulation/filtration.

C) The Agency may request and the supplier must submit such additional information, on or before a certain date, as the Agency determines is necessary to aid in its review.

D) The Agency must notify the supplier in writing of its determination and set forth the basis for its decision.

3) Installation of source water treatment. Each supplier must properly install and operate the source water treatment approved by the Agency under subsection (b)(2) of this Section.

4) Agency review of source water treatment and specification of maximum permissible source water levels (MPCs).

A) The Agency must review the source water samples taken by the supplier both before and after the supplier installs source water treatment, and determine whether the supplier has properly installed and operated the approved source water treatment.

B) Based on its review, the Agency must, by a SEP issued pursuant to Section 611.110, approve the lead and copper MPCs for finished water entering the supplier's distribution system. Such levels must reflect the contaminant removal capability of the treatment properly operated and maintained.

C) The Agency must explain the basis for its decision under subsection (b)(4)(B) of this Section.

5) Continued operation and maintenance. Each supplier must maintain lead and copper levels below the MPCs approved by the Agency at each

sampling point monitored in accordance with Section 611.358. The supplier is out of compliance with this subsection if the level of lead or copper at any sampling point is greater than the MPC approved by the Agency pursuant to subsection (b)(4)(B) of this Section.

6) Modification of Agency treatment decisions.

A) On its own initiative, or in response to a request by a supplier, the Agency may, by a SEP issued pursuant to Section 611.110, modify its determination of the source water treatment under subsection (b)(2) of this Section, or the lead and copper MPCs under subsection (b)(4) of this Section.

B) A request for modification by a supplier must be in writing, explain why the modification is appropriate, and provide supporting documentation.

C) The Agency may, by a SEP issued pursuant to Section 611.110, modify its determination where it concludes that such change is necessary to ensure that the supplier continues to minimize lead and copper concentrations in source water.

D) A revised determination made pursuant to subsection (b)(6)(C) of this Section must set forth the new treatment requirements, explain the basis for the Agency's decision, and provide an implementation schedule for completing the treatment modifications.

E) Any interested person may submit information to the Agency, in writing, that bears on whether the Agency should, within its discretion, issue a SEP to modify its determination pursuant to subsection (h)(1) of this Section. An Agency determination not to act on a submission of such information by an interested person is not an Agency determination for the purposes of Sections 39 and 40 of the Act [415 ILCS 5/39 and 40].

7) Treatment decisions by USEPA. Pursuant to the procedures in 40 CFR 142.19, the USEPA Regional Administrator reserves the prerogative to review treatment determinations made by the Agency under subsections (b)(2), (b)(4), or (b)(6) of this Section and issue federal treatment determinations consistent with the requirements of 40 CFR 141.83(b)(2), (b)(4), and (b)(6), where the Administrator finds that the following is true:

A) the Agency has failed to issue a treatment determination by the applicable deadline contained in subsection (a) of this Section;

B) the Agency has abused its discretion in a substantial number of cases or in cases affecting a substantial population; or

C) the technical aspects of the Agency's determination would be indefensible in an expected federal enforcement action taken against a supplier.

BOARD NOTE: Derived from 40 CFR 141.83 (2007), as amended at 57782 (October 10, 2007).

(Source: Amended at 33 Ill. Reg. 633, effective December 30, 2008)

Section 611.354 Lead Service Line Replacement

a) Suppliers required to replace lead service lines.

1) If the results from tap samples taken pursuant to Section 611.356(d)(2) exceed the lead action level after the supplier has installed corrosion control or source water treatment (whichever sampling occurs later), the supplier must recommence replacing lead service lines in accordance with the requirements of subsection (b) of this Section.

2) If a supplier is in violation of Section 611.351 or Section 611.353 for failure to install source water or corrosion control treatment, the Agency may, by a SEP issued pursuant to Section 611.110, require the supplier to commence lead service line replacement under this Section after the date by which the supplier was required to conduct monitoring under Section 611.356(d)(2) has passed.

b) Annual replacement of lead service lines.

1) Initiation of a lead service line replacement program.

A) A supplier that is required to commence lead service line replacement pursuant to subsection (a) of this Section must annually replace at least seven percent of the initial number of lead service lines in its distribution system.

B) The initial number of lead service lines is the number of lead lines in place at the time the replacement program begins.

C) The supplier must identify the initial number of lead service lines in its distribution system, including an identification of the portions of the system owned by the supplier, based on a materials evaluation, including the evaluation required under Section

611.356(a) and relevant legal authorities (e.g., contracts, local ordinances) regarding the portion owned by the system.

D) The first year of lead service line replacement must begin on the first day following the end of the monitoring period in which the supplier exceeded the action level pursuant to subsection (a) of this Section.

E) If monitoring is required annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs.

F) If the Agency has established an alternate monitoring period by a SEP issued pursuant to Section 611.110, then the end of the monitoring period will be the last day of that period.

2) Resumption of a lead service line replacement program after cessation.

A) A supplier that is resuming a program after cessation of its lead service line replacement program, as allowed pursuant to subsection (f) of this Section, must update its inventory of lead service lines to include those sites that it had previously determined did not require replacement pursuant to the sampling provision of subsection (c) of this Section.

B) The supplier will then divide the updated number of remaining lead service lines by the number of remaining years in the program to determine the number of lines that must be replaced per year (seven percent lead service line replacement is based on a 15-year replacement program, so that, for example, a supplier resuming lead service line replacement after previously conducting two years of replacement would divide the updated inventory by 13).

C) For a supplier that has completed a 15-year lead service line replacement program, the Agency must, by a SEP issued pursuant to Section 611.110, determine a schedule for replacing or retesting lines that were previously tested out under the completed replacement program, whenever the supplier has re-exceeded the action level.

c) Service lines not needing replacement. A supplier is not required to replace any individual lead service line for which the lead concentrations in all service line samples taken from that line pursuant to Section 611.356(b)(3) are less than or equal to 0.015 mg/ℓ.

d) A water supplier must replace that portion of the lead service line that it owns. In cases where the supplier does not own the entire lead service line, the supplier must notify the owner of the line, or the owner's authorized agent, that the supplier will replace the portion of the service line that it owns and must offer to replace the owner's portion of the line. A supplier is not required to bear the cost of replacing the privately-owned portion of the line, nor is it required to replace the privately-owned portion where the owner chooses not to pay the cost of replacing the privately-owned portion of the line, or where replacing the privately-owned portion would be precluded by State, local, or common law. A water supplier that does not replace the entire length of the service line also must complete the following tasks:

1) Notice Prior to Commencement of Work.

A) At least 45 days prior to commencing the partial replacement of a lead service line, the water supplier must provide notice to the residents of all buildings served by the line explaining that they may experience a temporary increase of lead levels in their drinking water, along with guidance on measures consumers can take to minimize their exposure to lead.

B) The Agency, by issuing an appropriate SEP, may allow the water supplier to provide notice under the previous sentence less than 45 days prior to commencing partial lead service line replacement where it determines that such replacement is in conjunction with emergency repairs.

C) In addition, the water supplier must inform the residents served by the line that the supplier will, at the supplier's expense, collect a sample from each partially-replaced lead service line that is representative of the water in the service line for analysis of lead content, as prescribed by Section 611.356(b)(3), within 72 hours after the completion of the partial replacement of the service line. The supplier must collect the sample and report the results of the analysis to the owner and the residents served by the line within three business days of receiving the results.

D) Mailed notices post-marked within three business days of receiving the results must be considered "on time."

2) The water supplier must provide the information required by subsection (d)(1) of this Section to the residents of individual dwellings by mail or by other methods approved by the Agency by a SEP issued pursuant to Section 611.110. In instances where multi-family dwellings are served by

the service line, the water supplier must have the option to post the information at a conspicuous location.

e) Agency determination of shorter replacement schedule.

1) The Agency must, by a SEP issued pursuant to Section 611.110, require a supplier to replace lead service lines on a shorter schedule than that otherwise required by this Section if it determines, taking into account the number of lead service lines in the system, that such a shorter replacement schedule is feasible.

2) The Agency must notify the supplier of its finding pursuant to subsection (e)(1) of this Section within six months after the supplier is triggered into lead service line replacement based on monitoring, as referenced in subsection (a) of this Section.

f) Cessation of service line replacement.

1) Any supplier may cease replacing lead service lines whenever it fulfills both of the following conditions:

A) First draw tap samples collected pursuant to Section 611.356(b)(2) meet the lead action level during each of two consecutive six-month monitoring periods; and

B) The supplier has submitted those results to the Agency.

2) If any of the supplier's first draw tap samples thereafter exceed the lead action level, the supplier must recommence replacing lead service lines pursuant to subsection (b)(2) of this Section.

g) To demonstrate compliance with subsections (a) through (d) of this Section, a supplier must report to the Agency the information specified in Section 611.360(e).

BOARD NOTE: Derived from 40 CFR 141.84 (2007), as amended at 57782 (October 10, 2007).

(Source: Amended at 33 Ill. Reg. 633, effective December 30, 2008)

Section 611.355 Public Education and Supplemental Monitoring

A supplier that exceeds the lead action level based on tap water samples collected in accordance with Section 611.356 must deliver the public education materials required by subsection (a) of

this Section in accordance with the requirements of subsection (b) of this Section. A supplier that exceeds the lead action level must sample the tap water of any customer who requests it in accordance with subsection (c) of this Section. A supplier must deliver a consumer notice of lead tap water monitoring results to persons who are served by the supplier at each site that the supplier has tested, as specified in subsection (d) of this Section.

a) Content of written public education materials.

1) Community water systems and non-transient non-community water systems. A CWS or NTNCWS supplier must include the following elements in printed materials (e.g., brochures and pamphlets) in the same order as listed in subsections (a)(1)(A) through (a)(1)(F) of this Section. In addition, the supplier must include the language set forth in subsections (a)(1)(A), (a)(1)(B), and (a)(1)(F) of this Section in the materials, exactly as written, except for the text in brackets in these subsections, for which the supplier must include system-specific information. Any additional information presented by a supplier must be consistent with the information set forth in subsections (a)(1)(A) through (a)(1)(F) of this Section, and the supplier must present the additional information in plain language that can be understood by the general public. The supplier must submit all written public education materials to the Agency.

A) IMPORTANT INFORMATION ABOUT LEAD IN YOUR DRINKING WATER. [INSERT NAME OF SUPPLIER] found elevated levels of lead in drinking water in some homes/buildings. Lead can cause serious health problems, especially for pregnant women and young children. Please read this information closely to see what you can do to reduce lead in your drinking water.

BOARD NOTE: The supplier must use the verbatim text set forth in this subsection (a)(1)(A), with the exception that the supplier must insert its name in place of the bracketed text.

B) Health effects of lead. Lead can cause serious health problems if too much enters your body from drinking water or other sources. It can cause damage to the brain and kidneys, and can interfere with the production of red blood cells that carry oxygen to all parts of your body. The greatest risk of lead exposure is to infants, young children, and pregnant women. Scientists have linked the effects of lead on the brain with lowered IQ in children. Adults with kidney problems and high blood pressure can be affected by low levels of lead more than healthy adults. Lead is stored in the

bones, and it can be released later in life. During pregnancy, the child receives lead from the mother's bones, which may affect brain development.

BOARD NOTE: The supplier must use the verbatim text set forth in this subsection (a)(1)(B).

C) Sources of Lead.

i) Explain what lead is.

ii) Explain possible sources of lead in drinking water and how lead enters drinking water. Include information on home and building plumbing materials and service lines that may contain lead.

iii) Discuss other important sources of lead exposure in addition to drinking water (e.g., paint).

BOARD NOTE: The supplier must use text that provides the information described in this subsection (a)(1)(C).

D) Discuss the steps the consumer can take to reduce his or her exposure to lead in drinking water.

i) Encourage running the water to flush out the lead.

ii) Explain concerns with using hot water from the tap and specifically caution against the use of hot water for preparing baby formula.

iii) Explain that boiling water does not reduce lead levels.

iv) Discuss other options consumers can take to reduce exposure to lead in drinking water, such as alternative sources or treatment of water.

v) Suggest that parents have their child's blood tested for lead.

BOARD NOTE: The supplier must use text that provides the information described in this subsection (a)(1)(D).

E) Explain why there are elevated levels of lead in the supplier's drinking water (if known) and what the supplier is doing to reduce the lead levels in homes and buildings in this area.

BOARD NOTE: The supplier must use text that provides the information described in this subsection (a)(1)(E).

F) For more information, call us at [INSERT THE SUPPLIER'S NUMBER] [(IF APPLICABLE), or visit our Web site at [INSERT THE SUPPLIER'S WEB SITE HERE]]. For more information on reducing lead exposure around your home/building and the health effects of lead, visit USEPA's Web site at *http://www.epa.gov/lead* or contact your health care provider.

BOARD NOTE: The supplier must use the verbatim text set forth in this subsection (a)(1)(F), with the exception that the supplier must insert its name in place of the first segment of bracketed text, and it must add the second segment of bracketed text and substitute its Web address for the internal bracketed text.

2) Community water systems. In addition to including the elements specified in subsection (a)(1) of this Section, a CWS supplier must do both of the following:

A) It must tell consumers how to get their water tested; and

B) It must discuss lead in plumbing components and the difference between low-lead and lead-free components.

BOARD NOTE: At corresponding 40 CFR 141.85(a)(1) (2007), USEPA allowed the State to require prior approval of written public information materials. Rather than require prior Agency approval, the Board has chosen to allow the Agency to raise any deficiencies that it may perceive using its existing procedure for review of public education materials. The Agency has outlined its standard practice for

review of public information materials as follows: The Agency provides a comprehensive public education packet to the supplier together with the notice that the supplier has exceeded the lead action level. That packet includes guidance and templates for the supplier to use in preparing and distributing its public education materials. The supplier must send a copy of the public education materials that it distributes to the Agency, and the Agency reviews the copy of the materials after their distribution to the public. The Agency directly communicates to the supplier any perceived defects in the materials. The Agency will request correction when it perceives minor defects in future distributions of the public education materials, or the Agency will request a redistribution of corrected public education materials when it perceives major defects in the materials already distributed.

b) Delivery of public education materials.

1) The public education materials of a supplier that serves a large proportion of non-English-speaking consumers must contain information in the appropriate languages regarding the importance of the notice, or it must contain a telephone number or address where a person served may contact the supplier to obtain a translated copy of the public education materials or to request assistance in the appropriate language.

2) A CWS supplier that exceeds the lead action level on the basis of tap water samples collected in accordance with Section 611.356 and which is not already conducting public education tasks pursuant to this Section must, within 60 days after the end of the monitoring period in which the exceedance occurred, complete the public education tasks according to the following requirements:

A) The CWS supplier must deliver printed materials that meet the content requirements of subsection (a) of this Section to all of its bill-paying customers.

B) Methods of delivery for a CWS supplier.

i) The CWS supplier must contact customers who are most at risk by delivering education materials that meet the content requirements of subsection (a) of this Section to local public health agencies, even if the agencies are not located within the supplier's service area, along with an informational notice that encourages distribution to all of

the agencies' potentially affected customers or the supplier's users. The supplier must contact the local public health agencies directly by phone or in person. The local public health agencies may provide a specific list of additional community-based organizations that serve the target populations, which may include organizations outside the service area of the supplier. If such lists are provided, the supplier must deliver education materials that meet the content requirements of subsection (a) of this Section to each of the organizations on the provided lists.

ii) The CWS supplier must contact customers who are most at risk by delivering materials that meet the content requirements of subsection (a) of this Section to the organizations listed in subsections (b)(2)(H)(i) through (b)(2)(H)(vi) that are located within the supplier's service area, along with an informational notice that encourages distribution to all the organization's potentially affected customers or supplier's users.

BOARD NOTE: The Board found it necessary to move the text of 40 CFR 141.85(b)(2)(ii)(B)(*1*) through (b)(2)(ii)(B)(*6*) (2007), as added at 72 Fed. Reg. 57782 (Oct. 10, 2007), to appear as subsection (b)(2)(H)(i) through subsection (b)(2)(H)(vi) of this Section, in order to comport with Illinois Administrative Code codification requirements relating to allowed indent levels in rules.

iii) The CWS supplier must make a good faith effort to locate the organizations listed in subsections (b)(2)(I)(i) through (b)(2)(I)(iii) of this Section that are located within the service area and deliver materials that meet the content requirements of subsection (a) of this Section to them, along with an informational notice that encourages distribution to all potentially affected customers or users. The good faith effort to contact at-risk customers may include requesting a specific contact list of these organizations from the local public health agencies, even if the agencies are not located within the supplier's service area.

BOARD NOTE: The Board found it necessary to move the text of 40 CFR 141.85(b)(2)(ii)(C)(*1*) through (b)(2)(ii)(C)(*3*) (2007), as added at 72 Fed. Reg. 57782 (Oct. 10, 2007), to appear as subsection (b)(2)(I)(i) through subsection (b)(2)(I)(iii) of this Section, in order to comport with Illinois Administrative Code codification requirements relating to allowed indent levels in rules.

C) No less often than quarterly, the CWS supplier must provide information on or in each water bill as long as the system exceeds the action level for lead. The message on the water bill must include the following statement exactly as written, except for the text in brackets for which the supplier must include system-specific information:

> [INSERT NAME OF SUPPLIER] found high levels of lead in drinking water in some homes. Lead can cause serious health problems. For more information please call [INSERT NAME OF SUPPLIER] [or visit (INSERT SUPPLIER'S WEB SITE HERE)]. The message or delivery mechanism can be modified in consultation with the Illinois Environmental Protection Agency, Division of Public Water Supply; specifically, the Agency may allow a separate mailing of public education materials to customers if the water system cannot place the information on water bills.

D) The CWS supplier must post material meeting the content requirements of subsection (a) of this Section on the supplier's Web site if the CWS supplier serves a population greater than 100,000.

E) The CWS supplier must submit a press release to newspaper, television, and radio stations.

F) In addition to subsections (b)(2)(A) through (b)(2)(E) of this Section, the CWS supplier must implement at least three activities from one or more of the categories listed below. The educational content and selection of these activities must be determined in consultation with the Agency.

i) Public Service Announcements.

ii) Paid advertisements.

iii) Public Area Information Displays.

iv) E-mails to customers.

v) Public Meetings.

vi) Household Deliveries.

vii) Targeted Individual Customer Contact.

viii) Direct material distribution to all multi-family homes and institutions.

ix) Other methods approved by the State.

G) For a CWS supplier that is required to conduct monitoring annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs, or, if the Agency has established an alternate monitoring period, by a SEP issued pursuant to Section 611.110, the last day of that period.

H) Organizations that the CWS supplier must contact when required to do so pursuant to subsection (b)(2)(B)(ii) of this Section.

i) Public and private schools or school boards.

ii) Women, Infants and Children (WIC) and Head Start programs.

iii) Public and private hospitals and medical clinics.

vi) Pediatricians.

v) Family planning clinics.

vi) Local welfare agencies.

BOARD NOTE: This subsection (b)(2)(H) corresponds with 40 CFR 141.85(b)(2)(ii)(B)(*1*) through (b)(2)(ii)(B)(*6*) (2007), as added at 72 Fed. Reg. 57782 (Oct. 10, 2007). The Board found it necessary to move the text of those federal provisions to comport with Illinois Administrative Code codification requirements relating to allowed indent levels in rules.

I) Organizations that the CWS supplier must contact when required to do so pursuant to subsection (b)(2)(B)(iii) of this Section.

i) Licensed childcare centers.

ii) Public and private preschools.

iii) Obstetricians-gynecologists and midwives.

BOARD NOTE: This subsection (b)(2)(H) corresponds with 40 CFR 141.85(b)(2)(ii)(C)(*1*) through (b)(2)(ii)(C)(*3*) (2007), as added at 72 Fed. Reg. 57782 (Oct. 10, 2007). The Board found it necessary to move the text of those federal provisions to comport with Illinois Administrative Code codification requirements relating to allowed indent levels in rules.

3) As long as a CWS supplier exceeds the action level, it must repeat the activities described in subsection (b)(2) of this Section, as described in subsections (b)(3)(A) through (b)(3)(D) of this Section.

A) A CWS supplier must repeat the tasks contained in subsections (b)(2)(A), (b)(2)(B) and (b)(2)(D) of this Section every 12 months.

B) A CWS supplier must repeat tasks contained in subsection (b)(2)(C) of this Section with each billing cycle.

C) A CWS supplier serving a population greater than 100,000 must post and retain material on a publicly accessible Web site pursuant to subsection (b)(2)(D) of this Section.

D) The CWS supplier must repeat the task in subsection (b)(2)(E) of this Section twice every 12 months on a schedule agreed upon with the Agency by a SEP issued pursuant to Section 611.110. The Agency must, on a case-by-case basis, by a SEP issued pursuant to Section 611.110, extend the time for the supplier to complete the public education tasks set forth in subsection (b)(2) of this Section beyond the 60-day limit if it determines that the extended time is needed for implementation purposes; however, the Agency must issue the SEP granting any extension prior to expiration of the 60-day deadline.

4) Within 60 days after the end of the monitoring period in which a NTNCWS supplier exceeds the lead action level (unless it already is repeating public education tasks pursuant to subsection (b)(5) of this Section), it must deliver the public education materials specified by subsection (a) of this Section, as in subsections (b)(4)(A) and (b)(4)(B) of this Section, subject to the limitation set forth in subsection (b)(4)(C) of this Section:

A) The NTNCWS supplier must post informational posters on lead in drinking water in a public place or common area in each of the buildings served by the supplier; and

B) The NTNCWS supplier must distribute informational pamphlets or brochures on lead in drinking water to each person served by the NTNCWS supplier. The Agency may, by a SEP issued pursuant to Section 611.110, allow the system to utilize electronic transmission in lieu of or combined with printed materials as long as it achieves at least the same coverage.

C) For a NTNCWS supplier that is required to conduct monitoring annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs, or, if the Agency has established an alternate monitoring period, by a SEP issued pursuant to Section 611.110, the last day of that period.

5) A NTNCWS supplier must repeat the tasks set forth in subsection (b)(4) of this Section at least once during each calendar year in which the supplier exceeds the lead action level. The Agency must, on a case-by-case basis, by a SEP issued pursuant to Section 611.110, extend the time for the supplier to complete the public education tasks set forth in subsection (b)(2) of this Section beyond the 60-day limit if it determines that the extended time is needed for implementation purposes; however, the Agency must issue the SEP granting any extension prior to expiration of the 60-day deadline.

6) A supplier may discontinue delivery of public education materials after it has met the lead action level during the most recent six-month monitoring period conducted pursuant to Section 611.356. Such a supplier must begin public education anew in accordance with this Section if it subsequently exceeds the lead action level during any six-month monitoring period.

7) A CWS supplier may apply to the Agency, in writing, to use only the text specified in subsection (a)(1) of this Section in lieu of the text in subsections (a)(1) and (a)(2) of this Section and to perform the tasks listed in subsections (b)(4) and (b)(5) of this Section in lieu of the tasks in subsections (b)(2) and (b)(3) of this Section if the following are true:

A) The supplier is a facility, such as a prison or a hospital, where the population served is not capable of or is prevented from making improvements to plumbing or installing point of use treatment devices; and

B) The system provides water as part of the cost of services provided, and it does not separately charge for water consumption.

8) A CWS supplier that serves 3,300 or fewer people may limit certain aspects of its public education programs as follows:

A) With respect to the requirements of subsection (b)(2)(F) of this Section, a supplier that serves 3,300 or fewer people must implement at least one of the activities listed in that subsection.

B) With respect to the requirements of subsection (b)(2)(B) of this Section, a supplier that serves 3,300 or fewer people may limit the distribution of the public education materials required under that

subsection to facilities and organizations that it serves which are most likely to be visited regularly by pregnant women and children.

C) With respect to the requirements of subsection (b)(2)(E) of this Section, the Agency may, by a SEP issued pursuant to Section 611.110, waive this requirement for a supplier that serves 3,300 or fewer persons, as long as the supplier distributes notices to every household that it serves.

c) Supplemental monitoring and notification of results. A supplier that fails to meet the lead action level on the basis of tap samples collected in accordance with Section 611.356 must offer to sample the tap water of any customer who requests it. The supplier is not required to pay for collecting or analyzing the sample, nor is the supplier required to collect and analyze the sample itself.

d) Requirement for consumer notice of tap water monitoring results.

1) Consumer notice requirement. A supplier must provide a notice of the individual tap results from lead tap water monitoring carried out under the requirements of Section 611.356 to the persons served by the water system at the specific sampling site from which the sample was taken (e.g., the occupants of the residence where the tap was tested).

2) Timing of consumer notice. The supplier must provide the consumer notice as soon as practical, but no later than 30 days after it learns of the tap monitoring results.

3) Content of consumer notice. The consumer notice must include the results of lead tap water monitoring for the tap that was tested, an explanation of the health effects of lead, a list of steps that consumers can take to reduce exposure to lead in drinking water, and contact information for the water utility. The notice must also provide the maximum contaminant level goal and the action level for lead and the definitions for these two terms from Section 611.883(c).

4) Delivery of consumer notice. The consumer notice must be provided to persons served at the tap that was tested, either by mail or by another method approved by the Agency, by a SEP issued pursuant to Section 611.110. For example, upon approval by the Agency, a NTNCWS supplier could post the results on a bulletin board in the facility to allow

users to review the information. The supplier must provide the notice to customers at sample taps tested, including consumers who do not receive water bills.

BOARD NOTE: Derived from 40 CFR 141.85 (2013).

(Source: Amended at 38 Ill. Reg. 3608, effective January 27, 2014)

Section 611.356 Tap Water Monitoring for Lead and Copper

a) Sampling site location.

1) Selecting a pool of targeted sampling sites.

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

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

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

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

2) Materials evaluation.

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

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

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

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

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

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

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

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

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

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

BOARD NOTE: Subsection (a)(3)(A) was derived from segments of 40 CFR 141.86(a)(3) (2007). This allows the pool of CWS tier 1 sampling sites to consist exclusively of structures served by lead service lines.

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

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

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

BOARD NOTE: Subsection (a)(3)(B) was derived from segments of 40 CFR 141.86(a)(4) (2007). This allows the pool of CWS tier 2 sampling sites to consist exclusively of structures served by lead service lines.

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

BOARD NOTE: Subsection (a)(3)(C) was derived from segments of 40 CFR 141.86(a)(5) (2007).

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

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

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

BOARD NOTE: Subsection (a)(3)(D) was derived from segments of 40 CFR 141.86(a)(6) (2007). This allows the pool of NTNCWS tier 1 sampling sites to consist exclusively of buildings served by lead service lines.

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

BOARD NOTE: Subsection (a)(3)(E) was derived from segments of 40 CFR 141.86(a)(7) (2007).

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

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

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

BOARD NOTE: Subsection (a)(4)(A)(i) was derived from a segment of 40 CFR 141.86(a)(3)(ii) (2007).

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

BOARD NOTE: Subsection (a)(4)(A)(ii) was derived from a segment of 40 CFR 141.86(a)(4) (2007).

iii) If the CWS supplier has an insufficient number of CWS tier 1 and CWS tier 2 sampling sites on its distribution system, the supplier may complete its sampling pool with CWS tier 3 sampling sites.

BOARD NOTE: Subsection (a)(4)(A)(iii) was derived from a segment of 40 CFR 141.86(a)(5) (2007).

iv) If the CWS supplier has an insufficient number of CWS tier 1 sampling sites, CWS tier 2 sampling sites, and CWS tier

3 sampling sites, the supplier must use those CWS tier 1 sampling sites, CWS tier 2 sampling sites, and CWS tier 3 sampling sites that it has and complete its sampling pool with representative sites throughout its distribution system for the balance of its sampling sites. For the purpose of this subsection (a)(4)(A)(iv), a representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

BOARD NOTE: Subsection (a)(4)(A)(iv) was derived from segments of 40 CFR 141.86(a)(5) (2007).

B) NTNCWS suppliers.

i) An NTNCWS supplier must select NTNCWS tier 1 sampling sites for its sampling pool.

BOARD NOTE: Subsection (a)(4)(B)(i) was derived from segments of 40 CFR 141.86(a)(6) (2007).

ii) If the NTNCWS supplier has an insufficient number of NTNCWS tier 1 sampling sites, the supplier may complete its sampling pool with alternative NTNCWS sampling sites.

BOARD NOTE: Subsection (a)(4)(B)(ii) was derived from segments of 40 CFR 141.86(a)(7) (2007).

iii) If the NTNCWS supplier has an insufficient number of NTNCWS tier 1 sampling sites and NTNCWS alternative sampling sites, the supplier must use representative sites throughout its distribution system. For the purpose of this subsection (a)(4)(B)(ii), a representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

BOARD NOTE: Subsection (a)(4)(B)(iii) was derived from segments of 40 CFR 141.86(a)(7) (2007).

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

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

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

iii) A supplier that cannot identify a sufficient number of sampling sites served by a lead service line must collect first-draw samples from all of the sites identified as being served by such lines.

BOARD NOTE: Subsection (a)(4)(C) was derived from segments of 40 CFR 141.86(a)(8) (2007). This allows the pool of sampling sites to consist exclusively of structures or buildings served by lead service lines.

b) Sample collection methods.

1) All tap samples for lead and copper collected in accordance with this Subpart G, with the exception of lead service line samples collected under Section 611.354(c) and samples collected under subsection (b)(5) of this Section, must be first-draw samples.

2) First-draw tap samples.

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

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

C) First-draw samples from a non-residential building must be one liter in volume and must be collected at an interior tap from which water is typically drawn for consumption.

D) Non-first-draw samples collected in lieu of first-draw samples pursuant to subsection (b)(5) of this Section must be one liter in volume and must be collected at an interior tap from which water is typically drawn for consumption.

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

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

ii) After acidification to resolubilize the metals, the sample must stand in the original container for the time specified in the approved USEPA method before the sample can be analyzed.

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

3) Service line samples.

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

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

i) At the tap after flushing that volume of water calculated as being between the tap and the lead service line based on the

interior diameter and length of the pipe between the tap and the lead service line;

ii) Tapping directly into the lead service line; or

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

4) Follow-up first-draw tap samples.

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

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

5) Substitute non-first-draw samples.

A) A NTNCWS supplier or a CWS supplier that meets the criteria of Sections 611.355(b)(7)(A) and (b)(7)(B), that does not have enough taps that can supply first-draw samples, as defined in Section 611.102, may apply to the Agency in writing to substitute non-first-draw samples by a SEP granted under Section 611.110.

B) A supplier approved to substitute non-first-draw samples must collect as many first-draw samples from appropriate taps as possible and identify sampling times and locations that would likely result in the longest standing time for the remaining sites.

C) The Agency may grant a SEP that waives the requirement for prior Agency approval of non-first-draw sampling sites selected by the system.

c) Number of samples.

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

2) A supplier conducting reduced monitoring pursuant to subsection (d)(4) of this Section must collect one sample from the number of sites specified in the second column of Table D of this Part (labelled "reduced monitoring") during each reduced monitoring period specified in subsection (d)(4) of this Section. Such reduced monitoring sites must be representative of the sites required for standard monitoring. A supplier whose system has fewer than five drinking water taps that can be used for human consumption and which can meet the sampling site criteria of subsection (a) of this Section to reach the required number of sampling sites listed in this subsection (c) must collect multiple samples from individual taps. To accomplish this, the supplier must collect at least one sample from each tap, then it must collect additional samples from those same taps on different days during the monitoring period, in order to collect a total number of samples that meets the required number of sampling sites. Alternatively, the Agency must, by a SEP issued pursuant to Section 611.110, allow a supplier whose system has fewer than five drinking water taps to collect a number of samples that is fewer than the number of sites specified in this subsection (c) if it determines that 100 percent of all taps that can be used for human consumption are sampled and that the reduced number of samples will produce the same results as would the collection of multiple samples from some taps. Any Agency approval of a reduction of the minimum number of samples must be based on a request from the supplier or on on-site verification by the Agency. The Agency may, by a SEP issued pursuant to Section 611.110, specify sampling locations when a system is conducting reduced monitoring.

d) Timing of monitoring.

1) Initial tap sampling. The first six-month monitoring period for small, medium-sized and large system suppliers must begin on the dates specified in Table E of this Part.

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

B) All small- and medium-sized system suppliers must monitor during each consecutive six-month monitoring period until the following is true:

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

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

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

A) Any large system supplier that installs optimal corrosion control treatment pursuant to Section 611.351(d)(4) must have monitored during each of two consecutive six-month monitoring periods before January 1, 1998.

B) Any small- or medium-sized system supplier that installs optimal corrosion control treatment pursuant to Section 611.351(e)(5) must monitor during each of two consecutive six-month monitoring periods before 36 months after the Agency approves optimal corrosion control treatment, as specified in Section 611.351(e)(6).

C) Any supplier that installs source water treatment pursuant to Section 611.353(a)(3) must monitor during each of two consecutive six-month monitoring periods before 36 months after completion of step 2, as specified in Section 611.353(a)(4).

3) Monitoring after the Agency specification of water quality parameter values for optimal corrosion control. After the Agency specifies the values for water quality control parameters pursuant to Section 611.352(f), the supplier must monitor during each subsequent six-month monitoring

period, with the first six-month monitoring period to begin on the date the Agency specifies the optimal values.

4) Reduced monitoring.

A) Reduction to annual for small- and medium-sized system suppliers meeting the lead and copper action levels. A small- or medium-sized system supplier that meets the lead and copper action levels during each of two consecutive six-month monitoring periods may reduce the number of samples in accordance with subsection (c) of this Section, and reduce the frequency of sampling to once per year. A small- or medium-sized system supplier that collects fewer than five samples as specified in subsection (c) of this Section and which meets the lead and copper action levels during each of two consecutive six-month monitoring periods may reduce its frequency of sampling to once per year. In no case can the supplier reduce the number of samples required below the minimum of one sample per available tap. This reduced sampling may only begin during the calendar year immediately following the end of the second consecutive six-month monitoring period.

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

i) Any supplier that meets the lead action level and which maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the Agency under Section 611.352(f) during each of two consecutive six-month monitoring periods may reduce the frequency of monitoring to once per year and the number of lead and copper samples to that specified by subsection (c) of this Section if it receives written approval from the Agency in the form of a SEP issued pursuant to Section 611.110. This reduced sampling may only begin during the calendar year immediately following the end of the second consecutive six-month monitoring period.

ii) The Agency must review monitoring, treatment, and other relevant information submitted by the water system in accordance with Section 611.360, and must notify the system in writing by a SEP issued pursuant to Sections 611.110 when it determines the system is eligible to reduce

its monitoring frequency to once every three years pursuant to this subsection (d)(4).

iii) The Agency must review, and where appropriate, revise its determination under subsection (d)(4)(B)(i) of this Section when the supplier submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available to the Agency.

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

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

ii) SEP for suppliers meeting optimal corrosion control treatment. Any supplier that maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the Agency under Section 611.352(f) during three consecutive years of monitoring may reduce its monitoring frequency from annual to once every three years if it receives written approval from the Agency in the form of a SEP issued pursuant to Section 611.110. Samples collected once every three years must be collected no later than every third calendar year.

iii) The Agency must review, and where appropriate, revise its determination under subsection (d)(4)(C)(ii) of this Section when the supplier submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available to the Agency.

D) Sampling at a reduced frequency. A supplier that reduces the number and frequency of sampling must collect these samples from representative sites included in the pool of targeted sampling sites identified in subsection (a) of this Section, preferentially selecting those sampling sites from the highest tier first. Suppliers sampling annually or less frequently must conduct the lead and copper tap sampling during the months of June, July, August, or September, unless the Agency has approved a different sampling period in accordance with subsection (d)(4)(D)(i) of this Section.

i) The Agency may grant a SEP pursuant to Section 611.110 that approves a different period for conducting the lead and copper tap sampling for systems collecting a reduced number of samples. Such a period must be no longer than four consecutive months and must represent a time of normal operation where the highest levels of lead are most likely to occur. For a NTNCWS supplier that does not operate during the months of June through September and for which the period of normal operation where the highest levels of lead are most likely to occur is not known, the Agency must designate a period that represents a time of normal operation for the system. This reduced sampling may only begin during the period approved or designated by the Agency in the calendar year immediately following the end of the second consecutive six-month monitoring period for systems initiating annual monitoring and during the three-year period following the end of the third consecutive calendar year of annual monitoring for a supplier initiating triennial monitoring.

ii) A supplier monitoring annually that has been collecting samples during the months of June through September and which receives Agency approval to alter its sample collection period under subsection (d)(4)(D)(i) of this Section must collect its next round of samples during a time period that ends no later than 21 months after the previous round of sampling. A supplier monitoring once every three years that has been collecting samples during the months of June through September and which receives Agency approval to alter the sampling collection period as provided in subsection (d)(4)(D)(i) of this Section must collect its next round of samples during a time period that ends no later than 45 months after the previous round of sampling. Subsequent rounds of sampling must be collected annually

or once every three years, as required by this Section. A small system supplier with a waiver granted pursuant to subsection (g) of this Section that has been collecting samples during the months of June through September and which receives Agency approval to alter its sample collection period under subsection (d)(4)(D)(i) of this Section must collect its next round of samples before the end of the nine-year compliance cycle (as that term is defined in Section 611.101).

E) Any water system that demonstrates for two consecutive six-month monitoring periods that the tap water lead level computed under Section 611.350(c)(3) is less than or equal to 0.005 mg/ℓ and that the tap water copper level computed under Section 611.350(c)(3) is less than or equal to 0.65 mg/ℓ may reduce the number of samples in accordance with subsection (c) of this Section and reduce the frequency of sampling to once every three calendar years.

F) Resumption of standard monitoring.

i) Small- or medium-sized suppliers exceeding lead or copper action level. A small- or medium-sized system supplier subject to reduced monitoring that exceeds the lead action level or the copper action level must resume sampling in accordance subsection (d)(3) of this Section and collect the number of samples specified for standard monitoring under subsection (c) of this Section. Such a supplier must also conduct water quality parameter monitoring in accordance with Section 611.357 (b), (c), or (d) (as appropriate) during the six-month monitoring period in which it exceeded the action level. Any such supplier may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in subsection (c) of this Section after it has completed two subsequent consecutive six-month rounds of monitoring that meet the criteria of subsection (d)(4)(A) of this Section. Any such supplier may resume monitoring once every three years for lead and copper at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either subsection (d)(4)(C) or (d)(4)(E) of this Section.

ii) Suppliers failing to operate within water quality control parameters. Any supplier subject to reduced monitoring frequency that fails to meet the lead action level during any four-month monitoring period or that fails to operate within the range of values for the water quality control parameters specified pursuant to Section 611.352(f) for more than nine days in any six-month period specified in Section 611.357(d) must conduct tap water sampling for lead and copper at the frequency specified in subsection (d)(3) of this Section, must collect the number of samples specified for standard monitoring under subsection (c) of this Section, and must resume monitoring for water quality parameters within the distribution system in accordance with Section 611.357(d). This standard tap water sampling must begin no later than the six-month period beginning January 1 of the calendar year following the lead action level exceedance or water quality parameter excursion. A supplier may resume reduced monitoring for lead and copper at the tap and for water quality parameters within the distribution system only if it fulfills the conditions set forth in subsection (d)(4)(H) of this Section.

BOARD NOTE: The Board moved the material from the last sentence of 40 CFR 141.86(d)(4)(vi)(B) and 40 CFR 141.86(d)(4)(vi)(B)(*1*) through (d)(4)(vi)(B)(*3*) (2007) to subsections (d)(4)(H) and (d)(4)(H)(i) through (d)(4)(H)(iii), since Illinois Administrative Code codification requirements allow subsections only to four indent levels.

G) Any water supplier subject to a reduced monitoring frequency under subsection (d)(4) of this Section must notify the Agency in writing in accordance with Section 611.360(a)(3) of any upcoming long-term change in treatment or addition of a new source as described in that Section. The Agency must review and approve the addition of a new source or long-term change in water treatment before it is implemented by the supplier. The Agency may, by a SEP issued pursuant to Section 611.110, require the system to resume sampling in accordance with subsection (d)(3) of this Section and collect the number of samples specified for standard monitoring under subsection (c) of this Section or take other appropriate steps such as increased water quality parameter monitoring or re-evaluation of its corrosion control treatment given the potentially different water quality considerations.

H) A supplier required under subsection (d)(4)(F) of this Section to resume monitoring in accordance with Section 611.357(d) may resume reduced monitoring for lead and copper at the tap and for water quality parameters within the distribution system under the following conditions:

i) The supplier may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in subsection (c) of this Section after it has completed two subsequent six-month rounds of monitoring that meet the criteria of subsection (d)(4)(B) of this Section and the supplier has received written approval from the Agency by a SEP pursuant to Section 611.110 that it is appropriate to resume reduced monitoring on an annual frequency. This sampling must begin during the calendar year immediately following the end of the second consecutive six-month monitoring period.

ii) The supplier may resume monitoring for lead and copper once every three years at the tap at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either subsection (d)(4)(C) or (d)(4)(E) of this Section and the system has received a SEP under Section 611.110 from the Agency that it is appropriate to resume monitoring once every three years.

iii) The supplier may reduce the number of water quality parameter tap water samples required in accordance with Section 611.357(e)(1) and the frequency with which it collects such samples in accordance with Section 611.357(e)(2). Such a system may not resume monitoring once every three years for water quality parameters at the tap until it demonstrates, in accordance with the requirements of Section 611.357(e)(2), that it has re-qualified for monitoring once every three years.

BOARD NOTE: Subsections (d)(4)(H) and (d)(4)(H)(i) through (d)(4)(H)(iii) are derived from the last sentence of 40 CFR 141.86(d)(4)(vi)(B) and 40 CFR 141.86(d)(4)(vi)(B)(*1*) through (d)(4)(vi)(B)(*3*) (2007), since Illinois Administrative Code

codification requirements allow only four indent levels of subsections.

e) Additional monitoring. The results of any monitoring conducted in addition to the minimum requirements of this Section must be considered by the supplier and the Agency in making any determinations (i.e., calculating the 90th percentile lead action level or the copper level) under this Subpart G.

f) Invalidation of lead or copper tap water samples. A sample invalidated under this subsection does not count toward determining lead or copper 90th percentile levels under Section 611.350(c)(3) or toward meeting the minimum monitoring requirements of subsection (c) of this Section.

1) The Agency must invalidate a lead or copper tap water sample if it determines that one of the following conditions exists:

A) The laboratory establishes that improper sample analysis caused erroneous results;

B) The sample was taken from a site that did not meet the site selection criteria of this Section;

C) The sample container was damaged in transit; or

D) There is substantial reason to believe that the sample was subject to tampering.

2) The supplier must report the results of all samples to the Agency and all supporting documentation for samples the supplier believes should be invalidated.

3) To invalidate a sample under subsection (f)(1) of this Section, the decision and the rationale for the decision must be documented in writing. The Agency may not invalidate a sample solely on the grounds that a follow-up sample result is higher or lower than that of the original sample.

4) The water supplier must collect replacement samples for any samples invalidated under this Section if, after the invalidation of one or more

samples, the supplier has too few samples to meet the minimum requirements of subsection (c) of this Section. Any such replacement samples must be taken as soon as possible, but no later than 20 days after the date the Agency invalidates the sample or by the end of the applicable monitoring period, whichever occurs later. Replacement samples taken after the end of the applicable monitoring period must not also be used to meet the monitoring requirements of a subsequent monitoring period. The replacement samples must be taken at the same locations as the invalidated samples or, if that is not possible, at locations other than those already used for sampling during the monitoring period.

g) Monitoring waivers for small system suppliers. Any small system supplier that meets the criteria of this subsection (g) may apply to the Agency to reduce the frequency of monitoring for lead and copper under this Section to once every nine years (i.e., a "full waiver") if it meets all of the materials criteria specified in subsection (g)(1) of this Section and all of the monitoring criteria specified in subsection (g)(2) of this Section. Any small system supplier that meets the criteria in subsections (g)(1) and (g)(2) of this Section only for lead, or only for copper, may apply to the State for a waiver to reduce the frequency of tap water monitoring to once every nine years for that contaminant only (i.e., a "partial waiver").

1) Materials criteria. The supplier must demonstrate that its distribution system and service lines and all drinking water supply plumbing, including plumbing conveying drinking water within all residences and buildings connected to the system, are free of lead-containing materials or copper-containing materials, as those terms are defined in this subsection (g)(1), as follows:

A) Lead. To qualify for a full waiver, or a waiver of the tap water monitoring requirements for lead (i.e., a "lead waiver"), the water supplier must provide certification and supporting documentation to the Agency that the system is free of all lead-containing materials, as follows:

i) It contains no plastic pipes that contain lead plasticizers, or plastic service lines that contain lead plasticizers; and

ii) It is free of lead service lines, lead pipes, lead soldered pipe joints, and leaded brass or bronze alloy fittings and fixtures, unless such fittings and fixtures meet the specifications of

NSF Standard 61, section 9, incorporated by reference in Section 611.102.

BOARD NOTE: Corresponding 40 CFR 141.86(g)(1)(i)(B) specifies "any standard established pursuant to 42 USC 300g-6(e) (SDWA section 1417(e))." USEPA has stated that the NSF standard is that standard. See 62 Fed. Reg. 44684 (Aug. 22, 1997).

B) Copper. To qualify for a full waiver, or a waiver of the tap water monitoring requirements for copper (i.e., a "copper waiver"), the water supplier must provide certification and supporting documentation to the Agency that the system contains no copper pipes or copper service lines.

2) Monitoring criteria for waiver issuance. The supplier must have completed at least one six-month round of standard tap water monitoring for lead and copper at sites approved by the Agency and from the number of sites required by subsection (c) of this Section and demonstrate that the 90th percentile levels for any and all rounds of monitoring conducted since the system became free of all lead-containing or copper-containing materials, as appropriate, meet the following criteria:

A) Lead levels. To qualify for a full waiver, or a lead waiver, the supplier must demonstrate that the 90th percentile lead level does not exceed 0.005 mg/ℓ.

B) Copper levels. To qualify for a full waiver, or a copper waiver, the supplier must demonstrate that the 90th percentile copper level does not exceed 0.65 mg/ℓ.

3) State approval of waiver application. The Agency must notify the supplier of its waiver determination by a SEP issued pursuant to Section 611.110, in writing, setting forth the basis of its decision and any condition of the waiver. As a condition of the waiver, the Agency may require the supplier to perform specific activities (e.g., limited monitoring, periodic outreach to customers to remind them to avoid installation of materials that might void the waiver) to avoid the risk of lead or copper concentration of concern in tap water. The small system supplier must continue monitoring for lead and copper at the tap as required by subsections (d)(1) through (d)(4) of

this Section, as appropriate, until it receives written notification from the Agency that the waiver has been approved.

4) Monitoring frequency for suppliers with waivers.

A) A supplier with a full waiver must conduct tap water monitoring for lead and copper in accordance with subsection (d)(4)(D) of this Section at the reduced number of sampling sites identified in subsection (c) of this Section at least once every nine years and provide the materials certification specified in subsection (g)(1) of this Section for both lead and copper to the Agency along with the monitoring results. Samples collected every nine years must be collected no later than every ninth calendar year.

B) A supplier with a partial waiver must conduct tap water monitoring for the waived contaminant in accordance with subsection (d)(4)(D) of this Section at the reduced number of sampling sites specified in subsection (c) of this Section at least once every nine years and provide the materials certification specified in subsection (g)(1) of this Section pertaining to the waived contaminant along with the monitoring results. Such a supplier also must continue to monitor for the non-waived contaminant in accordance with requirements of subsections (d)(1) through (d)(4) of this Section, as appropriate.

C) Any supplier with a full or partial waiver must notify the Agency in writing in accordance with Section 611.360(a)(3) of any upcoming long-term change in treatment or addition of a new source, as described in that Section. The Agency must review and approve the addition of a new source or long-term change in water treatment before it is implemented by the supplier. The Agency has the authority to require the supplier to add or modify waiver conditions (e.g., require recertification that the supplier's system is free of lead-containing or copper-containing materials, require additional rounds of monitoring), if it deems such modifications are necessary to address treatment or source water changes at the system.

D) If a supplier with a full or partial waiver becomes aware that it is no longer free of lead-containing or copper-containing materials, as appropriate (e.g., as a result of new construction or repairs), the

supplier must notify the Agency in writing no later than 60 days after becoming aware of such a change.

5) Continued eligibility. If the supplier continues to satisfy the requirements of subsection (g)(4) of this Section, the waiver will be renewed automatically, unless any of the conditions listed in subsection (g)(5)(A) through (g)(5)(C) of this Section occur. A supplier whose waiver has been revoked may re-apply for a waiver at such time as it again meets the appropriate materials and monitoring criteria of subsections (g)(1) and (g)(2) of this Section.

A) A supplier with a full waiver or a lead waiver no longer satisfies the materials criteria of subsection (g)(1)(A) of this Section or has a 90th percentile lead level greater than 0.005 mg/ℓ.

B) A supplier with a full waiver or a copper waiver no longer satisfies the materials criteria of subsection (g)(1)(B) of this Section or has a 90th percentile copper level greater than 0.65 mg/ℓ.

C) The State notifies the supplier, in writing, that the waiver has been revoked, setting forth the basis of its decision.

6) Requirements following waiver revocation. A supplier whose full or partial waiver has been revoked by the Agency is subject to the corrosion control treatment and lead and copper tap water monitoring requirements, as follows:

A) If the supplier exceeds the lead or copper action level, the supplier must implement corrosion control treatment in accordance with the deadlines specified in Section 611.351(e), and any other applicable requirements of this Subpart G.

B) If the supplier meets both the lead and the copper action level, the supplier must monitor for lead and copper at the tap no less frequently than once every three years using the reduced number of sampling sites specified in subsection (c) of this Section.

7) Pre-existing waivers. Small system supplier waivers approved by the Agency in writing prior to April 11, 2000 must remain in effect under the following conditions:

A) If the supplier has demonstrated that it is both free of lead-containing and copper-containing materials, as required by subsection (g)(1) of this Section and that its 90th percentile lead levels and 90th percentile copper levels meet the criteria of subsection (g)(2) of this Section, the waiver remains in effect so long as the supplier continues to meet the waiver eligibility criteria of subsection (g)(5) of this Section. The first round of tap water monitoring conducted pursuant to subsection (g)(4) of this Section must be completed no later than nine years after the last time the supplier monitored for lead and copper at the tap.

B) If the supplier has met the materials criteria of subsection (g)(1) of this Section but has not met the monitoring criteria of subsection (g)(2) of this Section, the supplier must conduct a round of monitoring for lead and copper at the tap demonstrating that it met the criteria of subsection (g)(2) of this Section no later than September 30, 2000. Thereafter, the waiver must remain in effect as long as the supplier meets the continued eligibility criteria of subsection (g)(5) of this Section. The first round of tap water monitoring conducted pursuant to subsection (g)(4) of this Section must be completed no later than nine years after the round of monitoring conducted pursuant to subsection (g)(2) of this Section.

BOARD NOTE: Derived from 40 CFR 141.86 (2013).

(Source: Amended at 38 Ill. Reg. 3608, effective January 27, 2014).

(Source: Amended at 33 Ill. Reg. 633, effective December 30, 2008)

Section 611.357 Monitoring for Water Quality Parameters

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

a) General Requirements.

1) Sample collection methods.

A) Use of tap samples. The totality of all tap samples collected by a supplier must be representative of water quality throughout the distribution system taking into account the number of persons served, the different sources of water, the different treatment

methods employed by the supplier, and seasonal variability. Although a supplier may conveniently conduct tap sampling for water quality parameters at sites used for coliform sampling performed pursuant to Subpart L of this Part, it is not required to do so, and a supplier is not required to perform tap sampling pursuant to this Section at taps targeted for lead and copper sampling under Section 611.356(a).

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

2) Number of samples.

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

B) Entry point samples.

i) Initial monitoring. Except as provided in subsection (c)(3) of this Section, each supplier must collect two samples for each applicable water quality parameter at each entry point to the distribution system during each six-month monitoring period specified in subsection (b) of this Section.

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

b) Initial Sampling.

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

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

3) Water quality parameters.

A) pH;

B) Alkalinity;

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

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

E) Calcium;

F) Conductivity; and

G) Water temperature.

c) Monitoring after installation of corrosion control.

1) Large systems. Each large system supplier that installs optimal corrosion control treatment pursuant to Section 611.351(d)(4) must measure the water quality parameters at the locations and frequencies specified in subsections (c)(4) and (c)(5) of this Section during each six-month monitoring period specified in Section 611.356(d)(2)(A).

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

3) Any groundwater system can limit entry point sampling described in subsection (c)(2) of this Section to those entry points that are representative of water quality and treatment conditions throughout the system. If water from untreated groundwater sources mixes with water from treated groundwater sources, the system must monitor for water quality parameters both at representative entry points receiving treatment and representative entry points receiving no treatment. Prior to the start of

any monitoring under this subsection, the system must provide to the Agency written information identifying the selected entry points and documentation, including information on seasonal variability, sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system.

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

A) pH;

B) Alkalinity;

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

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

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

5) Entry point samples, except as provided in subsection (c)(3) of this Section, one sample at each entry point to the distribution system every two weeks (bi-weekly) for each of the following water quality parameters:

A) pH;

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

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

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

1) Large system suppliers. After the Agency has specified the values for applicable water quality control parameters reflecting optimal corrosion control treatment pursuant to Section 611.352(f), each large system supplier must measure the applicable water quality parameters in accordance with subsection (c) of this Section and determine compliance with the requirements of Section 611.352(g) every six months with the first six-month period to begin on either January 1 or July 1, whichever

comes first, after the Agency specifies the optimal values under Section 611.352(f).

2) Small- and medium-sized system suppliers. Each small- or medium-sized system supplier must conduct such monitoring during each six-month monitoring period specified in this subsection (d) in which the supplier exceeds the lead action level or the copper action level. For any such small and medium-size system that is subject to a reduced monitoring frequency pursuant to Section 611.356(d)(4) at the time of the action level exceedance, the start of the applicable six-month monitoring period under this subsection (d) must coincide with the start of the applicable monitoring period under Section 611.356(d)(4).

3) Compliance with Agency-designated optimal water quality parameter values must be determined as specified under Section 611.352(g).

e) Reduced monitoring.

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

2) Reduction in monitoring frequency.

A) Staged reductions in monitoring frequency.

i) Annual monitoring. A supplier that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified pursuant to Section 611.352(f) during three consecutive years of monitoring may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in subsection (e)(1) of this Section from every six months to annually. This reduced sampling may only begin during the calendar year immediately following the end of the monitoring period in which the third consecutive year of six-month monitoring occurs.

ii) Triennial monitoring. A supplier that maintains the range of values for the water quality parameters reflecting optimal

corrosion control treatment specified pursuant to Section 611.352(f) during three consecutive years of annual monitoring under subsection (e)(2)(A)(i) of this Section may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in subsection (e)(1) of this Section from annually to once every three years. This reduced sampling may only begin no later than the third calendar year following the end of the monitoring period in which the third consecutive year of monitoring occurs.

B) A water supplier may reduce the frequency with which it collects tap samples for applicable water quality parameters specified in subsection (e)(1) of this Section to every three years if it demonstrates that it has fulfilled the conditions set forth in subsections (e)(2)(B)(i) through (e)(2)(B)(iii) of this Section during two consecutive monitoring periods, subject to the limitation of subsection (e)(2)(B)(iv) of this Section.

i) The supplier must demonstrate that its tap water lead level at the 90th percentile is less than or equal to the PQL for lead specified in Section 611.359(a)(1)(B);

ii) The supplier must demonstrate that its tap water copper level at the 90th percentile is less than or equal to 0.65 mg/ℓ for copper in Section 611.350(c)(2); and

iii) The supplier must demonstrate that it also has maintained the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the Agency under Section 611.352(f).

iv) Monitoring conducted every three years must be done no later than every third calendar year.

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

4) Any supplier subject to a reduced monitoring frequency pursuant to this subsection that fails to operate at or above the minimum value or within the range of values for the water quality parameters specified pursuant to Section 611.352(f) for more than nine days in any six-month period specified in Section 611.352(g) must resume tap water sampling in accordance with the number and frequency requirements of subsection (d) of this Section. Such a system may resume annual monitoring for water

quality parameters at the tap at the reduced number of sites specified in subsection (e)(1) of this Section after it has completed two subsequent consecutive six-month rounds of monitoring that meet the criteria of that subsection or may resume monitoring once every three years for water quality parameters at the tap at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either subsection (e)(2)(A) or (e)(2)(B) of this Section.

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

BOARD NOTE: Derived from 40 CFR 141.87 (2014).
(Source: Amended at 39 Ill. Reg. 15352, effective November 13, 2015)

Section 611.358 Monitoring for Lead and Copper in Source Water

a) Sample location, collection methods, and number of samples.

1) A supplier that fails to meet the lead action level or the copper action level on the basis of tap samples collected in accordance with Section 611.356 must collect lead and copper source water samples in accordance with the following requirements regarding sample location, number of samples, and collection methods:

A) A groundwater supplier must take a minimum of one sample at every entry point to the distribution system that is representative of each well after treatment (hereafter called a sampling point). The supplier must take one sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

B) A surface water supplier must take a minimum of one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point that is representative of each source after treatment (hereafter called a sampling point). The system must take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

BOARD NOTE: For the purposes of this subsection (a)(1)(B), surface water systems include systems with a combination of surface and ground sources.

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

D) The Agency may, by a SEP issued pursuant to Section 611.110, reduce the total number of samples that must be analyzed by allowing the use of compositing. Compositing of samples must be done by certified laboratory personnel. Composite samples from a maximum of five samples are allowed, provided that if the lead concentration in the composite sample is greater than or equal to 0.001 mg/ℓ or the copper concentration is greater than or equal to 0.160 mg/ℓ, then the supplier must do either of the following:

i) The supplier must take and analyze a follow-up sample within 14 days at each sampling point included in the composite; or

ii) If duplicates of or sufficient quantities from the original samples from each sampling point used in the composite are available, the supplier may use these instead of resampling.

2) SEP requiring an additional sample.

A) When the Agency determines that the results of sampling indicate an exceedance of the lead or copper MPC established under Section 611.353(b)(4), it must, by a SEP issued pursuant to Section 611.110, require the supplier to collect one additional sample as soon as possible after the initial sample at the same sampling point, but no later than two weeks after the supplier took the initial sample.

B) If a supplier takes an Agency-required confirmation sample for lead or copper, the supplier must average the results obtained from the initial sample with the results obtained from the confirmation sample in determining compliance with the Agency-specified lead and copper MPCs.

i) Any analytical result below the MDL must be considered as zero for the purposes of averaging.

ii) Any value above the MDL but below the PQL must either be considered as the measured value or be considered one-half the PQL.

b) Monitoring frequency after system exceeds tap water action level. A supplier that exceeds the lead action level or the copper action level in tap sampling must collect one source water sample from each entry point to the distribution system no later than six months after the end of the monitoring period during which the lead or copper action level was exceeded. For monitoring periods that are annual or less frequent, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs, or if the Agency has established an alternate monitoring period by a SEP issued pursuant to Section 611.110, the last day of that period.

c) Monitoring frequency after installation of source water treatment. A supplier that installs source water treatment pursuant to Section 611.353(a)(3) must collect an additional source water sample from each entry point to the distribution system during each of two consecutive six-month monitoring periods on or before 36 months after completion of step 2, as specified in Section 611.353(a)(4).

d) Monitoring frequency after the Agency has specified the lead and copper MPCs or has determined that source water treatment is not needed.

1) A supplier must monitor at the frequency specified by subsection (d)(1)(A) or (d)(1)(B) of this Section where the Agency has specified the MPCs pursuant to Section 611.353(b)(4) or has determined that the supplier is not required to install source water treatment pursuant to Section 611.353(b)(2).

A) GWS suppliers.

i) A GWS supplier required to sample by subsection (d)(1) of this Section must collect samples once during the three-year compliance period (as that term is defined in Section 611.101) during which the Agency makes its determination pursuant to Section 611.353(b)(4) or 611.353(b)(2).

ii) A GWS supplier required to sample by subsection (d)(1) of this Section must collect samples once during each subsequent compliance period.

iii) Triennial samples must be collected every third calendar year.

B) A SWS or mixed system supplier must collect samples once during each calendar year, the first annual monitoring period to begin during the year in which the Agency makes its determination pursuant to Section 611.353(b)(4) or 611.353(b)(2).

2) A supplier is not required to conduct source water sampling for lead or copper if the supplier meets the action level for the specific contaminant in

all tap water samples collected during the entire source water sampling period applicable under subsection (d)(1)(A) or (d)(1)(B) of this Section.

e) Reduced monitoring frequency.

1) A GWS supplier may reduce the monitoring frequency for lead and copper in source water to once during each nine-year compliance cycle (as that term is defined in Section 611.101), provided that the samples are collected no later than every ninth calendar year, and only if the supplier meets one of the following criteria:

A) The supplier demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the State in Section 611.353(b)(4) during at least three consecutive compliance periods under subsection (d)(1) of this Section; or

B) The Agency has determined, by a SEP issued pursuant to Section 611.110, that source water treatment is not needed and the system demonstrates that, during at least three consecutive compliance periods in which sampling was conducted under subsection (d)(1) of this Section, the concentration of lead in source water was less than or equal to 0.005 mg/ℓ and the concentration of copper in source water was less than or equal to 0.65 mg/ℓ.

2) A SWS or mixed system supplier may reduce the monitoring frequency in subsection (d)(1) of this Section to once during each nine-year compliance cycle (as that term is defined in Section 611.101), provided that the samples are collected no later than every ninth calendar year, and only if the supplier meets one of the following criteria:

A) The supplier demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the Agency under Section 611.353(b)(4) for at least three consecutive years; or

B) The Agency has determined, by a SEP issued pursuant to Section 611.110, that source water treatment is not needed and the supplier demonstrates that, during at least three consecutive years, the concentration of lead in source water was less than or equal to 0.005 mg/ℓ and the concentration of copper in source water was less than or equal to 0.65 mg/ℓ.

3) A supplier that uses a new source of water is not eligible for reduced monitoring for lead or copper until it demonstrates by samples collected

from the new source during three consecutive monitoring periods, of the appropriate duration provided by subsection (d)(1) of this Section, that lead or copper concentrations are below the MPC as specified by the Agency pursuant to Section 611.353(a)(4).

BOARD NOTE: Derived from 40 CFR 141.88 (2014).
(Source: Amended at 39 Ill. Reg. 15352, effective November 13, 2015)

Section 611.359 Analytical Methods

Analyses for lead, copper, pH, conductivity, calcium, alkalinity, orthophosphate, silica, and temperature must be conducted using the methods set forth in Section 611.611(a).

a) Analyses for lead and copper performed for the purposes of compliance with this Subpart G must only be conducted by a certified laboratory in one of the categories listed in Section 611.490(a). To obtain certification to conduct analyses for lead and copper, laboratories must do the following:

1) Analyze performance evaluation samples that include lead and copper provided by USEPA Environmental Monitoring and Support Laboratory or equivalent samples provided by the Agency;

2) Achieve quantitative acceptance limits as follows:

A) For lead: ±30 percent of the actual amount in the performance evaluation sample when the actual amount is greater than or equal to 0.005 mg/ℓ (the PQL for lead is 0.005 mg/ℓ);

B) For copper: ±10 percent of the actual amount in the performance evaluation sample when the actual amount is greater than or equal to 0.050 mg/ℓ (the PQL for copper is 0.050 mg/ℓ);

3) Achieve the method detection limit (MDL) for lead (0.001 mg/ℓ, as defined in Section 611.350(a)) according to the procedures in 35 Ill. Adm. Code 186 and appendix B to 40 CFR 136: "Definition and Procedure for the Determination of the Method Detection Limit—Revision 1.11", incorporated by reference in Section 611.102(c). This need only be accomplished if the laboratory will be processing source water composite samples under Section 611.358(a)(1)(D); and

4) Be currently certified to perform analyses to the specifications described in subsection (a)(1) of this Section.

BOARD NOTE: Subsection (a) is derived from 40 CFR 141.89(a) and (a)(1) (2013).

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

BOARD NOTE: Subsection (b) is derived from 40 CFR 141.89(a)(2) (2013).

c) Reporting lead and copper levels.

1) All lead and copper levels greater than or equal to the lead and copper PQL (Pb ≥ 0.005 mg/ℓ and Cu ≥ 0.050 mg/ℓ) must be reported as measured.

2) All lead and copper levels measured less than the PQL and greater than the MDL (0.005 mg/ℓ > Pb > MDL and 0.050 mg/ℓ > Cu > MDL) must be either reported as measured or as one-half the PQL set forth in subsection (a) of this Section (i.e., reported as 0.0025 mg/ℓ for lead or 0.025 mg/ℓ for copper).

3) All lead and copper levels below the lead and copper MDL (MDL > Pb) must be reported as zero.

BOARD NOTE: Subsection (c) is derived from 40 CFR 141.89(a)(3) and (a)(4) (2013).

(Source: Amended at 38 Ill. Reg. 9792, effective April 21, 2014)

Section 611.360 Reporting

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

a) Reporting for tap, lead, and copper, and water quality parameter monitoring.

1) Except as provided in subsection (a)(1)(viii) of this Section, a supplier must report the following information for all samples specified in Section 611.356 and for all water quality parameter samples specified in Section 611.357 within ten days of the end of each applicable sampling period specified in Sections 611.356 and 611.357 (i.e., every six months, annually, every three years, or every nine years). For a monitoring period with a duration less than six months, the end of the monitoring period is the last date on which samples can be collected during that period, as specified in Sections 611.356 and 611.357.

A) The results of all tap samples for lead and copper, including the location of each site and the criteria under Section 611.356(a)(3) through (a)(7) under which the site was selected for the supplier's sampling pool;

B) Documentation for each tap water lead or copper sample for which the water supplier requests invalidation pursuant to Section 611.356(f)(2);

C) This subsection (a)(1)(C) corresponds with 40 CFR 141.90(a)(1)(iii), a provision that USEPA removed and marked "reserved." This statement preserves structural parity with the federal rules;

D) The 90th percentile lead and copper concentrations measured from among all lead and copper tap samples collected during each sampling period (calculated in accordance with Section 611.350(c)(3)), unless the Agency calculates the system's 90th percentile lead and copper levels under subsection (h) of this Section;

E) With the exception of initial tap sampling conducted pursuant to Section 611.356(d)(1), the supplier must designate any site that was not sampled during previous sampling periods, and include an explanation of why sampling sites have changed;

F) The results of all tap samples for pH, and where applicable, alkalinity, calcium, conductivity, temperature, and orthophosphate or silica collected pursuant to Section 611.357(b) through (e);

G) The results of all samples collected at entry points for applicable water quality parameters pursuant to Section 611.357(b) through (e).

H) A water supplier must report the results of all water quality parameter samples collected under Section 611.357(c) through (f) during each six-month monitoring period specified in Section 611.357(d) within the first 10 days following the end of the monitoring period, unless the Agency has specified, by a SEP issued pursuant to Section 611.110, a more frequent reporting requirement.

2) For a NTNCWS supplier, or a CWS supplier meeting the criteria of Sections 611.355(b)(7)(A) and (b)(7)(B), that does not have enough taps which can provide first-draw samples, the supplier must do either of the following:

A) Provide written documentation to the Agency that identifies standing times and locations for enough non-first-draw samples to make up its sampling pool under Section 611.356(b)(5) by the start of the first applicable monitoring period under Section 611.356(d) that commenced after April 11, 2000, unless the Agency has waived prior Agency approval of non-first-draw sampling sites selected by the supplier pursuant to Section 611.356(b)(5); or

B) If the Agency has waived prior approval of non-first-draw sampling sites selected by the supplier, identify, in writing, each site that did not meet the six-hour minimum standing time and the length of standing time for that particular substitute sample collected pursuant to Section 611.356(b)(5) and include this information with the lead and copper tap sample results required to be submitted pursuant to subsection (a)(1)(A) of this Section.

3) At a time specified by the Agency, by a SEP issued pursuant to Section 611.110, or if no specific time is designated by the Agency, then as early as possible prior to the addition of a new source or any change in water treatment, a water supplier deemed to have optimized corrosion control

under Section 611.351(b)(3), a water supplier subject to reduced monitoring pursuant to Section 611.356(d)(4), or a water supplier subject to a monitoring waiver pursuant to Section 611.356(g), must submit written documentation to the Agency describing the change or addition.

4) Any small system supplier applying for a monitoring waiver under Section 611.356(g), or subject to a waiver granted pursuant to Section 611.356(g)(3), must provide the following information to the Agency in writing by the specified deadline:

A) By the start of the first applicable monitoring period in Section 611.356(d), any small water system supplier applying for a monitoring waiver must provide the documentation required to demonstrate that it meets the waiver criteria of Sections 611.356(g)(1) and (g)(2).

B) No later than nine years after the monitoring previously conducted pursuant to Section 611.356(g)(2) or Section 611.356(g)(4)(A), each small system supplier desiring to maintain its monitoring waiver must provide the information required by Sections 611.356(g)(4)(A) and (g)(4)(B).

C) No later than 60 days after it becomes aware that it is no longer free of lead-containing or copper-containing material, as appropriate, each small system supplier with a monitoring waiver must provide written notification to the Agency, setting forth the circumstances resulting in the lead-containing or copper-containing materials being introduced into the system and what corrective action, if any, the supplier plans to remove these materials.

D) By October 10, 2000, any small system supplier with a waiver granted prior to April 11, 2000 and that had not previously met the requirements of Section 611.356(g)(2) must have provided the information required by that subsection.

5) Each GWS supplier that limits water quality parameter monitoring to a subset of entry points under Section 611.357(c)(3) must provide, by the commencement of such monitoring, written correspondence to the Agency that identifies the selected entry points and includes information sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system.

b) Reporting for source water monitoring.

1) A supplier must report the sampling results for all source water samples collected in accordance with Section 611.358 within ten days of the end of each source water sampling period (i.e., annually, per compliance period, per compliance cycle) specified in Section 611.358.

2) With the exception of the first round of source water sampling conducted pursuant to Section 611.358(b), a supplier must specify any site that was not sampled during previous sampling periods, and include an explanation of why the sampling point has changed.

c) Reporting for corrosion control treatment. By the applicable dates under Section 611.351, a supplier must report the following information:

1) For a supplier demonstrating that it has already optimized corrosion control, the information required by Section 611.352(b)(2) or (b)(3).

2) For a supplier required to optimize corrosion control, its recommendation regarding optimal corrosion control treatment pursuant to Section 611.352(a).

3) For a supplier required to evaluate the effectiveness of corrosion control treatments pursuant to Section 611.352(c), the information required by Section 611.352(c).

4) For a supplier required to install optimal corrosion control approved by the Agency pursuant to Section 611.352(d), a copy of the Agency permit letter, which acts as certification that the supplier has completed installing the permitted treatment.

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

1) If required by Section 611.353(b)(1), its recommendation regarding source water treatment; or

2) For suppliers required to install source water treatment pursuant to Section 611.353(b)(2), a copy of the Agency permit letter, which acts as certification that the supplier has completed installing the treatment approved by the Agency within 24 months after the Agency approved the treatment.

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

1) No later than 12 months after the end of a monitoring period in which a supplier exceeds the lead action level in sampling referred to in Section 611.354(a), the supplier must submit each of the following to the Agency in writing:

A) The material evaluation conducted as required by Section 611.356(a);

B) Identify the initial number of lead service lines in its distribution system at the time the supplier exceeds the lead action level; and

C) Provide the Agency with the supplier's schedule for annually replacing at least seven percent of the initial number of lead service lines in its distribution system.

2) No later than 12 months after the end of a monitoring period in which a supplier exceeds the lead action level in sampling referred to in Section 611.354(a), and every 12 months thereafter, the supplier must demonstrate to the Agency in writing that the supplier has done either of the following:

A) That the supplier has replaced, in the previous 12 months, at least seven percent of the initial number of lead service lines in its distribution system (or any greater number of lines specified by the Agency pursuant to Section 611.354(e)); or

B) That the supplier has conducted sampling that demonstrates that the lead concentration in all service line samples from individual lines, taken pursuant to Section 611.356(b)(3), is less than or equal to 0.015 mg/ℓ. This demonstration requires that the total number of lines that the supplier has replaced, combined with the total

number that meet the criteria of Section 611.354(c), must equal at least seven percent of the initial number of lead lines identified pursuant to subsection (e)(1) of this Section (or the percentage specified by the Agency pursuant to Section 611.354(e)).

3) The annual letter submitted to the Agency pursuant to subsection (e)(2) of this Section must contain the following information:

A) The number of lead service lines originally scheduled to be replaced during the previous year of the supplier's replacement schedule;

B) The number and location of each lead service line actually replaced during the previous year of the supplier's replacement schedule; and

C) If measured, the water lead concentration from each lead service line sampled pursuant to Section 611.356(b)(3) and the location of each lead service line sampled, the sampling method used, and the date of sampling.

4) Any supplier that collects lead service line samples following partial lead service line replacement required by Section 611.354 must report the results to the Agency within the first ten days of the month following the month in which the supplier receives the laboratory results, or as specified by the Agency. The Agency may, by a SEP issued pursuant to Section 611.110, eliminate this requirement to report these monitoring results. A supplier must also report any additional information as specified by the Agency, and in a time and manner prescribed by the Agency, to verify that all partial lead service line replacement activities have taken place.

f) Reporting for public education program.

1) Any water supplier that is subject to the public education requirements in Section 611.355 must, within ten days after the end of each period in which the supplier is required to perform public education in accordance with Section 611.355(b), send written documentation to the Agency that contains the following:

A) A demonstration that the supplier has delivered the public education materials that meet the content requirements in Sections 611.355(a) and the delivery requirements in Section 611.355(b); and

B) A list of all the newspapers, radio stations, television stations, and facilities and organizations to which the supplier delivered public education materials during the period in which the supplier was required to perform public education tasks.

2) Unless required by the Agency, by a SEP issued pursuant to Section 611.110, a supplier that previously has submitted the information required by subsection (f)(1)(B) of this Section need not resubmit the information required by subsection (f)(1)(B) of this Section, as long as there have been no changes in the distribution list and the supplier certifies that the public education materials were distributed to the same list submitted previously.

3) No later than three months following the end of the monitoring period, each supplier must mail a sample copy of the consumer notification of tap results to the Agency, along with a certification that the notification has been distributed in a manner consistent with the requirements of Section 611.355(d).

g) Reporting of additional monitoring data. Any supplier that collects sampling data in addition to that required by this Subpart G must report the results of that sampling to the Agency within the first ten days following the end of the applicable sampling periods specified by Sections 611.356 through 611.358 during which the samples are collected.

h) Reporting of 90th percentile lead and copper concentrations where the Agency calculates a system's 90th percentile concentrations. A water supplier is not required to report the 90th percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each monitoring period, as required by subsection (a)(1)(D) of this Section if the following is true:

1) The Agency has previously notified the water supplier that it will calculate the water system's 90th percentile lead and copper concentrations, based on the lead and copper tap results submitted pursuant to subsection (h)(2)(A) of this Section, and has specified a date before the end of the

applicable monitoring period by which the supplier must provide the results of lead and copper tap water samples;

2) The supplier has provided the following information to the Agency by the date specified in subsection (h)(1) of this Section:

A) The results of all tap samples for lead and copper including the location of each site and the criteria under Section 611.356(a)(3), (a)(4), (a)(5), (a)(6), or (a)(7) under which the site was selected for the system's sampling pool, pursuant to subsection (a)(1)(A) of this Section; and

B) An identification of sampling sites utilized during the current monitoring period that were not sampled during previous monitoring periods, and an explanation why sampling sites have changed; and

3) The Agency has provided the results of the 90th percentile lead and copper calculations, in writing, to the water supplier before the end of the monitoring period.

BOARD NOTE: Derived from 40 CFR 141.90 (2013).

(Source: Amended at 38 Ill. Reg. 3608, effective January 27, 2014)

Section 611.361 Recordkeeping

Any supplier subject to the requirements of this Subpart G must retain on its premises original records of all sampling data and analyses, reports, surveys, letters, evaluations, schedules, Agency determinations, and any other information required by Sections 611.351 through Section 611.360. Each supplier must retain the records required by this Section for at least 12 years.

BOARD NOTE: Derived from 40 CFR 141.91 (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

SUBPART I: DISINFECTANT RESIDUALS, DISINFECTION BYPRODUCTS, AND DISINFECTION BYPRODUCT PRECURSORS

Section 611.380 General Requirements

a) The requirements of this Subpart I constitute NPDWRs.

1) The regulations in this Subpart I establish standards under which a CWS supplier or an NTNCWS supplier that adds a chemical disinfectant to the water in any part of the drinking water treatment process must modify its practices to meet MCLs and MRDLs in Sections 611.312 and 611.313, respectively, and must meet the treatment technique requirements for DBP precursors in Section 611.385.

2) The regulations in this Subpart I establish standards under which a transient non-CWS supplier that uses chlorine dioxide as a disinfectant or oxidant must modify its practices to meet the MRDL for chlorine dioxide in Section 611.313.

3) The Board has established MCLs for TTHM and HAA5 and treatment technique requirements for DBP precursors to limit the levels of known and unknown DBPs that may have adverse health effects. These DBPs may include chloroform, bromodichloromethane, dibromochloromethane, bromoform, dichloroacetic acid, and trichloroacetic acid.

b) Compliance dates.

1) CWSs and NTNCWSs. Unless otherwise noted, a supplier must comply with the requirements of this Subpart I as follows: A Subpart B system supplier serving 10,000 or more persons must comply with this Subpart I beginning January 1, 2002. A Subpart B system supplier serving fewer than 10,000 persons or a supplier using only groundwater not under the direct influence of surface water must comply with this Subpart I beginning January 1, 2004.

2) Transient non-CWSs. A Subpart B system supplier serving 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant must comply with any requirements for chlorine dioxide in this Subpart I beginning January 1, 2002. A Subpart B system supplier that serves fewer than 10,000 persons and which uses chlorine dioxide as a disinfectant or oxidant or a supplier that uses only groundwater not under the direct influence of surface water and which uses chlorine dioxide as a disinfectant or oxidant must comply with any requirements for chlorine dioxide in this Subpart I beginning January 1, 2004.

c) Each CWS or NTNCWS supplier regulated under subsection (a) of this Section must be operated by qualified personnel who meet the requirements specified in 35 Ill. Adm. Code 680.

d) Control of disinfectant residuals. Notwithstanding the MRDLs in Section 611.313, a supplier may increase residual disinfectant levels in the distribution system of

chlorine or chloramines (but not chlorine dioxide) to a level and for a time necessary to protect public health, to address specific microbiological contamination problems caused by circumstances such as, but not limited to, distribution line breaks, storm run-off events, source water contamination events, or cross-connection events.

BOARD NOTE: Derived from 40 CFR 141.130 (2005).

(Source: Amended at 30 Ill. Reg. 17004, effective October 13, 2006)

Section 611.381 Analytical Requirements

a) A supplier must use only the analytical methods specified in this Section, each of which is incorporated by reference in Section 611.102, or alternative methods approved by the Agency pursuant to Section 611.480 to demonstrate compliance with the requirements of this Subpart I and with the requirements of Subparts W and Y of this Part.

b) Disinfection byproducts (DBPs).

1) A supplier must measure disinfection byproducts (DBPs) by the appropriate of the following methods:

A) TTHM:

i) By purge and trap, gas chromatography, electrolytic conductivity detector, and photoionization detector: USEPA Organic Methods, Method 502.2 (rev. 2.1). If TTHMs are the only analytes being measured in the sample, then a photoionization detector is not required.

ii) By purge and trap, gas chromatography-mass spectrometer: USEPA Organic Methods, Method 524.2 (rev. 4.1).

iii) By liquid-liquid extraction, gas chromatography, electron capture detector: USEPA Organic Methods, Method 551.1 (rev. 1.0).

iv) By purge and trap, gas chromatography-mass spectrometry: USEPA OGWDW Methods, Method 524.3 (rev. 1.0) and 524.4.

BOARD NOTE: USEPA added USEPA OGWDW Methods, Method 524.3 (rev. 1.0) as an approved alternative method for TTHM in appendix A to subpart C of 40 CFR 141 on August 3, 2009 (at 74 Fed. Reg. 38348). USEPA added USEPA OGWDW Methods, Method 524.4 as approved alternative methods for total

trihalomethanes in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558).

B) HAA5:

i) By liquid-liquid extraction (diazomethane), gas chromatography, electron capture detector: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 6251 B.

ii) By solid phase extractor (acidic methanol), gas chromatography, electron capture detector: USEPA Organic Methods, Method 552.1 (rev. 1.0).

iii) By liquid-liquid extraction (acidic methanol), gas chromatography, electron capture detector: USEPA Organic Methods, Method 552.2 (rev. 1.0) or USEPA OGWDW Methods, Method 552.3 (rev. 1.0).

iv) By ion chromatography, electrospray ionization, tandem mass spectrometry: USEPA OGWDW Methods, Method 557.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 6251 B as an approved alternative method for HAA5 in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added USEPA OGWDW Methods, Method 557 as approved alternative methods for HAA5 in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods, 22nd ed., Method 6251 B as an approved alternative methods for HAA5 in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Method 6251 B-07 as an approved alternative method for HAA5 in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 6251 B is the same version as Standard Methods Online, Method 6251 B-07, the Board has not listed the Standard Methods Online versions separately.

C) Bromate:

i) By ion chromatography: USEPA Organic and Inorganic Methods, Method 300.1 (rev. 1.0).

ii) By ion chromatography and post-column reaction: USEPA OGWDW Methods, Method 317.0 (rev. 2.0) or 326.0 (rev. 1.0).

iii) By inductively coupled plasma-mass spectrometer: USEPA Organic and Inorganic Methods, Method 321.8 (rev. 1.0).

iv) By two-dimensional ion chromatography: USEPA OGWDW Methods, Method 302.0.

v) By ion chromatography, electrospray ionization, tandem mass spectrometry: USEPA OGWDW Methods, Method 557.

vi) By chemically suppressed chromatography: ASTM Method D6581-08 A.

vii) By electrolytically suppressed chromatography: ASTM Method D6581-08 B.

BOARD NOTE: Ion chromatography and post column reaction or inductively coupled plasma-mass spectrometry must be used for monitoring of bromate for purposes of demonstrating eligibility of reduced monitoring, as prescribed in Section 611.382(b)(3)(B). For inductively coupled plasma-mass spectrometry, samples must be preserved at the time of sampling with 50 mg ethylenediamine (EDA) per liter of sample, and the samples must be analyzed within 28 days.

BOARD NOTE: USEPA added USEPA OGWDW Methods, Methods 302.0 and 557 and ASTM Methods D6581-08 A and B as approved alternative methods for bromate in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908).

D) Chlorite:

i) By amperometric titration for daily monitoring pursuant to Section 611.382(b)(2)(A)(i): Standard Methods, 19th, 21st, or 22nd ed., Method 4500-ClO_2 E.

ii) By amperometric sensor for daily monitoring pursuant to Section 611.382(b)(2)(A)(i): ChlordioX Plus Test.

iii) By spectrophotometry: USEPA OGWDW Methods, Method 327.0 (rev. 1.1).

iv) By ion chromatography: USEPA Environmental Inorganic Methods, Method 300.0 (rev. 2.1); USEPA Organic and Inorganic Methods, Method 300.1 (rev. 1.0); USEPA

OGWDW Methods, Method 317.0 (rev. 2.0), or 326.0 (rev. 1.0); or ASTM Method D6581-00.

v) By chemically suppressed chromatography: ASTM Method D6581-08 A.

vi) By electrolytically suppressed chromatography: ASTM Method D6581-08 B.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 4500-ClO_2 E as an approved alternative method for daily chlorite in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods D6581-08 A and B as approved alternative methods for chlorite in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods, 22nd ed., Method 4500-ClO_2 E as an approved alternative method for chlorite in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA added ChlordioX Plus Test as an approved alternative method for chlorite in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081).

BOARD NOTE: Amperometric titration or spectrophotometry may be used for routine daily monitoring of chlorite at the entrance to the distribution system, as prescribed in Section 611.382(b)(2)(A)(i). Ion chromatography must be used for routine monthly monitoring of chlorite and additional monitoring of chlorite in the distribution system, as prescribed in Section 611.382(b)(2)(A)(ii) and (b)(2)(B).

2) Analyses under this Section for DBPs must be conducted by a certified laboratory in one of the categories listed in Section 611.490(a) except as specified under subsection (b)(3) of this Section. To receive certification to conduct analyses for the DBP contaminants listed in Sections 611.312 and 611.381 and Subparts W and Y of this Part, the laboratory must fulfill the requirements of subsections (b)(2)(A), (b)(2)(C), and (b)(2)(D) of this Section.

A) The laboratory must analyze performance evaluation (PE) samples that are acceptable to USEPA or the Agency at least once during each consecutive 12-month period by each method for which the laboratory desires certification.

B) This subsection corresponds with 40 CFR 141.131(b)(2)(ii), which has expired by its own terms. This statement maintains structural consistency with the corresponding federal rule.

C) The laboratory must achieve quantitative results on the PE sample analyses that are within the acceptance limits set forth in subsections (b)(2)(C)(i) through (b)(2)(B)(xi) of this Section, subject to the conditions of subsections (b)(2)(C)(xii) and (b)(2)(C)(xiii) of this Section:

i) Chloroform (a THM): ±20% of true value;

ii) Bromodichloromethane (a THM): ±20% of true value;

iii) Dibromochloromethane (a THM): ±20% of true value;

iv) Bromoform (a THM): ±20% of true value;

v) Monochloroacetic Acid (an HAA5): ±40% of true value;

vi) Dichloroacetic Acid (an HAA5): ±40% of true value;

vii) Trichloroacetic Acid (an HAA5): ±40% of true value;

viii) Monobromoacetic Acid (an HAA5): ±40% of true value;

ix) Dibromoacetic Acid (an HAA5): ±40% of true value;

x) Chlorite: ±30% of true value; and

xi) Bromate: ±30% of true value.

xii) The laboratory must meet all four of the individual THM acceptance limits set forth in subsections (b)(2)(B)(i) through (b)(2)(B)(iv) of this Section in order to successfully pass a PE sample for TTHM.

xiii) The laboratory must meet the acceptance limits for four out of the five HAA5 compounds set forth in subsections (b)(2)(B)(v) through (b)(2)(B)(ix) of this Section in order to successfully pass a PE sample for HAA5.

D) The laboratory must report quantitative data for concentrations at least as low as the minimum reporting levels (MRLs) listed in subsections (b)(2)(D)(i) through (b)(2)(D)(xi) of this Section, subject to the limitations of subsections (b)(2)(D)(xii) and (b)(2)(D)(xiii) of this Section, for all DBP samples analyzed for

compliance with Sections 611.312 and 611.385 and Subparts W and Y of this Part:

i) Chloroform (a THM): 0.0010 mg/ℓ;

ii) Bromodichloromethane (a THM): 0.0010 mg/ℓ;

iii) Dibromochloromethane (a THM): 0.0010 mg/ℓ;

iv) Bromoform (a THM): 0.0010 mg/ℓ;

v) Monochloroacetic Acid (an HAA5): 0.0020 mg/ℓ;

vi) Dichloroacetic Acid (an HAA5): 0.0010 mg/ℓ;

vii) Trichloroacetic Acid (an HAA5): 0.0010 mg/ℓ;

viii) Monobromoacetic Acid (an HAA5): 0.0010 mg/ℓ;

ix) Dibromoacetic Acid (an HAA5): 0.0010 mg/ℓ;

x) Chlorite: 0.020 mg/ℓ, applicable to monitoring as required by Section 611.382(b)(2)(A)(ii) and (b)(2)(B); and

xi) Bromate: 0.0050, or 0.0010 mg/ℓ if the laboratory uses USEPA OGWDW Methods, Method 317.0 or 326.0 or USEPA Organic and Inorganic Methods, Method 321.8.

xii) The calibration curve must encompass the regulatory MRL concentration. Data may be reported for concentrations lower than the regulatory MRL as long as the precision and accuracy criteria are met by analyzing an MRL check standard at the lowest reporting limit chosen by the laboratory. The laboratory must verify the accuracy of the calibration curve at the MRL concentration by analyzing an MRL check standard with a concentration less than or equal to 110% of the MRL with each batch of samples. The measured concentration for the MRL check standard must be ±50% of the expected value, if any field sample in the batch has a concentration less than five times the regulatory MRL. Method requirements to analyze higher concentration check standards and meet tighter acceptance criteria for them must be met in addition to the MRL check standard requirement.

xiii) When adding the individual trihalomethane or haloacetic acid concentrations, for the compounds listed in

subsections (b)(2)(D)(v) through (b)(2)(D)(ix) of this Section, to calculate the TTHM or HAA5 concentrations, respectively, a zero is used for any analytical result that is less than the MRL concentration for that DBP, unless otherwise specified by the Agency.

3) A party approved by USEPA or the Agency must measure daily chlorite samples at the entrance to the distribution system.

c) Disinfectant residuals.

1) A supplier must measure residual disinfectant concentrations for free chlorine, combined chlorine (chloramines), and chlorine dioxide by the appropriate of the methods listed in subsections (c)(1)(A) through (c)(1)(D) of this Section, subject to the provisions of subsection (c)(1)(E) of this Section:

A) Free Chlorine:

i) Amperometric titration: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl D, or ASTM Method D1253-86, D1253-96, D1253-03, or D1253-08;

ii) DPD ferrous titration: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl F;

iii) DPD colorimetric: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl G or Hach Method 10260;

iv) Syringaldazine (FACTS): Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl H;

v) Test strips: ITS Method D99-003 if approved by the Agency pursuant to subsection (c)(2) of this Section;

vi) Amperometric sensor: Palintest ChloroSense; or

vii) On-line chlorine analyzer: USEPA OGWDW Methods, Method 334.0.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 4500-Cl D, F, G, and H as approved alternative methods for free chlorine in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D1253-08, USEPA OGWDW Methods, Method 334.0, and Palintest ChloroSense as approved alternative methods for free chlorine in appendix A to subpart C of 40 CFR 141 on November

10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods, 22nd ed., Methods 4500-Cl D, F, G, and H as approved alternative methods for free chlorine in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA added Hach Method 10260 as an approved alternative method for free chlorine in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081).

B) Combined Chlorine:

i) Amperometric titration: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl D, or ASTM Method D1253-86, D1253-96, D1253-03, or D1253-08;

ii) DPD ferrous titration: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl F; or

iii) DPD colorimetric: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl G or Hach Method 10260.

BOARD NOTE: USEPA added Standard Methods, Methods 4500-Cl D, F, and G as approved alternative methods for free chlorine in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D1253-08 as an approved alternative method for combined chlorine in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods, 22nd ed., Methods 4500-Cl D, F, and G as approved alternative methods for combined chlorine in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA added Hach Method 10260 as an approved alternative method for combined chlorine in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081).

C) Total Chlorine:

i) Amperometric titration: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl D, or ASTM Method D1253-86, D1253-96, D1253-03, or D1253-08;

ii) Low-level amperometric titration: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl E;

iii) DPD ferrous titration: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl F;

iv) DPD colorimetric: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl G or Hach Method 10260;

v) Iodometric electrode: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl I;

vi) Amperometric sensor: Palintest ChloroSense; or

vii) On-line chlorine analyzer: USEPA OGWDW Methods, Method 334.0.

BOARD NOTE: USEPA added Standard Methods, Methods 4500-Cl D, E, F, G, and I as approved alternative methods for free chlorine in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D1253-08, USEPA OGWDW Methods, Method 334.0, and Palintest ChloroSense as approved alternative methods for total chlorine in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods, 22nd ed., Methods 4500-Cl D, E, F, G, and I as approved alternative methods for total chlorine in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA added Hach Method 10260 as an approved alternative method for total chlorine in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081).

D) Chlorine Dioxide:

i) DPD: Standard Methods, 19th, 20th, or 21st ed., Method 4500-ClO_2 D;

ii) Amperometric Method II: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 4500-ClO_2 E;iii) Amperometric sensor: ChlordioX Plus Test; or

iv) Lissamine Green spectrophotometric: USEPA OGWDW Method 327.0 (rev. 1.1).

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 4500-ClO_2 D and E as approved alternative methods for chlorine dioxide in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods, 22nd ed., Method 4500-ClO_2 E as an approved alternative method for chlorine dioxide in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA added ChlordioX Plus Test as an approved alternative method for

chlorine dioxide in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081).

E) The methods listed are approved for measuring the specified disinfectant residual. The supplier may measure free chlorine or total chlorine for demonstrating compliance with the chlorine MRDL and combined chlorine, or total chlorine may be measured for demonstrating compliance with the chloramine MRDL.

2) Alternative methods available only upon specific approval by the Agency.

A) Test strips: ITS Method D99-003.

BOARD NOTE: USEPA added ITS Method D99-003 as an approved alternative method for free chlorine in appendix A to subpart C of 40 CFR 141, added on June 3, 2008 (at 73 Fed. Reg. 31616), contingent upon specific state approval. The Board has opted to provide that the Agency can grant such approvals on a case-by-case basis using the SEP mechanism.

B) If approved by the Agency, by an SEP issued pursuant to Section 611.110, a supplier may also measure residual disinfectant concentrations for chlorine, chloramines, and chlorine dioxide by using DPD colorimetric test kits.

3) A party approved by USEPA or the Agency must measure residual disinfectant concentration.

d) A supplier required to analyze parameters not included in subsections (b) and (c) of this Section must use the methods listed below. A party approved by USEPA or the Agency must measure the following parameters:

1) Alkalinity. All methods allowed in Section 611.611(a)(21) for measuring alkalinity.

2) Bromide:

A) USEPA Inorganic Methods, Method 300.0 (rev. 2.1);

B) USEPA Organic and Inorganic Methods, Method 300.1 (rev. 1.0);

C) USEPA OGWDW Methods, Method 317.0 (rev. 2.0) or Method 326.0 (rev. 1.0); or

D) ASTM Method D6581-00.

3) Total Organic Carbon (TOC), by any of the methods listed in subsection (d)(3)(A)(i), (d)(3)(A)(ii), (d)(3)(A)(iii), or (d)(3)(B) of this Section, subject to the limitations of subsection (d)(3)(C) of this Section:

A) High-temperature combustion:

i) Standard Methods, 19th (Supplement), 20th, 21st, or 22nd ed., Method 5310 B; or

ii) USEPA NERL Method 415.3 (rev. 1.2).

B) Persulfate-ultraviolet or heated-persulfate oxidation:

i) Standard Methods, 19th (Supplement), 20th, 21st, or 22nd ed., Method 5310 C; or

ii) USEPA NERL Method 415.3 (rev. 1.2).

C) Wet oxidation method:

i) Standard Methods, 19th (Supplement), 20th, 21st, or 22nd ed., Method 5310 D; or

ii) USEPA NERL Method 415.3 (rev. 1.2).

D) Specific UV_{254} absorbance: USEPA NERL Method 415.3 (rev. 1.1) or 415.3 (rev. 1.2).

E) Inorganic carbon must be removed from the samples prior to analysis. TOC samples may not be filtered prior to analysis. TOC samples must be acidified at the time of sample collection to achieve pH less than or equal to 2 with minimal addition of the acid specified in the method or by the instrument manufacturer. Acidified TOC samples must be analyzed within 28 days.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 5310 B, C, and D as approved alternative methods for total organic carbon in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added USEPA NERL Method 415.3 (rev. 1.2) as an approved alternative method for total organic carbon in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods, 22nd ed., Methods 5310 B, C, and D as approved alternative methods for total organic carbon in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463).

4) Specific Ultraviolet Absorbance (SUVA). SUVA is equal to the UV absorption at 254 nm (UV_{254}) (measured in m^{-1}) divided by the dissolved

organic carbon (DOC) concentration (measured as mg/ℓ). In order to determine SUVA, it is necessary to separately measure UV_{254} and DOC. When determining SUVA, a supplier must use the methods stipulated in subsection (d)(4)(A) of this Section to measure DOC and the method stipulated in subsection (d)(4)(B) of this Section to measure UV_{254}. SUVA must be determined on water prior to the addition of disinfectants/oxidants by the supplier. DOC and UV_{254} samples used to determine a SUVA value must be taken at the same time and at the same location.

A) Dissolved Organic Carbon (DOC). Prior to analysis, DOC samples must be filtered through the 0.45 μm pore-diameter filter as soon as practical after sampling, not to exceed 48 hours. After filtration, DOC samples must be acidified to achieve pH less than or equal to 2 with minimal addition of the acid specified in the method or by the instrument manufacturer. Acidified DOC samples must be analyzed within 28 days after sample collection. Inorganic carbon must be removed from the samples prior to analysis. Water passed through the filter prior to filtration of the sample must serve as the filtered blank. This filtered blank must be analyzed using procedures identical to those used for analysis of the samples and must meet the following standards: DOC less than 0.5 mg/ℓ.

i) High-Temperature Combustion Method: Standard Methods, 19th (Supplement), 20th, 21st, or 22nd ed., Method 5310 B or USEPA NERL Methods 415.3 (rev. 1.1) or 415.3 (rev. 1.2).

ii) Persulfate-Ultraviolet or Heated-Persulfate Oxidation Method, Standard Methods, 19th (Supplement), 20th, 21st, or 22nd ed., Method 5310 C or USEPA NERL Methods 415.3 (rev. 1.1) or 415.3 (rev. 1.2).

iii) Wet-Oxidation Method: Standard Methods, 19th (Supplement), 20th, 21st, or 22nd ed., Method 5310 D or USEPA NERL Methods 415.3 (rev. 1.1) or 415.3 (rev. 1.2).

BOARD NOTE: USEPA added Standard Methods, Methods 5310 B, C, and D as approved alternative methods for dissolved organic carbon in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added USEPA NERL Method 415.3 (rev. 1.2) as an approved alternative method for dissolved organic carbon in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods, 22nd ed., Methods 5310 B, C, and D as approved alternative methods for dissolved organic carbon in

appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463).

B) Ultraviolet Absorption at 254 nm (UV_{254}) by spectrometry: Standard Methods, 19th, 20th, 21st, or 22nd ed., Method 5910 B or USEPA NERL Method 415.3 (rev. 1.1) or 415.3 (rev. 1.2). UV absorption must be measured at 253.7 nm (may be rounded off to 254 nm). Prior to analysis, UV_{254} samples must be filtered through a 0.45 μm pore-diameter filter. The pH of UV_{254} samples may not be adjusted. Samples must be analyzed as soon as practical after sampling, not to exceed 48 hours; and

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 5910 B as an approved alternative method for ultraviolet absorption at 254 nm in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added USEPA NERL Method 415.3 (rev. 1.2) as an approved alternative method for ultraviolet absorbance in appendix A to subpart C of 40 CFR 141 on November (at 74 Fed. Reg. 57908). USEPA added Standard Methods, 22nd ed., Method 5910 B as an approved alternative method for ultraviolet absorption at 254 nm in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA added Standard Methods Online, Method 5910 B-11 as an approved alternative method for ultraviolet absorption at 254 nm in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Methods 5910 B is the same version as Standard Methods Online, Method 5910 B-11, the Board has not listed the Standard Methods Online versions separately.

5) pH. All methods allowed in Section 611.611(a)(17) for measuring pH.

6) Magnesium. All methods allowed in Section 611.611(a) for measuring magnesium.

BOARD NOTE: Derived from 40 CFR 141.131 and appendix A to 40 CFR 141 (2014).

(Source: Amended at 39 Ill. Reg. 3713, effective March 13, 2015)

Section 611.382 Monitoring Requirements

a) General requirements.

1) A supplier must take all samples during normal operating conditions.

2) A supplier may consider multiple wells drawing water from a single aquifer as one treatment plant for determining the minimum number of TTHM and HAA5 samples required with Agency approval.

3) Failure to monitor in accordance with the monitoring plan required under subsection (f) of this Section is a monitoring violation.

4) Where compliance is based on a running annual average of monthly or quarterly samples or averages and the supplier's failure to monitor makes it impossible to determine compliance with MCLs or MRDLs, this failure to monitor will be treated as a violation for the entire period covered by the annual average.

5) A supplier must use only data collected under the provisions of this Subpart I to qualify for reduced monitoring.

b) Monitoring requirements for disinfection byproducts (DBPs).

1) TTHMs and HAA5.

A) Routine monitoring. A supplier must monitor at the following frequency:

i) A Subpart B system supplier that serves 10,000 or more persons must collect four water samples per quarter per treatment plant. At least 25 percent of all samples collected each quarter must be collected at locations representing maximum residence time. The remaining samples may be taken at locations representative of at least average residence time in the distribution system and representing the entire distribution system, taking into account the number of persons served, the different sources of water, and the different treatment methods.

ii) A Subpart B system supplier that serves from 500 to 9,999 persons must collect one water sample per quarter per treatment plant. The samples must be collected from locations representing maximum residence time.

iii) A Subpart B system supplier that serves fewer than 500 persons must collect one sample per year per treatment plant during month of warmest water temperature. The samples must be collected from locations representing maximum residence time. If the sample (or average of annual samples, if more than one sample is taken) exceeds the MCL, the supplier must increase the monitoring frequency to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until the supplier meets the standards in subsection (b)(1)(D) of this Section.

iv) A supplier that uses only groundwater not under direct influence of surface water, which uses chemical disinfectant, and which serves 10,000 or more persons must collect one water sample per quarter per treatment plant. The samples must be collected from locations representing maximum residence time.

v) A supplier that uses only groundwater not under direct influence of surface water, which uses chemical disinfectant, and which serves fewer than 10,000 persons must collect one sample per year per treatment plant during month of warmest water temperature. The samples must be collected from locations representing maximum residence time. If the sample (or average of annual samples, if more than one sample is taken) exceeds MCL, the supplier must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until the supplier meets standards in subsection (b)(1)(D) of this Section.

BOARD NOTE: If a supplier elects to sample more frequently than the minimum required, at least 25 percent of all samples collected each quarter (including those taken in excess of the required frequency) must be taken at locations that represent the maximum residence time of the water in the distribution system. The remaining samples must be taken at locations representative of at least average residence time in the distribution system. For a supplier using groundwater not under the direct influence of surface water, multiple wells drawing water from a single aquifer may be considered one treatment plant for determining the minimum number of samples required, with Agency approval.

B) A supplier may reduce monitoring, except as otherwise provided, in accordance with the following:

i) A Subpart B system supplier that serves 10,000 or more persons and which has a source water annual average TOC level, before any treatment, of less than or equal to 4.0 mg/ℓ may reduce monitoring if it has monitored for at least one year and its TTHM annual average is less than or equal to 0.040 mg/ℓ and HAA5 annual average is less than or equal to 0.030 mg/ℓ. The reduced monitoring allowed is a minimum of one sample per treatment plant per quarter at a distribution system location reflecting maximum residence time.

ii) A Subpart B system supplier that serves from 500 to 9,999 persons and which has a source water annual average TOC level, before any treatment, of less than or equal to 4.0 mg/ℓ may reduce monitoring if it has monitored at least one year and its TTHM annual average is less than or equal to 0.040 mg/ℓ and HAA5 annual average is less than or equal to 0.030 mg/ℓ. The reduced monitoring allowed is a minimum of one sample per treatment plant per year at a distribution system location reflecting maximum residence time during month of warmest water temperature.

BOARD NOTE: Any Subpart B system supplier that serves fewer than 500 persons may not reduce its monitoring to less than one sample per treatment plant per year.

iii) A supplier using only groundwater not under direct influence of surface water using chemical disinfectant and that serves 10,000 or more persons may reduce monitoring if it has monitored at least one year and its TTHM annual average is less than or equal to 0.040 mg/ℓ and HAA5 annual average is less than or equal to 0.030 mg/ℓ. The reduced monitoring allowed is a minimum of one sample per treatment plant per year at a distribution system location reflecting maximum residence time during month of warmest water temperature.

iv) A supplier using only groundwater not under direct influence of surface water that uses chemical disinfectant and which serves fewer than 10,000 persons may reduce monitoring if it has monitored at least one year and its TTHM annual average is less than or equal to 0.040 mg/ℓ and HAA5 annual average is less than or equal to 0.030 mg/ℓ for two consecutive years or TTHM annual average is less than or equal to 0.020 mg/ℓ and HAA5 annual average is less than or equal to 0.015 mg/ℓ for one year. The reduced monitoring allowed is a minimum of one sample per treatment plant per three year monitoring cycle at a distribution system location reflecting maximum residence time during month of warmest water temperature, with the three-year cycle beginning on January 1 following the quarter in which the supplier qualifies for reduced monitoring.

C) Monitoring requirements for source water TOC. In order to qualify for reduced monitoring for TTHM and HAA5 under subsection (b)(1)(B) of this Section, a Subpart B system supplier not monitoring under the provisions of subsection (d) of this Section must take monthly TOC samples every 30 days at a location prior to any treatment. In addition to meeting other criteria for reduced monitoring in subsection (b)(1)(B) of this Section, the source water TOC running annual average must be ≤4.0 mg/ℓ (based on the most recent four quarters of monitoring) on a continuing basis at each treatment plant to reduce or remain on reduced monitoring for TTHM and HAA5. Once qualified for reduced monitoring for TTHM and HAA5 under subsection (b)(1)(B) of this Section, a system may reduce source water TOC monitoring to quarterly TOC samples taken every 90 days at a location prior to any treatment.

D) A Subpart B system supplier on a reduced monitoring schedule may remain on that reduced schedule as long as the average of all samples taken in the year (for a supplier that must monitor quarterly) or the result of the sample (for a supplier that must monitor no more frequently than annually) is no more than 0.060 mg/ℓ and 0.045 mg/ℓ for TTHMs and HAA5, respectively. A supplier that does not meet these levels must resume monitoring at the frequency identified in subsection (b)(1)(A) of this Section in the quarter immediately following the monitoring period in which the supplier exceeds 0.060 mg/ℓ for TTHMs or 0.045 mg/ℓ for HAA5. For a supplier that uses only groundwater not under the direct influence of surface water and which serves fewer than 10,000 persons, if either the TTHM

annual average is greater than 0.080 mg/ℓ or the HAA5 annual average is greater than 0.060 mg/ℓ, the supplier must go to increased monitoring identified in subsection (b)(1)(A) of this Section in the quarter immediately following the monitoring period in which the supplier exceeds 0.080 mg/ℓ for TTHMs or 0.060 mg/ℓ for HAA5.

E) The Agency may return a supplier to routine monitoring.

2) Chlorite. A CWS or NTNCWS supplier using chlorine dioxide, for disinfection or oxidation, must conduct monitoring for chlorite.

A) Routine monitoring.

i) Daily monitoring. A supplier must take daily samples at the entrance to the distribution system. For any daily sample that exceeds the chlorite MCL, the supplier must take additional samples in the distribution system the following day at the locations required by subsection (b)(2)(B) of this Section, in addition to the sample required at the entrance to the distribution system.

ii) Monthly monitoring. A supplier must take a three-sample set each month in the distribution system. The supplier must take one sample at each of the following locations: near the first customer, at a location representative of average residence time, and at a location reflecting maximum residence time in the distribution system. Any additional routine sampling must be conducted in the same manner (as three-sample sets, at the specified locations). The supplier may use the results of additional monitoring conducted under subsection (b)(2)(B) of this Section to meet the requirement for monitoring in this subsection (b)(2)(A)(ii).

B) Additional monitoring. On each day following a routine sample monitoring result that exceeds the chlorite MCL at the entrance to the distribution system, the supplier must take three chlorite distribution system samples at the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as

possible (reflecting maximum residence time in the distribution system).

C) Reduced monitoring.

i) Chlorite monitoring at the entrance to the distribution system required by subsection (b)(2)(A)(i) of this Section may not be reduced.

ii) Chlorite monitoring in the distribution system required by subsection (b)(2)(A)(ii) of this Section may be reduced to one three-sample set per quarter after one year of monitoring where no individual chlorite sample taken in the distribution system under subsection (b)(2)(A)(ii) of this Section has exceeded the chlorite MCL and the supplier has not been required to conduct monitoring under subsection (b)(2)(B) of this Section. The supplier may remain on the reduced monitoring schedule until either any of the three individual chlorite samples taken quarterly in the distribution system under subsection (b)(2)(A)(ii) of this Section exceeds the chlorite MCL or the supplier is required to conduct monitoring under subsection (b)(2)(B) of this Section, at which time the supplier must revert to routine monitoring.

3) Bromate.

A) Routine monitoring. A CWS or NTNCWS supplier using ozone, for disinfection or oxidation, must take one sample per month for each treatment plant in the system using ozone. A supplier must take samples monthly at the entrance to the distribution system while the ozonation system is operating under normal conditions.

B) Reduced monitoring. A supplier required to analyze for bromate may reduce monitoring from monthly to quarterly if the supplier's running annual average bromate concentration is not greater than 0.0025 mg/ℓ based on monthly bromate measurements under subsection (b)(3)(A) of this Section for the most recent four quarters, with samples analyzed using USEPA OGWDW Methods, Method 302.0, Method 317.0 (rev. 2.0), Method 326.0 (rev. 1.0), or Method 557 or USEPA Organic and Inorganic Methods, Method 321.8, each incorporated by reference in Section 611.102. If a

supplier has qualified for reduced bromate monitoring under subsection (b)(3)(B)(i) of this Section, that supplier may remain on reduced monitoring as long as the running annual average of quarterly bromate samples not greater than 0.0025 mg/ℓ based on samples analyzed using USEPA OGWDW Methods, Method 302.0, Method 317.0, Method 326.0, or Method 557 or USEPA Organic and Inorganic Methods, Method 321.8. If the running annual average bromate concentration is greater than 0.0025 mg/ℓ, the supplier must resume routine monitoring required by subsection (b)(3)(A) of this Section.

c) Monitoring requirements for disinfectant residuals.

1) Chlorine and chloramines.

A) Routine monitoring. Until March 31, 2016, a CWS or NTNCWS supplier that uses chlorine or chloramines must measure the residual disinfectant level in the distribution system at the same point in the distribution system and at the same time as total coliforms are sampled, as specified in Section 611.521. Beginning April 1, 2016, a CWS or NTNCWS supplier that uses chlorine or chloramines must measure the residual disinfectant level in the distribution system at the same point in the distribution system and at the same time as total coliforms are sampled, as specified in Sections 611.1054 through 611.1058. A Subpart B system supplier may use the results of residual disinfectant concentration sampling conducted under Section 611.532 for unfiltered systems or Section 611.533 for systems that filter, in lieu of taking separate samples.

B) Reduced monitoring. Monitoring may not be reduced.

2) Chlorine dioxide.

A) Routine monitoring. A CWS, an NTNCWS, or a transient non-CWS supplier that uses chlorine dioxide for disinfection or oxidation must take daily samples at the entrance to the distribution system. For any daily sample that exceeds the MRDL, the supplier must take samples in the distribution system the following day at the locations required by subsection (c)(2)(B) of this Section, in addition to the sample required at the entrance to the distribution system.

B) Additional monitoring. On each day following a routine sample monitoring result that exceeds the MRDL, the supplier must take three chlorine dioxide distribution system samples. If chlorine dioxide or chloramines are used to maintain a disinfectant residual in the distribution system, or if chlorine is used to maintain a disinfectant residual in the distribution system and there are no disinfection addition points after the entrance to the distribution system (i.e., no booster chlorination), the supplier must take three samples as close to the first customer as possible, at intervals of at least six hours. If chlorine is used to maintain a disinfectant residual in the distribution system and there are one or more disinfection addition points after the entrance to the distribution system (i.e., booster chlorination), the supplier must take one sample at each of the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).

C) Reduced monitoring. Monitoring may not be reduced.

d) Monitoring requirements for disinfection byproduct (DBP) precursors.

1) Routine monitoring. A Subpart B system supplier that uses conventional filtration treatment (as defined in Section 611.101) must monitor each treatment plant for TOC not past the point of combined filter effluent turbidity monitoring and representative of the treated water. A supplier required to monitor under this subsection (d)(1) must also monitor for TOC in the source water prior to any treatment at the same time as monitoring for TOC in the treated water. These samples (source water and treated water) are referred to as paired samples. At the same time as the source water sample is taken, a system must monitor for alkalinity in the source water prior to any treatment. A supplier must take one paired sample and one source water alkalinity sample per month per plant at a time representative of normal operating conditions and influent water quality.

2) Reduced monitoring. A Subpart B system supplier with an average treated water TOC of less than 2.0 mg/ℓ for two consecutive years, or less than 1.0 mg/ℓ for one year, may reduce monitoring for both TOC and alkalinity to one paired sample and one source water alkalinity sample per plant per quarter. The supplier must revert to routine monitoring in the month following the quarter when the annual average treated water TOC greater than or equal to 2.0 mg/ℓ.

e) Bromide. A supplier required to analyze for bromate may reduce bromate monitoring from monthly to once per quarter, if the supplier demonstrates that the average source water bromide concentration is less than 0.05 mg/ℓ based upon representative monthly measurements for one year. The supplier must continue bromide monitoring to remain on reduced bromate monitoring.

f) Monitoring plans. Each supplier required to monitor under this Subpart I must develop and implement a monitoring plan. The supplier must maintain the plan and make it available for inspection by the Agency and the general public no later than 30 days following the applicable compliance dates in Section 611.380(b). A Subpart B system supplier that serves more than 3,300 persons must submit a copy of the monitoring plan to the Agency no later than the date of the first report required under Section 611.384. After review, the Agency may require changes in any plan elements. The plan must include at least the following elements:

1) Specific locations and schedules for collecting samples for any parameters included in this Subpart I;

2) How the supplier will calculate compliance with MCLs, MRDLs, and treatment techniques; and

3) If approved for monitoring as a consecutive system, or if providing water to a consecutive system, under the provisions of Section 611.500, the sampling plan must reflect the entire distribution system.

BOARD NOTE: Derived from 40 CFR 141.132 (2013).

(Source: Amended at 38 Ill. Reg. 3608, effective January 27, 2014)

Section 611.383 Compliance Requirements

a) General requirements.

1) Where compliance is based on a running annual average of monthly or quarterly samples or averages and the supplier fails to monitor for TTHM, HAA5, or bromate, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average. Where compliance is based on a running annual average of monthly or quarterly samples or averages and the supplier's failure to monitor makes it impossible to determine compliance with the MRDL for chlorine or

chloramines, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average.

2) All samples taken and analyzed under the provisions of this Subpart I must be included in determining compliance, even if that number is greater than the minimum required.

3) If, during the first year of monitoring under Section 611.382, any individual quarter's average will cause the running annual average of that supplier to exceed the MCL for total trihalomethanes, haloacetic acids (five), or bromate or the MRDL for chlorine or chloramine, the supplier is out of compliance at the end of that quarter.

b) Disinfection byproducts (DBPs).

1) TTHMs and HAA5.

A) For a supplier monitoring quarterly, compliance with MCLs in Section 611.312 must be based on a running annual arithmetic average, computed quarterly, of quarterly arithmetic averages of all samples collected by the supplier as prescribed by Section 611.382(b)(1).

B) For a supplier monitoring less frequently than quarterly, the supplier demonstrates MCL compliance if the average of samples taken that year under the provisions of Section 611.382(b)(1) does not exceed the MCLs in Section 611.312. If the average of these samples exceeds the MCL, the supplier must increase monitoring to once per quarter per treatment plant, and such a system is not in violation of the MCL until it has completed one year of quarterly monitoring, unless the result of fewer than four quarters of monitoring will cause the running annual average to exceed the MCL, in which case the supplier is in violation at the end of that quarter. A supplier required to increase to quarterly monitoring must calculate compliance by including the sample that triggered the increased monitoring plus the following three quarters of monitoring.

C) If the running annual arithmetic average of quarterly averages covering any consecutive four-quarter period exceeds the MCL, the supplier is in violation of the MCL and must notify the public pursuant to Subpart V of this Part in addition to reporting to the Agency pursuant to Section 611.384.

D) If a PWS fails to complete four consecutive quarter's monitoring, compliance with the MCL for the last four-quarter compliance period must be based on an average of the available data.

2) Bromate. Compliance must be based on a running annual arithmetic average, computed quarterly, of monthly samples (or, for months in which the supplier takes more than one sample, the average of all samples taken during the month) collected by the supplier, as prescribed by Section 611.382(b)(3). If the average of samples covering any consecutive four-quarter period exceeds the MCL, the supplier is in violation of the MCL and must notify the public pursuant to Subpart V of this Part, in addition to reporting to the Agency pursuant to Section 611.384. If a PWS supplier fails to complete 12 consecutive months' monitoring, compliance with the MCL for the last four-quarter compliance period must be based on an average of the available data.

3) Chlorite. Compliance must be based on an arithmetic average of each three sample set taken in the distribution system as prescribed by Section 611.382(b)(2)(A)(ii) and Section 611.382(b)(2)(B). If the arithmetic average of any three sample set exceeds the MCL, the supplier is in violation of the MCL and must notify the public pursuant to Subpart V of this Part, in addition to reporting to the Agency pursuant to Section 611.384.

c) Disinfectant residuals.

1) Chlorine and chloramines.

A) Compliance must be based on a running annual arithmetic average, computed quarterly, of monthly averages of all samples collected by the supplier under Section 611.382(c)(1). If the average of quarterly averages covering any consecutive four-quarter period exceeds the MRDL, the supplier is in violation of the MRDL and must notify the public pursuant to Subpart V of this Part, in addition to reporting to the Agency pursuant to Section 611.384.

B) In cases where a supplier switches between the use of chlorine and chloramines for residual disinfection during the year, compliance must be determined by including together all monitoring results of both chlorine and chloramines in calculating compliance. Reports submitted pursuant to Section 611.384 must clearly indicate that residual disinfectant was analyzed for each sample.

2) Chlorine dioxide.

A) Acute violations. Compliance must be based on consecutive daily samples collected by the supplier under Section 611.382(c)(2). If any daily sample taken at the entrance to the distribution system exceeds the MRDL, and on the following day one (or more) of the three samples taken in the distribution system exceeds the MRDL, the supplier is in violation of the MRDL and must take immediate

corrective action to lower the level of chlorine dioxide below the MRDL and must notify the public pursuant to the procedures for acute health risks in Subpart V of this Part, in addition to reporting to the Agency pursuant to Section 611.384. Failure to take samples in the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system will also be considered an MRDL violation and the supplier must notify the public of the violation in accordance with the provisions for acute violations under Subpart V of this Part, in addition to reporting to the Agency pursuant to Section 611.384.

B) Nonacute violations. Compliance must be based on consecutive daily samples collected by the supplier under Section 611.382(c)(2). If any two consecutive daily samples taken at the entrance to the distribution system exceed the MRDL and all distribution system samples taken are below the MRDL, the supplier is in violation of the MRDL and must take corrective action to lower the level of chlorine dioxide below the MRDL at the point of sampling and must notify the public pursuant to the procedures for nonacute health risks in Subpart V of this Part, in addition to reporting to the Agency pursuant to Section 611.384. Failure to monitor at the entrance to the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system is also an MRDL violation and the supplier must notify the public of the violation in accordance with the provisions for nonacute violations under Subpart V of this Part, in addition to reporting to the Agency pursuant to Section 611.384.

d) Disinfection byproduct (DBP) precursors. Compliance must be determined as specified by Section 611.385(c). A supplier may begin monitoring to determine whether Step 1 TOC removals can be met 12 months prior to the compliance date for the supplier. This monitoring is not required and failure to monitor during this period is not a violation. However, any supplier that does not monitor during this period, and then determines in the first 12 months after the compliance date that it is not able to meet the Step 1 requirements in Section 611.141(b)(2) and must therefore apply for alternate minimum TOC removal (Step 2) requirements, is not eligible for retroactive approval of alternate minimum TOC removal (Step 2) requirements as allowed pursuant to Section 611.385(b)(3) and is in violation of an NPDWR. A supplier may apply for alternate minimum TOC removal (Step 2) requirements any time after the compliance date. For a supplier required to meet Step 1 TOC removals, if the value calculated under Section 611.385(c)(1)(D) is less than 1.00, the supplier is in violation of the treatment technique requirements and must notify the public pursuant to Subpart V of this Part, in addition to reporting to the Agency pursuant to Subpart V of this Part.

BOARD NOTE: Derived from 40 CFR 141.133 (2014).

(Source: Amended at 39 Ill. Reg. 15352, effective November 13, 2015)

Section 611.384 Reporting and Recordkeeping Requirements

a) A supplier required to sample quarterly or more frequently must report to the Agency within ten days after the end of each quarter in which samples were collected, notwithstanding the provisions of Section 611.840. A supplier required to sample less frequently than quarterly must report to the Agency within ten days after the end of each monitoring period in which samples were collected.

b) Disinfection byproducts (DBPs). A supplier must report the following specified information:

1) A supplier that monitors for TTHMs and HAA5 under the requirements of Section 611.382(b) on a quarterly or more frequently basis must report the following:

A) The number of samples taken during the last quarter;

B) The location, date, and result of each sample taken during the last quarter;

C) The arithmetic average of all samples taken over the last quarter;

D) The annual arithmetic average of the quarterly arithmetic averages of this Section for the last four quarters; and

E) Whether, based on Section 611.383(b)(1), the MCL was violated.

2) A supplier that monitors for TTHMs and HAA5 under the requirements of Section 611.382(b) less frequently than quarterly (but at least annually) must report the following:

A) The number of samples taken during the last year;

B) The location, date, and result of each sample taken during the last monitoring period;

C) The arithmetic average of all samples taken over the last year; and

D) Whether, based on Section 611.383(b)(1), the MCL was violated.

3) A supplier that monitors for TTHMs and HAA5 under the requirements of Section 611.382(b) less frequently than annually must report the following:

A) The location, date, and result of the last sample taken; and

B) Whether, based on Section 611.383(b)(1), the MCL was violated.

4) A supplier that monitors for chlorite under the requirements of Section 611.382(b) must report the following:

A) The number of entry point samples taken each month for the last three months;

B) The location, date, and result of each sample (both entry point and distribution system) taken during the last quarter;

C) For each month in the reporting period, the arithmetic average of each three-sample set for all sample sets taken in the distribution system; and

D) Whether, based on Section 611.383(b)(3), the MCL was violated, in which month it was violated, and how many times it was violated in each month.

5) A supplier that monitors for bromate under the requirements of Section 611.382(b) must report the following:

A) The number of samples taken during the last quarter;

B) The location, date, and result of each sample taken during the last quarter;

C) The arithmetic average of the monthly arithmetic averages of all samples taken in the last year; and

D) Whether, based on Section 611.383(b)(2), the MCL was violated.

BOARD NOTE: The Agency may choose to perform calculations and determine whether the MCL was exceeded, in lieu of having the supplier report the required information.

c) Disinfectants. A supplier must report the following specified information:

1) A supplier that monitors for chlorine or chloramines under the requirements of Section 611.382(c) must report the following:

A) The number of samples taken during each month of the last quarter.

B) The monthly arithmetic average of all samples taken in each month for the last 12 months.

C) The arithmetic average of all monthly averages for the last 12 months.

D) Whether, based on Secton 611.383(c)(1), the MRDL was violated.

2) A supplier that monitors for chlorine dioxide under the requirements of Section 611.382(c) must report the following:

A) The dates, results, and locations of samples taken during the last quarter;

B) Whether, based on Secton 611.383(c)(2), the MRDL was violated; and

C) Whether the MRDL was exceeded in any two consecutive daily samples and whether the resulting violation was acute or nonacute.

BOARD NOTE: The Agency may choose to perform calculations and determine whether the MRDL was exceeded, in lieu of having the supplier report the required information.

d) Disinfection byproduct (DBP) precursors and enhanced coagulation or enhanced softening. A supplier must report the following specified information:

1) A supplier that monitors monthly or quarterly for TOC under the requirements of Section 611.382(d) and required to meet the enhanced coagulation or enhanced softening requirements in Section 611.385(b)(2) or (b)(3) must report the following:

A) The number of paired (source water and treated water) samples taken during the last quarter;

B) The location, date, and result of each paired sample and associated alkalinity taken during the last quarter;

C) For each month in the reporting period that paired samples were taken, the arithmetic average of the percent reduction of TOC for each paired sample and the required TOC percent removal;

D) Calculations for determining compliance with the TOC percent removal requirements, as provided in Section 611.385(c)(1); and

E) Whether the supplier is in compliance with the enhanced coagulation or enhanced softening percent removal requirements in Section 611.385(b) for the last four quarters.

2) A supplier that monitors monthly or quarterly for TOC under the requirements of Section 611.382(d) and meeting one or more of the alternative compliance standards in Section 611.385(a)(2) or (a)(3) must report the following:

A) The alternative compliance criterion that the supplier is using;

B) The number of paired samples taken during the last quarter;

C) The location, date, and result of each paired sample and associated alkalinity taken during the last quarter;

D) The running annual arithmetic average based on monthly averages (or quarterly samples) of source water TOC for a supplier meeting a criterion in Section 611.385(a)(2)(A) or (a)(2)(C) or of treated water TOC for a supplier meeting the criterion in Section 611.385(a)(2)(B);

E) The running annual arithmetic average based on monthly averages (or quarterly samples) of source water SUVA for a supplier meeting the criterion in Section 611.385(a)(2)(E) or of treated water SUVA for a supplier meeting the criterion in Section 611.385(a)(2)(F);

F) The running annual average of source water alkalinity for a supplier meeting the criterion in Section 611.385(a)(2)(C) and of treated water alkalinity for a supplier meeting the criterion in Section 611.385(a)(3)(A);

G) The running annual average for both TTHM and HAA5 for a supplier meeting the criterion in Section 611.385(a)(2)(C) or (D);

H) The running annual average of the amount of magnesium hardness removal (as $CaCO_3$ in mg/ℓ) for a supplier meeting the criterion in Section 611.385(a)(3)(B); and

I) Whether the supplier is in compliance with the particular alternative compliance criterion in Section 611.385(a)(2) or (3).

BOARD NOTE: The Agency may choose to perform calculations and determine whether the treatment technique was met, in lieu of having the supplier report the required information.

BOARD NOTE: Derived from 40 CFR 141.134 (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.385 Treatment Technique for Control of Disinfection Byproduct (DBP) Precursors

a) Applicability.

1) A Subpart B system supplier using conventional filtration treatment (as defined in Section 611.101) must operate with enhanced coagulation or enhanced softening to achieve the TOC percent removal levels specified in subsection (b) of this Section unless the supplier meets at least one of the alternative compliance standards listed in subsection (a)(2) or (a)(3) of this Section.

2) Alternative compliance standards for enhanced coagulation and enhanced softening systems. A Subpart B system supplier using conventional filtration treatment may use the alternative compliance standards in subsections (a)(2)(A) through (a)(2)(F) of this Section to comply with this Section in lieu of complying with subsection (b). A supplier must comply with monitoring requirements in Section 611.382(d) of this Part.

A) The supplier's source water TOC level, measured according to Section 611.381(d)(3), is less than 2.0 mg/ℓ, calculated quarterly as a running annual average.

B) The supplier's treated water TOC level, measured according to Section 611.381(d)(3), is less than 2.0 mg/ℓ, calculated quarterly as a running annual average.

C) The supplier's source water TOC level, measured according to Section 611.381(d)(3), is less than 4.0 mg/ℓ, calculated quarterly as a running annual average; the source water alkalinity, measured according to Section 611.381(d)(1), is greater than 60 mg/ℓ (as $CaCO_3$), calculated quarterly as a running annual average; and either the TTHM and HAA5 running annual averages are no greater than 0.040 mg/ℓ and 0.030 mg/ℓ, respectively; or prior to the effective date for compliance in Section 611.380(b), the system has made a clear and irrevocable financial commitment, not later than the

effective date for compliance in Section 611.380(b), to use technologies that will limit the levels of TTHMs and HAA5 to no more than 0.040 mg/ℓ and 0.030 mg/ℓ, respectively. A supplier must submit evidence of a clear and irrevocable financial commitment, in addition to a schedule containing milestones and periodic progress reports for installation and operation of appropriate technologies, to the Agency for approval not later than the effective date for compliance in Section 611.380(b). These technologies must be installed and operating not later than June 30, 2005. Failure to install and operate these technologies by the date in the approved schedule will constitute a violation of an NPDWR.

D) The TTHM and HAA5 running annual averages are no greater than 0.040 mg/ℓ and 0.030 mg/ℓ, respectively, and the supplier uses only chlorine for primary disinfection and maintenance of a residual in the distribution system.

E) The supplier's source water SUVA, prior to any treatment and measured monthly according to Section 611.381(d)(4), is less than or equal to 2.0 ℓ/mg-m, calculated quarterly as a running annual average.

F) The supplier's finished water SUVA, measured monthly according to Section 611.381(d)(4), is less than or equal to 2.0 ℓ/mg-m, calculated quarterly as a running annual average.

3) Additional alternative compliance standards for softening systems. A supplier practicing enhanced softening that cannot achieve the TOC removals required by subsection (b)(2) of this Section may use the alternative compliance standards in subsections (a)(3)(A) and (a)(3)(B) of this Section in lieu of complying with subsection (b) of this Section. A supplier must comply with monitoring requirements in Section 611.382(d). The alternative compliance standards are as follows:

A) The supplier may undertake softening that results in lowering the treated water alkalinity to less than 60 mg/ℓ (as $CaCO_3$), measured monthly according to Section 611.381(d)(1) and calculated quarterly as a running annual average; and

B) The supplier may undertake softening that results in removing at least 10 mg/ℓ of magnesium hardness (as $CaCO_3$), measured monthly according to Section 611.381(d)(6) and calculated quarterly as a running annual average.

b) Enhanced coagulation and enhanced softening performance requirements.

1) A supplier must achieve the percent reduction of TOC specified in subsection (b)(2) of this Section between the source water and the combined filter effluent, unless the Agency approves a supplier's request for alternate minimum TOC removal (Step 2) requirements under subsection (b)(3) of this Section.

2) Required Step 1 TOC reductions, indicated in the following table, are based upon specified source water parameters measured in accordance with Section 611.381(d). A supplier practicing softening must meet the Step 1 TOC reductions in the far-right column (source water alkalinity greater than 120 mg/ℓ) for the following specified source water TOC:

Step 1 Required Removal of TOC by Enhanced Coagulation and Enhanced Softening for a Subpart B System Supplier Using Conventional Treatment[1,2]

Source-water TOC, mg/ℓ	Source-water alkalinity, mg/ℓ as $CaCO_3$		
	0-60	>60-120	>120[3]
>2.0-4.0	35.0%	25.0%	15.0%
>4.0-8.0	45.0%	35.0%	25.0%
>8.0	50.0%	40.0%	30.0%

[1] A supplier meeting at least one of the conditions in subsections (a)(2)(A) through (a)(2)(F) of this Section are not required to operate with enhanced coagulation.

[2] A softening system that meets one of the alternative compliance standards in subsection (a)(3) of this Section is not required to operate with enhanced softening.

[3] A supplier that practices softening must meet the TOC removal requirements in this column.

3) A Subpart B conventional treatment system supplier that cannot achieve the Step 1 TOC removals required by subsection (b)(2) of this Section due to water quality parameters or operational constraints must apply to the Agency, within three months after failure to achieve the TOC removals required by subsection (b)(2) of this Section, for approval of alternative minimum TOC (Step 2) removal requirements submitted by the supplier. If the PWS cannot achieve the Step 1 TOC removal requirement due to water quality parameters or operational constraints, the Agency must approve the use of the Step 2 TOC removal requirement. If the Agency

approves the alternative minimum TOC removal (Step 2) requirements, the Agency may make those requirements retroactive for the purposes of determining compliance. Until the Agency approves the alternative minimum TOC removal (Step 2) requirements, the supplier must meet the Step 1 TOC removals contained in subsection (b)(2) of this Section.

4) Alternative minimum TOC removal (Step 2) requirements. An application made to the Agency by an enhanced coagulation system supplier for approval of alternative minimum TOC removal (Step 2) requirements under subsection (b)(3) of this Section must include, at a minimum, results of bench- or pilot-scale testing conducted under subsection (b)(4)(B) of this Section. The submitted bench- or pilot-scale testing must be used to determine the alternative enhanced coagulation level.

A) For the purposes of this Subpart I, "alternative enhanced coagulation level" is defined as coagulation at a coagulant dose and pH, as determined by the method described in subsections (b)(4)(A) through (E) of this Section, such that an incremental addition of 10 mg/ℓ of alum (or equivalent amount of ferric salt) results in a TOC removal of less than or equal to 0.3 mg/ℓ. The percent removal of TOC at this point on the "TOC removal versus coagulant dose" curve is then defined as the minimum TOC removal required for the supplier. Once approved by the Agency, this minimum requirement supersedes the minimum TOC removal required by the table in subsection (b)(2) of this Section. This requirement will be effective until such time as the Agency approves a new value based on the results of a new bench- and pilot-scale test. Failure to achieve alternative minimum TOC removal levels is a violation of National Primary Drinking Water Regulations.

B) Bench- or pilot-scale testing of enhanced coagulation must be conducted by using representative water samples and adding 10 mg/ℓ increments of alum (or equivalent amounts of ferric salt) until the pH is reduced to a level less than or equal to the enhanced coagulation Step 2 target pH shown in the following table:

Enhanced Coagulation Step 2 Target pH

Alkalinity (mg/ℓ as $CaCO_3$)	Target pH
0-60	5.5
>60-120	6.3
>120-240	7.0
>240	7.5

C) For waters with alkalinities of less than 60 mg/ℓ for which addition of small amounts of alum or equivalent addition of iron coagulant drives the pH below 5.5 before significant TOC removal occurs, the supplier must add necessary chemicals to maintain the pH between 5.3 and 5.7 in samples until the TOC removal of 0.3 mg/ℓ per 10 mg/ℓ alum added (or equivalent addition of iron coagulant) is reached.

D) The supplier may operate at any coagulant dose or pH necessary (consistent with other NPDWRs) to achieve the minimum TOC percent removal approved under subsection (b)(3) of this Section.

E) If the TOC removal is consistently less than 0.3 mg/ℓ of TOC per 10 mg/ℓ of incremental alum dose at all dosages of alum (or equivalent addition of iron coagulant), the water is deemed to contain TOC not amenable to enhanced coagulation. The supplier may then apply to the Agency for a waiver of enhanced coagulation requirements. If the TOC removal is consistently less than 0.3 mg/ℓ of TOC per 10 mg/ℓ of incremental alum dose at all dosages of alum (or equivalent addition of iron coagulant), the Agency must grant the waiver of enhanced coagulation requirements.

c) Compliance calculations.

1) A Subpart B system supplier other than those identified in subsection (a)(2) or (a)(3) of this Section must comply with requirements contained in subsection (b)(2) or (b)(3) of this Section. A supplier must calculate compliance quarterly, beginning after the supplier has collected 12 months of data, by determining an annual average using the following method:

A) Determine actual monthly TOC percent removal, equal to the following:

$$\left(1-\left(\frac{\text{treated water TOC}}{\text{source water TOC}}\right)\right)\times 100$$

B) Determine the required monthly TOC percent removal.

C) Divide the value in subsection (c)(1)(A) of this Section by the value in subsection (c)(1)(B) of this Section.

D) Add together the results of subsection (c)(1)(C) of this Section for the last 12 months and divide by 12.

E) If the value calculated in subsection (c)(1)(D) of this Section is less than 1.00, the supplier is not in compliance with the TOC percent removal requirements.

2) A supplier may use the provisions in subsections (c)(2)(A) through (c)(2)(E) of this Section in lieu of the calculations in subsection (c)(1)(A) through (c)(1)(E) of this Section to determine compliance with TOC percent removal requirements.

A) In any month that the supplier's treated or source water TOC level, measured according to Section 611.381(d)(3), is less than 2.0 mg/ℓ, the supplier may assign a monthly value of 1.0 (in lieu of the value calculated in subsection (c)(1)(C) of this Section) when calculating compliance under the provisions of subsection (c)(1) of this Section.

B) In any month that a system practicing softening removes at least 10 mg/ℓ of magnesium hardness (as $CaCO_3$), the supplier may assign a monthly value of 1.0 (in lieu of the value calculated in subsection (c)(1)(C) of this Section) when calculating compliance under the provisions of subsection (c)(1) of this Section.

C) In any month that the system's source water SUVA, prior to any treatment and measured according to Section 611.381(d)(4), is less than or equal to 2.0 ℓ/mg-m, the supplier may assign a monthly value of 1.0 (in lieu of the value calculated in subsection (c)(1)(C) of this Section) when calculating compliance under the provisions of subsection (c)(1) of this Section.

D) In any month that the system's finished water SUVA, measured according to Section 611.381(d)(4), is less than or equal to 2.0 ℓ/mg-m, the supplier may assign a monthly value of 1.0 (in lieu of the value calculated in subsection (c)(1)(C) of this Section) when calculating compliance under the provisions of subsection (c)(1) of this Section.

E) In any month that a system practicing enhanced softening lowers alkalinity below 60 mg/ℓ (as $CaCO_3$), the supplier may assign a monthly value of 1.0 (in lieu of the value calculated in subsection (c)(1)(C) of this Section) when calculating compliance under the provisions of subsection (c)(1) of this Section.

3) A Subpart B system supplier using conventional treatment may also comply with the requirements of this Section by meeting the standards in subsection (a)(2) or (a)(3) of this Section.

d) Treatment technique requirements for disinfection byproduct (DBP) precursors. Treatment techniques to control the level of disinfection byproduct (DBP) precursors in drinking water treatment and distribution systems, for a Subpart B system supplier using conventional treatment, are enhanced coagulation or enhanced softening.

BOARD NOTE: Derived from 40 CFR 141.135 (2006).

(Source: Amended at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

SUBPART K: GENERAL MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.480 Alternative Analytical Techniques

The Agency must approve, by a SEP issued pursuant to Section 611.110, an alternative analytical technique if it determines that USEPA has approved the method as an alternative method by adding it to 40 CFR 141 and the Board has not incorporated the federal approval into this Part 611. The Agency must not approve an alternative analytical technique without the concurrence of USEPA. The use of the alternative analytical technique must not decrease the frequency of monitoring required by this Part.

BOARD NOTE: Derived from 40 CFR 141.27 (2007).

(Source: Amended at 33 Ill. Reg. 633, effective December 30, 2008)

Section 611.490 Certified Laboratories

a) For the purpose of determining compliance with Subparts G, K through O, Q, and S of this Part, samples will be considered only if they have been analyzed by one of the following:

1) A laboratory certified pursuant to Section 4(o) of the Act [415 ILCS 5/4(o)];

2) A laboratory certified by USEPA;

3) When no laboratory has been certified pursuant to subsection (a)(1) of this Section to analyze a particular contaminant, a laboratory certified, registered, accredited, licensed, or otherwise approved by another state with primary enforcement responsibility, or an agency of the federal government, unless the Agency has, by written

notice, informed the supplier that a particular laboratory or laboratories may not be used; or

4) For measurements of alkalinity, calcium, conductivity, disinfectant residual, orthophosphate, silica, turbidity, free chlorine residual, temperature, and pH, a person under the supervision of a certified operator (35 Ill. Adm. Code 603.103).

b) Nothing in this Part must be construed to preclude the Agency or any duly designated representative of the Agency from taking samples or from using the results from such samples to determine compliance by a supplier of water with the applicable requirements of this Part.

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

BOARD NOTE: Subsections (a)(1), (a)(2), (a)(4), and (b) of this Section are derived from 40 CFR 141.28 (2013). Subsections (a)(3) and (c) are additional State requirements.

(Source: Amended at 38 Ill. Reg. 9792, effective April 21, 2014)

Section 611.491 Laboratory Testing Equipment

a) Each CWS supplier must have adequate laboratory equipment and capability to perform operational tests (except bacteriological) appropriate to the parameters to be tested and the type of treatment employed. Such equipment must be in good operating condition, and the operator on duty must be familiar with the procedure for performing the tests.

b) Nothing in this Subpart K may be construed to prevent a CWS supplier from running control laboratory tests in an uncertified laboratory. These results are not to be included in the required monitoring results.

BOARD NOTE: This is an additional State requirement.

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.500 Consecutive PWSs

When a PWS supplies water to one or more other PWSs, the Agency must modify the monitoring requirements imposed by this Part to the extent that the interconnection of the PWSs justifies treating them as a single PWS for monitoring purposes. Any modified monitoring must be

conducted pursuant to a schedule specified by a SEP issued pursuant to Section 611.110. The Agency must not approve such modified monitoring without the concurrence of USEPA.

BOARD NOTE: Derived from 40 CFR 141.29 (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.510 Special Monitoring for Unregulated Contaminants (Repealed)

(Source: Repealed at 27 Ill. Reg. 16447, effective October 10, 2003)

SUBPART L: MICROBIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.521 Routine Coliform Monitoring

a) Suppliers must collect total coliform samples at sites that are representative of water throughout the distribution system according to a written sample siting plan, which must be approved by a SEP issued pursuant to Section 611.110.

b) The monitoring frequency for total coliforms for CWSs is based on the population served by the CWS, as set forth in Table A of this Part.

c) The monitoring frequency for total coliforms for non-CWSs is as follows:

1) A non-CWS using only groundwater (except groundwater under the direct influence of surface water, as determined in Section 611.212) and serving 1,000 persons or fewer must monitor each calendar quarter that the system provides water to the public, except that the Agency must reduce this monitoring frequency if a sanitary survey shows that the system is free of sanitary defects. The Agency cannot reduce the monitoring frequency for a non-CWS using only groundwater (except groundwater under the direct influence of surface water) and serving 1,000 persons or fewer to less than once per year.

2) A non-CWS using only groundwater (except groundwater under the direct influence of surface water) and serving more than 1,000 persons during any month must monitor at the same frequency as a like-sized CWS, as specified in subsection (b) of this Section, except the Agency must reduce this monitoring frequency for any month the system serves 1,000 persons or fewer. The Agency cannot reduce the monitoring to less than once per

year. For systems using groundwater under the direct influence of surface water, subsection (c)(4) of this Section applies.

3) A non-CWS using surface water, in total or in part, must monitor at the same frequency as a like-sized CWS, as specified in subsection (b) of this Section, regardless of the number of persons it serves.

4) A non-CWS using groundwater under the direct influence of surface water must monitor at the same frequency as a like-sized CWS, as specified in subsection (b) of this Section. The supplier must begin monitoring at this frequency beginning six months after Public Health determines that the groundwater is under the direct influence of surface water.

d) The supplier must collect samples at regular time intervals throughout the month, except that a supplier that uses only groundwater (except groundwater under the direct influence of surface water) and serves 4,900 persons or fewer, may collect all required samples on a single day if they are taken from different sites.

e) A PWS that uses surface water or groundwater under the direct influence of surface water, and does not practice filtration in compliance with Subpart B of this Part, must collect at least one sample near the first service connection each day the turbidity level of the source water, measured as specified in Section 611.532(b), exceeds 1 NTU. This sample must be analyzed for the presence of total coliforms. When one or more turbidity measurements in any day exceed 1 NTU, the supplier must collect this coliform sample within 24 hours of the first exceedence, unless the Agency has determined, by a SEP issued pursuant to Section 611.110, that the supplier, for logistical reasons outside the supplier's control, cannot have the sample analyzed within 30 hours of collection. Sample results from this coliform monitoring must be included in determining compliance with the MCL for total coliforms in Section 611.325.

f) Special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement or repair, must not be used to determine compliance with the MCL for total coliforms in Section 611.325.

BOARD NOTE: Derived from 40 CFR 141.21(a) (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.522 Repeat Coliform Monitoring

a) If a routine sample is total coliform-positive, the supplier must collect a set of repeat samples within 24 hours of being notified of the positive result. A supplier that collects more than one routine sample per month must collect no fewer than

three repeat samples for each total coliform-positive sample found. A supplier that collects one routine sample per month or fewer must collect no fewer than four repeat samples for each total coliform-positive sample found. The Agency must 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 must specify how much time the supplier has to collect the repeat samples.

b) The supplier must 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 must collect all repeat samples on the same day, except that the Agency must 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 samples in one or more sample containers of any size, as long as the total volume collected is at least 400 ml (300 ml for PWSs that collect more than one routine sample per month).

d) If one or more repeat samples in the set is total coliform-positive, the supplier must collect an additional set of repeat samples in the manner specified in subsections (a) through (c) of this Section. 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) of this Section. The supplier must 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 samples under Section 611.523, the supplier must 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 (e)(2) of this Section are met. This does not apply to the requirement to collect repeat samples in subsections (a) through (d) of this Section. The supplier does not have to collect the samples if the following occurs:

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 must 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 must 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) of this Section, 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 samples 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 samples 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) (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

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 must invalidate a total coliform-positive sample only if the conditions of subsection (a)(1), (a)(2), or (a)(3) of this Section 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 samples 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 that does not reflect water quality in the distribution system. In this case, the supplier must 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 must 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 must not invalidate a total coliform-positive sample solely on the grounds that all repeat samples are total coliform-negative.

b) A laboratory must 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 must 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 must continue to re-sample within 24 hours and have the samples analyzed until it obtains a valid result. The Agency must 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) (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.524 Sanitary Surveys

a) Requirement to conduct a sanitary survey.

1) Suppliers that do not collect five or more routine samples per month must undergo a sanitary survey at least once every five years, except that non-CWS suppliers using only disinfected groundwater, from a source that is not under the direct influence of surface water, must undergo a sanitary survey at least once every ten years. The Agency or, for a non-CWS, Public Health must review the results of each sanitary survey to determine whether the existing monitoring frequency is adequate and what additional measures, if any, the supplier needs to undertake to improve drinking water quality.

2) In conducting a sanitary survey of a PWS using groundwater, information on sources of contamination within the delineated wellhead protection area that was collected in the course of developing and implementing the wellhead protection program should be considered instead of collecting new information, if the information was collected since the last time the PWS was subject to a sanitary survey.

b) Sanitary surveys must be performed by the Agency. The PWS is responsible for ensuring that the survey takes place.

c) A sanitary survey conducted by the Agency for the purposes of Subpart S of this Part may be used to meet the sanitary survey requirements of this Section.

BOARD NOTE: Derived from 40 CFR 141.21(d) (2006), as amended at 71 Fed. Reg. 65574 (Nov. 8, 2006).

(Source: Amended at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.525 Fecal Coliform and E. Coli Testing

a) If any routine or repeat sample is total coliform-positive, the supplier must analyze that total coliform-positive culture medium to determine if fecal coliforms are present, except that the supplier may test for E. coli in lieu of fecal coliforms. If fecal coliforms or E. coli are present, the supplier must notify the Agency by the end of the day when the supplier is notified of the test result, unless the supplier is notified of the result after the Agency office is closed, in which case the supplier must notify the Agency before the end of the next business day. The supplier need not notify the Agency if the original sample was analyzed in an Agency laboratory.

b) The Agency may allow a supplier, on a case-by-case basis, to forgo fecal coliform or E. coli testing on a total coliform-positive sample if that supplier assumes that the total coliform-positive sample is fecal coliform-positive or E. coli-positive. Accordingly, the supplier must notify the Agency as specified in subsection (a) of this Section and the provisions of Section 611.325(b) apply.

BOARD NOTE: Derived from 40 CFR 141.21(e) (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.526 Analytical Methodology

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

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

c) Suppliers must conduct total coliform analyses in accordance with one of the following analytical methods, incorporated by reference in Section 611.102, or in accordance with an alternative method approved by the Agency pursuant to Section 611.480 (the time from sample collection to initiation of analysis may not exceed 30 hours, and the supplier is encouraged but not required to hold samples below 10° C during transit):

1) Total Coliform Fermentation Technique, as set forth in Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Methods 9221 A and B, as follows:

A) Lactose broth, as commercially available, may be used in lieu of lauryl tryptose broth if the supplier conducts at least 25 parallel tests between this medium and lauryl tryptose broth using the water normally tested and this comparison demonstrates that the false-positive rate and false-negative rate for total coliforms, using lactose broth, is less than 10 percent;

B) If inverted tubes are used to detect gas production, the media should cover these tubes at least one-half to two-thirds after the sample is added; and

C) No requirement exists to run the completed phase on 10 percent of all total coliform-positive confirmed tubes.

2) Total Coliform Membrane Filter Technique, as set forth in Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Methods 9222 A, B, and C.

3) Presence-Absence (P-A) Coliform Test, as set forth in: Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 9221 D, as follows:

A) No requirement exists to run the completed phase on 10 percent of all total coliform-positive confirmed tubes; and

B) Six-times formulation strength may be used if the medium is filter-sterilized rather than autoclaved.

4) ONPG-MUG test: Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 9223. (The ONPG-MUG test is also known as the Colilert® Test.)

5) Colisure™ Test (Colilert® Test). (The Colisure™ Test may be read after an incubation time of 24 hours.)

BOARD NOTE: USEPA included the P-A Coliform and Colisure™ Tests for testing finished water under the coliform rule, but did not include them for the purposes of the surface water treatment rule, under Section 611.531, for which quantitation of total coliforms is necessary. For these reasons, USEPA included Standard Methods, Method 9221 C for the surface water treatment rule, but did not include it for the purposes of the total coliform rule, under this Section.

6) E*Colite® Test (Charm Sciences, Inc.).

7) m-ColiBlue24® Test (Hatch Company).

8) Readycult® 2000.

9) Chromocult® Method.

10) Colitag® Test.

11) Modified Colitag™ Method.

12) Tecta EC/TC P-A Test.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 9221 A, B, and D; 9222 A, B, and C; and 9223 as approved alternative methods in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Modified Colitag™ Method as an approved alternative method in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods, 22nd ed., Methods 9221 A and B and 9223 B as approved alternative methods for total coliforms in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Methods 9221 A and B-06 and 9223 B-04 as approved alternative methods for total coliforms in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Methods 9221 A and B and 9223 B are the same version as Standard Methods Online, Methods 9221 A and B-06 and 9223 B-04, the Board has not listed the Standard Methods Online versions separately. USEPA added Tecta EC/TC P-A Test as an approved alternative method for total coliforms in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081).

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

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

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

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

3) EC medium is described in Standard Methods, 18th ed., 19th ed., 20th, or 22nd ed., Method 9221 E.

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

BOARD NOTE: USEPA added Standard Methods, 22nd ed., Method 9221 E as an approved alternative method for fecal coliforms in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Method 9221 E-06 as an approved alternative method for fecal coliforms in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 9221 E is the same version as Standard Methods Online, Method 9221 E-06, the Board has not listed the Standard Methods Online version separately.

f) Suppliers must conduct analysis of E. coli in accordance with one of the following analytical methods, incorporated by reference in Section 611.102:

1) EC medium supplemented with 50 µg/ℓ of MUG (final concentration). EC medium is as described in subsection (e) of this Section. 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) of this Section 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), as described in Standard Methods, 19th, 20th, or 22nd ed., Method 9222 G. This test is used to determine if a total coliform-positive sample, as determined by the MF technique, contains E. coli. Alternatively, Standard Methods, 18th ed., Method 9221 B may be used if the membrane filter containing a total coliform-positive colony or colonies is transferred to nutrient agar, as described in Method 9221 B (paragraph 3), supplemented with 100 µg/ℓ MUG. If Method 9221 B is used, incubate the agar plate at 35° Celsius for four hours, then 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 Appendix D of this Part. (The Colilert® Test (Colisure™ Test) 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 six-watt lamp) in the dark. If fluorescence is observed, the sample is E. coli-positive. If fluorescence is questionable (cannot be definitively read) after 24 hours incubation, incubate the culture for an additional four hours (but not to exceed 28

hours total), and again test the medium for fluorescence. The MMO-MUG test with hepes buffer is the only approved formulation for the detection of E. coli.

4) The Colisure™ Test (Colilert® Test).

5) The membrane filter method with MI agar.

6) The E*Colite® Test.

7) The m-ColiBlue24® Test.

8) Readycult® 2000.

9) Chromocult® Method.

10) Colitag® Test.

11) ONPG-MUG Test: Standard Methods, 20th, 21st, or 22nd ed., Method 9223 B.

12) Modified Colitag™ Method.

13) Tecta EC/TC P-A Test.

BOARD NOTE: USEPA added Standard Methods, 20th or 21st ed., Method 9223 B and Standard Methods Online, Method 9223 B-97 as approved alternative methods for E. coli in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). Because Standard Methods, 21st ed., Method 9223 B is the same version as Standard Methods Online, Method 9223 B-97, the Board has not listed the Standard Methods Online version separately. USEPA added Standard Methods, 22nd ed., Method 9223 B as an approved alternative method for E. coli in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Method 9223 B-04 as an approved alternative method for E. coli in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 9223 B is the same version as Standard Methods Online, Method 9223 B-04, the Board has not listed the Standard Methods Online versions separately. USEPA added Tecta EC/TC P-A Test as an approved alternative method for total coliforms in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081).

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

h) This subsection corresponds with 40 CFR 141.21(f)(8), a central listing of all documents incorporated by reference into the federal microbiological analytical methods. The corresponding Illinois incorporations by reference are located at Section 611.102. This statement maintains structural parity with USEPA regulations.

BOARD NOTE: Derived from 40 CFR 141.21(f) and appendix A to 40 CFR 141 (2014).

(Source: Amended at 39 Ill. Reg. 3713, effective March 13, 2015)

Section 611.527 Response to Violation

a) A supplier that has exceeded the MCL for total coliforms in Section 611.325 must report the violation to the Agency no later than the end of the next business day after it learns of the violation, and notify the public in accordance with Subpart V.

b) A supplier that has failed to comply with a coliform monitoring requirement, including the sanitary survey requirement, must report the monitoring violation to the Agency within ten days after the supplier discovers the violation, and notify the public in accordance with Subpart V of this Part.

BOARD NOTE: Derived from 40 CFR 141.21(g) (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.528 Transition from Subpart L to Subpart AA Requirements

The provisions of Sections 611.521 and 611.524 apply until March 31, 2016. The provisions of Sections 611.522, 611.523, 611.525, 611.526, and 611.527 apply until all required repeat monitoring under Section 611.522 and fecal coliform or E. coli testing under Section 611.525 that was initiated by a total coliform-positive sample taken before April 1, 2016 is completed, as well as analytical method, reporting, recordkeeping, public notification, and consumer confidence report requirements associated with that monitoring and testing. Beginning April 1, 2016, the provisions of Subpart AA of this Part apply, with suppliers required to begin regular monitoring at the same frequency as the system-specific frequency required on March 31, 2016.

BOARD NOTE: Derived from 40 CFR 141.21(h) (2013).

(Source: Added at 38 Ill. Reg. 3608, effective January 27, 2014)

Section 611.531 Analytical Requirements

The analytical methods specified in this Section, or alternative methods approved by the Agency pursuant to Section 611.480, must be used to demonstrate compliance with the requirements of only 611.Subpart B; they do not apply to analyses performed for the purposes of Sections 611.521 through 611.527 of this Subpart L. Measurements for pH, temperature, turbidity, and RDCs must be conducted under the supervision of a certified operator. Measurements for total coliforms, fecal coliforms and HPC must be conducted by a certified laboratory in one of the categories listed in Section 611.490(a). The following procedures must be performed by the following methods, incorporated by reference in Section 611.102:

a) A supplier must conduct analyses as follows:

1) The supplier must conduct analyses for pH in accordance with one of the methods listed at Section 611.611; and

2) The supplier must conduct analyses for total coliforms, fecal coliforms, heterotrophic bacteria, and turbidity in accordance with one of the following methods, and by using analytical test procedures contained in USEPA Technical Notes, incorporated by reference in Section 611.102, as follows:

A) Total Coliforms.

BOARD NOTE: The time from sample collection to initiation of analysis for source (raw) water samples required by Sections 611.521 and 611.532 and Subpart B of this Part only must not exceed eight hours. The supplier is encouraged but not required to hold samples below 10° C during transit.

i) Total coliform fermentation technique: Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 9221 A, B, and C.

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

ii) Total coliform membrane filter technique: Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 9222 A, B, and C.

iii) ONPG-MUG test (also known as the Colilert® Test): Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 9223.

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

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 9221 A, B, and C; 9222 A, B, and C; and 9223 as approved alternative methods for total coliform in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods, 22nd ed., Methods 9221 A, B, and C and 9223 B as approved alternative methods for total coliform in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA added Standard Methods Online, Methods 9221 A, B, and C-06 and 9223 B-04 as approved alternative methods for total coliform in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Methods 9221 A, B, and C and 9223 B are the same versions as Standard Methods Online, Methods 9221 A, B, and C-06 and 9223 B-04, the Board has not listed the Standard Methods Online versions separately.

B) Fecal Coliforms.

BOARD NOTE: The time from sample collection to initiation of analysis for source (raw) water samples required by Sections 611.521 and 611.532 and Subpart B of this Part only must not exceed eight hours. The supplier is encouraged but not required to hold samples below 10° C during transit.

i) Fecal coliform procedure: Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 9221 E.

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

ii) Fecal Coliform Membrane Filter Procedure: Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 9222 D.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 9221 E and 9222 D as approved alternative methods for fecal coliforms in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods, 22nd ed., Methods 9221 E and 9222 D as approved alternative methods for fecal coliforms in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA added Standard Methods Online, Methods 9221 E-06 and 9222 D-06 as approved alternative methods for fecal coliforms in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Methods 9221 E and 9222 D are the same versions as Standard Methods Online, Methods 9221 E-06 and 9222 D-06, the Board has not listed the Standard Methods Online versions separately.

C) Heterotrophic bacteria.

i) Pour plate method: Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 9215 B.

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

ii) SimPlate method.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 9215 B as an approved alternative method for heterotrophic bacteria in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods, 22nd ed., Method 9215 B as an approved alternative method for heterotrophic bacteria in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA added Standard Methods Online, Method 9215 B-04 as an approved alternative method for heterotrophic bacteria in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 9215 B is the same version as Standard Methods Online, Method 9215 B-04,

the Board has not listed the Standard Methods Online versions separately.

D) Turbidity.

BOARD NOTE: Styrene divinyl benzene beads (*e.g.*, AMCO-AEPA–1 or equivalent) and stabilized formazin (*e.g.*, Hach StablCal™ or equivalent) are acceptable substitutes for formazin.

i) Nephelometric method: Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 2130 B.

ii) Nephelometric method: USEPA Environmental Inorganic Methods, Method 180.1 (rev. 2.0).

iii) GLI Method 2.

iv) Hach FilterTrak Method 10133.

v) Laser nephelometry (on-line): Mitchell Method M5271.

vi) LED nephelometry (on-line): Mitchell Method M5331.

vii) LED nephelometry (on-line): AMI Turbiwell Method.

viii) LED nephelometry (portable): Orion Method AQ4500.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 9130 B as an approved alternative method for turbidity in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Mitchell Method M5271 and Orion Method AQ4500 as approved alternative methods for turbidity in appendix A to subpart C of 40 CFR 141 on August 3, 2009 (at 74 Fed. Reg. 38348). USEPA added AMI Turbiwell Method as an approved alternative method for turbidity in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods, 22nd ed., Method 2130 B as an approved alternative method for turbidity in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463).

E) Temperature: Standard Methods, 18th, 19th, 20th, or 21st ed., Method 2550.

b) A supplier must measure residual disinfectant concentrations with one of the following analytical methods:

1) Free chlorine.

A) Amperometric Titration.

i) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl D.

ii) ASTM Method D1253-03 or D1253-08.

B) DPD Ferrous Titrimetric: Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl F.

C) DPD Colimetric:

i) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl G; or

ii) Hach Method 10260.

D) Syringaldazine (FACTS): Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl H.

E) On-line chlorine analyzer: USEPA OGWDW Methods, Method 334.0.

F) Amperometric sensor: Palintest ChloroSense.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 4500-Cl D, F, G, and H; Method 4500-ClO_2 C and E as approved alternative methods for free chlorine in appendix A to subpart C of 40 CFR 141, added on June 3, 2008 (at 73 Fed. Reg. 31616).USEPA added ASTM Method D1253-08, USEPA OGWDW Methods, Method 334.0, and Palintest ChloroSense as approved alternative methods for free chlorine in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods, 22nd ed., Methods 4500-Cl B, F, G, and H as approved alternative methods for free chlorine in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA added Hach Method 10260 as an approved alternative method for total chlorine in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081).

2) Total chlorine.

A) Amperometric Titration:.

i) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl D.

ii) ASTM Method D1253-03 or D1253-08.

B) Amperometric Titration (low level measurement): Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl E.

C) DPD Ferrous Titrimetric: Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl F.

D) DPD Colimetric:

i) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl G; or

ii) Hach Method 10260.

E) Iodometric Electrode: Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-Cl I.

F) On-line chlorine analyzer: USEPA OGWDW Methods, Method 334.0.

G) Amperometric sensor: Palintest ChloroSense.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 4500-Cl D, E, F, G, and I as approved alternative methods for total chlorine in appendix A to subpart C of 40 CFR 141, added on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D1253-08, USEPA OGWDW Methods, Method 334.0, and Palintest ChloroSense as approved alternative methods for total chlorine in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods, 22nd ed., Methods 4500-Cl D, E, F, G, and I as approved alternative methods for total chlorine in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA added Hach Method 10260 as an approved alternative method for total chlorine in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081).

3) Chlorine dioxide.

A) Amperometric Titration:

i) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-ClO_2 C or E; or

ii) ChlordioX Plus Test.

B) DPD Method: Standard Methods, 18th, 19th, or 20th ed., Method 4500-ClO_2 D.

C) Spectrophotometric: USEPA OGWDW Methods, Method 327.0 (rev. 1.1).

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 4500-ClO_2 C, D, and E and Method 4500-O_3 B as approved alternative methods for chlorine dioxide in appendix A to subpart C of 40 CFR 141, added on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods, 22nd ed., Methods 4500-ClO_2 C and E as approved alternative methods for chlorine dioxide in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Hach Method 10260 as an approved alternative method for free chlorine and total chlorine and ChlordioX Plus Test as an approved alternative method for chlorine dioxide in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081).

4) Ozone: Indigo Method: Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-O_3 B.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 4500-O_3 B as an approved alternative method for ozone in appendix A to subpart C of 40 CFR 141, added on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods, 22nd ed., Method 4500-O_3 B as an approved alternative method for ozone in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558).

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

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

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

BOARD NOTE: Suppliers may use a five-tube test or a 10-tube test.

BOARD NOTE: Derived from 40 CFR 141.74(a) and appendix A to subpart C of 40 CFR 141 (2014).

(Source: Amended at 39 Ill. Reg. 3713, effective March 13, 2015)

Section 611.532 Unfiltered PWSs

A supplier that uses a surface water source and does not provide filtration treatment must monitor, unless the Agency has determined, pursuant to Section 611.211, that filtration is required. If the Agency determines that filtration is required, it must specify alternative monitoring requirements, as appropriate, until filtration is in place. A supplier that uses a groundwater source under the direct influence of surface water and which does not provide filtration treatment must monitor within six months after the Agency has determined, pursuant to Section 611.212, that the groundwater source is under the direct influence of surface water unless the Agency has determined that filtration is required, in which case the Agency must specify alternative monitoring requirements, as appropriate, until filtration is in place.

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

b) Turbidity measurements as required by Section 611.231(b) must be performed on representative grab samples of source water immediately prior to the first or only point of disinfectant application every four hours (or more frequently) that the supplier serves water to the public. A supplier may substitute continuous turbidity monitoring for grab sample monitoring if it validates the continuous measurement for accuracy on a regular basis using a protocol approved by a SEP issued pursuant to Section 611.110.

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

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

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

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

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

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

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

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

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

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

i) Determine the following, for each sequence:

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

ii) Add the Ai values together, as follows:

$$B = \sum(Ai)$$

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

2) If the supplier uses more than one point of disinfectant application before or at the first customer, the supplier must determine the CT value of each disinfection sequence immediately prior to the next point of disinfectant application during peak hourly flow. The Ai value of each sequence and B must be calculated using the method in subsection (d)(1)(B) of this Section to determine if the supplier is in compliance with Section 611.241.

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

$$PI = 100 - \frac{100}{10^{3B}}$$

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

f) Points of measurement.

1) Until March 31, 2016, the RDC must be measured at least at the same points in the distribution system and at the same time as total coliforms are sampled, as specified in Subpart L of this Section. Beginning April 1, 2016, the RDC must be measured at least at the same points in the distribution system and at the same time as total coliforms are sampled, as specified in Sections 611.1054 through 611.1058. The Agency must allow a supplier that uses both a surface water source or a groundwater source under direct influence of surface water, and a groundwater source to take disinfectant residual samples at points other than the total coliform

sampling points if the Agency determines, by a SEP issued pursuant to Section 611.110, that such points are more representative of treated (disinfected) water quality within the distribution system. HPC may be measured in lieu of RDC.

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

BOARD NOTE: Derived from 40 CFR 141.74(b) (2013).

(Source: Amended at 38 Ill. Reg. 3608, effective January 27, 2014)

Section 611.533 Filtered PWSs

A supplier that uses a surface water source or a groundwater source under the influence of surface water and provides filtration treatment must monitor in accordance with this Section.

a) Turbidity measurements as required by Section 611.250 must be performed on representative samples of the PWS's filtered water every four hours (or more frequently) that the supplier serves water to the public. A supplier may substitute continuous turbidity monitoring for grab sample monitoring if it validates the continuous measurement for accuracy on a regular basis using a protocol approved by a SEP issued pursuant to Section 611.110. For any suppliers using slow sand filtration or filtration treatment other than conventional treatment, direct filtration, or diatomaceous earth filtration, the Agency shall, by special exception permit condition, reduce the sampling frequency to once per day if it determines that less frequent monitoring is sufficient to indicate effective filtration performance. For suppliers serving 500 or fewer persons, the Agency shall, by a SEP issued pursuant to Section 611.110, reduce the turbidity sampling frequency to once per day, regardless of the type of filtration treatment used, if the Agency determines that less frequent monitoring is sufficient to indicate effective filtration performance.

b) RDC entering distribution system.

1) Suppliers serving more than 3300 persons. The RDC of the water entering the distribution system must be monitored continuously, and the lowest value must be recorded each day, except that, if there is a failure in the continuous monitoring equipment, grab sampling every four hours may be conducted in lieu of continuous monitoring, but for no more than five working days following the failure of the equipment.

2) Suppliers serving 3,300 or fewer persons may take grab samples in lieu of providing continuous monitoring on an ongoing basis at the frequencies each day prescribed in Table C. If at any time the RDC falls below 0.2 mg/ℓ in a system using grab sampling in lieu of continuous monitoring, the supplier must take a grab sample every four hours until RDC is equal to or greater than 0.2 mg/ℓ.

c) Points of measurement.

1) Until March 31, 2016, the RDC must be measured at least at the same points in the distribution system and at the same time as total coliforms are sampled, as specified in Sections 611.521 through 611.527. Beginning April 1, 2016, the RDC must be measured at least at the same points in the distribution system and at the same time as total coliforms are sampled, as specified in Sections 611.1054 through 611.1058. The Agency must allow a supplier that uses both a surface water source, or a groundwater source under direct influence of surface water, and a groundwater source to take RDC samples at points other than the total coliform sampling points if the Agency determines that such points are more representative of treated (disinfected) water quality within the distribution system. HPC, measured as specified in Section 611.531(a), may be measured in lieu of RDC.

2) Subsection (c)(1) of this Section does not apply if the Agency determines, pursuant to Section 611.213(c), that a system has no means for having a sample analyzed for HPC by a certified laboratory under the requisite time and temperature conditions specified by Section 611.531(a) and that the supplier is providing adequate disinfection in the distribution system.

BOARD NOTE: Derived from 40 CFR 141.74(c) (2014).

(Source: Amended at 39 Ill. Reg. 3713, effective March 13, 2015)

SUBPART M: TURBIDITY MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.560 Turbidity

The requirements in this Section apply to unfiltered PWSs until filtration is installed.

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

1) If Public Health determines that a reduced sampling frequency in a non-CWS will not pose a risk to public health, it may reduce the required sampling frequency. The option of reducing the turbidity frequency will

be permitted only in those suppliers that practice disinfection and which maintain an active RDC in the distribution system, and in those cases where Public Health has indicated in writing that no unreasonable risk to health existed under the circumstances of this option.

2) The turbidity measurements must be made in accordance with one of the methods set forth in Section 611.531(a).

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 must 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 must report to the Agency and notify the public as directed in Subpart V of this Part.

c) This subsection (c) corresponds with 40 CFR 141.22(c), which states a past effective date for CWSs.

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

BOARD NOTE: Derived from 40 CFR 141.22 (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

SUBPART N: INORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.591 Violation of a State MCL

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

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 of this Part, when the average of four analyses, rounded to the same number of significant

figures as the old MCL for the contaminant in question, exceeds the old MCL; and

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

BOARD NOTE: This is an additional State requirement.

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.592 Frequency of State Monitoring

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

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: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.600 Applicability

The following types of suppliers must 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 N:

a) CWS suppliers.
b) NTNCWS suppliers.
c) Transient non-CWS suppliers to determine compliance with the nitrate and nitrite MCLs.
d) Detection limits. The following are detection limits for purposes of this Subpart N (MCLs from Section 611.301 are set forth for information purposes only):

Contaminant	MCL (mg/ℓ, except asbestos)	Method	Detection Limit (mg/ℓ)
Antimony	0.006	Atomic absorption-furnace	0.003

		technique	
		Atomic absorption-furnace technique (stabilized temperature)	0.0008[5]
		Inductively coupled plasma-mass spectrometry	0.0004
		Atomic absorption-gaseous hydride technique	0.001
Arsenic	0.010	Atomic absorption-furnace technique	0.001
		Atomic absorption-furnace technique (stabilized temperature)	0.00005[6]
		Atomic absorption-gaseous hydride technique	0.001
		Inductively coupled plasma-mass spectrometry	0.0014[7]
Asbestos	7 MFL[1]	Transmission electron microscopy	0.01 MFL
Barium	2	Atomic absorption-furnace technique	0.002
		Atomic absorption-direct aspiration technique	0.1
		Inductively coupled plasma arc furnace	0.002
		Inductively coupled plasma	0.001
Beryllium	0.004	Atomic absorption-furnace technique	0.0002
		Atomic absorption-furnace technique (stabilized temperature)	0.00002[5]

		Inductively coupled plasma[2]	0.0003
		Inductively coupled plasma-mass spectrometry	0.0003
Cadmium	0.005	Atomic absorption-furnace technique	0.0001
		Inductively coupled plasma	0.001
Chromium	0.1	Atomic absorption-furnace technique	0.001
		Inductively coupled plasma	0.007
		Inductively coupled plasma	0.001
Cyanide	0.2	Distillation, spectrophotometric[3]	0.02
		Automated distillation, spectrophotometric[3]	0.005
		Distillation, selective electrode[3]	0.05
		Distillation, amenable, spectrophotometric[4]	0.02
		UV, distillation, spectrophotometric[8]	0.0005
		Micro distillation, flow injection, spectrophotometric[3]	0.0006
		Ligand exchange with amperometry[4]	0.0005
Mercury	0.002	Manual cold vapor technique	0.0002
		Automated cold vapor technique	0.0002
Nickel	No MCL	Atomic absorption-furnace technique	0.001

		Atomic absorption-furnace technique (stabilized temperature)	0.0006[5]
		Inductively coupled plasma[2]	0.005
		Inductively coupled plasma-mass spectrometry	0.0005
Nitrate (as N)	10	Manual cadmium reduction	0.01
		Automated hydrazine reduction	0.01
		Automated cadmium reduction	0.05
		Ion-selective electrode	1
		Ion chromatography	0.01
		Capillary ion electrophoresis	0.076
Nitrite (as N)	1	Spectrophotometric	0.01
		Automated cadmium reduction	0.05
		Manual cadmium reduction	0.01
		Ion chromatography	0.004
		Capillary ion electrophoresis	0.103
Selenium	0.05	Atomic absorption-furnace technique	0.002
		Atomic absorption-gaseous hydride technique	0.002
Thallium	0.002	Atomic absorption-furnace technique	0.001
		Atomic absorption-furnace technique (stabilized temperature)	0.0007[5]
		Inductively coupled plasma-	0.0003

mass spectrometry

Footnotes.

1 "MFL" means millions of fibers per liter less than 10 μm.

2 Using a 2× preconcentration step as noted in Method 200.7. Lower MDLs may be achieved when using a 4× preconcentration.

3 Screening method for total cyanides.

4 Measures "free" cyanides when distillation, digestion, or ligand exchange is omitted.

5 Lower MDLs are reported using stabilized temperature graphite furnace atomic absorption.

6 The MDL reported for USEPA Method 200.9 (atomic absorption-platform furnace (stabilized temperature)) was determined using a 2× concentration step during sample digestion. The MDL determined for samples analyzed using direct analyses (i.e., no sample digestion) will be higher. Using multiple depositions, USEPA Method 200.9 is capable of obtaining an MDL of 0.0001 mg/ℓ.

7 Using selective ion monitoring, USEPA Method 200.8 (ICP-MS) is capable of obtaining an MDL of 0.0001 mg/ℓ.

8 Measures total cyanides when UV-digestor is used, and "free" cyanides when UV-digestor is bypassed.

BOARD NOTE: Subsections (a) through (c) of this Section are derived from 40 CFR 141.23 preamble (2014), and subsection (d) of this Section is derived from 40 CFR 141.23(a)(4)(i) and appendix A to subpart C of 40 CFR 141 (2014). See the Board Note at Section 611.301(b) relating to the MCL for nickel.

(Source: Amended at 39 Ill. Reg. 3713, effective March 13, 2015)

Section 611.601 Monitoring Frequency

Monitoring must be conducted as follows:

a) Required sampling.

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

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

3) The supplier must 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) of this Section.

b) Sampling points.

1) Sampling points for GWSs. Unless otherwise provided by SEP, a GWS supplier must 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 an SWS or a mixed system supplier . Unless otherwise provided by SEP, an SWS or mixed system supplier must 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 supplier draws water from more than one source, and the sources are combined before distribution, the supplier must 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 must, 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 must, 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 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) Antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, and thallium: Section 611.603;

3) Nitrate: Section 611.604; and

4) Nitrite: Section 611.605.

BOARD NOTE: Derived from 40 CFR 141.23(a) and (c) (2003).

(Source: Amended at 28 Ill. Reg. 5269, effective March 10, 2004)

Section 611.602 Asbestos Monitoring Frequency

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

a) Unless the Agency has determined under subsection (c) of this Section that the PWS is not vulnerable, each CWS and NTNCWS supplier must 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) of this Section.

c) The Agency must 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 must 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 must 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 must 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, must monitor quarterly beginning in the next quarter after the violation occurred.

i) Reduction of quarterly monitoring.

1) The Agency must issue a SEP pursuant to Section 611.110 that reduces the monitoring frequency to that specified by subsection (a) of this Section 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 must specify the level of the contaminant upon which the "reliably and consistently" determination was based. All SEPs that allow less frequent monitoring based on an Agency "reliably and consistently" determination must include a condition requiring the supplier to resume quarterly monitoring pursuant to subsection (h) of this Section if it violates the MCL specified by Section 611.609.

j) This subsection (j) corresponds with 40 CFR 141.23(b)(10), which pertains to a compliance period long since expired. This statement maintains structural consistency with the federal regulations.

BOARD NOTE: Derived from 40 CFR 141.23(b) (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.603 Inorganic Monitoring Frequency

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

a) Suppliers must take samples at each sampling point, beginning in the initial compliance period, as follows:

1) For a GWS supplier: at least one sample during each compliance period;

2) For an SWS or a mixed system supplier: at least one sample each year.

BOARD NOTE: Derived from 40 CFR 141.23(c)(1) (2012).

b) SEP Application.

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

2) The supplier may apply to the Agency for a SEP that relieves it of the requirement for monitoring cyanide pursuant to subsections (d) through (f) of this Section and Section 611.110 if it can demonstrate that its system is not vulnerable due to a lack of any industrial source of cyanide.

BOARD NOTE Drawn from 40 CFR 141.23(c)(2) and (c)(6) (2012).

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

BOARD NOTE: Drawn from 40 CFR 141.23(c)(6) (2012).

d) Standard for SEP reduction in monitoring. The Agency must 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 an SWS or mixed system supplier: annual monitoring for at least three years.

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

4) A supplier that uses a new water source is not eligible for a SEP until it completes three rounds of monitoring from the new source.

BOARD NOTE: Drawn from 40 CFR 141.23(c)(4) (2012).

e) Standard for SEP monitoring conditions. As a condition of any SEP, the Agency must 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 must consider the following:

1) Reported concentrations from all previous monitoring;

2) The degree of variation in reported concentrations; and

3) Other factors that may affect contaminant concentrations, such as changes in groundwater pumping rates, changes in the CWS's 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) (2012).

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) (2012).

2) In issuing a SEP, the Agency must 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) (2012).

g) A supplier that exceeds the MCL as determined in Section 611.609, must monitor quarterly for that contaminant, beginning in the next quarter after the violation occurred.

BOARD NOTE: Derived from 40 CFR 141.23(c)(7) (2012).

h) Reduction of quarterly monitoring.

1) The Agency must grant a SEP pursuant to Section 611.110 that reduces the monitoring frequency to that specified by subsection (a) of this Section 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 supplier: four quarterly samples.

3) In issuing the SEP, the Agency must specify the level of the contaminant upon which the "reliably and consistently" determination was based. Any SEP that allows less frequent monitoring based on an Agency "reliably and consistently" determination must include a condition requiring the supplier to resume quarterly monitoring for any contaminant pursuant to subsection (g) of this Section if it violates the MCL specified by Section 611.609 for that contaminant.

BOARD NOTE: Derived from 40 CFR 141.23(c)(8) (2012).

i) A new system supplier or a supplier whose system uses a new source of water must demonstrate compliance with the MCL within a period of time specified by a permit issued the Agency. The supplier must also comply with the initial sampling frequencies specified by the Agency to ensure a system can demonstrate compliance with the MCL. Routine and increased monitoring frequencies must be conducted in accordance with the requirements in this Section.

BOARD NOTE: Derived from 40 CFR 141.23(c)(9) (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.604 Nitrate Monitoring

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

a) Suppliers must monitor at the following frequencies:

1) CWSs and NTNCWSs.

A) GWSs: annually;

B) SWSs and mixed systems: quarterly.

BOARD NOTE: Drawn from 40 CFR 141.23(d)(1) (2002).

2) Transient non-CWSs: annually.

BOARD NOTE: Drawn from 40 CFR 141.23(d)(4) (2002).

b) Quarterly monitoring for GWSs.

1) A CWS or NTNCWS supplier that is a GWS must 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 must 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 must specify the level of the contaminant upon which the "reliably and consistently" determination was based. All SEPs that allow less frequent monitoring based on an Agency "reliably and consistently" determination must include a condition requiring the supplier to resume quarterly monitoring pursuant to subsection (b)(1) of this Section if it violates the MCL specified by Section 611.301 for nitrate.

BOARD NOTE: Derived from 40 CFR 141.23(d)(2) (2002).

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

1) The Agency must 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 must 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: Derived from 40 CFR 141.23(d)(3) (2002).

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 must take samples during the quarters that resulted in the highest analytical result.

BOARD NOTE: Derived from 40 CFR 141.23(d)(5) (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.605 Nitrite Monitoring

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

a) This subsection (a) corresponds with 40 CFR 141.23(e)(1), which was applicable only until a date now past. This statement maintains consistency with USEPA rules.

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) 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 must initiate quarterly monitoring during the next quarter.

B) A supplier required to begin quarterly monitoring pursuant to subsection (c)(1)(A) of this Section must 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) of this Section.

2) The Agency must 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 must 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 must include a condition requiring the supplier to resume quarterly monitoring for nitrite pursuant to subsection (c)(1) of this Section if it equals or exceeds 50 percent of the MCL specified by Section 611.301 for nitrite.

d) A supplier that is monitoring annually must take samples during the quarters that previously resulted in the highest analytical result.

BOARD NOTE: Derived from 40 CFR 141.23(e) (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.606 Confirmation Samples

a) Where the results of sampling for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, or thallium indicate a level in excess of the MCL, the supplier must collect one additional sample as soon as possible after the initial sample was taken (but not to exceed two weeks) at the same sampling point.

b) Where nitrate or nitrite sampling results indicate a level in excess of the MCL, the supplier must 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 immediately notify the persons served in accordance with Section 611.902 and meet other Tier 1 public notification requirements under Subpart V of this Part.

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

c) Averaging rules are specified in Section 611.609. The Agency must 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) (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.607 More Frequent Monitoring and Confirmation Sampling

This Section corresponds with 40 CFR 141.23(g), which authorizes the states to require more frequent monitoring and confirmation sampling than is required under federal law. This statement maintains structural consistency with the corresponding federal rules.

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.608 Additional Optional Monitoring

Suppliers may conduct additional, more frequent monitoring than the minimum frequencies specified in this Subpart N, 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) (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.609 Determining Compliance

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

a) For suppliers that monitor at a frequency greater than annual, compliance with the MCLs for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, or thallium is determined by a running annual average at each sampling point.

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

2) If any one sample would cause the annual average to be exceeded, then the supplier is out of compliance immediately.

3) Any sample below the method detection limit must be calculated at zero for the purpose of determining the annual average.

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

4) If a system fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.

b) For suppliers that monitor annually or less frequently, compliance with the MCLs for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, or thallium is determined by the level of the contaminant at any sampling point. If confirmation samples are required by the Agency, the determination of compliance will be based on the average of the

annual average of the initial MCL exceedance and any Agency-required confirmation samples. If a supplier fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.

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 in the initial sample exceed the MCLs, Section 611.606 requires confirmation sampling, and compliance is determined based on the average of the initial and confirmation samples.

d) Arsenic sampling results must be reported to the nearest 0.001 mg/ℓ.

BOARD NOTE: Derived from 40 CFR 141.23(i) (2014).

(Source: Amended at 39 Ill. Reg. 15352, effective November 13, 2015)

Section 611.610 Inorganic Monitoring Times

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

BOARD NOTE: Derived from 40 CFR 141.23(j) (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.611 Inorganic Analysis

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

a) Analysis for the following contaminants must be conducted using the following methods or an alternative method approved pursuant to Section 611.480. Criteria for analyzing arsenic, chromium, copper, lead, nickel, selenium, sodium, and thallium with digestion or directly without digestion, and other analytical procedures, are contained in USEPA Technical Notes, incorporated by reference in Section 611.102.

BOARD NOTE: Because MDLs reported in USEPA Environmental Metals Methods 200.7 and 200.9 were determined using a 2× preconcentration step during sample digestion, MDLs determined when samples are analyzed by direct analysis (i.e., no sample digestion) will be higher. For direct analysis of cadmium and arsenic by USEPA Environmental Metals Method 200.7, and arsenic by Standard Methods, Method 3120 B, sample preconcentration using pneumatic nebulization may be required to achieve lower detection limits. Preconcentration may also be required for direct analysis of antimony, lead, and thallium by

USEPA Environmental Metals Method 200.9; antimony and lead by Standard Methods, 18th, 19th, or 21st ed., Method 3113 B; and lead by ASTM Method D3559-96 D or D3559-03 D unless multiple in-furnace depositions are made.

1) Alkalinity.

A) Titrimetric.

i) ASTM Method D1067-92 B, D1067-02 B, D1067-06 B, or D1067-11 B; or

ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 2320 B.

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

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 2320 B as an approved alternative method for alkalinity in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods, 22nd ed., Method 2320 B and ASTM Method D1067-11 B as approved alternative methods for alkalinity in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558).

2) Antimony.

A) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).

B) Atomic absorption, hydride technique: ASTM Method D3697-92, D3697-02, or D3697-07.

C) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).

D) Atomic absorption, furnace technique:

i) Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3113 B; or

ii) Standard Methods Online, Method 3113 B-04.

E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 3113B and USEPA NERL Method 200.5 as approved alternative methods for antimony in appendix A to subpart C of 40 CFR 141 on June 3, 2008

(at 73 Fed. Reg. 31616). USEPA added ASTM Method D3697-07 as an approved alternative method for antimony in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908. USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for antimony in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). USEPA added Standard Methods, 22nd ed., Method 3113 B as an approved alternative method for antimony in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Method 3113 B-10 as an approved alternative method for antimony in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 3113 B is the same version as Standard Methods Online, Method 3113 B-10, the Board has not listed the Standard Methods Online versions separately.

3) Arsenic.

BOARD NOTE: If ultrasonic nebulization is used in the determination of arsenic by Method 200.8, the arsenic must be in the pentavalent state to provide uniform signal response. For direct analysis of arsenic with Method 200.8 using ultrasonic nebulization, samples and standards must contain one mg/ℓ of sodium hypochlorite.

A) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).

B) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).

C) Atomic absorption, furnace technique.

i) ASTM Method D2972-97 C, D2972-03 C, or D2972-08 C;

ii) Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3113 B; or

iii) Standard Methods Online, Method 3113 B-04.

D) Atomic absorption, hydride technique.

i) ASTM Method D2972-97 B, D2972-03 C, or D2972-08 B;

ii) Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3114 B; or

iii) Standard Methods Online, Method 3114 B-04.

E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 3113 B and 3114 B and USEPA NERL Method 200.5 as approved alternative methods for arsenic in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods D2972-08 B and C as approved alternative methods for arsenic in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods Online, Method 3113 B-04 and Method 3114 B-09 as approved alternative methods for arsenic in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). USEPA added Standard Methods, 22nd ed., Methods 3113 B and 3114 B as approved alternative methods for arsenic in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). Because Standard Methods, 22nd ed., Method 3114 B is the same version as Standard Methods Online 3114 B-09, the Board has not listed the Standard Methods Online version separately. USEPA added Standard Methods Online, Method 3113 B-10 as an approved alternative method for arsenic in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 3113 B is the same version as Standard Methods Online, Method 3113 B-10, the Board has not listed the Standard Methods Online versions separately.

4) Asbestos: Transmission electron microscopy: USEPA Asbestos Method 100.1 or USEPA Asbestos Method 100.2.

5) Barium.

A) Inductively coupled plasma.

i) USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4); or

ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 3120 B.

B) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).

C) Atomic absorption, direct aspiration technique: Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3111 D.

D) Atomic absorption, furnace technique:

i) Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3113 B; or

ii) Standard Methods Online, Method 3113 B-04.

E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 3111D, 3113B, and 3120 B and USEPA NERL Method 200.5 as approved alternative methods for barium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for barium in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). USEPA added Standard Methods, 22nd ed., Methods 3111 D, 3113 B, and 3120 B as approved alternative methods for barium in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Method 3113 B-10 as an approved alternative method for barium in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 3113 B is the same version as Standard Methods Online, Method 3113 B-10, the Board has not listed the Standard Methods Online versions separately.

6) Beryllium.

A) Inductively coupled plasma.

i) USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4); or

ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 3120 B.

B) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).

C) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).

D) Atomic absorption, furnace technique.

i) ASTM Method D3645-97 B, D3645-03 B, or D3645-08 B;

ii) Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3113 B; or

iii) Standard Methods Online, Method 3113 B-04.

E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 3113 B and 3120 B and USEPA NERL Method 200.5 as approved alternative methods for beryllium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D3645-08 B as an approved alternative method for beryllium in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for beryllium in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). USEPA added Standard Methods, 22nd ed., Methods 3113 B and 3120 B as approved alternative methods for beryllium in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Method 3113 B-10 as an approved alternative method for beryllium in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 3113 B is the same version as Standard Methods Online, Method 3113 B-10, the Board has not listed the Standard Methods Online versions separately.

7) Cadmium.

A) Inductively coupled plasma arc furnace: USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4).

B) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).

C) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).

D) Atomic absorption, furnace technique:

i) Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3113 B; or

ii) Standard Methods Online, Method 3113 B-04.

E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 3113 B and USEPA NERL Method 200.5 as approved alternative methods for cadmium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods Online, Method

3113 B-04 as an approved alternative method for cadmium in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). USEPA added Standard Methods, 22nd ed., Method 3113 B as an approved alternative method for cadmium in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Method 3113 B-10 as an approved alternative method for cadmium in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 3113 B is the same version as Standard Methods Online, Method 3113 B-10, the Board has not listed the Standard Methods Online versions separately.

8) Calcium.

A) EDTA titrimetric.

i) ASTM Method D511-93 A, D511-03 A, or D511-09 A; or

ii) Standard Methods, 18th or 19th ed., Method 3500-Ca D or Standard Methods, 20th, 21st, or 22nd ed., Method 3500-Ca B.

B) Atomic absorption, direct aspiration.

i) ASTM Method D511-93 B, D511-03 B, or D511-09 B; or

ii) Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3111 B.

C) Inductively coupled plasma.

i) USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4); or

ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 3120 B.

D) Ion chromatography: ASTM Method D6919-03 or D6919-09.

E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 3111B, 3120 B, and 3500-Ca B and USEPA NERL Method 200.5 as approved alternative methods for calcium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods D511-09 A and B as approved alternative methods for

calcium in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added ASTM Method D6919-09 as an approved alternative method for calcium in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). USEPA added Standard Methods, 22nd ed., Methods 3111 B, 3120 B, and 3500-Ca B as approved alternative methods for calcium in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558).

9) Chromium.

A) Inductively coupled plasma.

i) USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4); or

ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 3120 B.

B) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).

C) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).

D) Atomic absorption, furnace technique:

i) Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3113 B; or

ii) Standard Methods Online, Method 3113 B-04.

E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 3113 B and 3120 B and USEPA NERL Method 200.5 as approved alternative methods for chromium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for chromium in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). USEPA added Standard Methods, 22nd ed., Methods 3113 B and 3120 B as approved alternative methods for chromium in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Method 3113 B-10 as an approved alternative method for chromium in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 3113 B is the same version

as Standard Methods Online, Method 3113 B-10, the Board has not listed the Standard Methods Online versions separately.

10) Copper.

A) Atomic absorption, furnace technique.

i) ASTM Method D1688-95 C, D1688-02 C, or D1688-07 C;

ii) Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3113 B; or

iii) Standard Methods Online, Method 3113 B-04.

B) Atomic absorption, direct aspiration.

i) ASTM Method D1688-95 A, D1688-02 A, or D1688-07 A; or

ii) Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3111 B.

C) Inductively coupled plasma.

i) USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4); or

ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 3120 B.

D) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).

E) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).

F) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 3111B, 3113 B, and 3120 B and USEPA NERL Method 200.5 as an approved alternative method for copper in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods D1688-07 A and C as approved alternative methods for copper in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for copper in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). USEPA

added Standard Methods, 22nd ed., Methods 3111 B, 3113 B, and 3120 B as approved alternative methods for copper in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Method 3113 B-10 as an approved alternative method for copper in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 3113 B is the same version as Standard Methods Online, Method 3113 B-10, the Board has not listed the Standard Methods Online versions separately.

11) Conductivity; Conductance.

A) ASTM Method D1125-95(1999) A; or

B) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 2510 B.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 2510 B as an approved alternative method for conductivity in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods, 22nd ed., Method 2510 B as an approved alternative method for conductivity in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558).

12) Cyanide.

A) Manual distillation (ASTM Method D2036-98 A or Standard Methods, 18th, 19th, or 20th ed., Method 4500-CN^- C), followed by spectrophotometric, amenable.

i) ASTM Method D2036-98 B or D2036-06 B; or

ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-CN^- G.

B) Manual distillation (ASTM Method D2036-98 A or Standard Methods, 18th, 19th, or 20th ed., Method 4500-CN^- C), followed by spectrophotometric, manual.

i) ASTM Method D2036-98 A or D2036-06 A;

ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-CN^- E; or

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

C) Spectrophotometric, semiautomated: USEPA Environmental Inorganic Methods, Method 335.4 (rev. 1.0).

D) Selective electrode: Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-CN^- F.

E) UV/Distillation/Spectrophotometric: Kelada 01.

F) Microdistillation/Flow Injection/Spectrophotometric: QuikChem 10-204-00-1-X.

G) Ligand exchange and amperometry.

i) ASTM Method D6888-04.

ii) OI Analytical Method OIA-1677 DW.

H) Gas chromatography-mass spectrometry headspace: Method ME355.01.

BOARD NOTE: USEPA added ASTM Method D2036-06 A and Standard Methods, 21st ed., Methods 4500-CN^- E, F, and G as approved alternative methods for cyanide in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Method ME355.01 as an approved alternative method for cyanide in appendix A to subpart C of 40 CFR 141 on August 3, 2009 (at 74 Fed. Reg. 38348). USEPA added Standard Methods, 22nd ed., Methods 4500-CN- E, F, and G as approved alternative methods for cyanide in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558).

13) Fluoride.

A) Ion Chromatography.

i) USEPA Environmental Inorganic Methods, Method 300.0 (rev. 2.1) or USEPA Organic and Inorganic Methods, Method 300.1 (rev. 1.0);

ii) ASTM Method D4327-97, D4327-03, or D4327-11;

iii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4110 B; or

iv) Hach SPADNS 2 Method 10225.

B) Manual distillation, colorimetric SPADNS: Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-F^- B and D.

C) Manual electrode.

i) ASTM Method D1179-93 B, D1179-99 B, D1179-04 B, or D1179-10 B; or

ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-F^- C.

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

E) Automated alizarin.

i) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-F^- E; or

ii) Technicon Methods, Method 129-71W.

F) Capillary ion electrophoresis: ASTM Method D6508-00(2005).

BOARD NOTE: On March 12, 2007 (at 72 Fed. Reg. 11200), USEPA amended the entry for fluoride to add capillary ion electrophoresis in the table at corresponding 40 CFR 141.23(k)(1) to allow the use of "Waters Method D6508, Rev. 2." The Board attempt to locate a copy of the method disclosed that it is an ASTM method originally approved in 2000 and reapproved in 2005. The Board has cited to the ASTM Method D6508-00(2005).

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 4110 B and 4500-F^- B, C, D, and E and ASTM Method D1179-04 B as approved alternative methods for fluoride in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Hach SPADNS 2 Method 10225 as an approved alternative method for fluoride in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). USEPA added ASTM Method D1179-10 B as an approved alternative method for fluoride in appendix A to subpart C of 40 CFR 141 on June 28, 2012 (at 77 Fed. Reg. 38523). USEPA added Standard Methods, 22nd ed., Methods 4110 B and 4500-F- B, C, D, and E as approved alternative methods for fluoride in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added ASTM Method D4327-11 as an approved alternative method for fluoride in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081).

14) Lead.

A) Atomic absorption, furnace technique.

i) ASTM Method D3559-96 D, D3559-03 D, or D3559-08 D;

ii) Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3113 B; or

iii) Standard Methods Online, Method 3113 B-04.

B) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).

C) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).

D) Differential Pulse Anodic Stripping Voltammetry: Palintest Method 1001.

E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 3113 B and USEPA NERL Method 200.5 as approved alternative methods for lead in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D3559-08 D as an approved alternative method for lead in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for lead in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). USEPA added Standard Methods, 22nd ed., Method 3113 B as an approved alternative method for lead in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Method 3113 B-10 as an approved alternative method for lead in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 3113 B is the same version as Standard Methods Online, Method 3113 B-10, the Board has not listed the Standard Methods Online versions separately.

15) Magnesium.

A) Atomic absorption.

i) ASTM Method D511-93 B, D511-03 B, or D511-09 B; or

ii) Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3111 B.

B) Inductively coupled plasma.

i) USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4); or

ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 3120 B.

C) Complexation titrimetric.

i) ASTM Method D511-93 A, D511-03 A, or D511-09 A; or

ii) Standard Methods, 18th or 19th ed., Method 3500-Mg E or Standard Methods, 20th, 21st, or 22nd ed., Method 3500-Mg B.

D) Ion chromatography: ASTM Method D6919-03 or D6919-09.

E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 3111B, 3120 B, and 3500-Mg B and USEPA NERL Method 200.5 as approved alternative methods for magnesium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods D511-09 A and B as approved alternative methods for magnesium in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added ASTM Method D6919-09 as an approved alternative method for magnesium in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). USEPA added Standard Methods, 22nd ed., Methods 3111 B, 3120 B, and 3500-Mg B as approved alternative methods for magnesium in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558).

16) Mercury.

A) Manual cold vapor technique.

i) USEPA Environmental Metals Methods, Method 245.1 (rev. 3.0);

ii) ASTM Method D3223-97, D3223-02, or D3223-12; or

iii) Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3112 B.

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

C) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 3112 B as an approved alternative method for mercury in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods Online, Method 3112 B-09 as an approved alternative method for mercury in appendix A to subpart C of 40 CFR 141 on June 28, 2012 (at 77 Fed. Reg. 38523). USEPA added Standard Methods, 22nd ed., Method 3112 B as an approved alternative method for mercury in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). Because Standard Methods, 22nd ed., Method 3112 B is the same version as Standard Methods Online 3112 B-09, the Board has not listed the Standard Methods Online version separately. USEPA added ASTM D3223 B-12 as an approved alternative method for mercury in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081).

17) Nickel.

A) Inductively coupled plasma.

i) USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4); or

ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 3120 B.

B) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).

C) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).

D) Atomic absorption, direct aspiration technique: Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3111 B.

E) Atomic absorption, furnace technique:

i) Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3113 B; or

ii) Standard Methods Online, Method 3113 B-04.

F) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 3111 B, 3113 B, and 3120 B and USEPA NERL Method 200.5 as approved alternative methods for nickel in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for nickel in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). USEPA added Standard Methods, 22nd ed., Methods 3111 B, 3113 B, and 3120 B as approved alternative methods for nickel in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Method 3113 B-10 as an approved alternative method for nickel in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 3113 B is the same version as Standard Methods Online, Method 3113 B-10, the Board has not listed the Standard Methods Online versions separately.

18) Nitrate.

A) Ion chromatography.

i) USEPA Environmental Inorganic Methods, Method 300.0 (rev. 2.1) or USEPA Organic and Inorganic Methods, Method 300.1 (rev. 1.0);

ii) ASTM Method D4327-97,D4327-03, or D4327-11;

iii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4110 B; or

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

B) Automated cadmium reduction.

i) USEPA Environmental Inorganic Methods, Method 353.2 (rev. 2.0);

ii) ASTM Method D3867-90 A; or

iii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-NO_3^- F.

C) Ion selective electrode.

i) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-NO_3^- D; or

ii) Technical Bulletin 601.

D) Manual cadmium reduction.

i) ASTM Method D3867-90 B; or

ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-NO_3^- E.

E) Capillary ion electrophoresis: ASTM Method D6508-00(2005).

F) Reduction-colorimetric: Systea Easy (1-Reagent).

G) Direct colorimetric: Hach TNTplus 835/836 Method 10206.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 4110 B and 4500-NO_3^- D, E, and F as approved alternative methods for nitrate in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Systea Easy (1-Reagent) as an approved alternative method for nitrate in appendix A to subpart C of 40 CFR 141 on August 3, 2009 (at 73 Fed. Reg. 38348). USEPA added Hach TNTplus 835/836 Method 10206 as an approved alternative method for nitrate in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). USEPA added Standard Methods, 22nd ed., Methods 4110 B and 4500-NO_3^- D, E, and F as approved alternative methods for nitrate in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added ASTM D4327-11 as an approved alternative method for nitrate in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081).

19) Nitrite.

A) Ion chromatography.

i) USEPA Environmental Inorganic Methods, Method 300.0 (rev. 2.1) or USEPA Organic and Inorganic Methods, Method 300.1 (rev. 1.0);

ii) ASTM Method D4327-97, D4327-03, or D4327-11;

iii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4110 B; or

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

B) Automated cadmium reduction.

i) USEPA Environmental Inorganic Methods, Method 353.2 (rev. 2.0);

ii) ASTM Method D3867-90 A; or

iii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-NO_3^- F.

C) Manual cadmium reduction.

i) ASTM Method D3867-90 B; or

ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-NO_3^- E.

D) Spectrophotometric: Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-NO_2^- B.

E) Capillary ion electrophoresis: ASTM Method D6508-00(2005).

F) Reduction-colorimetric: Systea Easy (1-Reagent).

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 4110 B, 4500-NO_3^- E and F; and 4500-NO_2^- B as approved alternative methods for nitrite in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Systea Easy (1-Reagent) as an approved alternative method for nitrite in appendix A to subpart C of 40 CFR 141 on August 3, 2009 (at 73 Fed. Reg. 38348). USEPA added Standard Methods, 22nd ed., Methods 4110 B, 4500-NO_3^- E and F, and 4500-NO_2^- B as approved alternative methods for nitrite in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added ASTM D4327-11 as an approved alternative method for nitrite in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081).

20) Orthophosphate (unfiltered, without digestion or hydrolysis).

A) Automated colorimetric, ascorbic acid.

i) USEPA Environmental Inorganic Methods, Method 365.1 (rev. 2.0); or

ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-P F.

B) Single reagent colorimetric, ascorbic acid.

i) ASTM Method D515-88 A; or

ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-P E.

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

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

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

F) Ion Chromatography.

i) USEPA Environmental Inorganic Methods, Method 300.0 (rev. 2.1) or USEPA Organic and Inorganic Methods, Method 300.1 (rev. 1.0);

ii) ASTM Method D4327-97, D4327-03, or D4327-11; or

iii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4110 B.

G) Capillary ion electrophoresis: ASTM Method D6508-00(2005).

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 4110 B and 4500-P E and F as approved alternative methods for orthophosphate in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). Because Standard Methods, 21st ed., Methods 4500-P E and F are the same versions as Standard Methods Online 4500-P E-99 and F-99, the Board has not listed the Standard Methods Online versions separately. USEPA added Standard Methods, 22nd ed., Methods 4500-P E and F and 4110 B as approved alternative methods for orthophosphate in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added ASTM D4327-11 as an approved alternative method for orthophosphate in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081).

21) pH: electrometric.

A) USEPA Inorganic Methods, Method 150.1 or Method 150.2;

B) ASTM Method D1293-95, D1293-99, or D1293-12; or

C) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 4500-H^+ B.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 4500-H^+ B as an approved alternative method for pH in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods, 22nd ed., Method 4500-H^+ B and ASTM Method D1293-12 as approved alternative methods for pH in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558).

22) Selenium.

A) Atomic absorption, hydride.

i) ASTM Method D3859-98 A, D3859-03 A, or D3859-08 A; or

ii) Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3114 B.

B) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).

C) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).

D) Atomic absorption, furnace technique.

i) ASTM Method D3859-98 B, D3859-03 B, or D3859-08 B;

ii) Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3113 B; or

iii) Standard Methods Online, Method 3113 B-04.

E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 3113 B and 3114 B and USEPA NERL Method 200.5 as approved alternative methods for selenium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods D3859-08 A and B as approved alternative methods for selenium in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods Online, Method 3113 B-04 and Method 3114 B-09 as approved alternative methods for selenium in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). USEPA added Standard Methods, 22nd ed., Methods 3113 B and 3114 B as approved alternative methods for selenium in appendix A

to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). Because Standard Methods, 22nd ed., Method 3114 B is the same version as Standard Methods Online 3114 B-09, the Board has not listed the Standard Methods Online version separately. USEPA added Standard Methods Online, Method 3113 B-10 as an approved alternative method for selenium in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 3113 B is the same version as Standard Methods Online, Method 3113 B-10, the Board has not listed the Standard Methods Online versions separately.

23) Silica.

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

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

C) Colorimetric: ASTM Method D859-94, D859-00, D859-05, or D859-10.

D) Molybdosilicate: Standard Methods, 18th or 19th ed., Method 4500-Si D or Standard Methods, 20th, 21st, or 22nd ed., Method 4500-SiO_2 C.

E) Heteropoly blue: Standard Methods, 18th or 19th ed., Method 4500-Si E or Standard Methods, 20th, 21st, or 22nd ed., Method 4500-SiO_2 D.

F) Automated method for molybdate-reactive silica: Standard Methods, 18th or 19th ed., Method 4500-Si F or Standard Methods, 20th, 21st, or 22nd ed., Method 4500-SiO_2 E.

G) Inductively coupled plasma.

i) USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4); or

ii) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 3120 B.

H) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added ASTM Method D859-05, Standard Methods, 21st ed.; Methods 3120 B and 4500-SiO_2 C, D, and E; and USEPA NERL Method 200.5 as approved alternative methods for silica in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg.

31616). USEPA added ASTM Method D859-10 as an approved alternative method for silica in appendix A to subpart C of 40 CFR 141 on June 28, 2012 (at 77 Fed. Reg. 38523). USEPA added Standard Methods, 22nd ed., Methods 3120 B and 4500-SiO_2 C, D, and E as approved alternative methods for silica in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558).

24) Sodium.

A) Inductively coupled plasma: USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4).

B) Atomic absorption, direct aspiration: Standard Methods, 18th, 19th, 21st, or 22nd ed., Method 3111 B.

C) Ion chromatography: ASTM Method D6919-03 or D6919-09.

D) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 3113 B and USEPA NERL Method 200.5 as approved alternative methods for sodium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D6919-09 as an approved alternative method for sodium in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). USEPA added Standard Methods, 22nd ed., Method 3111 B as an approved alternative method for sodium in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558).

25) Temperature; thermometric: Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 2550.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 2550 as an approved alternative method for temperature in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods, 22nd ed., Method 2550 as an approved alternative method for temperature in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Method 2550-10 as an approved alternative method for temperature in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 2550 is the same version as Standard Methods Online, Method 2550-10, the Board has not listed the Standard Methods Online versions separately.

26) Thallium.

A) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).

B) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).

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

BOARD NOTE: For cyanide determinations samples must be adjusted with sodium hydroxide to pH 12 at the time of collection. When chilling is indicated the sample must be shipped and stored at 4° C or less. Acidification of nitrate or metals samples may be with a concentrated acid or a dilute (50% by volume) solution of the applicable concentrated acid. Acidification of samples for metals analysis is encouraged and allowed at the laboratory rather than at the time of sampling provided the shipping time and other instructions in Section 8.3 of USEPA Environmental Metals Method 200.7, 200.8, or 200.9 are followed.

1) Antimony.

A) Preservative: Concentrated nitric 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 six months.

2) Arsenic.

A) Preservative: Concentrated nitric 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 six months.

3) Asbestos.

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.

4) Barium.

A) Preservative: Concentrated nitric 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 six months.

5) Beryllium.

A) Preservative: Concentrated nitric 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 six months.

6) Cadmium.

A) Preservative: Concentrated nitric 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 six months.

7) Chromium.

A) Preservative: Concentrated nitric 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 six months.

8) Cyanide.

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

B) Plastic or glass (hard or soft).

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

9) 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 one month.

10) Mercury.

A) Preservative: Concentrated nitric 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 28 days.

11) Nickel.

A) Preservative: Concentrated nitric 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 six months.

12) 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 14 days.

13) 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.

14) 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.

15) Selenium.

A) Preservative: Concentrated nitric 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 six months.

16) Thallium.

A) Preservative: Concentrated nitric 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 six months.

c) Analyses under this Subpart N must be conducted by a certified laboratory in one of the categories listed in Section 611.490(a). The Agency must certify laboratories to conduct analyses for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, nitrate, nitrite, selenium, and thallium if the laboratory does as follows:

1) It analyzes performance evaluation (PE) samples, provided by the Agency pursuant to 35 Ill. Adm. Code 186, that include those substances at levels not in excess of levels expected in drinking water; and

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

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

B) Arsenic: ± 30% at greater than or equal to 0.003 mg/ℓ.

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

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

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

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

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

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

I) Fluoride: ± 10% at 1 to 10 mg/ℓ.

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

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

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

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

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

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

BOARD NOTE: Derived from 40 CFR 141.23(k) and appendix A to subpart C of 40 CFR 141 (2014).

(Source: Amended at 39 Ill. Reg. 3713, effective March 13, 2015)

Section 611.612 Monitoring Requirements for Old Inorganic MCLs

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

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

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

3) This subsection (a)(3) corresponds with 40 CFR 141.23(1)(3), 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 (a)(4) corresponds with 40 CFR 141.23(1)(4), which authorizes the state to determine compliance and initiate enforcement action. This statement maintains structural consistency with USEPA rules.

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

c) When the average of four analyses made pursuant to subsection (b) of this Section, rounded to the same number of significant figures as the old MCL for the substance in question, exceeds the old MCL, the supplier must notify the Agency and give notice to the public pursuant to Subpart V of this Part. Monitoring after public notification must be at a frequency designated by the Agency by a SEP issued pursuant to Section 611.110 and must continue until the old MCL has not been exceeded in two successive samples or until a different monitoring schedule becomes effective as a condition to a variance, an adjusted standard, a site specific rule, an enforcement action, or another SEP issued pursuant to Section 611.110.

d) This subsection (d) corresponds with 40 CFR 141.23(o), which pertains to monitoring for the repealed old MCL for nitrate. This statement maintains structural consistency with USEPA rules.

e) This subsection (e) corresponds with 40 CFR 141.23(p), which pertains to the use of existing data up until a date long since expired. 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, or alternative methods approved by the Agency pursuant to Section 611.480.

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

2) Iron.

A) Standard Methods.

i) Method 3111 B, 18th, 19th, 21st, or 22nd ed.;

ii) Method 3113 B, 18th, 19th, 21st, or 22nd ed.; or

iii) Method 3120 B, 18th, 19th, 20th, 21st, or 22nd ed.

B) Standard Methods Online, Method 3113 B-04.

C) USEPA Environmental Metals Methods.

i) Method 200.7 (rev. 4.4); or

ii) Method 200.9 (rev. 2.2).

D) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added USEPA NERL Method 200.5 as an approved alternative method in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods, 21st ed.; Methods 3111 B, 3113 B, and 3120 B and USEPA NERL Method 200.5 as approved alternative methods for iron in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for iron in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). USEPA added Standard Methods, 22nd ed., Methods 3111 D, 3113 B, and 3120 B as approved alternative methods for iron in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA added Standard Methods Online, Method 3113 B-10 as an approved alternative method for iron in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 3113 B is the same version as Standard Methods Online, Method 3113 B-10, the Board has not listed the Standard Methods Online versions separately.

3) Manganese.

A) Standard Methods.

i) Method 3111 B, 18th, 19th, 21st, or 22nd ed.;

ii) Method 3113 B, 18th, 19th, 21st, or 22nd ed.; or

iii) Method 3120 B, 18th, 19th, 20th, 21st, or 22nd ed.

B) Standard Methods Online, Method 3113 B-04.

C) USEPA Environmental Metals Methods.

i) Method 200.7 (rev. 4.4);

ii) Method 200.8 (rev. 5.3); or

iii) Method 200.9 (rev. 2.2).

D) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed.; Methods 3111 B, 3113 B, and 3120 B and USEPA NERL Method 200.5 as approved alternative methods for manganese in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative

method for manganese in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). USEPA added Standard Methods, 22nd ed., Methods 3111 D, 3113 B, and 3120 B as approved alternative methods for manganese in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463). USEPA added Standard Methods Online, Method 3113 B-10 as an approved alternative method for manganese in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 3113 B is the same version as Standard Methods Online, Method 3113 B-10, the Board has not listed the Standard Methods Online versions separately.

4) Zinc.

A) Standard Methods.

i) Method 3111 B, 18th, 19th, 21st, or 22nd ed.; or

ii) Method 3120 B, 18th, 19th, 20th, 21st, or 22nd ed.

B) USEPA Environmental Metals Methods.

i) Method 200.7 (rev. 4.4); or

ii) Method 200.8 (rev. 5.3).

C) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

BOARD NOTE: USEPA added Standard Methods, 21st ed.; Methods 3111 B and 3120 B and USEPA NERL Method 200.5 as approved alternative methods for zinc in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods, 22nd ed., Methods 3111 B and 3120 B as approved alternative methods for zinc in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463).

BOARD NOTE: The provisions of subsections (a) through (e) of this Section derive from 40 CFR 141.23(l) through (p) (2014). Subsections (f)(2) through (f)(4) of this Section relate exclusively to additional State requirements. The Board retained subsection (f) of this Section to set forth methods for the inorganic contaminants for which there is a State-only MCL. The methods specified are those set forth in 40 CFR 143.4(b) and appendix A to subpart C of 40 CFR 141 (2014), for secondary MCLs.

(Source: Amended at 39 Ill. Reg. 3713, effective March 13, 2015)

Section 611.630 Special Monitoring for Sodium

a) CWS suppliers must 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 must 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 must report to the Agency the results of the analyses for sodium within the first 10 days of the month following the month in which the sample results were received or within the first 10 days following the end of the required monitoring period as specified by SEP, whichever of these is first. If more than annual sampling is required, the supplier must 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 must notify the Agency and appropriate local public health officials of the sodium levels by written notice by direct mail within three months. A copy of each notice required to be provided by this subsection must be sent to the Agency within 10 days of its issuance.

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

BOARD NOTE: Derived from 40 CFR 141.41 (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.631 Special Monitoring for Inorganic Chemicals (Repealed)

(Source: Repealed at 28 Ill. Reg. 5269, effective March 10, 2004)

SUBPART O: ORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.640 Definitions

The following terms are defined for use in this Subpart O 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." "Old MCLs" include the Section 611.310 MCLs for the following contaminants:

Aldrin
2,4-D
DDT
Dieldrin
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 the following:

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) (2003). 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 IIB SOCs" means the following:

Aldicarb
Aldicarb Sulfone

Aldicarb Sulfoxide
Pentachlorophenol

BOARD NOTE: These are organic contaminants regulated at 40 CFR 141.61(c)(1) through (c)(18) (2003). The MCLs for these contaminants are located at Section 611.311. See the Board note appended to Section 611.311(c) for information relating to implementation of requirements relating to aldicarb, aldicarb sulfone, and aldicarb sulfoxide.

"Phase V SOCs" means the following:

Benzo(a)pyrene
Dalapon
Di(2-ethylhexyl)adipate
Di(2-ethylhexyl)phthalate
Dinoseb
Diquat
Endothall
Endrin
Glyphosate
Hexachlorobenzene
Hexachlorocyclopentadiene
Oxamyl
Picloram
Simazine
2,3,7,8-TCDD

BOARD NOTE: These are organic contaminants regulated at 40 CFR 141.61(c)(19) through (c)(33) (2003). The MCLs for these contaminants are located at Section 611.311.

"Phase I VOCs" means the following:

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) (2003). The MCLs for these contaminants are located at Section 611.311(a).

"Phase II VOCs" means the following:

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) (2003). The MCLs for these contaminants are in Section 611.311(a).

"Phase V VOCs" means the following:

Dichloromethane
1,2,4-Trichlorobenzene
1,1,2-Trichloroethane
BOARD NOTE: These are the organic contaminants regulated at 40 CFR 141.61(a)(19) through (a)(21) (2003). The MCLs for these contaminants are located at Section 611.311(a).

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

(Source: Amended at 28 Ill. Reg. 5269, effective March 10, 2004)

Section 611.641 Old MCLs

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

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

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

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

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

d) Analysis made to determine compliance with the old MCLs of Section 611.310 must be made in accordance with the appropriate methods specified in Section 611.645.

BOARD NOTE: This provision now applies only to State-only MCLs. It was formerly derived from 40 CFR 141.24(a) through (e), which USEPA removed and reserved.

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.645 Analytical Methods for Organic Chemical Contaminants

Analysis for the Section 611.311(a) VOCs under Section 611.646; the Section 611.311(c) SOCs under Section 611.648; the Section 611.310 old MCLs under Section 611.641; and for THMs, TTHMs, and TTHM potential must be conducted using the methods listed in this Section. All methods are incorporated by reference in Section 611.102. Other required analytical test procedures germane to the conduct of these analyses are contained in the USEPA document, "Technical Notes of Drinking Water Methods," incorporated by reference in Section 611.102.

a) Volatile Organic Chemical Contaminants (VOCs).

Contaminant	Analytical Methods
Benzene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0)
Carbon tetrachloride	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0), 524.4, and 551.1 (rev. 1.0)

Chlorobenzene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
1,2-Dichlorobenzene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
1,4-Dichlorobenzene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
1,2-Dichloroethane	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
1,1-Dichloroethylene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
cis-Dichloroethylene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
trans-Dichloroethylene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
Dichloromethane	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
1,2-Dichloropropane	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4

Ethylbenzene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
Styrene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
Tetrachloroethylene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0), 524.4, and 551.1 (rev. 1.0)
Toluene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
1,2,4-Trichlorobenzene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
1,1,2-Trichloroethane	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
1,1,1-Trichloroethane	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0), 524.4, and 551.1 (rev. 1.0)
Trichloroethylene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0), 524.4, and 551.1 (rev. 1.0)

Vinyl chloride	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4
Xylenes (total)	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 524.4

BOARD NOTE: USEPA added USEPA OGWDW Method 524.3 (rev. 1.0) as an alternative method for all of the VOCs in appendix A to subpart C of 40 CFR 141 on August 3, 2009 (at 74 Fed. Reg. 38348). USEPA added USEPA OGWDW Method 524.4 as an approved alternative method for all of the VOCs in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558).

b) Synthetic Organic Chemical Contaminants (SOCs).

Contaminant	Analytical Methods
2,3,7,8-Tetrachlorodibenzo-dioxin (2,3,7,8-TCDD or dioxin)	Dioxin and Furan Method 1613 (rev. B)
2,4-D	USEPA Organic Methods, Methods 515.2 (rev. 1.1), 555 (rev. 1.0), and 515.1 (rev. 4.0); USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0); USEPA OGWDW Methods, Method 515.4 (rev. 1.0); ASTM Method D5317-93 or D5317-98(2003); Standard Methods, 21st or 22nd ed., Method 6640 B

2,4,5-TP (Silvex)	USEPA Organic Methods, Methods 515.2 (rev. 1.1), 555 (rev. 1.0), and 515.1 (rev. 4.0); USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0); USEPA OGWDW Methods, Method 515.4 (rev. 1.0); ASTM Method D5317-93 or D5317-98(2003); Standard Methods, 21st or 22nd ed., Method 6640 B
Alachlor	USEPA Organic Methods, Methods 505 (rev. 2.1)[1], 507 (rev. 2.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0); NERL Method 525.3 (ver. 1.0)
Atrazine	USEPA Organic Methods, Methods 505 (rev. 2.1)[1], 507 (rev. 2.1), 508.1 (rev. 2.1), 523 (rev. 1.0), 525.2 (rev. 2.0), 536 (rev. 1.0), and 551.1 (rev. 1.0); NERL Method 525.3 (ver. 1.0); Syngenta AG-625[2]
Benzo(a)pyrene	USEPA Organic Methods, Methods 525.2 (rev. 2.0), 550, and 550.1; NERL Method 525.3 (ver. 1.0)
Carbofuran	USEPA Organic Methods, Methods 531.1 (rev. 3.1); USEPA OGWDW Methods, Method 531.2 (rev. 1.0); Standard Methods, 18th ed. Supplement, 19th ed., or 20th ed., Method 6610; Standard Methods, 21st or 22nd ed., Method 6610 B
Chlordane	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.1), and 525.2 (rev. 2.0); NERL Method 525.3 (ver. 1.0)

Dalapon	USEPA Organic Methods, Methods 515.1 (rev. 4.0), 552.1 (rev. 1.0), and 552.2 (rev. 1.0); USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0); USEPA OGWDW Methods, Methods 515.4 (rev. 1.0), 552.3 (rev. 1.0), and 557; Standard Methods, 21st or 22nd ed., Method 6640 B
Di(2-ethylhexyl)adipate	USEPA Organic Methods, Methods 506 (rev. 1.1), 525.2 (rev. 2.0), and 525.3 (ver. 1.0)
Di(2-ethylhexyl)phthalate	USEPA Organic Methods, Methods 506 (rev. 1.1) and 525.2 (rev. 2.0); NERL Method 525.3 (ver. 1.0)
Dibromochloropropane (DBCP)	USEPA Organic Methods, Methods 504.1 (rev. 1.1), USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 551.1 (rev. 1.0)
Dinoseb	USEPA Organic Methods, Methods 515.1 (rev. 4.0) and 515.2 (rev. 1.1); USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0); USEPA OGWDW Methods, Methods 515.4 (rev. 1.0) and 555 (rev. 1.0); Standard Methods, 21st or 22nd ed., Method 6640 B
Diquat	USEPA NERL Method 549.2 (rev. 1.0)
Endothall	USEPA Organic Methods, Method 548.1 (rev. 1.0)
Endrin	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0); NERL Method 525.3 (rev. 1.0)

Ethylene dibromide (EDB)	USEPA Organic Methods, Method 504.1 (rev. 1.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 551.1 (rev. 1.0)
Glyphosate	USEPA Organic Methods, Method 547; Standard Methods, 18th ed., 19th ed., 20th, 21st, or 22nd ed., Method 6651 B
Heptachlor	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0); NERL Method 525.3 (rev. 1.0)
Heptachlor Epoxide	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0); NERL Method 525.3 (rev. 1.0)
Hexachlorobenzene	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0); NERL Method 525.3 (rev. 1.0)
Hexachlorocyclopentadiene	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0); NERL Method 525.3 (rev. 1.0)
Lindane	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0); NERL Method 525.3 (rev. 1.0)
Methoxychlor	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 551.1 (rev. 1.0); NERL Method 525.3 (rev. 1.0)

Oxamyl	USEPA Organic Methods, Method 531.1 (rev. 3.1); USEPA OGWDW Methods, Method 531.2 (rev. 1.0); Standard Methods, 18th ed. Supplement, 19th ed., or 20th ed., Method 6610; Standard Methods, 21st or 22nd ed., Method 6610 B
PCBs (measured for compliance purposes as decachlorobiphenyl)	USEPA Organic Methods, Method 508A (rev. 1.0)
PCBs (qualitatively identified as alachlors)	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), and 525.2 (rev. 2.0); NERL Method 525.3 (ver. 1.0)
Pentachlorophenol	USEPA Organic Methods, Methods 515.1 (rev. 4.0), 515.2 (rev. 1.1), 525.2 (rev. 2.0), and 555 (rev. 1.0); USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0); USEPA OGWDW Methods, Method 515.4 (rev. 1.0); ASTM Method D5317-93 or D5317-98(2003); Standard Methods, 21st or 22nd ed., Method 6640 B; NERL Method 525.3 (rev. 1.0)
Picloram	USEPA Organic Methods, Methods 515.1 (rev. 4.0), 515.2 (rev. 1.1), and 555 (rev. 1.0); USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0); USEPA OGWDW Methods, Method 515.4 (rev. 1.0); ASTM Method D5317-93 or D5317-98(2003); Standard Methods, 21st or 22nd ed., Method 6640 B

Simazine	USEPA Organic Methods, Methods 505 (rev. 2.1)[1], 507 (rev. 2.1), 508.1 (rev. 2.0), 523 (ver. 1.0), 525.2 (rev. 2.0), 536 (ver. 1.0), and 551.1 (rev. 1.0); NERL Method 525.3 (rev. 1.0)
Toxaphene	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 2.1), 508.1 (rev. 2.0), and 525.2 (rev. 2.0); NERL Method 525.3 (rev. 1.0) 525.3 (ver. 1.0)

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 6610 B and Standard Methods Online, Method 6610 B-04 as approved alternative methods for carbofuran and oxamyl on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added USEPA OGWDW Method 524.3 (rev. 1.0) as an alternative method for dibromochloropropane and ethylene dibromide in appendix A to subpart C of 40 CFR 141 on August 3, 2009 (at 74 Fed. Reg. 38348). USEPA approved Standard Methods, 21st ed., Method 6640 B and Standard Methods Online, Method 6640 B-01 and USEPA OGWDW Methods, Method 557 as approved alternative methods for dalapon in appendix A to subpart C of 40 CFR 141 on June 8, 2010 (at 75 Fed. Reg. 32295). USEPA added Standard Methods, 21st ed., Method 6640 B as an approved alternative method for 2,4-D, 2,4,5-TP (Silvex), dinoseb, pentachlorophenol, and picloram in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). USEPA added Standard Methods, Online, Method 6640 B-01 as an approved alternative method for 2,4-D, 2,4,5-TP (Silvex), dalapon, dinoseb, pentachlorophenol, and picloram and in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). Since the version of Method 6640 B that appears in Standard Methods Online is the same as that which appears in Standard Methods, 21st ed., the Board has cited only to Standard Methods, 21st ed. USEPA added Standard Methods, 21st ed., Method 6651 B as an approved alternative method for glyphosate in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). USEPA added Standard Methods Online, Method 6651 B-00 as an approved alternative method for glyphosate in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). Since the version of Method 6651 B that appears in Standard Methods Online is the same as that which appears in Standard Methods, 21st ed., the Board has cited only to Standard Methods, 21st ed. USEPA approved USEPA OGWDW Methods, Method 523 (ver. 1.0) and Method 536 (ver. 1.0) as approved alternative methods for atrazine and simazine and USEPA NERL Methods, Method 525.3 as an approved alternative method for alachlor, atrazine, benzo(a)-pyrene, chlordane, di(2-ethylhexyl)adipate, di(2-ethylhexyl)phthalate, endrin, heptachlor, heptachlor epoxide, hexachlorobenzene, hexachlorocyclopentadiene, lindane, methoxychlor, PCBs (as alachlor), pentachlorophenol, simazine, and toxaphene in appendix A to subpart C of 40 CFR 141 on June 8, 2012 (at 77 Fed.

Reg. 38523). USEPA added Standard Methods, 22nd ed., Method 6610 B and Standard Methods Online, Method 6610 B-04 as an approved alternative method for carbofuran and oxamyl; Standard Methods, 22nd ed., Method 6640 B and Standard Methods Online, Method 6640 B-01 as an approved method for 2,4-D, 2,4,5-TP (silvex), dalapon, dinoseb, pentachlorophenol, and picloram; and Standard Methods, 22nd ed., Method 6651 B for glyphosate in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). Because Standard Methods, 22nd ed., Methods 6610 B and 6640 B-01 are the same versions as Standard Methods Online 6610 B-04 and 6640 B-01, the Board has not listed the Standard Methods Online versions separately. USEPA added Standard Methods Online, Method 6640 B-06 as an approved alternative method for 2,4-D, 2,4,5-TP (silvex), dalapon, dinoseb, pentachlorophenol, and picloram and Method 6651B-05 for glyphosate in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Methods 6640 B and 6651 B are the same versions as Standard Methods Online, Methods 6640 B-06 and 6651 B-05, the Board has not listed the Standard Methods Online versions separately.

c) Total Trihalomethanes (TTHMs).

Contaminant	Analytical Methods
Total Trihalomethanes (TTHMs), Trihalomethanes (THMs), and Maximum Total Trihalomethane Potential	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0), 524.4, and 551.1 (rev. 1.0)

BOARD NOTE: USEPA added USEPA OGWDW Method 524.3 (rev. 1.0) as an alternative method for total trihalomethane in appendix A to subpart C of 40 CFR 141 on August 3, 2009 (at 74 Fed. Reg. 38348). USEPA added USEPA OGWDW Method 524.4 as an approved alternative method for total trihalomethanes in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558).

d) State-Only MCLs (for which a method is not listed in subsections (a) through (c) of this Section).

Contaminant	Analytical Methods
Aldrin	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), and 525.2 (rev. 2.0)
DDT	USEPA Organic Methods, Methods 505 (rev. 2.1) and 508 (rev. 3.1)

Dieldrin	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), and 525.2 (rev. 2.0)

e) The following footnotes are appended to method entries in subsections (a) and (b) of this Section:

[1] denotes that, for the particular contaminant, a nitrogen-phosphorus detector should be substituted for the electron capture detector in method 505 (or another approved method should be used) to determine alachlor, atrazine, and simazine if lower detection limits are required.

[2] denotes that Syngenta Method AG-625 may not be used for the analysis of atrazine in any system where chlorine dioxide is used for drinking water treatment. In samples from all other systems, any result for atrazine generated by Syngenta Method AG-625 that is greater than one-half the maximum contaminant level (MCL) (in other words, greater than 0.0015 mg/ℓ or 1.5 μg/ℓ) must be confirmed using another approved method for this contaminant and should use additional volume of the original sample collected for compliance monitoring. In instances where a result from Syngenta Method AG-625 triggers such confirmatory testing, the confirmatory result is to be used to determine compliance.

BOARD NOTE: Derived from 40 CFR 141.24(e) and appendix A to subpart C of 40 CFR 141 (2014).

(Source: Amended at 39 Ill. Reg. 3713, effective March 13, 2015)

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

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

a) Definitions. As used in this Section the following have the given meanings:

"Detect" and "detection" mean 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) (2013). This is a "trigger level" for Phase I, Phase II, and Phase V VOCs inasmuch as it prompts further action. The use of the term

"detect" in this Section is not intended to include any analytical capability of quantifying lower levels of any contaminant, or the "method detection limit." Note, however, that certain language at the end of federal paragraph (f)(20) is capable of meaning that the "method detection limit" is used to derive the "detection limit." The Board has chosen to disregard that language at the end of paragraph (f)(20) in favor of the more direct language of paragraphs (f)(7) and (f)(11).

"Method detection limit," as used in subsections (q) and (t) of this Section 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 appendix B to 40 CFR 136 (2013). The method detection limit is determined by the procedure set forth in appendix B to 40 CFR 136, incorporated by reference in Section 611.102(c). See subsection (t) of this Section.

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

c) Sampling points.

1) Sampling points for a GWS. Unless otherwise provided by a SEP granted by the Agency pursuant to Section 611.110, a GWS supplier must 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 an SWS or mixed system supplier. Unless otherwise provided by a SEP granted by the Agency pursuant to Section 611.110, an SWS or mixed system supplier must 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 must take each sample at the same sampling point unless the Agency has granted a SEP pursuant to Section 611.110 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 must 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) of this Section derived from 40 CFR 141.24(f)(1) through (f)(3) (2013).

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

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

f) GWS reduction to triennial monitoring frequency. After a minimum of three years of annual sampling, GWS suppliers that have not previously detected any of the Phase I VOCs, including vinyl chloride; Phase II VOCs; or Phase V VOCs must 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) of this Section and which did not detect any of the Phase I VOCs, including vinyl chloride; Phase II VOCs; and Phase V VOCs may apply to the Agency for a SEP pursuant to Section 611.110 that releases it from the requirements of subsection (e) or (f) of this Section. A supplier that serves fewer than 3300 service connections may apply to the Agency for a SEP that releases it from the requirements of subsection (d) of this Section as to 1,2,4-tri-chlorobenzene.

BOARD NOTE: Derived from 40 CFR 141.24(f)(7) and (f)(10) (2013), and the discussion at 57 Fed. Reg. 31825 (July 17, 1992). Provisions concerning the term of the waiver appear in subsections (i) and (j) of this Section. The definition of

"detect," parenthetically added to the federal counterpart paragraph, is in subsection (a) of this Section.

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

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

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: Subsection (i) of this Section does not apply to an SWS or mixed system supplier.

j) Special considerations for a SEP for an SWS or mixed-system supplier.

1) The Agency must determine that an SWS is not vulnerable before issuing a SEP pursuant to Section 611.110 to an SWS supplier. A SEP issued to an SWS or mixed system supplier pursuant to subsection (g) of this Section is for a maximum of one compliance period; and

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

BOARD NOTE: There is a great degree of similarity between 40 CFR 141.24(f)(7) (2012), the provision applicable to GWSs, and 40 CFR 141.24(f)(10) (2013), the provision for SWSs. The Board has consolidated the common requirements of both paragraphs into subsection (g) of this Section. Subsection (j) of this Section represents the elements unique to an SWSs or mixed system, and subsection (i) of this Section relates to a GWS supplier. Although 40 CFR 141.24(f)(7) and (f)(10) are silent as to a mixed system supplier, the Board has included a mixed system supplier with an SWS supplier because this best follows the federal scheme for all other contaminants.

k) If one of the Phase I VOCs, excluding vinyl chloride; a Phase II VOC; or a Phase V VOC is detected in any sample, then the following must occur:

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

2) Annual monitoring.

A) The Agency must 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 an SWS or mixed system supplier, four quarterly samples.

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

3) Suppliers that monitor annually must monitor during the quarters 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) of this Section.

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

A) "Two-carbon contaminants" (Phase I or II VOC) are the following:

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 must 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) of this Section.

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

l) Quarterly monitoring following MCL violations.

1) Suppliers that violate an MCL for one of the Phase I VOCs, including vinyl chloride; Phase II VOCs; or Phase V VOCs, as determined by subsection (o) of this Section, must 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 must 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 must specify the level of the contaminant upon which the "reliably and consistently" determination was based. Any SEP that allows less frequent monitoring based on an Agency "reliably and consistently" determination must include a condition requiring the supplier to resume quarterly monitoring pursuant to subsection (l)(1) of this Section if it violates the MCL specified by Section 611.311.

D) The supplier must monitor during the quarters that previously yielded the highest analytical result.

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

1) If a supplier detects any of the Phase I, Phase II, or Phase V VOCs in a sample, the supplier must 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) of this Section.

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

o) Compliance with the MCLs for the Phase I, Phase II, and Phase V VOCs must be determined based on the analytical results obtained at each sampling point. If one sampling point is in violation of an MCL, the system is in violation of the MCL.

1) For a supplier that monitors more than once per year, compliance with the MCL is determined by a running annual average at each sampling point.

2) A supplier that monitors annually or less frequently whose sample result exceeds the MCL must begin quarterly sampling. The system will not be considered in violation of the MCL until it has completed one year of quarterly sampling.

3) If any sample result will cause the running annual average to exceed the MCL at any sampling point, the supplier is out of compliance with the MCL immediately.

4) If a supplier fails to collect the required number of samples, compliance will be based on the total number of samples collected.

5) If a sample result is less than the detection limit, zero will be used to calculate the annual average.

p) This subsection (p) corresponds with 40 CFR 141.24(f)(16), which USEPA removed and reserved. This statement maintains structural consistency with the federal regulations.

q) Analysis under this Section must only be conducted by a laboratory in one of the categories listed in Section 611.490(a) that has been certified according to the following conditions:

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

A) It must analyze performance evaluation (PE) samples that include these substances provided by the Agency pursuant to 35 Ill. Adm. Code 186.170;

B) It must achieve the quantitative acceptance limits under subsections (q)(1)(C) and (q)(1)(D) of this Section for at least 80 percent of the regulated organic contaminants in the PE sample;

C) It must achieve quantitative results on the analyses performed under subsection (q)(1)(A) of this Section that are within ± 20 percent of the actual amount of the substances in the PE sample when the actual amount is greater than or equal to 0.010 mg/ℓ;

D) It must achieve quantitative results on the analyses performed under subsection (q)(1)(A) of this Section that are within ± 40 percent of the actual amount of the substances in the PE sample when the actual amount is less than 0.010 mg/ℓ; and

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

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

A) It must analyze PE samples provided by the Agency pursuant to 35 Ill. Adm. Code 186.170;

B) It must achieve quantitative results on the analyses performed under subsection (q)(2)(A) of this Section that are within ± 40 percent of the actual amount of vinyl chloride in the PE sample;

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

D) It must obtain certification pursuant to subsection (q)(1) of this Section for Phase I VOCs, excluding vinyl chloride; Phase II VOCs; and Phase V VOCs.

r) This subsection (r) corresponds with 40 CFR 141.24(f)(18), an obsolete provision that relates to the initial compliance period from 1993 through 1995. This statement maintains consistency with the federal regulations.

s) The Agency shall, by a SEP issued pursuant to Section 611.110, increase the number of sampling points or the frequency of monitoring if it determines that it is necessary to detect variations within the PWS.

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

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

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

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

v) A new system supplier or a supplier that uses a new source of water must demonstrate compliance with the MCL within a period of time specified by a permit issued by the Agency. The supplier must also comply with the initial sampling frequencies specified by the Agency to ensure the supplier can demonstrate compliance with the MCL. Routine and increased monitoring frequencies must be conducted in accordance with the requirements in this Section.

BOARD NOTE: Derived from 40 CFR 141.24(f) (2013).

(Source: Amended at 38 Ill. Reg. 9792, effective April 21, 2014)

Section 611.647 Sampling for Phase I Volatile Organic Contaminants (Repealed)

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

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

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

a) Definitions. As used in this Section, the following terms will have the following meanings:

"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) of this Section.

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

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

BOARD NOTE: See the Board note appended to Section 611.311(c) for information relating to implementation of requirements relating to aldicarb, aldicarb sulfone, and aldicarb sulfoxide.

c) Sampling points.

1) Sampling points for GWSs. Unless otherwise provided by SEP, a GWS supplier must 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 an SWS or mixed system supplier. Unless otherwise provided by SEP, an SWS or mixed system supplier must 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 must 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 must 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) of this Section derived from 40 CFR 141.24(h)(1) through (h)(3) (2013).

d) Monitoring frequency.

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

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

3) Suppliers serving fewer than or equal to 3,300 persons that do not detect a contaminant in the initial compliance period must 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) of this Section. A SEP from the requirement of subsection (d) of this Section must last for only a single three-year compliance period.

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

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

1) The supplier must 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 an SWS or mixed system supplier, four quarterly samples.

C) The Agency must 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 must specify the level of the contaminant upon which the "reliably and consistently" determination was based. Any SEP that allows less frequent monitoring based on an Agency "reliably and consistently" determination must include a condition requiring the supplier to resume quarterly monitoring pursuant to subsection (g)(1) of this Section if it detects any Phase II SOC.

3) Suppliers that monitor annually must monitor during the quarters 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) of this Section.

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) of this Section, subsequent monitoring must analyze for all the related compounds in the respective group.

B) Related contaminants.

i) First group.

aldicarb
aldicarb sulfone
aldicarb sulfoxide

BOARD NOTE: See the Board note appended to Section 611.311(c) for information relating to implementation of requirements relating to aldicarb, aldicarb sulfone, and aldicarb sulfoxide.

ii) Second group.

heptachlor
heptachlor epoxide.

h) Quarterly monitoring following MCL violations.

1) Suppliers that violate an MCL for one of the Phase II, Phase IIB, or Phase V SOCs, as determined by subsection (k) of this Section, must 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 must 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 must specify the level of the contaminant upon which the "reliably and consistently" determination was based. Any SEP that allows less frequent monitoring based on an Agency "reliably and consistently" determination must include a condition requiring the supplier to resume quarterly monitoring pursuant to subsection (h)(1) of this Section if it detects any Phase II SOC.

E) The supplier must monitor during the quarters that previously yielded the highest analytical result.

i) Confirmation samples.

1) If any of the Phase II, Phase IIB, or Phase V SOCs are detected in a sample, the supplier must 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) of this Section.

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

k) Compliance with the MCLs for the Phase II, Phase IIB, and Phase V SOCs must be determined based on the analytical results obtained at each sampling point. If one sampling point is in violation of an MCL, the supplier is in violation of the MCL.

1) For a supplier that monitors more than once per year, compliance with the MCL is determined by a running annual average at each sampling point.

2) A supplier that monitors annually or less frequently whose sample result exceeds the regulatory detection level as defined by subsection (r) of this Section must begin quarterly sampling. The system will not be considered in violation of the MCL until it has completed one year of quarterly sampling.

3) If any sample result will cause the running annual average to exceed the MCL at any sampling point, the supplier is out of compliance with the MCL immediately.

4) If a supplier fails to collect the required number of samples, compliance will be based on the total number of samples collected.

5) If a sample result is less than the detection limit, zero will be used to calculate the annual average.

l) This subsection (l) corresponds with 40 CFR 141.24(h)(12), which USEPA removed and reserved. This statement maintains structural consistency with the federal regulations.

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

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

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

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

n) This subsection (n) corresponds with 40 CFR 141.24(h)(14), an obsolete provision that relates to the initial compliance period from 1993 through 1995. This statement maintains consistency with the federal regulations.

o) The Agency must 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 (p) corresponds with 40 CFR 141.24(h)(16), a USEPA provision relating to reserving enforcement authority to the State that would serve no useful function as part of the State's rules. This statement maintains structural consistency with USEPA rules.

q) Each supplier must 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), the following:

Aroclor	Detection Limit (mg/ℓ)
1016	0.00008
1221	0.02
1232	0.0005
1242	0.0003
1248	0.0001

1254	0.0001
1260	0.0002

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

Contaminant	Detection Limit (mg/ℓ)
Alachlor	0.0002
Aldicarb	0.0005
Aldicarb sulfoxide	0.0005
Aldicarb sulfone	0.0008
Atrazine	0.0001
Benzo(a)pyrene	0.00002
Carbofuran	0.0009
Chlordane	0.0002
2,4-D	0.0001
Dalapon	0.001
1,2-Dibromo-3-chloropropane (DBCP)	0.00002
Di(2-ethylhexyl)adipate	0.0006
Di(2-ethylhexyl)phthalate	0.0006
Dinoseb	0.0002
Diquat	0.0004
Endothall	0.009
Endrin	0.00001
Ethylene dibromide (EDB)	0.00001
Glyphosate	0.006
Heptachlor	0.00004

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

BOARD NOTE: See the Board note appended to Section 611.311(c) for information relating to implementation of requirements relating to aldicarb, aldicarb sulfone, and aldicarb sulfoxide.

s) Laboratory certification.

1) Analyses under this Section must only be conducted by a laboratory in one of the categories listed in Section 611.490(a) that has been certified according to the conditions of subsection (s)(2) of this Section.

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

A) Analyze PE 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) of this Section that are within the following acceptance limits:

SOC	Acceptance Limits
Alachlor	± 45%
Aldicarb	2 standard deviations
Aldicarb sulfone	2 standard deviations
Aldicarb sulfoxide	2 standard deviations
Atrazine	± 45%
Benzo(a)pyrene	2 standard deviations
Carbofuran	± 45%
Chlordane	± 45%
Dalapon	2 standard deviations
Di(2-ethylhexyl)adipate	2 standard deviations
Di(2-ethylhexyl)phthalate	2 standard deviations
Dinoseb	2 standard deviations
Diquat	2 standard deviations
Endothall	2 standard deviations
Endrin	± 30%
Glyphosate	2 standard deviations
Dibromochloropropane (DBCP)	± 40%
Ethylene dibromide (EDB)	± 40%
Heptachlor	± 45%
Heptachlor epoxide	± 45%
Hexachlorobenzene	2 standard deviations
Hexachlorocyclopentadiene	2 standard deviations

Lindane	± 45%
Methoxychlor	± 45%
Oxamyl	2 standard deviations
PCBs (as decachlorobiphenyl)	0-200%
Pentachlorophenol	± 50%
Picloram	2 standard deviations
Simazine	2 standard deviations
Toxaphene	± 45%
2,4-D	± 50%
2,3,7,8-TCDD (dioxin)	2 standard deviations
2,4,5-TP (silvex)	± 50%

BOARD NOTE: See the Board note appended to Section 611.311(c) for information relating to implementation of requirements relating to aldicarb, aldicarb sulfone, and aldicarb sulfoxide.

t) A new system supplier or a supplier that uses a new source of water must demonstrate compliance with the MCL within a period of time specified by a permit issued by the Agency. The supplier must also comply with the initial sampling frequencies specified by the Agency to ensure the supplier can demonstrate compliance with the MCL. Routine and increased monitoring frequencies must be conducted in accordance with the requirements in this Section.

BOARD NOTE: Derived from 40 CFR 141.24(h) (2013).

(Source: Amended at 38 Ill. Reg. 9792, effective April 21, 2014)

Section 611.650 Monitoring for 36 Contaminants (Repealed)

(Source: Repealed at 16 Ill. Reg. 19010, effective December 1, 1992)

Section 611.657 Analytical Methods for 36 Contaminants (Repealed)

(Source: Repealed at 16 Ill. Reg. 19010, effective December 1, 1992)

Section 611.658 Special Monitoring for Organic Chemicals (Repealed)

(Source: Repealed at 28 Ill. Reg. 5269, effective March 10, 2004)

SUBPART P: THM MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.680 Sampling, Analytical, and other Requirements (Repealed)

(Source: Repealed at 36 Ill. Reg. 36 Ill. Reg. 7110, effective April 25, 2012)

Section 611.683 Reduced Monitoring Frequency (Repealed)

(Source: Repealed at 28 Ill. Reg. 5269, effective March 10, 2004)

Section 611.684 Averaging (Repealed)

(Source: Repealed at 28 Ill. Reg. 5269, effective March 10, 2004)

Section 611.685 Analytical Methods (Repealed)

(Source: Repealed at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.686 Modification to System (Repealed)

(Source: Repealed at 28 Ill. Reg. 5269, effective March 10, 2004)

Section 611.687 Sampling for Maximum THM Potential (Repealed)

(Source: Repealed at 28 Ill. Reg. 5269, effective March 10, 2004)

Section 611.688 Applicability Dates (Repealed)

(Source: Repealed at 28 Ill. Reg. 5269, effective March 10, 2004)

SUBPART Q: RADIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.720 Analytical Methods

a) The methods specified below, or alternative methods approved by the Agency pursuant to Section 611.480, incorporated by reference in Section 611.102, are to be used to determine compliance with Section 611.330, except in cases where alternative methods have been approved in accordance with Section 611.480.

1) Gross Alpha and Beta.

A) Standard Methods.

i) Method 302, 13th ed.; or

ii) Method 7110 B, 17th, 18th, 19th, 20th, 21st, or 22nd ed.;

B) USEPA Interim Radiochemical Methods: pages 1-3;

C) USEPA Radioactivity Methods, Method 900.0;

D) USEPA Radiochemical Analyses: pages 1-5;

E) USEPA Radiochemistry Procedures, Method 00-01; or

F) USGS Methods, Method R-1120-76.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 7110 B as an approved alternative method for gross alpha and beta in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods, 22nd ed., Method 7110 B as an approved alternative method for gross alpha and beta in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463).

2) Gross Alpha.

A) Standard Methods, 18th, 19th, 20th, 21st, or 22nd ed., Method 7110 C; or

B) USEPA Radiochemistry Procedures, Method 00-02.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 7110 C as an approved alternative method for gross alpha in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).See the comment appended to 611.611(a)(2)(D)(ii) re Standard Methods Online, Method 3113 B-04 for antimony. USEPA added Standard Methods, 22nd ed., Method 7110 C as an approved alternative method for gross alpha in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463).

3) Radium-226.

A) ASTM Methods.

i) Method D2460-97 or D2460-07; or

ii) Method D3454-97 or D3454-05;

B) New York Radium Method;

C) Standard Methods.

i) Method 304, 13th ed.;

ii) Method 305, 13th ed.;

iii) Method 7500-Ra B, 17th, 18th, 19th, 20th, 21st, or 22nd ed.; or

iv) Method 7500-Ra C, 17th, 18th, 19th, 20th, 21st, or 22nd ed.;

D) EML Procedures Manual (27th or 28th ed.), Method Ra-04;

E) USEPA Interim Radiochemical Methods: pages 13-15 or 16-23;

F) USEPA Radioactivity Methods, Methods 903.0, 903.1;

G) USEPA Radiochemical Analyses, pages 19-32;

H) USEPA Radiochemistry Procedures, Method Ra-03 or Ra-04; or

I) USGS Methods.

i) Method R-1140-76; or

ii) Method R-1141-76.

J) Georgia Radium Method.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 7500-Ra B and C as approved alternative methods for radium-226 in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods D2460-07 and D3454-05 as approved alternative methods for radium-226 in appendix A to subpart C of 40 CFR 141 on June 8, 2010 (at 75 Fed. Reg. 32295). USEPA added Standard Methods, 22nd ed., Methods 7500-Ra B and C as approved alternative methods for radium-226 in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463).

4) Radium-228.

A) Standard Methods, 17th, 18th, 19th, 20th, 21st, or 22nd ed., Method 7500-Ra D;

B) New York Radium Method;

C) USEPA Interim Radiochemical Methods, pages 24-28;

D) USEPA Radioactivity Methods, Method 904.0;

E) USEPA Radiochemical Analyses, pages 19-32;

F) USEPA Radiochemistry Procedures, Method Ra-05;

G) USGS Methods, Method R-1142-76;

H) New Jersey Radium Method; or

I) Georgia Radium Method.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 7500-Ra D as an approved alternative method for radium-228 in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods, 22nd ed., Method 7500-Ra D as an approved alternative method for radium 228 in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463).

5) Uranium.

A) Standard Methods, 17th, 18th, 19th, 20th, 21st, or 22nd ed., Method 7500-U B or 7500-U C;

B) Standard Methods, 20th or 21st ed., Method 3125;

C) ASTM Methods.

i) Method D2907-97;

ii) Method D3972-97, D3972-02, or D3972-09;

iii) Method D5174-97, D5174-02, or D5174-07;

iv) Method D5673-03, Method D5673-05, or Method D5673-10; or

v) Method D6239-09;

D) USEPA Radioactivity Methods, Methods 908.0, 908.1;

E) USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3);

F) USEPA Radiochemical Analyses, pages 33-48;

G) USEPA Radiochemistry Procedures, Method 00-07;

H) EML Procedures Manual (27th or 28th ed.), Method U-02 or U-04; or

I) USGS Methods.

i) Method R-1180-76;

ii) Method R-1181-76; or

iii) Method R-1182-76.

BOARD NOTE: If uranium (U) is determined by mass, a conversion factor of 0.67 pCi/µg of uranium must be used. This conversion factor is based on the 1:1 activity ratio of ^{234}U and ^{238}U that is characteristic of naturally occurring uranium.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 7500-U B and Method 7500-U C and ASTM Method D5673-05 as approved alternative methods for uranium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D5174-07 as an approved alternative method for uranium

in appendix A to subpart C of 40 CFR 141 on June 8, 2010 (at 75 Fed. Reg. 32295). USEPA added ASTM Method D3972-09 as an approved alternative method for uranium in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014). USEPA added Standard Methods, 21st ed., Method 3125 and ASTM Methods D5673-10 and D6329-09 as approved alternative methods for uranium in appendix A to subpart C of 40 CFR 141 on June 3, 2012 (at 77 Fed. Reg. 38523). USEPA added Standard Methods, 22nd ed., Methods 7500-U B and C as approved alternative methods for uranium in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463).

6) Radioactive Cesium.

A) ASTM Methods.

i) Method D2459-72; or

ii) Method D3649-91, D3649-98a, or D3649-06;

B) Standard Methods.

i) Method 7120, 19th, 20th, 21st, or 22nd ed.; or

ii) Method 7500-Cs B, 17th, 18th, 19th, 20th, 21st, or 22nd ed.;

C) EML Procedures Manual (27th or 28th ed.), Method 4.5.2.3;

D) USEPA Interim Radiochemical Methods, pages 4-5;

E) USEPA Radioactivity Methods, Methods 901.0, 901.1;

F) USEPA Radiochemical Analyses, pages 92-95; or

G) USGS Methods.

i) Method R-1110-76; or

ii) Method R-1111-76.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 7120 and 7500-Cs B as approved alternative methods for radioactive cesium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D3649-06 as an approved alternative method for radioactive cesium in appendix A to subpart C of 40 CFR 141 on June 8, 2010 (at 75 Fed. Reg. 32295). USEPA added Standard Methods, 22nd ed., Methods 7120 and 7500-Cs B as approved alternative methods for radioactive cesium in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463).

7) Radioactive Iodine.

A) ASTM Methods.

i) D3649-91, D3649-98a, or D3649-06; or

ii) D4785-93, D4785-98, or D4785-08;

B) Standard Methods.

i) Method 7120, 19th, 20th, 21st, or 22nd ed.;

ii) Method 7500-I B, 17th, 18th, 19th, 20th, 21st, or 22nd ed.;

iii) Method 7500-I C, 17th, 18th, 19th, 20th, 21st, or 22nd ed.; or

iv) Method 7500-I D, 17th, 18th, 19th, 20th, 21st, or 22nd ed.;

C) EML Procedures Manual (27th or 28th ed.), Method 4.5.2.3;

D) USEPA Interim Radiochemical Methods, pages 6-8 or 9-12;

E) USEPA Radiochemical Analyses, pages 92-95; or

F) USEPA Radioactivity Methods, Methods 901.1 or 902.0.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 7120 and 7500-I B, C, and D as approved alternative methods for radioactive iodine in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods D3649-06 and D4785-08 as approved alternative methods for radioactive iodine in appendix A to subpart C of 40 CFR 141 on June 8, 2010 (at 75 Fed. Reg. 32295). USEPA added Standard Methods, 22nd ed., Methods 7120 and 7500-I B, C, and D as approved alternative methods for radioactive iodine in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463).

8) Radioactive Strontium-89 & 90.

A) Standard Methods.

i) Method 303, 13th ed.; or

ii) Method 7500-Sr B, 17th, 18th, 19th, 20th, 21st, or 22nd ed.;

B) EML Procedures Manual (27th or 28th ed.), Method Sr-01 or Sr-02.

C) USEPA Interim Radiochemical Methods, pages 29-33;

D) USEPA Radioactivity Methods, Method 905.0;

E) USEPA Radiochemical Analyses, pages 65-73;

F) USEPA Radiochemistry Procedures, Method Sr-04; or

G) USGS Methods, Method R-1160-76.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 7500-Sr B as an approved alternative method for radioactive strontium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods, 22nd ed., Method 7500-Sr B as an approved alternative method for radioactive strontium 89 and 90 in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463).

9) Tritium.

A) ASTM Methods: Method D4107-91, D4107-98, or D4107-08;

B) Standard Methods.

i) Method 306, 13th ed.; or

ii) Method 7500-^{3}H B, 17th, 18th, 19th, 20th, 21st, or 22nd ed.;

C) USEPA Interim Radiochemical Methods, pages 34-37;

D) USEPA Radioactivity Methods, Method 906.0;

E) USEPA Radiochemical Analyses, pages 87-91;

F) USEPA Radiochemistry Procedures, Method H-02; or

G) USGS Methods, Method R-1171-76.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 7500-^{3}H B as an approved alternative method for tritium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D4107-08 as an approved alternative method for tritium in appendix A to subpart C of 40 CFR 141 on June 8, 2010 (at 75 Fed. Reg. 32295). USEPA added Standard Methods, 22nd ed., Method 7500-^{3}H B as an approved alternative method for tritium in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463).

10) Gamma Emitters.

A) ASTM Methods.

i) Method D3649-91, D3649-98a, or D3649-06; or

ii) Method D4785-93, D4785-00a, or D4785-08;

B) Standard Methods.

i) Method 7120, 19th, 20th, 21st, or 22nd ed.;

ii) Method 7500-Cs B, 17th, 18th, 19th, 20th, 21st, or 22nd ed.; or

iii) Method 7500-I B, 17th, 18th, 19th, 20th, 21st, or 22nd ed.;

C) EML Procedures Manual (27th or 28th ed.), Method Ga-01-R;

D) USEPA Radioactivity Methods, Methods 901.0, 901.1, or 902.0;

E) USEPA Radiochemical Analyses, pages 92-95; or

F) USGS Methods, Method R-1110-76.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 7120, 7500-Cs B, and 7500-I B as approved alternative methods for gamma emitters in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods D3649-08 and D4785-08 as approved alternative methods for tritium in appendix A to subpart C of 40 CFR 141 on June 8, 2010 (at 75 Fed. Reg. 32295). USEPA added Standard Methods, 22nd ed., Methods 7120, 7500-Cs B, and 7500-I B as approved alternative methods for gamma emitters in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463).

b) When the identification and measurement of radionuclides other than those listed in subsection (a) of this Section are required, the following methods, incorporated by reference in Section 611.102, are to be used, except in cases where alternative methods have been approved in accordance with Section 611.480:

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

2) EML Procedures Manual (27th or 28th ed.), available from USDOE, EML.

c) For the purpose of monitoring radioactivity concentrations in drinking water, the required sensitivity of the radioanalysis is defined in terms of a detection limit. The detection limit must be that concentration which can be counted with a precision of plus or minus 100 percent at the 95 percent confidence level (1.96σ, where σ is the standard deviation of the net counting rate of the sample).

1) To determine compliance with Section 611.330(b), (c), and (e), the detection limit must not exceed the concentrations set forth in the following table:

Contaminant	Detection Limit
Gross alpha particle activity	3 pCi/ℓ
Radium-226	1 pCi/ℓ
Radium-228	1 pCi/ℓ
Uranium	1 µg/ℓ

BOARD NOTE: Derived from 40 CFR 141.25(c) Table B (2013).

2) To determine compliance with Section 611.330(d), the detection limits must not exceed the concentrations listed in the following table:

Radionuclide	Detection Limit
Tritium	1,000 pCi/ℓ
Strontium-89	10 pCi/ℓ

Strontium-90	2 pCi/ℓ
Iodine-131	1 pCi/ℓ
Cesium-134	10 pCi/ℓ
Gross beta	4 pCi/ℓ
Other radionuclides	1/10 of applicable limit

BOARD NOTE: Derived from 40 CFR 141.25(c) Table C (2013).

d) To judge compliance with the MCLs listed in Section 611.330, averages of data must be used and must be rounded to the same number of significant figures as the MCL for the substance in question.

BOARD NOTE: Derived from 40 CFR 141.25 and appendix A to subpart C of 40 CFR 141 (2013).

(Source: Amended at 38 Ill. Reg. 3608, effective January 27, 2014)

Section 611.731 Gross Alpha

Monitoring requirements for gross alpha particle activity, radium-226, radium-228, and uranium are as follows:

a) A community water system (CWS) supplier must conduct initial monitoring to determine compliance with Section 611.330(b), (c), and (e). For the purposes of monitoring for gross alpha particle activity, radium-226, radium-228, uranium, and beta particle and photon radioactivity in drinking water, "detection limit" is defined as in Section 611.720(c).

1) Applicability and sampling location for an existing CWS supplier. An existing CWS supplier using groundwater, surface water, or both groundwater and surface water (for the purpose of this Section hereafter referred to as a supplier) must sample at every entry point to the distribution system that is representative of all sources being used (hereafter called a sampling point) under normal operating conditions. The supplier must take each sample at the same sampling point, unless conditions make another sampling point more representative of each source or the Agency has designated a distribution system location, in accordance with subsection (b)(2)(C) of this Section.

2) Applicability and sampling location for a new CWS supplier. A new CWS supplier or a CWS supplier that uses a new source of water must begin to conduct initial monitoring for the new source within the first quarter after initiating use of the source. A CWS supplier must conduct more frequent monitoring when ordered by the Agency in the event of possible contamination or when changes in the distribution system or treatment processes occur that may increase the concentration of radioactivity in finished water.

b) Initial monitoring: A CWS supplier must conduct initial monitoring for gross alpha particle activity, radium-226, radium-228, and uranium as follows:

1) A CWS supplier without acceptable historical data, as defined in subsection (b)(2) of this Section, is required to have collected four consecutive quarterly samples at all sampling points before December 31, 2007.

2) Grandfathering of data: A CWS supplier may use historical monitoring data collected at a sampling point to satisfy the initial monitoring requirements for that sampling point, under the following situations.

A) To satisfy initial monitoring requirements, a CWS supplier having only one entry point to the distribution system may use the monitoring data from the last compliance monitoring period that began between June 2000 and December 8, 2003.

B) To satisfy initial monitoring requirements, a CWS supplier with multiple entry points and having appropriate historical monitoring data for each entry point to the distribution system may use the monitoring data from the last compliance monitoring period that began between June 2000 and December 8, 2003.

C) To satisfy initial monitoring requirements, a CWS supplier with appropriate historical data for a representative point in the distribution system may use the monitoring data from the last compliance monitoring period that began between June 2000 and December 8, 2003, provided that the Agency finds that the historical data satisfactorily demonstrate that each entry point to the distribution system is expected to be in compliance based upon the historical data and reasonable assumptions about the variability of contaminant levels between entry points. The Agency must make its finding in writing, by a SEP issued pursuant to Section 611.110, indicating how the data conforms to the requirements of this subsection (b)(2).

3) For gross alpha particle activity, uranium, radium-226, and radium-228 monitoring, the Agency may, by a SEP issued pursuant to Section 611.110, waive the final two quarters of initial monitoring for a sampling point if the results of the samples from the previous two quarters are below the detection limit.

4) If the average of the initial monitoring results for a sampling point is above the MCL, the supplier must collect and analyze quarterly samples at that sampling point until the system has results from four consecutive quarters that are at or below the MCL, unless the supplier enters into another schedule as part of a formal compliance agreement with the Agency.

c) Reduced monitoring: The Agency may allow a CWS supplier to reduce the future frequency of monitoring from once every three years to once every six or nine years at each sampling point, based on the following criteria:

1) If the average of the initial monitoring results for each contaminant (i.e., gross alpha particle activity, uranium, radium-226, or radium-228) is below the detection limit specified in the table at Section 611.720(c)(1), the supplier must collect and analyze for that contaminant using at least one sample at that sampling point every nine years.

2) For gross alpha particle activity and uranium, if the average of the initial monitoring results for each contaminant is at or above the detection limit but at or below one-half the MCL, the supplier must collect and analyze for that contaminant using at least one sample at that sampling point every six years. For combined radium-226 and radium-228, the analytical results must be combined. If the average of the combined initial monitoring results for radium-226 and radium-228 is at or above the detection limit but at or below one-half the MCL, the supplier must collect and analyze for that contaminant using at least one sample at that sampling point every six years.

3) For gross alpha particle activity and uranium, if the average of the initial monitoring results for each contaminant is above one-half the MCL but at or below the MCL, the supplier must collect and analyze at least one sample at that sampling point every three years. For combined radium-226 and radium-228, the analytical results must be combined. If the average of the combined initial monitoring results for radium-226 and radium-228 is above one-half the MCL but at or below the MCL, the supplier must collect and analyze at least one sample at that sampling point every three years.

4) A supplier must use the samples collected during the reduced monitoring period to determine the monitoring frequency for subsequent monitoring

periods (e.g., if a supplier's sampling point is on a nine year monitoring period, and the sample result is above one-half the MCL, then the next monitoring period for that sampling point is three years).

5) If a supplier has a monitoring result that exceeds the MCL while on reduced monitoring, the supplier must collect and analyze quarterly samples at that sampling point until the supplier has results from four consecutive quarters that are below the MCL, unless the supplier enters into another schedule as part of a formal compliance agreement with the Agency.

d) Compositing: To fulfill quarterly monitoring requirements for gross alpha particle activity, radium-226, radium-228, or uranium, a supplier may composite up to four consecutive quarterly samples from a single entry point if analysis is done within a year after the first sample. The analytical results from the composited sample must be treated as the average analytical result to determine compliance with the MCLs and the future monitoring frequency. If the analytical result from the composited sample is greater than one-half the MCL, the Agency may, by a SEP issued pursuant to Section 611.110, direct the supplier to take additional quarterly samples before allowing the supplier to sample under a reduced monitoring schedule.

e) A gross alpha particle activity measurement may be substituted for the required radium-226 measurement, provided that the measured gross alpha particle activity does not exceed 5 pCi/ℓ. A gross alpha particle activity measurement may be substituted for the required uranium measurement provided that the measured gross alpha particle activity does not exceed 15 pCi/ℓ.

1) The gross alpha measurement must have a confidence interval of 95% (1.65σ, where σ is the standard deviation of the net counting rate of the sample) for radium-226 and uranium.

2) When a supplier uses a gross alpha particle activity measurement in lieu of a radium-226 or uranium measurement, the gross alpha particle activity analytical result will be used to determine the future monitoring frequency for radium-226 or uranium.

3) If the gross alpha particle activity result is less than detection, one-half the detection limit will be used to determine compliance and the future monitoring frequency.

BOARD NOTE: Subsections (a) through (e) derive from 40 CFR 141.26(a) (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.732 Beta Particle and Photon Radioactivity

Monitoring and compliance requirements for manmade radioactivity. To determine compliance with the maximum contaminant levels in Section 611.330(d) for beta particle and photon radioactivity, a supplier must monitor at a frequency as follows:

a) A CWS supplier (either a surface water or groundwater supplier) designated by the Agency, by a SEP issued pursuant to Section 611.110, as vulnerable must sample for beta particle and photon radioactivity. A supplier must collect quarterly samples for beta emitters and annual samples for tritium and strontium-90 at each entry point to the distribution system (hereafter called a sampling point), beginning within one quarter after being notified by the Agency. A supplier already designated by the Agency must continue to sample until the Agency reviews and either reaffirms or removes the designation, by a SEP issued pursuant to Section 611.110.

1) If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity at a sampling point has a running annual average (computed quarterly) less than or equal to 50 pCi/ℓ (screening level), the Agency may reduce the frequency of monitoring at that sampling point to once every three years. A supplier must collect all samples required in subsection (a) of this Section during the reduced monitoring period.

2) For a supplier in the vicinity of a nuclear facility, the Agency may allow the CWS supplier to utilize environmental surveillance data collected by the nuclear facility in lieu of monitoring at the supplier's entry points, where the Agency determines if such data is applicable to a particular water system, by a SEP issued pursuant to Section 611.110. In the event that there is a release from a nuclear facility, a supplier that is using surveillance data must begin monitoring at the community water supplier's entry points in accordance with subsection (b)(1) of this Section.

b) A CWS supplier (either a surface water or groundwater supplier) designated by the Agency, by a SEP issued pursuant to Section 611.110, as utilizing waters contaminated by effluents from nuclear facilities must sample for beta particle and photon radioactivity. A supplier must collect quarterly samples for beta emitters and iodine-131 and annual samples for tritium and strontium-90 at each entry point to the distribution system (hereafter called a sampling point), beginning within one quarter after being notified by the Agency. A supplier already designated by the Agency as a supplier using waters contaminated by effluents from nuclear facilities must continue to sample until the Agency reviews and either reaffirms or removes the designation, by a SEP issued pursuant to Section 611.110.

1) Quarterly monitoring for gross beta particle activity must be based on the analysis of monthly samples or the analysis of a composite of three monthly samples.

BOARD NOTE: In corresponding 40 CFR 141.26(b)(2)(i), USEPA recommends the use of a composite of three monthly samples.

2) For iodine-131, a composite of five consecutive daily samples must be analyzed once each quarter. The Agency must require, by a SEP issued

pursuant to Section 611.110, more frequent monitoring for iodine-131 where iodine-131 is identified in the finished water.

3) Annual monitoring for strontium-90 and tritium must be conducted by means of the analysis of a composite of four consecutive quarterly samples or analysis of four quarterly samples.

BOARD NOTE: In corresponding 40 CFR 141.26(b)(2)(iii), USEPA recommends the analysis of four consecutive quarterly samples.

4) If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity at a sampling point has a running annual average (computed quarterly) less than or equal to 15 pCi/ℓ, the Agency may, by a SEP issued pursuant to Section 611.110, reduce the frequency of monitoring at that sampling point to once every three years. The supplier must collect the same type of samples required in subsection (b) of this Section during the reduced monitoring period.

5) For a supplier in the vicinity of a nuclear facility, the Agency may allow the CWS to utilize environmental surveillance data collected by the nuclear facility in lieu of monitoring at the system's entry points, where the Agency determines, by a SEP issued pursuant to Section 611.110, that such data is applicable to the particular water system. In the event that there is a release from a nuclear facility, a supplier that uses such surveillance data must begin monitoring at the CWS's entry points in accordance with subsection (b) of this Section.

c) A CWS supplier designated by the Agency to monitor for beta particle and photon radioactivity can not apply to the Agency for a waiver from the monitoring frequencies specified in subsection (a) or (b) of this Section.

d) A CWS supplier may analyze for naturally occurring potassium-40 beta particle activity from the same or equivalent sample used for the gross beta particle activity analysis. A supplier is allowed to subtract the potassium-40 beta particle activity value from the total gross beta particle activity value to determine if the screening level is exceeded. The potassium-40 beta particle activity must be calculated by multiplying elemental potassium concentrations (in mg/ℓ) by a factor of 0.82.

e) If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity exceeds the appropriate screening level, an analysis of the sample must be performed to identify the major radioactive constituents present in the sample and the appropriate doses must be calculated and summed to determine compliance with Section 611.330(d)(1), using the formula in Section 611.330(d)(2). Doses must also be calculated and combined for measured levels of tritium and strontium to determine compliance.

f) A supplier must monitor monthly at the sampling points that exceeds the maximum contaminant level in Section 611.330(d) beginning the month after the exceedence occurs. A supplier must continue monthly monitoring until the supplier has established, by a rolling average of three monthly samples, that the MCL is being met. A supplier that establishes that the MCL is being met must

return to quarterly monitoring until it meets the requirements set forth in subsection (a)(1) or (b)(4) of this Section.

BOARD NOTE: Derived from 40 CFR 141.26(b) (2014).

(Source: Amended at 39 Ill. Reg. 3713, effective March 13, 2015)

Section 611.733 General Monitoring and Compliance Requirements

The following requirements apply effective December 8, 2003:

a) The Agency may, by a SEP issued pursuant to Section 611.110, require more frequent monitoring than specified in Sections 611.731 and 611.732 or may require confirmation samples. The results of the initial and confirmation samples will be averaged for use in a compliance determination.

b) Each PWS supplier must monitor at the time designated by the Agency during each compliance period.

c) Compliance: compliance with Section 611.330(b) through (e) must be determined based on the analytical results obtained at each sampling point. If one sampling point is in violation of an MCL, the supplier is in violation of the MCL.

1) For a supplier monitoring more than once per year, compliance with the MCL is determined by a running annual average at each sampling point. If the average of any sampling point is greater than the MCL, then the supplier is out of compliance with the MCL.

2) For a supplier monitoring more than once per year, if any sample result would cause the running average to exceed the MCL at any single sampling point, the supplier is immediately out of compliance with the MCL.

3) a supplier must include all samples taken and analyzed under the provisions of this Section and Sections 611.731 and 611.732 in determining compliance, even if that number is greater than the minimum required.

4) If a supplier does not collect all required samples when compliance is based on a running annual average of quarterly samples, compliance will be based on the running average of the samples collected.

5) If a sample result is less than the detection limit, zero will be used to calculate the annual average, unless a gross alpha particle activity is being used in lieu of radium-226 or uranium. If the gross alpha particle activity result is less than detection, one-half the detection limit will be used to calculate the annual average.

d) The Agency may, by a SEP issued pursuant to Section 611.110, allow the supplier to delete results of obvious sampling or analytic errors.

e) If the MCL for radioactivity set forth in Section 611.330 (b) through (e) is exceeded, the operator of a CWS must give notice to the Agency pursuant to Section 611.840 and to the public, as required by Subpart V of this Part.

BOARD NOTE: Derived from 40 CFR 141.26(c) (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

SUBPART R: ENHANCED FILTRATION AND DISINFECTION: SYSTEMS THAT SERVE 10,000 OR MORE PEOPLE

Section 611.740 General Requirements

a) The requirements of this Subpart R are National Primary Drinking Water Regulations. These regulations establish requirements for filtration and disinfection that are in addition to standards under which filtration and disinfection are required under Subpart B of this Part. The requirements of this Subpart R are applicable to a Subpart B system supplier serving 10,000 or more persons, unless otherwise specified in this Subpart R. The regulations in this Subpart R establish or extend treatment technique requirements in lieu of maximum contaminant levels (MCLs) for the following contaminants: Giardia lamblia, viruses, heterotrophic plate count bacteria, Legionella, Cryptosporidium, and turbidity. Each Subpart B system supplier serving 10,000 or more persons must provide treatment of its source water that complies with these treatment technique requirements and are in addition to those identified in Section 611.220. The treatment technique requirements consist of installing and properly operating water treatment processes that reliably achieve the following:

1) At least 99 percent (2-log) removal of Cryptosporidium 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 for filtered systems, or Cryptosporidium control under the watershed control plan for unfiltered systems; and

2) Compliance with the profiling and benchmark requirements under the provisions of Section 611.742.

b) A PWS supplier subject to the requirements of this Subpart R is considered to be in compliance with the requirements of subsection (a) of this Section if the following is true:

1) It meets the requirements for avoiding filtration in Sections 611.232 and 611.741, and the disinfection requirements in Sections 611.240 and 611.742; or

2) It meets the applicable filtration requirements in either Section 611.250 or Section 611.743, and the disinfection requirements in Sections 611.240 and 611.742.

c) A supplier must not begin construction of uncovered finished water storage facilities after February 16, 1999.

d) A Subpart B system supplier that did not conduct optional monitoring under Section 611.742 because it served fewer than 10,000 persons when such monitoring was required, but which serves more than 10,000 persons prior to January 1, 2005 must comply with Sections 611.740, 611.741, 611.743, 611.744, and 611.745. Such a supplier must also obtain the approval of the Agency to establish a disinfection benchmark. A supplier that decides to make a significant change to its disinfection practice, as described in Section 611.742(c)(1)(A) through (c)(1)(D) must obtain the approval of the Agency prior to making such a change.

BOARD NOTE: Derived from 40 CFR 141.170 (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.741 Standards for Avoiding Filtration

In addition to the requirements of Section 611.232, a PWS supplier subject to the requirements of this Subpart R that does not provide filtration must meet all of the conditions of subsections (a) and (b) of this Section.

a) Site-specific conditions. In addition to site-specific conditions in Section 611.232, a supplier must maintain the watershed control program under Section 611.232(b) to minimize the potential for contamination by Cryptosporidium oocysts in the source water. The watershed control program must, for Cryptosporidium, do the following:

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

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

b) During the onsite inspection conducted under the provisions of Section 611.232(c), the Agency must determine whether the watershed control program

established under Section 611.232(b) is adequate to limit potential contamination by Cryptosporidium oocysts. The adequacy of the program must be based on the comprehensiveness of the watershed review; the effectiveness of the supplier's program to monitor and control detrimental activities occurring in the watershed; and the extent to which the water supplier has maximized land ownership or controlled land use within the watershed.

BOARD NOTE: Derived from 40 CFR 141.171 (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.742 Disinfection Profiling and Benchmarking

a) Determination of a supplier required to profile. A PWS supplier subject to the requirements of this Subpart R must determine its TTHM annual average using the procedure in subsection (a)(1) of this Section and its HAA5 annual average using the procedure in subsection (a)(2) of this Section. The annual average is the arithmetic average of the quarterly averages of four consecutive quarters of monitoring.

1) The TTHM annual average that is used must be the annual average during the same period as the HAA5 annual average.

A) A supplier that collected data under the provisions of 40 CFR 141 Subpart M (Information Collection Rule) must use the results of the samples collected during the last four quarters of required monitoring under former 40 CFR 141.42 (1995).

B) A supplier that uses "grandfathered" HAA5 occurrence data that meet the provisions of subsection (a)(2)(B) of this Section must use TTHM data collected at the same time under the provisions of former Section 611.680.

C) A supplier that uses HAA5 occurrence data that meet the provisions of subsection (a)(2)(C)(i) of this Section must use TTHM data collected at the same time under the provisions of Section 611.310 and former Section 611.680.

2) The HAA5 annual average that is used must be the annual average during the same period as the TTHM annual average.

A) A supplier that collected data under the provisions of 40 CFR 141 Subpart M (Information Collection Rule) must use the results of the samples collected during the last four quarters of required monitoring under former 40 CFR 141.42 (1995).

B) A supplier that has collected four quarters of HAA5 occurrence data that meets the routine monitoring sample number and location requirements for TTHM in former Section 611.680 and handling and analytical method requirements of former Section 611.685 may use that data to determine whether the requirements of this Section apply.

C) A supplier that had not collected four quarters of HAA5 occurrence data that meets the provisions of either subsection (a)(2)(A) or (a)(2)(B) of this Section by March 31, 1999 must do either of the following:

i) Conduct monitoring for HAA5 that meets the routine monitoring sample number and location requirements for TTHM in former Section 611.680 and handling and analytical method requirements of former Section 611.685 to determine the HAA5 annual average and whether the requirements of subsection (b) of this Section apply; or

ii) Comply with all other provisions of this Section as if the HAA5 monitoring had been conducted and the results required compliance with subsection (b) of this Section.

3) The supplier may request that the Agency approve a more representative annual data set than the data set determined under subsection (a)(1) or (a)(2) of this Section for the purpose of determining applicability of the requirements of this Section.

4) The Agency may require that a supplier use a more representative annual data set than the data set determined under subsection (a)(1) or (a)(2) of this Section for the purpose of determining the applicability of the requirements of this Section.

5) The supplier must submit data to the Agency on the schedule in subsections (a)(5)(A) through (a)(5)(E) of this Section.

A) A supplier that collected TTHM and HAA5 data under the provisions of 40 CFR Subpart M (Information Collection Rule), as required by subsections (a)(1)(A) and (a)(2)(A) of this Section, must have submitted the results of the samples collected during the last 12 months of required monitoring under former Section 611.685 not later than December 31, 1999.

B) A supplier that had collected four consecutive quarters of HAA5 occurrence data that meets the routine monitoring sample number and location for TTHM in former 40 CFR 141.42 (1994), and handling and analytical method requirements of former Section 611.685, as allowed by subsections (a)(1)(B) and (a)(2)(B) of this Section, must have submitted that data to the Agency not later than April 30, 1999. Until the Agency has approved the data, the supplier must conduct monitoring for HAA5 using the monitoring requirements specified under subsection (a)(2)(C) of this Section.

C) A supplier that conducted monitoring for HAA5 using the monitoring requirements specified by subsections (a)(1)(C) and (a)(2)(C)(i) of this Section must have submitted TTHM and HAA5 data not later than March 31, 2000.

D) A supplier that elected to comply with all other provisions of this Section as if the HAA5 monitoring had been conducted and the results required compliance with this Section, as allowed under

subsection (a)(2)(C)(ii) of this Section, must have notified the Agency in writing of its election not later than December 31, 1999.

E) If the supplier elected to request that the Agency approve a more representative data set than the data set determined under subsection (a)(2)(A) of this Section, the supplier must have submitted this request in writing not later than December 31, 1999.

6) Any supplier that had either a TTHM annual average ≥ (greater than or equal to) 0.064 mg/ℓ or an HAA5 annual average ≥ 0.048 mg/ℓ during the period identified in subsections (a)(1) and (a)(2) of this Section must comply with subsection (b) of this Section.

BOARD NOTE: Former Sections 611.680 and 611.685 originally derived from 40 CFR 141.30(a), (b), and (e). USEPA removed 40 CFR 141.30 in its entirety in 2006. The Board repealed former Section 611.685 in 2007 and Section 611.680 in 2012. The references to former Sections 611.680 and 611.685 in this subsection (a) relate to use of existing monitoring data collected under those provisions as they existed before their repeal.

b) Disinfection profiling.

1) Any supplier that meets the standards in subsection (a)(6) of this Section must have developed a disinfection profile of its disinfection practice for a period of up to three years. The Agency must have determined the period of the disinfection profile, with a minimum period of one year.

2) The supplier must must have monitored daily for a period of 12 consecutive calendar months to determine the total logs of inactivation for each day of operation, based on the $CT_{99.9}$ values in Appendix B of this Part, as appropriate, through the entire treatment plant. The supplier must have begun this monitoring not later than April 1, 2000. As a minimum, the supplier with a single point of disinfectant application prior to entrance to the distribution system must have conducted the monitoring in subsections (b)(2)(A) through (b)(2)(D) of this Section. A supplier with more than one point of disinfectant application must have conducted the monitoring in subsections (b)(2)(A) through (b)(2)(D) of this Section for each disinfection segment. The supplier must have monitored the parameters necessary to determine the total inactivation ratio, using analytical methods in Section 611.531, as follows:

A) The temperature of the disinfected water must have been measured once per day at each residual disinfectant concentration sampling point during peak hourly flow.

B) If the supplier uses chlorine, the pH of the disinfected water must have been measured once per day at each chlorine residual disinfectant concentration sampling point during peak hourly flow.

C) The disinfectant contact times (“T”) must have been determined for each day during peak hourly flow.

D) The residual disinfectant concentrations (“C”) of the water before or at the first customer and prior to each additional point of

disinfection must have been measured each day during peak hourly flow.

3) In lieu of the monitoring conducted under the provisions of subsection (b)(2) of this Section to develop the disinfection profile, the supplier may have elected to meet the requirements of subsection (b)(3)(A) of this Section. In addition to the monitoring conducted under the provisions of subsection (b)(2) of this Section to develop the disinfection profile, the supplier may have elected to meet the requirements of subsection (b)(3)(B) of this Section.

A) A PWS supplier that had three years of existing operational data may have submitted that data, a profile generated using that data, and a request that the Agency approve use of that data in lieu of monitoring under the provisions of subsection (b)(2) of this Section not later than March 31, 2000. The Agency must have determined whether the operational data is substantially equivalent to data collected under the provisions of subsection (b)(2) of this Section. The data must also have been representative of Giardia lamblia inactivation through the entire treatment plant and not just of certain treatment segments. If the Agency determined that the operational data was substantially equivalent, the Agency must have approved the request. Until the Agency approved this request, the system was required to conduct monitoring under the provisions of subsection (b)(2) of this Section.

B) In addition to the disinfection profile generated under subsection (b)(2) of this Section, a PWS supplier that had existing operational data may have used that data to develop a disinfection profile for additional years. The Agency must have determined whether the operational data was substantially equivalent to data collected under the provisions of subsection (b)(2) of this Section. The data must also have been representative of inactivation through the entire treatment plant and not just of certain treatment segments. If the Agency determined that the operational data was substantially equivalent, the systems may have used these additional yearly disinfection profiles to develop a benchmark under the provisions of subsection (c) of this Section.

4) The supplier must calculate the total inactivation ratio as follows:

A) If the supplier uses only one point of disinfectant application, the system may determine the total inactivation ratio for the disinfection segment based on either of the methods in subsection (b)(4)(A)(i) or (b)(4)(A)(ii) of this Section.

i) Determine one inactivation ratio ($CT_{calc}/CT_{99.9}$) before or at the first customer during peak hourly flow.

ii) Determine successive $CT_{calc}/CT_{99.9}$ values, representing sequential inactivation ratios, between the point of disinfectant application and a point before or at the first

customer during peak hourly flow. Under this alternative, the supplier must calculate the total inactivation ratio ($\Sigma(CT_{calc}/CT_{99.9})$) by determining $CT_{calc}/CT_{99.9}$ for each sequence and then adding the $CT_{calc}/CT_{99.9}$ values together to determine $\Sigma(CT_{calc}/CT_{99.9})$.

B) If the supplier uses more than one point of disinfectant application before the first customer, the system must determine the CT value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow. The ($CT_{calc}/CT_{99.9}$) value of each segment and ($\Sigma(CT_{calc}/CT_{99.9})$) must be calculated using the method in subsection (b)(4)(A) of this Section.

C) The supplier must determine the total logs of inactivation by multiplying the value calculated in subsection (b)(4)(A) or (b)(4)(B) of this Section by 3.0.

5) A supplier that uses either chloramines or ozone for primary disinfection must also calculate the logs of inactivation for viruses using a method approved by the Agency.

6) The supplier must retain disinfection profile data in graphic form, as a spreadsheet, or in some other format acceptable to the Agency for review as part of sanitary surveys conducted by the Agency.

c) Disinfection benchmarking.

1) Any supplier required to develop a disinfection profile under the provisions of subsections (a) and (b) of this Section and that decides to make a significant change to its disinfection practice must consult with the Agency prior to making such change. Significant changes to disinfection practice are the following:

A) Changes to the point of disinfection;

B) Changes to the disinfectants used in the treatment plant;

C) Changes to the disinfection process; and

D) Any other modification identified by the Agency.

2) Any supplier that is modifying its disinfection practice must calculate its disinfection benchmark using the procedure specified in subsections (c)(2)(A) and (c)(2)(B) of this Section.

A) For each year of profiling data collected and calculated under subsection (b) of this Section, the supplier must determine the lowest average monthly Giardia lamblia inactivation in each year of profiling data. The supplier must determine the average Giardia lamblia inactivation for each calendar month for each year of profiling data by dividing the sum of daily Giardia lamblia of inactivation by the number of values calculated for that month.

B) The disinfection benchmark is the lowest monthly average value (for systems with one year of profiling data) or average of lowest monthly average values (for systems with more than one year of

profiling data) of the monthly logs of Giardia lamblia inactivation in each year of profiling data.

3) A supplier that uses either chloramines or ozone for primary disinfection must also calculate the disinfection benchmark for viruses using a method approved by the Agency.

4) The supplier must submit information in subsections (c)(4)(A) through (c)(4)(C) of this Section to the Agency as part of its consultation process.

A) A description of the proposed change;

B) The disinfection profile for Giardia lamblia (and, if necessary, viruses) under subsection (b) of this Section and benchmark as required by subsection (c)(2) of this Section; and

C) An analysis of how the proposed change will affect the current levels of disinfection.

BOARD NOTE: Derived from 40 CFR 141.172 (2014).

(Source: Amended at 39 Ill. Reg. 3713, effective March 13, 2015)

Section 611.743 Filtration

A PWS supplier subject to the requirements of this Subpart R that did not meet all of the standards in this Subpart R and Subpart B of this Part for avoiding filtration must have provided treatment consisting of both disinfection, as specified in Section 611.242, and filtration treatment that complies with the requirements of subsection (a) or (b) of this Section or Section 611.250 (b) or (c) by December 31, 2001.

a) Conventional filtration treatment or direct filtration.

1) For a supplier 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 0.3 NTU in at least 95 percent of the measurements taken each month, measured as specified in Sections 611.531 and 611.533.

2) The turbidity level of representative samples of a supplier's filtered water must at no time exceed 1 NTU, measured as specified in Sections 611.531 and 611.533.

3) A supplier that uses lime softening may acidify representative samples prior to analysis using a protocol approved by the Agency.

b) Filtration technologies other than conventional filtration treatment, direct filtration, slow sand filtration, or diatomaceous earth filtration. A PWS supplier may use a filtration technology not listed in subsection (a) of this Section or in Section 611.250 (b) or (c) if it demonstrates 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(b),

consistently achieves 99.9 percent removal or inactivation of Giardia lamblia cysts and 99.99 percent removal or inactivation of viruses, and 99 percent removal of Cryptosporidium oocysts, and the Agency approves the use of the filtration technology. For each approval, the Agency must set turbidity performance requirements that the supplier must meet at least 95 percent of the time and that the supplier must not exceed at any time at a level that consistently achieves 99.9 percent removal or inactivation of Giardia lamblia cysts, 99.99 percent removal or inactivation of viruses, and 99 percent removal of Cryptosporidium oocysts.

BOARD NOTE: Derived from 40 CFR 141.173 (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.744 Filtration Sampling Requirements

a) Monitoring requirements for systems using filtration treatment. In addition to monitoring required by Sections 611.531 and 611.533, a PWS subject to the requirements of this Subpart R that provides conventional filtration treatment or direct filtration must conduct continuous monitoring of turbidity for each individual filter using an approved method in Section 611.531(a) and must calibrate turbidimeters using the procedure specified by the manufacturer. Systems must record the results of individual filter monitoring every 15 minutes.

b) If there is a failure in the continuous turbidity monitoring equipment, the system must conduct grab sampling every four hours in lieu of continuous monitoring, until the turbidimeter is back online. A system must repair the equipment within a maximum of five working days after failure.

BOARD NOTE: Derived from 40 CFR 141.174 (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.745 Reporting and Recordkeeping Requirements

In addition to the reporting and recordkeeping requirements in Sections 611.261 and 611.262, a PWS supplier subject to the requirements of this Subpart R that provides conventional filtration treatment or direct filtration must report monthly to the Agency the information specified in subsections (a) and (b) of this Section. In addition to the reporting and recordkeeping requirements in Sections 611.261 and 611.262, a PWS supplier subject to the requirements of this Subpart R that provides filtration approved under Section 611.743(b) must report monthly to the Agency the information specified in subsection (a) of this Section. The reporting in subsection (a) of this Section is in lieu of the reporting specified in Section 611.262(a).

a) Turbidity measurements, as required by Section 611.743, must be reported within ten days after the end of each month the system serves water to the public. Information that must be reported is the following:

1) The total number of filtered water turbidity measurements taken during the month.

2) The number and percentage of filtered water turbidity measurements taken during the month that are less than or equal to the turbidity limits specified in Section 611.743(a) or (b).

3) The date and value of any turbidity measurements taken during the month that exceed 1 NTU for a supplier using conventional filtration treatment or direct filtration, or that exceed the maximum level under Section 611.743(b).

b) A supplier must maintain the results of individual filter monitoring taken under Section 611.744 for at least three years. A supplier must report that it has conducted individual filter turbidity monitoring under Section 611.744 within ten days after the end of each month the system serves water to the public. A supplier must report individual filter turbidity measurement results taken under Section 611.744 within ten days after the end of each month the supplier serves water to the public only if measurements demonstrate one or more of the conditions in subsections (b)(1) through (b)(4) of this Section. A supplier that uses lime softening may apply to the Agency for alternative exceedance levels for the levels specified in subsections (b)(1) through (b)(4) of this Section if they can demonstrate that higher turbidity levels in individual filters are due to lime carryover only and not due to degraded filter performance.

1) For any individual filter that has a measured turbidity level of greater than 1.0 NTU in two consecutive measurements taken 15 minutes apart, the supplier must report the filter number, the turbidity measurement, and the dates on which the exceedance occurred. In addition, the supplier must either produce a filter profile for the filter within seven days after the exceedance (if the supplier is not able to identify an obvious reason for the abnormal filter performance) and report that the profile has been produced or report the obvious reason for the exceedance.

2) For any individual filter that has a measured turbidity level of greater than 0.5 NTU in two consecutive measurements taken 15 minutes apart at the end of the first four hours of continuous filter operation after the filter has been backwashed or otherwise taken offline, the supplier must report the filter number, the turbidity, and the dates on which the exceedance occurred. In addition, the supplier must either produce a filter profile for the filter within seven days after the exceedance (if the supplier is not able to identify an obvious reason for the abnormal filter performance) and

report that the profile has been produced or report the obvious reason for the exceedance.

3) For any individual filter that has a measured turbidity level of greater than 1.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each of three consecutive months, the supplier must report the filter number, the turbidity measurement, and the dates on which the exceedance occurred. In addition, the supplier must conduct a self-assessment of the filter within 14 days after the exceedance and report that the self-assessment was conducted. The self-assessment must consist of at least the following components: assessment of filter performance; development of a filter profile; identification and prioritization of factors limiting filter performance; assessment of the applicability of corrections; and preparation of a filter self-assessment report.

4) For any individual filter that has a measured turbidity level of greater than 2.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each of two consecutive months, the supplier must report the filter number, the turbidity measurement, and the dates on which the exceedance occurred. In addition, the supplier must arrange for the conduct of a comprehensive performance evaluation by the Agency or a third party approved by the Agency no later than 30 days following the exceedance and have the evaluation completed and submitted to the Agency no later than 90 days following the exceedance.

c) Additional reporting requirements.

1) If at any time the turbidity exceeds 1 NTU in representative samples of filtered water in a system using conventional filtration treatment or direct filtration, the supplier must consult with the Agency as soon as possible, but no later than the end of the next business day.

2) If at any time the turbidity in representative samples of filtered water exceeds the maximum level set by the Agency under Section 611.743(b) for filtration technologies other than conventional filtration treatment, direct filtration, slow sand filtration, or diatomaceous earth filtration, the supplier must inform the Agency as soon as possible, but no later than the end of the next business day.

BOARD NOTE: Derived from 40 CFR 141.175 (2014).

(Source: Amended at 39 Ill. Reg. 15352, effective November 13, 2015)

SUBPART S: GROUNDWATER RULE

Section 611.800 General Requirements and Applicability

a) Scope of this Subpart S. The requirements of this Subpart S constitute NPDWRs.

b) Applicability. This Subpart S applies to all PWS suppliers that use groundwater, except that it does not apply to public water systems that combine all of their groundwater with surface water or with groundwater under the direct influence of surface water prior to treatment pursuant to Subpart B. For the purposes of this Subpart S, "GWS" is defined as any PWS that meets this applicability statement, including a consecutive system receiving finished groundwater.

c) General requirements. A supplier subject to this Subpart S must comply with the following requirements:

1) Sanitary survey information requirements for all GWS suppliers, as described in Section 611.801.

2) Microbial source water monitoring requirements for GWS suppliers that do not treat all of their groundwater to at least 99.99 percent (4-log) treatment of viruses (using inactivation, removal, or an Agency-approved combination of 4-log virus inactivation and removal) before or at the first customer, as described in Section 611.802.

3) Treatment technique requirements, described in Section 611.803, that apply to GWS suppliers that have fecally contaminated source waters, as determined by source water monitoring conducted pursuant to Section 611.802, or which have significant deficiencies that are identified by the Agency, by a SEP issued pursuant to Section 611.110, or which are identified by USEPA pursuant to SDWA section 1445 (42 USC 300j-4). A GWS supplier with fecally contaminated source water or with significant deficiencies subject to the treatment technique requirements of this Subpart S must implement one or more of the following corrective action options: correct all significant deficiencies; provide an alternate source of water; eliminate the source of contamination; or provide treatment that reliably achieves at least 4-log treatment of viruses (using inactivation, removal, or an Agency-approved combination of 4-log virus inactivation and removal) before or at the first customer.

4) A GWS supplier that provides at least 4-log treatment of viruses (using inactivation, removal, or an Agency-approved combination of 4-log virus inactivation and removal) before or at the first customer is required to conduct compliance monitoring to demonstrate treatment effectiveness, as described in Section 611.803(b).

5) If requested by the Agency, a GWS supplier must provide the Agency with any existing information that will enable the Agency to perform a hydrogeologic sensitivity assessment.

BOARD NOTE: The Board moved the definition of "hydrogeologic sensitivity assessment" to the definitions provision of this Part: Section 611.101.

d) Compliance date. A GWS supplier must comply, unless otherwise noted, with the requirements of this Subpart S beginning December 1, 2009.

BOARD NOTE: Derived from 40 CFR 141.400, as added at 71 Fed. Reg. 65574 (Nov. 8, 2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.801 Sanitary Surveys for GWS Suppliers

a) A GWS supplier must provide the Agency, at the Agency's request, any existing information that will enable the Agency to conduct a sanitary survey.

b) For the purposes of this Subpart S, a "sanitary survey," as conducted by the Agency, includes but is not limited to, an onsite review of the delineated WHPAs (identifying sources of contamination within the WHPAs and evaluations of the hydrogeologic sensitivity of the delineated WHPAs conducted under source water assessments or utilizing other relevant information where available), facilities, equipment, operation, maintenance, and monitoring compliance of a public water system to evaluate the adequacy of the system, its sources and operations and the distribution of safe drinking water.

c) The sanitary survey must include an evaluation of the applicable components listed in subsections (c)(1) through (c)(8) of this Section:

1) Source,

2) Treatment,

3) Distribution system,

4) Finished water storage,

5) Pumps, pump facilities, and controls,

6) Monitoring, reporting, and data verification,

7) System management and operation, and

8) Operator compliance with Agency requirements.

d) The Agency must repeat the sanitary survey as follows:

1) The Agency must conduct a sanitary survey that addresses the eight sanitary survey components listed in subsection (c) of this Section no less frequently than every three years for a CWS supplier, except as provided in subsection (d)(3) of this Section, and every five years for a non-CWS supplier. The Agency may conduct more frequent sanitary surveys for any supplier. The initial sanitary survey for each community water system must be conducted before December 31, 2012, unless the supplier meets the requirements of subsection (d)(3) of this Section. The initial sanitary survey for each CWS supplier that meets the requirements of subsection (d)(3) of this Section and for each non-CWS supplier must be conducted before December 31, 2014. The sanitary survey must include an evaluation of each of the elements set forth in subsection (c) of this Section, as applicable.

2) The Agency may use a phased review process to meet the requirements of subsection (d)(1) of this Section if all the applicable elements of subsection (c) of this Section are evaluated within the required interval.

3) The Agency may conduct sanitary surveys once every five years for community water systems under any of the following circumstances:

A) If the system either provides at least 4-log treatment of viruses (using inactivation, removal, or an Agency-approved combination of 4-log inactivation and removal) before or at the first customer for all its groundwater sources; or

B) If the supplier has an outstanding performance record, as determined by the Agency and documented in previous sanitary surveys, and the supplier has no history of total coliform MCL or monitoring violations under Sections 611.521 through 611.527 since the last sanitary survey.

4) This subsection (d)(4) corresponds with 40 CFR 142.16(o)(2)(iv), which imposes requirements for describing the elements of the State's regulatory system. This statement maintains structural consistency with the corresponding federal provision.

5) The Agency must provide a GWS supplier with written notice by a SEP issued pursuant to Section 611.110 that describes any significant

deficiency which it has found no later than 30 days after the Agency has identified the significant deficiency. The notice may specify corrective actions and deadlines for completion of corrective actions. The Agency may provide the written notice at the time of the sanitary survey.

BOARD NOTE: Subsections (a) through (c) are derived from 40 CFR 141.401 (2007). Subsection (d) is derived from 40 CFR 142.16(o)(2) (2007).

(Source: Amended at 33 Ill. Reg. 633, effective December 30, 2008)

Section 611.802 Groundwater Source Microbial Monitoring and Analytical Methods

a) Triggered source water monitoring.

1) General requirements. A GWS supplier must conduct triggered source water monitoring if the conditions in either subsections (a)(1)(A) and (a)(1)(B) or (a)(1)(A) and (a)(1)(C) of this Section exist.

A) The supplier does not provide at least 4-log treatment of viruses (using inactivation, removal, or an Agency-approved combination of 4-log virus inactivation and removal) before or at the first customer for each groundwater source.

B) Until March 31, 2016, the supplier is notified that a sample collected pursuant to Section 611.521 is total coliform-positive, and the sample is not invalidated by the Agency pursuant to Section 611.523.

C) Beginning April 1, 2016, the system is notified that a sample collected under Sections 611.1054 through 611.1057 is total coliform-positive and the sample is not invalidated under Section 611.1053(c).

2) Sampling requirements. A GWS supplier must collect, within 24 hours after notification of the total coliform-positive sample, at least one groundwater source sample from each groundwater source in use at the time the total coliform-positive sample was collected pursuant to Section 611.521 until March 31, 2016, or collected pursuant to Sections 611.1054 through 611.1057 beginning April 1, 2016, except as provided in subsection (a)(2)(B) of this Section.

A) The Agency may, by a SEP issued pursuant to Section 611.110, extend the 24-hour time limit on a case-by-case basis if it determines that the supplier cannot collect the groundwater source water sample within 24 hours due to circumstances beyond the

supplier's control. In the case of an extension, the Agency must specify how much time the supplier has to collect the sample.

B) If approved by the Agency, a supplier with more than one groundwater source may meet the requirements of this subsection (a)(2) by sampling a representative groundwater source or sources. If directed by the Agency by a SEP issued pursuant to Section 611.110, the supplier must submit for Agency approval a triggered source water monitoring plan that identifies one or more groundwater sources that are representative of each monitoring site in the system's sample siting plan pursuant to Section 611.521 and that the system intends to use for representative sampling pursuant to this subsection (a).

C) Until March 31, 2016, a GWS supplier that serves 1,000 or fewer people may use a repeat sample collected from a groundwater source to meet both the requirements of Section 611.522 and to satisfy the monitoring requirements of subsection (a)(2) of this Section for that groundwater source only if the Agency approves the use of E. coli as a fecal indicator for source water monitoring pursuant to this subsection (a) by a SEP issued pursuant to Section 611.110. If the repeat sample collected from the groundwater source is E.coli positive, the system must comply with subsection (a)(3) of this Section.

D) Beginning April 1, 2016, a GWS supplier that serves 1,000 or fewer people may use a repeat sample collected from a groundwater source to meet both the requirements of Subpart AA of this Part and to satisfy the monitoring requirements of subsection (a)(2) of this Section for that groundwater source only if the Agency, by a SEP issued pursuant to Section 611.110, approves the use of E. coli as a fecal indicator for source water monitoring pursuant to this subsection (a) and approves the use of a single sample for meeting both the triggered source water monitoring requirements in this subsection (a) and the repeat monitoring requirements in Section 611.1058. If the repeat sample collected from the groundwater source is E. coli-positive, the system must comply with subsection (a)(3) of this Section.

3) Additional requirements. If the Agency does not require corrective action pursuant to Section 611.803(a)(2) for a fecal indicator-positive source water sample collected pursuant to subsection (a)(2) of this Section that is not invalidated pursuant to subsection (d) of this Section, the system must collect five additional source water samples from the same source within 24 hours after being notified of the fecal indicator-positive sample.

4) Consecutive and wholesale systems.

A) In addition to the other requirements of this subsection (a), a consecutive GWS supplier that has a total coliform-positive sample collected pursuant to Section 611.521 until March 31, 2016, or pursuant to Sections 611.1054 through 611.1057 beginning April 1, 2016, must notify the wholesale systems within 24 hours after being notified of the total coliform-positive sample.

B) In addition to the other requirements of this subsection (a), a wholesale GWS supplier must comply with the following requirements:

i) A wholesale GWS supplier that receives notice from a consecutive system it serves that a sample collected pursuant to Section 611.521 until March 31, 2016, or collected pursuant to Sections 611.1054 through 611.1057 beginning April 1, 2016, is total coliform-positive must, within 24 hours after being notified, collect a sample from its groundwater sources pursuant to subsection (a)(2) of this Section and analyze it for a fecal indicator pursuant to subsection (c) of this Section.

ii) If the sample collected pursuant to subsection (a)(4)(B)(i) of this section is fecal indicator-positive, the wholesale GWS supplier must notify all consecutive systems served by that groundwater source of the fecal indicator source water positive within 24 hours of being notified of the groundwater source sample monitoring result and must meet the requirements of subsection (a)(3) of this Section.

5) Exceptions to the triggered source water monitoring requirements. A GWS supplier is not required to comply with the source water monitoring requirements of subsection (a) of this Section if either of the following conditions exists:

A) The Agency determines, and documents in writing, by a SEP issued pursuant to Section 611.110, that the total coliform-positive sample collected pursuant to Section 611.521 until March 31, 2016, or collected pursuant to Sections 611.1054 through 611.1057 beginning April 1, 2016, is caused by a distribution system deficiency; or

B) The total coliform-positive sample collected pursuant to Section 611.521 until March 31, 2016, or collected pursuant to Sections 611.1054 through 611.1057 beginning April 1, 2016, is collected at

a location that meets Agency criteria for distribution system conditions that will cause total coliform-positive samples.

b) Assessment source water monitoring. If directed by the Agency by a SEP issued pursuant to Section 611.110, a GWS supplier must conduct assessment source water monitoring that meets Agency-determined requirements for such monitoring. A GWS supplier conducting assessment source water monitoring may use a triggered source water sample collected pursuant to subsection (a)(2) of this Section to meet the requirements of subsection (b) of this Section. Agency-determined assessment source water monitoring requirements may include the following:

1) Collection of a total of 12 groundwater source samples that represent each month the system provides groundwater to the public;

2) Collection of samples from each well, unless the system obtains written Agency approval to conduct monitoring at one or more wells within the GWS that are representative of multiple wells used by that system and which draw water from the same hydrogeologic setting;

3) Collection of a standard sample volume of at least 100 mℓ for fecal indicator analysis, regardless of the fecal indicator or analytical method used;

4) Analysis of all groundwater source samples using one of the analytical methods listed in subsection (c)(2) of this Section for the presence of E. coli, enterococci, or coliphage;

5) Collection of groundwater source samples at a location prior to any treatment of the groundwater source unless the Agency approves a sampling location after treatment; and

6) Collection of groundwater source samples at the well itself, unless the system's configuration does not allow for sampling at the well itself and the Agency approves an alternate sampling location by a SEP issued pursuant to Section 611.110 that is representative of the water quality of that well.

c) Analytical methods.

1) A GWS supplier subject to the source water monitoring requirements of subsection (a) of this Section must collect a standard sample volume of at least 100 mℓ for fecal indicator analysis, regardless of the fecal indicator or analytical method used.

2) A GWS supplier must analyze all groundwater source samples collected pursuant to subsection (a) of this Section using one of the analytical

methods listed in subsections (c)(2)(A) through (c)(2)(C) of this Section, each incorporated by reference in Section 611.102, or alternative methods approved by the Agency pursuant to Section 611.480, subject to the limitations of subsection (c)(2)(D) of this Section, for the presence of E. coli, enterococci, or coliphage:

A) E. coli:

i) Colilert® Test, Standard Methods, 20th, 21st, or 22nd ed., Method 9223 B.

ii) Colisure™ Test, Standard Methods, 20th, 21st, or 22nd ed., Method 9223 B.

iii) Membrane Filter Method with MI Agar, USEPA Method 1604.

iv) m-ColiBlue24 Test.

v) E*Colite Test.

vi) EC–MUG, Standard Methods, 20th or 22nd ed., Method 9221 F.

vii) NA–MUG, Standard Methods, 20th ed., Method 9222 G.

viii) Colilert-18® Test, Standard Methods, 20th, 21st, or 22nd ed., Method 9223 B.

ix) Readycult® 2007.

x) Modified Colitag™ Method.

xi) Chromomcult® Method.

xii) Tecta EC/TC P-A Test.

BOARD NOTE: EC–MUG (Standard Methods, Method 9221F) or NA–MUG (Standard Methods, Method 9222G) can be used for E. coli testing step, as described in Section 611.526(f)(1) or (f)(2) after use of Standard Methods, 18th, 19th, 20th, or 21st ed., Method 9221 B, 9221 D, 9222 B, or 9222 C. USEPA added Standard Methods, 21st ed., Method 9223 B as an approved alternative method for E. coli on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Readycult® 2007, Modified Colitag™ Method, and Chromocult® Method as approved alternative methods for E. coli on June 8, 2010 (at 75 Fed. Reg. 32295).

USEPA added Standard Methods, 22nd ed., Methods 9221 F and 9223 B as approved alternative methods for E. coli in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558). USEPA added Standard Methods Online, Method 9221 F-06 and 9223 B-04 and Tecta EC/TC P-A Test as approved alternative methods for E. coli in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Methods 9223 B and 9221 F are the same versions as Standard Methods Online, Methods 9223 B-04 and 9221 F-06, the Board has not listed the Standard Methods Online versions separately.

B) Enterococci:

i) Multiple-Tube Technique, Standard Methods, 20th ed., Method 9230 B or Standard Methods Online, Method 9230 B-04.

ii) Membrane Filter Technique, Standard Methods, 20th ed., Method 9230 C, and USEPA Method 1600.

BOARD NOTE: The holding time and temperature for groundwater samples are specified in subsection (c)(2)(D) of this Section, rather than as specified in Section 8 of USEPA Method 1600.

iii) Enterolert.

BOARD NOTE: Medium is available through IDEXX Laboratories, Inc., at the address set forth in Section 611.102(b). Preparation and use of the medium must be as set forth in the article that embodies the method as incorporated by reference in Section 611.102(b).

BOARD NOTE: USEPA added Standard Methods Online, Method 9230 B-04 as an approved alternative method for enterococci on June 3, 2008 (at 73 Fed. Reg. 31616).

C) Coliphage:

i) Two-Step Enrichment Presence-Absence Procedure, USEPA Method 1601 or Charm Fast Phage.

ii) Single Agar Layer Procedure, USEPA Method 1602.

D) Limitation on methods use. The time from sample collection to initiation of analysis may not exceed 30 hours. The GWS supplier

is encouraged but is not required to hold samples below 10°C during transit.

d) Invalidation of a fecal indicator-positive groundwater source sample.

1) A GWS supplier may obtain Agency invalidation of a fecal indicator-positive groundwater source sample collected pursuant to subsection (a) of this Section only under either of the following conditions:

A) The supplier provides the Agency with written notice from the laboratory that improper sample analysis occurred; or

B) The Agency determines and documents in writing by a SEP issued pursuant to Section 611.110 that there is substantial evidence that a fecal indicator-positive groundwater source sample is not related to source water quality.

2) If the Agency invalidates a fecal indicator-positive groundwater source sample, the GWS supplier must collect another source water sample pursuant to subsection (a) of this Section within 24 hours after being notified by the Agency of its invalidation decision, and the supplier must have it analyzed for the same fecal indicator using the analytical methods in subsection (c) of this Section. The Agency may extend the 24-hour time limit on a case-by-case basis if the supplier cannot collect the source water sample within 24 hours due to circumstances beyond its control. In the case of an extension, the Agency must specify how much time the system has to collect the sample.

e) Sampling location.

1) Any groundwater source sample required pursuant to subsection (a) of this Section must be collected at a location prior to any treatment of the groundwater source unless the Agency approves a sampling location after treatment.

2) If the supplier's system configuration does not allow for sampling at the well itself, it may collect a sample at an Agency-approved location to meet the requirements of subsection (a) of this Section if the sample is representative of the water quality of that well.

f) New sources. If directed by the Agency by a SEP issued pursuant to Section 611.110, a GWS supplier that places a new groundwater source into service after November 30, 2009 must conduct assessment source water monitoring pursuant to subsection (b) of this Section. If directed by the SEP, the system must begin monitoring before the groundwater source is used to provide water to the public.

g) Public Notification. A GWS supplier with a groundwater source sample collected pursuant to subsection (a) or (b) of this Section that is fecal indicator-positive and which is not invalidated pursuant to subsection (d) of this Section, including a consecutive system supplier served by the groundwater source, must conduct public notification pursuant to Section 611.902.

h) Monitoring Violations. A failure to meet the requirements of subsections (a) through (f) of this Section is a monitoring violation that requires the GWS supplier to provide public notification pursuant to Section 611.904.

BOARD NOTE: Derived from 40 CFR 141.402 and appendix A to subpart C of 40 CFR 141 (2014).

(Source: Amended at 39 Ill. Reg. 3713, effective March 13, 2015)

Section 611.803 Treatment Technique Requirements for GWS Suppliers

a) GWS suppliers with significant deficiencies or source water fecal contamination.

1) The treatment technique requirements of this Section must be met by GWS suppliers when a significant deficiency is identified or when a groundwater source sample collected pursuant to Section 611.802(a)(3) is fecal indicator-positive.

2) If directed by the Agency by a SEP issued pursuant to Section 611.110, a GWS supplier with a groundwater source sample collected pursuant to Section 611.802(a)(2), (a)(4), or (b) that is fecal indicator-positive must comply with the treatment technique requirements of this Section.

3) When a significant deficiency is identified at a Subpart B PWS that uses both groundwater and surface water or groundwater under the direct influence of surface water, the system must comply with provisions of this subsection (b) except in cases where the Agency determines that the significant deficiency is in a portion of the distribution system that is served solely by surface water or groundwater under the direct influence of surface water.

4) Unless the Agency, by a SEP issued pursuant to Section 611.110, directs the GWS supplier to implement a specific corrective action, the GWS supplier must consult with the Agency regarding the appropriate corrective action within 30 days after receiving written notice from the Agency of a significant deficiency, written notice from a laboratory that a groundwater source sample collected pursuant to Section 611.802(a)(3) was found to be fecal indicator-positive, or direction from the Agency that a fecal indicator-positive collected pursuant to Section 611.802(a)(2), (a)(4), or (b) requires corrective action. For the purposes of this Subpart S,

significant deficiencies include, but are not limited to, defects in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that the Agency determines to be causing, or have potential for causing, the introduction of contamination into the water delivered to consumers.

5) Within 120 days (or earlier if directed by the Agency) after receiving written notification from the Agency of a significant deficiency, written notice from a laboratory that a groundwater source sample collected pursuant to Section 611.802(a)(3) was found to be fecal indicator-positive, or written notice from the Agency that a fecal indicator-positive sample collected pursuant to Section 611.802(a)(2), (a)(4), or (b) requires corrective action, the GWS supplier must do either of the following:

A) It must have completed corrective action in accordance with any applicable plan review processes adopted by the Agency or with any SEP issued by the Agency, if any, including Agency-specified interim measures; or

B) It must be in compliance with an Agency-approved corrective action plan and schedule, subject to the following conditions:

i) Any subsequent modifications to an Agency-approved corrective action plan and schedule must also be approved by the Agency; and

ii) If the Agency specifies interim measures for protection of the public health pending Agency approval of the corrective action plan and schedule or pending completion of the corrective action plan, the supplier must comply with those interim measures, as well as with any schedule specified by the Agency.

6) Corrective action alternatives. A GWS supplier that meets the conditions of subsection (a)(1) or (a)(2) of this Section must implement one or more of the following corrective action alternatives:

A) It must correct all significant deficiencies;

B) It must provide an alternate source of water;

C) It must eliminate the source of contamination; or

D) It must provide treatment that reliably achieves at least 4-log treatment of viruses (using inactivation, removal, or an Agency-

approved combination of 4-log virus inactivation and removal) before or at the first customer for the groundwater source.

7) Special notice to the public of significant deficiencies or source water fecal contamination.

A) In addition to the applicable public notification requirements of Section 611.902, a community GWS supplier that receives notice from the Agency of a significant deficiency or notification of a fecal indicator-positive groundwater source sample that is not invalidated by the Agency pursuant to Section 611.802(d) must inform the public served by the water system pursuant to Section 611.883(h)(6) of the fecal indicator-positive source sample or of any significant deficiency that has not been corrected. The supplier must continue to inform the public annually until the significant deficiency is corrected or the fecal contamination in the groundwater source is determined by the Agency to be corrected pursuant to subsection (a)(5) of this Section.

B) In addition to the applicable public notification requirements of Section 611.902, a non-community GWS supplier that receives notice from the Agency of a significant deficiency must inform the public served by the water system in a manner approved by the Agency of any significant deficiency that has not been corrected within 12 months after being notified by the Agency, or earlier if directed by the Agency. The supplier must continue to inform the public annually until the significant deficiency is corrected. The information must include the following information:

i) The nature of the significant deficiency and the date the significant deficiency was identified by the Agency;

ii) The Agency-approved plan and schedule for correction of the significant deficiency, including interim measures, progress to date, and any interim measures completed; and

iii) For a supplier with a large proportion of non-English speaking consumers, as determined by the Agency, information in the appropriate languages regarding the importance of the notice or a telephone number or address where consumers may contact the system to obtain a translated copy of the notice or assistance in the appropriate language.

C) If directed by the Agency, a non-CWS supplier with significant deficiencies that have been corrected must inform its customers of the significant deficiencies, how the deficiencies were corrected, and the dates of correction pursuant to subsection (a)(7)(B) of this Section.

b) Compliance monitoring.

1) Existing groundwater sources. A GWS supplier that is not required to meet the source water monitoring requirements of this Subpart S for any groundwater source because it provides at least 4-log treatment of viruses (using inactivation, removal, or an Agency-approved combination of 4-log virus inactivation and removal) before or at the first customer for any groundwater source before December 1, 2009 must notify the Agency in writing that it provides at least 4-log treatment of viruses (using inactivation, removal, or an Agency-approved combination of 4-log virus inactivation and removal) before or at the first customer for the specified groundwater source and begin compliance monitoring in accordance with subsection (b)(3) of this Section before December 1, 2009. Notification to the Agency must include engineering, operational, or other information that the Agency requests to evaluate the submission. If the supplier subsequently discontinues 4-log treatment of viruses (using inactivation, removal, or an Agency-approved combination of 4-log virus inactivation and removal) before or at the first customer for a groundwater source, the supplier must conduct groundwater source monitoring, as required pursuant to Section 611.802.

2) New groundwater sources. A GWS supplier that places a groundwater source in service after November 30, 2009, which is not required to meet the source water monitoring requirements of this Subpart S because the supplier provides at least 4-log treatment of viruses (using inactivation, removal, or an Agency-approved combination of 4-log virus inactivation and removal) before or at the first customer for the groundwater source must comply with the requirements of subsections (b)(2)(A), (b)(2)(B) and (b)(2)(C) of this Section.

A) The supplier must notify the Agency in writing that it provides at least 4-log treatment of viruses (using inactivation, removal, or an Agency-approved combination of 4-log virus inactivation and removal) before or at the first customer for the groundwater source. Notification to the Agency must include engineering, operational, or other information that the Agency requests by a SEP issued pursuant to Section 611.110 to evaluate the submission.

B) The supplier must conduct compliance monitoring, as required pursuant to Section 611.803(b)(3), within 30 days after placing the source in service.

C) The supplier must conduct groundwater source monitoring pursuant to Section 611.802 if it subsequently discontinues 4-log treatment of viruses (using inactivation, removal, or an Agency-approved combination of 4-log virus inactivation and removal) before or at the first customer for the groundwater source.

3) Monitoring requirements. A GWS supplier subject to the requirements of subsection (a), (b)(1) or (b)(2) of this Section must monitor the effectiveness and reliability of treatment for that groundwater source before or at the first customer as follows:

A) Chemical disinfection.

i) GWS suppliers serving more than 3,300 people. A GWS supplier that serves more than 3,300 people must continuously monitor the residual disinfectant concentration using analytical methods specified in Section 611.531(b) at a location approved by the Agency and must record the lowest residual disinfectant concentration each day that water from the groundwater source is served to the public. The GWS supplier must maintain the Agency-approved residual disinfectant concentration every day it serves water from the groundwater source to the public. If there is a failure in the continuous monitoring equipment, the GWS supplier must conduct grab sampling every four hours until the continuous monitoring equipment is returned to service. The supplier must resume continuous residual disinfectant monitoring within 14 days.

ii) GWS suppliers serving 3,300 or fewer people. A GWS supplier that serves 3,300 or fewer people must monitor the residual disinfectant concentration using analytical methods specified in Section 611.531(b) at a location approved by the Agency and record the residual disinfection concentration each day that water from the groundwater source is served to the public. The GWS supplier must determine and maintain the Agency-approved residual disinfectant concentration every day that it serves water from the groundwater source to the public. The GWS supplier must take a daily grab sample during the hour of peak flow or at another time specified by the Agency. If

any daily grab sample measurement falls below the Agency-approved residual disinfectant concentration, the GWS supplier must take follow-up samples every four hours until the residual disinfectant concentration is restored to the Agency-approved level. Alternatively, a GWS supplier that serves 3,300 or fewer people may monitor continuously and meet the requirements of subsection (b)(3)(A)(i) of this Section.

B) Membrane filtration. A GWS supplier that uses membrane filtration to meet the requirements of this Subpart S must monitor the membrane filtration process in accordance with all Agency-specified monitoring requirements and must operate the membrane filtration in accordance with all Agency-specified compliance requirements. A GWS supplier that uses membrane filtration is in compliance with the requirement to achieve at least 4-log removal of viruses when it fulfills the following conditions:

i) The membrane has an absolute molecular weight cut-off, or an alternative parameter that describes the exclusion characteristics of the membrane, that can reliably achieve at least 4-log removal of viruses;

ii) The membrane process is operated in accordance with Agency-specified compliance requirements; and

iii) The integrity of the membrane is intact.

C) Alternative treatment. A GWS supplier that uses an Agency-approved alternative treatment to meet the requirements of this Subpart S by providing at least 4-log treatment of viruses (using inactivation, removal, or an Agency-approved combination of 4-log virus inactivation and removal) before or at the first customer must do both of the following:

i) It must monitor the alternative treatment in accordance with all Agency-specified monitoring requirements; and

ii) It must operate the alternative treatment in accordance with all operational requirements determined by the supplier that the Agency has approved as necessary to achieve at least 4-log treatment of viruses.

c) Discontinuing treatment. A GWS supplier may discontinue 4-log treatment of viruses (using inactivation, removal, or an Agency-approved combination of 4-log

virus inactivation and removal) before or at the first customer for a groundwater source if the supplier determines and documents and the Agency approves in writing that 4-log treatment of viruses is no longer necessary for that groundwater source. A system that discontinues 4-log treatment of viruses is subject to the source water monitoring and analytical methods requirements of Section 611.802 of this Subpart S.

d) A failure to meet the monitoring requirements of subsection (b) of this Section is a monitoring violation and requires the GWS supplier to provide public notification pursuant to Section 611.904.

BOARD NOTE: Derived from 40 CFR 141.403, as added at 71 Fed. Reg. 65574 (Nov. 8, 2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.804 Treatment Technique Violations for GWS Suppliers

a) A GWS supplier with a significant deficiency is in violation of the treatment technique requirement if, within 120 days (or earlier if directed by the Agency by a SEP issued pursuant to Section 611.110) of receiving written notice from the Agency of the significant deficiency, the system does not do either of the following:

1) It does not complete corrective action in accordance with any applicable Agency plan review processes or other Agency guidance and direction, including Agency specified interim actions and measures, or

2) It is not in compliance with an Agency-approved corrective action plan and schedule.

b) Unless the Agency invalidates a fecal indicator-positive groundwater source sample pursuant to Section 611.802(d), a GWS supplier is in violation of the treatment technique requirement if, within 120 days (or earlier if directed by the Agency) after meeting the conditions of Section 611.803(a)(1) or (a)(2), the supplier does not do either of the following:

1) It does not complete corrective action in accordance with any applicable Agency plan review processes or other Agency guidance and direction, including Agency-specified interim measures, or

2) It is not in compliance with an Agency-approved corrective action plan and schedule.

c) A GWS supplier subject to the requirements of Section 611.803(b)(3) that fails to maintain at least 4-log treatment of viruses (using inactivation, removal, or an

Agency-approved combination of 4-log virus inactivation and removal) before or at the first customer for a groundwater source is in violation of the treatment technique requirement if the failure is not corrected within four hours after determining the supplier is not maintaining at least 4-log treatment of viruses before or at the first customer.

d) A GWS supplier must give public notification pursuant to Section 611.903 for the treatment technique violations specified in subsections (a), (b) and (c) of this Section.

BOARD NOTE: Derived from 40 CFR 141.404, as added at 71 Fed. Reg. 65574 (Nov. 8, 2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.805 Reporting and Recordkeeping for GWS Suppliers

a) Reporting. In addition to the requirements of Section 611.840, a GWS supplier regulated pursuant to this Subpart S must provide the following information to the Agency:

1) A GWS supplier conducting compliance monitoring pursuant to Section 611.803(b) must notify the Agency any time the supplier fails to meet any Agency-specified requirements including, but not limited to, minimum residual disinfectant concentration, membrane operating criteria or membrane integrity, and alternative treatment operating criteria, if operation in accordance with the criteria or requirements is not restored within four hours. The GWS supplier must notify the Agency as soon as possible, but in no case later than the end of the next business day.

2) After completing any corrective action pursuant to Section 611.803(a), a GWS supplier must notify the Agency within 30 days after completion of the corrective action.

3) If a GWS supplier subject to the requirements of Section 611.802(a) does not conduct source water monitoring pursuant to Section 611.802(a)(5)(B), the supplier must provide documentation to the Agency within 30 days of the total coliform-positive sample that it met the Agency criteria.

b) Recordkeeping. In addition to the requirements of Section 611.860, a GWS supplier regulated pursuant to this Subpart S must maintain the following information in its records:

1) Documentation of corrective actions. Documentation must be kept for a period of not less than ten years.

2) Documentation of notice to the public as required pursuant to Section 611.803(a)(7). Documentation must be kept for a period of not less than three years.

3) Records of decisions pursuant to Section 611.802(a)(5)(B) and records of invalidation of fecal indicator-positive groundwater source samples pursuant to Section 611.802(d). Documentation must be kept for a period of not less than five years.

4) For a consecutive system supplier, documentation of notification to the wholesale systems of total coliform-positive samples that are not invalidated pursuant to Section 611.523 until March 31, 2016, or pursuant to Section 611.1053 beginning April 1, 2016. Documentation must be kept for a period of not less than five years.

5) For a supplier, including a wholesale system supplier, that is required to perform compliance monitoring pursuant to Section 611.803(b), the following information:

A) Records of the supplier-specified, Agency-approved minimum disinfectant residual. Documentation must be kept for a period of not less than ten years;

B) Records of the lowest daily residual disinfectant concentration and records of the date and duration of any failure to maintain the Agency-prescribed minimum residual disinfectant concentration for a period of more than four hours. Documentation must be kept for a period of not less than five years; and

C) Records of supplier-specified, Agency-approved compliance requirements for membrane filtration and of parameters specified by the supplier for Agency-approved alternative treatment and records of the date and duration of any failure to meet the membrane operating, membrane integrity, or alternative treatment operating requirements for more than four hours. Documentation must be kept for a period of not less than five years.

BOARD NOTE: Derived from 40 CFR 141.405 (2013).

(Source: Amended at 38 Ill. Reg. 3608, effective January 27, 2014)

SUBPART T: REPORTING AND RECORDKEEPING

Section 611.830 Applicability

Except as otherwise provided, this Subpart T applies to violations of both identical in substance regulations and those noted as additional State requirements.

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.831 Monthly Operating Report

Within 30 days following the last day of the month, each CWS supplier must submit a monthly operating report to the Agency on forms provided or approved by the Agency.

BOARD NOTE: This is an additional State requirement.

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.832 Notice by Agency (Repealed)

(Source: Repealed at 25 Ill. Reg. 1329, effective January 11, 2001)

Section 611.833 Cross Connection Reporting

Each CWS supplier exempted pursuant to Section 17(b) of the Act [415 ILCS 5/17(b)] from the disinfection requirement must report monthly to the Agency its activity to educate and inform its customers about preventing contamination into the distribution system.

BOARD NOTE: This is an additional State requirement.

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.840 Reporting

a) Except where a shorter period is specified in this Part, a supplier must report to the Agency the results of any test measurement or analysis required by this Part within the following times, whichever is shortest:

1) The first ten days following the month in which the result is received; or

2) The first ten days following the end of the required monitoring period, as specified by a SEP issued pursuant to Section 611.110.

b) Except where a different reporting period is specified in this Part, the supplier must report to the Agency within 48 hours any failure to comply with any provision (including failure to comply with monitoring requirements) of this Part.

c) The supplier is not required to report analytical results to the Agency in cases where an Agency laboratory performs the analysis.

d) The supplier, within ten days after completing the public notification requirements under Subpart V of this Part for the initial public notice and any repeat notices, must submit to the Agency a certification that it has fully complied with the public notification regulations. The PWS must include with this certification a representative copy of each type of notice distributed, published, posted, or made available to the persons served by the supplier or to the media.

e) The supplier must submit to the Agency within the time stated in the request copies of any records required to be maintained under Section 611.860 or copies of any documents then in existence that the Agency is entitled to inspect pursuant to the authority of Section 4 of the Act [415 ILCS 5/4].

BOARD NOTE: Derived from 40 CFR 141.31 (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.851 Reporting MCL, MRDL, and other Violations (Repealed)

(Source: Repealed at 25 Ill. Reg. 1329, effective January 11, 2001)

Section 611.852 Reporting other Violations (Repealed)

(Source: Repealed at 25 Ill. Reg. 1329, effective January 11, 2001)

Section 611.853 Notice to New Billing Units (Repealed)

(Source: Repealed at 25 Ill. Reg. 1329, effective January 11, 2001)

Section 611.854 General Content of Public Notice (Repealed)

(Source: Repealed at 25 Ill. Reg. 1329, effective January 11, 2001)

Section 611.855 Mandatory Health Effects Language (Repealed)

(Source: Repealed at 25 Ill. Reg. 1329, effective January 11, 2001)

Section 611.856 Fluoride Notice (Repealed)

(Source: Repealed at 25 Ill. Reg. 1329, effective January 11, 2001)

Section 611.858 Fluoride Secondary Standard (Repealed)

(Source: Repealed at 25 Ill. Reg. 1329, effective January 11, 2001)

Section 611.860 Record Maintenance

A supplier must retain on its premises or at a convenient location near its premises the following records:

a) Records of bacteriological analyses and turbidity analyses made pursuant to this Part must be kept for not less than five years. Records of chemical analyses made pursuant to this Part must be kept for not less than ten years. Actual laboratory reports may be kept, or data may be transferred to tabular summaries, provided that the following information is included:

1) The date, place, and time of sampling, and the name of the person who collected the sample;

2) Identification of the sample as to whether it was a routine distribution system sample, check sample, raw or process water sample, or other special purpose sample;

3) The date of analysis;

4) The laboratory and person responsible for performing analysis;

5) The analytical technique or method used; and

6) The results of the analysis.

b) Records of action taken by the supplier to correct violations of this Part must be kept for a period not less than three years after the last action taken with respect to the particular violation involved.

c) Copies of any written reports, summaries, or communications relating to sanitary surveys of the system conducted by the supplier itself, by a private consultant, by USEPA, the Agency, or a unit of local government delegated pursuant to Section 611.108, must be kept for a period not less than ten years after completion of the sanitary survey involved.

d) Records concerning a variance or adjusted standard granted to the supplier must be kept for a period ending not less than five years following the expiration of such variance or adjusted standard.

e) Copies of public notices issued pursuant to Subpart V of this Part and certifications made to the Agency pursuant to Section 611.840 must be kept for three years after issuance.

f) Copies of monitoring plans developed pursuant to this Part must be kept for the same period of not less than five years that applies to the records of analyses taken under the plan pursuant to subsection (a) of this Section, except as specified otherwise elsewhere in this Part.

BOARD NOTE: Derived from 40 CFR 141.33 (2006).

(Source: Amended at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.870 List of 36 Contaminants (Repealed)

(Source: Repealed at 20 Ill. Reg. 14493, effective October 22, 1996)

SUBPART U: CONSUMER CONFIDENCE REPORTS

Section 611.881 Purpose and Applicability

a) This Subpart U establishes the minimum requirements for the content of annual reports that community water systems (CWSs) must deliver to their customers. These reports must contain information on the quality of the water delivered by the systems and characterize the risks (if any) from exposure to contaminants detected in the drinking water in an accurate and understandable manner.

b) Notwithstanding the provisions of Section 611.100(d), this Subpart U only applies to CWSs.

c) For the purpose of this Subpart U, "customers" are defined as billing units or service connections to which water is delivered by a CWS.

d) For the purpose of this Subpart U, "detected" means the following: at or above the detection limit levels prescribed by Section 611.600(d) for inorganic contaminants; at or above the levels prescribed by Section 611.646(a) for Phase I, II, and V VOCs; at or above the levels prescribed by Section 611.648(r) for Phase II, IIB, and V SOCs at or above the levels prescribed by Section 611.381(b)(2)(D) for the disinfection byproducts listed in Section 611.312; and at or above the levels prescribed by Section 611.720(c)(3) for radioactive contaminants.

BOARD NOTE: Derived from 40 CFR 141.151 (2006).

(Source: Amended at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.882 Compliance Dates

a) Each existing CWS must have delivered its first report by October 19, 1999, its second report by July 1, 2000, and it must deliver subsequent reports by July 1 annually thereafter. The first report must have contained data collected during or prior to calendar year 1998, as prescribed in Section 611.883(d)(3). Each report thereafter must contain data collected during, or prior to, the previous calendar year.

b) A new CWS must deliver its first report by July 1 of the year after its first full calendar year in operation and annually thereafter.

c) A community water system that sells water to another community water system must deliver the applicable information required in Section 611.883 to the buyer system as follows:

1) By no later than April 1 annually; or

2) On a date mutually agreed upon by the seller and the purchaser, and specifically included in a contract between the parties.

BOARD NOTE: Derived from 40 CFR 141.152 (2003).

(Source: Amended at 28 Ill. Reg. 5269, effective March 10, 2004)

Section 611.883 Content of the Reports

a) Each CWS must provide to its customers an annual report that contains the information specified in this Section and Section 611.884.

b) Information on the source of the water delivered.

1) Each report must identify the sources of the water delivered by the CWS by providing information on the following:

A) The type of the water (e.g., surface water, groundwater); and

B) The commonly used name (if any) and location of the body (or bodies) of water.

2) If a source water assessment has been completed, the report must notify consumers of the availability of this information and the means to obtain it. In addition, systems are encouraged to highlight in the report significant sources of contamination in the source water area if they have readily available information. Where a system has received a source water assessment from the Agency, the report must include a brief summary of the system's susceptibility to potential sources of contamination, using language provided by the Agency or written by the supplier.

c) Definitions.

1) Each report must include the following definitions:

A) Maximum Contaminant Level Goal or MCLG: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

BOARD NOTE: Although an MCLG is not an NPDWR that the Board must include in the Illinois SDWA regulations, the use of this definition is mandatory where the term "MCLG" is defined.

B) Maximum Contaminant Level or MCL: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

2) A report for a CWS operating under relief from an NPDWR issued under Section 611.111, 611.112, 611.130, or 611.131 must include the following definition: "Variances, Adjusted Standards, and Site-specific Rules: State permission not to meet an MCL or a treatment technique under certain conditions."

3) A report that contains data on contaminants that USEPA regulates using any of the following terms must include the applicable definitions:

A) Treatment technique: A required process intended to reduce the level of a contaminant in drinking water.

B) Action level: The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.

C) Maximum residual disinfectant level goal or MRDLG: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

BOARD NOTE: Although an MRDLG is not an NPDWR that the Board must include in the Illinois SDWA regulations, the use of this definition is mandatory where the term "MRDLG" is defined.

D) Maximum residual disinfectant level or MRDL: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

4) A report that contains information regarding a Level 1 or Level 2 assessment required under Subpart AA of this Part must include the applicable of the following definitions:

A) "Level 1 assessment: A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system."

B) "Level 2 assessment: A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred or why total coliform bacteria have been found in our water system on multiple occasions."

d) Information on detected contaminants.

1) This subsection (d) specifies the requirements for information to be included in each report for contaminants subject to mandatory monitoring (except Cryptosporidium). It applies to the following:

A) Contaminants subject to an MCL, action level, MRDL, or treatment technique (regulated contaminants);

B) Contaminants for which monitoring is required by USEPA pursuant to 40 CFR 141.40 (unregulated contaminants); and

C) Disinfection byproducts or microbial contaminants for which monitoring is required by Section 611.382 and Subpart L of this

Part, except as provided under subsection (e)(1) of this Section, and which are detected in the finished water.

2) The data relating to these contaminants must be displayed in one table or in several adjacent tables. Any additional monitoring results that a CWS chooses to include in its report must be displayed separately.

3) The data must have been derived from data collected to comply with monitoring and analytical requirements during calendar year 1998 for the first report and must be derived from the data collected in subsequent calendar years, except that the following requirements also apply:

A) Where a system is allowed to monitor for regulated contaminants less often than once a year, the tables must include the date and results of the most recent sampling, and the report must include a brief statement indicating that the data presented in the report is from the most recent testing done in accordance with the regulations. No data older than five years need be included.

B) Results of monitoring in compliance with Section 611.382 and Subpart L need only be included for five years from the date of last sample or until any of the detected contaminants becomes regulated and subject to routine monitoring requirements, whichever comes first.

4) For detected regulated contaminants (listed in Appendix A of this Part), the tables must contain the following:

A) The MCL for that contaminant expressed as a number equal to or greater than 1.0 (as provided in Appendix A of this Part);

B) The federal Maximum Contaminant Level Goal (MCLG) for that contaminant expressed in the same units as the MCL;

C) If there is no MCL for a detected contaminant, the table must indicate that there is a treatment technique, or specify the action level, applicable to that contaminant, and the report must include the definitions for treatment technique or action level, as appropriate, specified in subsection (c)(3) of this Section;

D) For contaminants subject to an MCL, except turbidity, total coliforms, fecal coliforms, and E. coli, the highest contaminant level used to determine compliance with an NPDWR, and the range of detected levels, as follows:

i) When compliance with the MCL is determined annually or less frequently: the highest detected level at any sampling

point and the range of detected levels expressed in the same units as the MCL.

ii) When compliance with the MCL is determined by calculating a running annual average of all samples taken at a monitoring location: the highest average of any of the monitoring locations and the range of all monitoring locations expressed in the same units as the MCL. For the MCLs for TTHM and HAA5 in Section 611.312(b)(2), the supplier must include the highest locational running annual average for TTHM and HAA5 and the range of individual sample results for all monitoring locations expressed in the same units as the MCL. If results from more than one location exceed the TTHM or HAA5 MCL, the supplier must include the locational running annual average for each location whose results exceed the MCL.

iii) When compliance with the MCL is determined on a system-wide basis by calculating a running annual average of all samples at all monitoring locations: the average and range of detection expressed in the same units as the MCL. The supplier is required to include individual sample results for the IDSE conducted under Subpart W of this Part when determining the range of TTHM and HAA5 results to be reported in the annual consumer confidence report for the calendar year that the IDSE samples were taken.

BOARD NOTE to subsection (d)(4)(D): When rounding of results to determine compliance with the MCL is allowed by the regulations, rounding should be done prior to multiplying the results by the factor listed in Appendix A of this Part; derived from 40 CFR 153 (2014).

E) For turbidity the following:

i) When it is reported pursuant to Section 611.560: the highest average monthly value.

ii) When it is reported pursuant to the requirements of Section 611.211(b): the highest monthly value. The report must include an explanation of the reasons for measuring turbidity.

iii) When it is reported pursuant to Section 611.250, 611.743, or 611.955(b): the highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits specified in Section 611.250, 611.743, or 611.955(b) for the

filtration technology being used. The report must include an explanation of the reasons for measuring turbidity;

F) For lead and copper the following: the 90th percentile value of the most recent round of sampling and the number of sampling sites exceeding the action level;

G) For total coliform analytical results until March 31, 2016, the following:

i) The highest monthly number of positive samples for systems collecting fewer than 40 samples per month; or

ii) The highest monthly percentage of positive samples for systems collecting at least 40 samples per month;

H) For fecal coliform and E. coli until March 31, 2016, the following: the total number of positive samples;

I) The likely sources of detected contaminants to the best of the supplier's knowledge. Specific information regarding contaminants may be available in sanitary surveys and source water assessments, and must be used when available to the supplier. If the supplier lacks specific information on the likely source, the report must include one or more of the typical sources for that contaminant listed in Appendix G of this Part that are most applicable to the CWS; and

J) For E. coli analytical results under Subpart AA of this Part, the total number of positive samples.

5) If a CWS distributes water to its customers from multiple hydraulically independent distribution systems that are fed by different raw water sources, the table must contain a separate column for each service area and the report must identify each separate distribution system. Alternatively, a CWS may produce separate reports tailored to include data for each service area.

6) The tables must clearly identify any data indicating violations of MCLs, MRDLs, or treatment techniques, and the report must contain a clear and readily understandable explanation of the violation including the following: the length of the violation, the potential adverse health effects, and actions taken by the CWS to address the violation. To describe the potential health effects, the CWS must use the relevant language of Appendix A of this Part.

7) For detected unregulated contaminants for which monitoring is required by USEPA pursuant to 40 CFR 141.40 (except Cryptosporidium), the tables must contain the average and range at which the contaminant was detected.

The report may include a brief explanation of the reasons for monitoring for unregulated contaminants.

e) Information on Cryptosporidium, radon, and other contaminants as follows:

1) If the CWS has performed any monitoring for Cryptosporidium, including monitoring performed to satisfy the requirements of Subpart L of this Part, that indicates that Cryptosporidium may be present in the source water or the finished water, the report must include the following:

A) A summary of the results of the monitoring; and

B) An explanation of the significance of the results.

2) If the CWS has performed any monitoring for radon that indicates that radon may be present in the finished water, the report must include the following:

A) The results of the monitoring; and

B) An explanation of the significance of the results.

3) If the CWS has performed additional monitoring that indicates the presence of other contaminants in the finished water, the report must include the following:

A) The results of the monitoring; and

B) An explanation of the significance of the results noting the existence of any health advisory or proposed regulation.

f) Compliance with an NPDWR. In addition to the requirements of subsection (d)(6) of this Section, the report must note any violation that occurred during the year covered by the report of a requirement listed below, and include a clear and readily understandable explanation of the violation, any potential adverse health effects, and the steps the CWS has taken to correct the violation.

1) Monitoring and reporting of compliance data.

2) Filtration and disinfection prescribed by Subpart B of this Part. For CWSs that have failed to install adequate filtration or disinfection equipment or processes, or have had a failure of such equipment or processes that constitutes a violation, the report must include the following language as part of the explanation of potential adverse health effects: Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

3) Lead and copper control requirements prescribed by Subpart G of this Part. For systems that fail to take one or more actions prescribed by Section 611.350(d), 611.351, 611.352, 611.353, or 611.354, the report must include the applicable language of Appendix A of this Part for lead, copper, or both.

4) Treatment techniques for acrylamide and epichlorohydrin prescribed by Section 611.296. For systems that violate the requirements of Section 611.296, the report must include the relevant language from Appendix A of this Part.

5) Recordkeeping of compliance data.

6) Special monitoring requirements prescribed by Sections 611.510 and 611.630.

7) Violation of the terms of a variance, adjusted standard, site-specific rule, or administrative or judicial order.

g) Variances, adjusted standards, and site-specific rules. If a system is operating under the terms of a variance, adjusted standard, or site-specific rule issued under Section 611.111, 611.112, or 611.131, the report must contain the following:

1) An explanation of the reasons for the variance, adjusted standard, or site-specific rule;

2) The date on which the variance, adjusted standard, or site-specific rule was issued;

3) A brief status report on the steps the CWS is taking to install treatment, find alternative sources of water, or otherwise comply with the terms and schedules of the variance, adjusted standard, or site-specific rule; and

4) A notice of any opportunity for public input in the review, or renewal, of the variance, adjusted standard, or site-specific rule.

h) Additional information.

1) The report must contain a brief explanation regarding contaminants that may reasonably be expected to be found in drinking water, including bottled water. This explanation may include the language of subsections (h)(1)(A) through (h)(1)(C) of this Section or CWSs may use their own comparable language. The report also must include the language of subsection (h)(1)(D) of this Section.

A) The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it

dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

B) Contaminants that may be present in source water include the following:

i) Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife;

ii) Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

iii) Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses;

iv) Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems; and

v) Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

C) In order to ensure that tap water is safe to drink, USEPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. United States Food and Drug Administration (USFDA) regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

D) Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA Safe Drinking Water Hotline (800-426-4791).

2) The report must include the telephone number of the owner, operator, or designee of the CWS as a source of additional information concerning the report.

3) In communities with a large proportion of non-English speaking residents, as determined by the Agency, the report must contain information in the appropriate languages regarding the importance of the report or contain a telephone number or address where such residents may contact the system to obtain a translated copy of the report or assistance in the appropriate language.

4) The report must include information about opportunities for public participation in decisions that may affect the quality of the water.

5) The CWS may include such additional information as it deems necessary for public education consistent with, and not detracting from, the purpose of the report.

6) Suppliers required to comply with Subpart S of this Part.

A) Any GWS supplier that receives written notice from the Agency of a significant deficiency or which receives notice from a laboratory of a fecal indicator-positive groundwater source sample that is not invalidated by the Agency pursuant to Section 611.802(d) must inform its customers of any significant deficiency that is uncorrected at the time of the next report or of any fecal indicator-positive groundwater source sample in the next report. The supplier must continue to inform the public annually until the Agency, by a SEP issued pursuant to Section 611.110, determines that particular significant deficiency is corrected or the fecal contamination in the groundwater source is addressed pursuant to Section 611.803(a). Each report must include the following information:

i) The nature of the particular significant deficiency or the source of the fecal contamination (if the source is known) and the date the significant deficiency was identified by the Agency or the dates of the fecal indicator-positive groundwater source samples;

ii) Whether or not the fecal contamination in the groundwater source has been addressed pursuant to Section 611.803(a) and the date of such action;

iii) For each significant deficiency or fecal contamination in the groundwater source that has not been addressed pursuant to Section 611.803(a), the Agency-approved plan and schedule for correction, including interim measures, progress to date, and any interim measures completed; and

iv) If the system receives notice of a fecal indicator-positive groundwater source sample that is not invalidated by the Agency pursuant to Section 611.802(d), the potential health effects using the health effects language of Appendix A of this Part.

B) If directed by the Agency by a SEP issued pursuant to Section 611.110, a supplier with significant deficiencies that have been corrected before the next report is issued must inform its customers of the significant deficiency, how the deficiency was corrected, and the date of correction pursuant to subsection (h)(6)(A) of this Section.

7) Suppliers required to comply with Subpart AA of this Part.

A) Any supplier required to comply with the Level 1 assessment requirement or a Level 2 assessment requirement that is not due to an E. coli MCL violation must include in the report the text found in subsections (h)(7)(A)(i) and (h)(7)(A)(ii) or (h)(7)(A)(i) and (h)(7)(A)(iii) of this Section, as appropriate, filling in the blanks accordingly and the text found in subsection (h)(7)(A)(iv) of this Section, if appropriate.

i) "Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments."

ii) "During the past year we were required to conduct [insert number of Level 1 assessments] Level 1 assessment(s). [insert number of Level 1 assessments] Level 1 assessment(s) were completed. In addition, we were required to take [insert number of corrective actions] corrective actions and we completed [insert number of corrective actions] of these actions."

iii) "During the past year [insert number of Level 2 assessments] Level 2 assessments were required to be completed for our water system. [insert number of Level 2 assessments] Level 2 assessments were completed. In

addition, we were required to take [insert number of corrective actions] corrective actions and we completed [insert number of corrective actions] of these actions."

iv) Any supplier that has failed to complete all the required assessments or correct all identified sanitary defects, is in violation of the treatment technique requirement and must also include one or both of the following statements, as appropriate: "During the past year we failed to conduct all of the required assessment(s)." or "During the past year we failed to correct all identified defects that were found during the assessment."

B) Any supplier required to conduct a Level 2 assessment due to an E. coli MCL violation must include in the report the text found in subsections (h)(7)(B)(i) and (h)(7)(B)(ii) of this Section, filling in the blanks accordingly and the appropriate alternative text found in subsection (h)(7)(B)(ii) of this Section, if appropriate.

i) "E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We found *E. coli* bacteria, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments."

ii) "We were required to complete a Level 2 assessment because we found E. coli in our water system. In addition, we were required to take [insert number of corrective actions] corrective actions and we completed [insert number of corrective actions] of these actions."

iii) Any supplier that has failed to complete the required assessment or correct all identified sanitary defects, is in violation of the treatment technique requirement and must also include one or both of the following statements, as appropriate: "We failed to conduct the required assessment." or "We failed to correct all sanitary defects that were identified during the assessment that we conducted."

C) If a supplier detects E. coli and has violated the E. coli MCL, in addition to completing the table, as required in subsection (d)(4) of this Section, the supplier must include one or more of the following statements to describe any noncompliance, as applicable:

i) "We had an E. coli-positive repeat sample following a total coliform-positive routine sample."

ii) "We had a total coliform-positive repeat sample following an E. coli-positive routine sample."

iii) "We failed to take all required repeat samples following an E. coli-positive routine sample."

iv) "We failed to test for E. coli when any repeat sample tested positive for total coliform."

D) If a supplier detects E. coli and has not violated the E. coli MCL, in addition to completing the table as required in subsection (d)(4) of this Section, the supplier may include a statement that explains that although it has detected E. coli, the supplier is not in violation of the E. coli MCL.

BOARD NOTE: Derived from 40 CFR 141.153 (2014).

(Source: Amended at 39 Ill. Reg. 3713, effective March 13, 2015)

Section 611.884 Required Additional Health Information

a) All reports must prominently display the following language: "Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA or Centers for Disease Control and Prevention guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the USEPA Safe Drinking Water Hotline (800-426-4791)."

b) A supplier that detects arsenic above 0.005 mg/ℓ and up to and including 0.010 mg/ℓ must do the following:

1) The supplier must include in its report a short informational statement about arsenic, using the following language: "While your drinking water meets USEPA's standard for arsenic, it does contain low levels of arsenic. USEPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. USEPA continues to research the health effects of low levels of

arsenic, which is a naturally-occurring mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems."; or

2) The supplier may write its own educational statement, but only in consultation with the Agency.

c) A supplier that detects nitrate at levels above 5 mg/ℓ, but below the MCL, must do the following:

1) The supplier must include a short informational statement about the impacts of nitrate on children, using the following language: "Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider"; or

2) The CWS supplier may write its own educational statement, but only in consultation with the Agency.

d) Every report must include the following lead-specific information:

1) A short informational statement about lead in drinking water and its effects on children. The statement must include the following information:

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. [NAME OF SUPPLIER] is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to two minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at *http://www.epa.gov/safewater/lead.*

2) A supplier may write its own educational statement, but only in consultation with the Agency.

e) A CWS supplier that detects TTHM above 0.080 mg/ℓ, but below the MCL in Section 611.312, as an annual average, monitored and calculated under the provisions of former Section 611.680, must include the health effects language prescribed by Appendix A of this Part.

BOARD NOTE: Former Section 611.680 originally derived from 40 CFR 141.30(a) and (b). USEPA removed 40 CFR 141.30 in its entirety in 2006. The Board repealed former Section 611.680 in 2012. The references to former Section 611.680 in this subsection (e) relate to use of existing monitoring data collected under those provisions as they existed before their repeal.

BOARD NOTE: Derived from 40 CFR 141.154 (2014).

(Source: Amended at 39 Ill. Reg. 3713, effective March 13, 2015)

Section 611.885 Report Delivery and Recordkeeping

a) Except as provided in subsection (g) of this Section, each CWS must mail or otherwise directly deliver one copy of the report to each customer.

b) The CWS must make a good faith effort to reach consumers who do not get water bills, using a means approved by the Agency by a SEP issued pursuant to Section 611.110. A good faith effort to reach consumers includes, but is not limited to, methods such as the following: posting the reports on the Internet, advertising the availability of the report in the news media, publication in a local newspaper, or delivery to community organizations.

c) No later than the date the CWS is required to distribute the report to its customers, each CWS must mail a copy of the report to the Agency, followed within three months by a certification that the report has been distributed to customers, and that the information is correct and consistent with the compliance monitoring data previously submitted to the Agency.

d) No later than the date the CWS is required to distribute the report to its customers, each CWS must deliver the report to any other agency or clearinghouse identified by the Agency.

e) Each CWS must make its reports available to the public upon request.

f) Each CWS serving 100,000 or more persons must post its current year's report to a publicly-accessible site on the Internet.

g) The Governor or his designee may waive the requirement of subsection (a) of this Section for a CWS serving fewer than 10,000 persons.

1) Such a CWS must do the following:

A) The CWS must publish the report in one or more local newspapers serving the county in which the CWS is located;

B) The CWS must inform the customers that the report will not be mailed, either in the newspapers in which the report is published or by other means approved by the Agency; and

C) The CWS must make the report available to the public upon request.

2) Systems serving fewer than 500 persons may forgo the requirements of subsections (g)(1)(A) and (g)(1)(B) of this Section if they provide notice at least once per year to their customers by mail, by door-to-door delivery, or by posting in a location approved by the Agency that the report is available upon request.

h) Any system subject to this Subpart U must retain copies of its consumer confidence report for no less than three years.

BOARD NOTE: Derived from 40 CFR 141.155 (2013).

(Source: Amended at 38 Ill. Reg. 3608, effective January 27, 2014)

SUBPART V: PUBLIC NOTIFICATION OF DRINKING WATER VIOLATIONS

Section 611.901 General Public Notification Requirements

The requirements of this Subpart V replace former notice requirements.

a) Who must give public notice. Each owner or operator of a public water system (a CWS, an NTNCWS, or a transient non-CWS) must give notice for all violations of an NPDWR and for other situations, as listed in this subsection (a). The term "NPDWR violation" is used in this Subpart V to include violations of an MCL, an MRDL, a treatment technique, monitoring requirements, or a testing procedure set forth in this Part. Appendix G to this Part identifies the tier assignment for each specific violation or situation requiring a public notice.

1) NPDWR violations.

A) A failure to comply with an applicable MCL or MRDL.

B) A failure to comply with a prescribed treatment technique.

C) A failure to perform water quality monitoring, as required by this Part.

D) A failure to comply with testing procedures as prescribed by this Part.

2) Relief equivalent to a variance and exemptions under sections 1415 and 1416 of SDWA.

A) Operation under relief equivalent to a SDWA section 1415 variance, under Section 611.111, or a SDWA section 1416 exemption, under Section 611.112.

B) A failure to comply with the requirements of any schedule that has been set under relief equivalent to a SDWA section 1415 variance, under Section 611.111, or a SDWA section 1415 exemption, under Section 611.112.

3) Special public notices.

A) The occurrence of a waterborne disease outbreak or other waterborne emergency.

B) An exceedance of the nitrate MCL by a non-CWS, where granted permission by the Agency under Section 611.300(d).

C) The notice required by Section 611.908 for an exceedance of 2 mg/ℓ fluoride (the federal secondary MCL for fluoride (see 40 CFR 143.3)).

BOARD NOTE: See the Board Note appended to Section 611.908 for explanation.

D) The availability of unregulated contaminant monitoring data collected as required by USEPA pursuant to 40 CFR 141.40.

E) Other violations and situations determined by the Agency by a SEP issued pursuant to Section 611.110 to require a public notice under this Subpart V, not already listed in Appendix G of this Part.

b) The type of public notice required for each violation or situation. The public notice requirements of this Subpart V are divided into three tiers, to take into account the seriousness of the violation or situation and of any potential adverse health effects that may be involved. The public notice requirements for each violation or situation listed in subsection (a) of this Section are determined by the tier to which it is assigned. This subsection (b) provides the definition of each tier. Appendix G of this Part identifies the tier assignment for each specific violation or situation.

1) Tier 1 public notice: required for NPDWR violations and situations with significant potential to have serious adverse effects on human health as a result of short-term exposure.

2) Tier 2 public notice: required for all other NPDWR violations and situations with potential to have serious adverse effects on human health.

3) Tier 3 public notice: required for all other NPDWR violations and situations not included in Tier 1 and Tier 2.

c) Who must receive notice.

1) Each PWS supplier must provide public notice to persons served by the water supplier, in accordance with this Subpart V. A PWS supplier that sells or otherwise provides drinking water to another PWS supplier (i.e., to a consecutive system) is required to give public notice to the owner or operator of the consecutive system; the consecutive system supplier is responsible for providing public notice to the persons it serves.

2) If a PWS supplier has a violation in a portion of the distribution system that is physically or hydraulically isolated from other parts of the distribution system, the Agency may allow the system to limit distribution of the public notice to only persons served by that portion of the system that is out of compliance. Permission by the Agency for limiting distribution of the notice must be granted in writing, by a SEP issued pursuant to Section 611.110.

3) A copy of the notice must also be sent to the Agency, in accordance with the requirements under Section 611.840(d).

BOARD NOTE: Derived from 40 CFR 141.201 (2014).

(Source: Amended at 39 Ill. Reg. 15352, effective November 13, 2015)

Section 611.902 Tier 1 Public Notice: Form, Manner, and Frequency of Notice

a) Violations or situations that require a Tier 1 public notice. This subsection (a) lists the violation categories and other situations requiring a Tier 1 public notice. Appendix G of this Part identifies the tier assignment for each specific violation or situation. The violation categories include:

1) Until March 31, 2016, violation of the MCL for total coliforms when fecal coliform or E. coli are present in the water distribution system (as specified in Section 611.325(b)), or when the water supplier fails to test for fecal coliforms or E. coli when any repeat sample tests positive for coliform (as specified in Section 611.525). Beginning April 1, 2016, violation of the MCL for E. coli (as specified in Section 611.325(c)).

2) Violation of the MCL for nitrate, nitrite, or total nitrate and nitrite, as defined in Section 611.301, or when the water supplier fails to take a confirmation sample within 24 hours after the supplier's receipt of the results from the first sample showing an exceedance of the nitrate or nitrite MCL, as specified in Section 611.606(b).

3) Exceedance of the nitrate MCL by a non-CWS supplier, where permitted to exceed the MCL by the Agency under Section 611.300(d), as required under Section 611.909.

4) Violation of the MRDL for chlorine dioxide, as defined in Section 611.313(a), when one or more samples taken in the distribution system the day following an exceedance of the MRDL at the entrance of the distribution system exceed the MRDL, or when the water supplier does not take the required samples in the distribution system, as specified in Section 611.383(c)(2)(A).

5) This subsection (a)(5) refers to a violation of the former turbidity standard of Section 611.320, which the Board repealed because it applied to no suppliers in Illinois. This statement maintains structural consistency with the federal regulations.

6) Violation of the Surface Water Treatment Rule (SWTR), Interim Enhanced Surface Water Treatment Rule (IESWTR), or Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR) treatment technique requirement resulting from a single exceedance of the maximum allowable turbidity limit (as identified in Appendix G), where the Agency determines after consultation that a Tier 1 notice is required or where consultation does not take place within 24 hours after the supplier learns of the violation.

7) Occurrence of a waterborne disease outbreak, as defined in Section 611.101, or other waterborne emergency (such as a failure or significant interruption in key water treatment processes, a natural disaster that disrupts the water supply or distribution system, or a chemical spill or unexpected loading of possible pathogens into the source water that significantly increases the potential for drinking water contamination).

8) Detection of E. coli, enterococci, or coliphage in source water samples, as specified in Section 611.802(a) and (b).

9) Other violations or situations with significant potential to have serious adverse effects on human health as a result of short-term exposure, as determined by the Agency by a SEP issued pursuant to Section 611.110.

b) When the Tier 1 public notice is to be provided. Additional steps required. A PWS supplier must do the following:

1) It must provide a public notice as soon as practical but no later than 24 hours after the supplier learns of the violation;

2) It must initiate consultation with the Agency as soon as practical, but no later than 24 hours after the PWS supplier learns of the violation or situation, to determine additional public notice requirements; and

3) It must comply with any additional public notification requirements (including any repeat notices or direction on the duration of the posted

notices) that are established as a result of the consultation with the Agency. Such requirements may include the timing, form, manner, frequency, and content of repeat notices (if any) and other actions designed to reach all persons served.

c) The form and manner of the public notice. A PWS supplier must provide the notice within 24 hours in a form and manner reasonably calculated to reach all persons served. The form and manner used by the PWS supplier are to fit the specific situation, but must be designed to reach residential, transient, and non-transient users of the water system. In order to reach all persons served, a water supplier is to use, at a minimum, one or more of the following forms of delivery:

1) Appropriate broadcast media (such as radio and television);

2) Posting of the notice in conspicuous locations throughout the area served by the water supplier;

3) Hand delivery of the notice to persons served by the water supplier; or

4) Another delivery method approved in writing by the Agency by a SEP issued pursuant to Section 611.110.

BOARD NOTE: Derived from 40 CFR 141.202 (2014).

(Source: Amended at 39 Ill. Reg. 15352, effective November 13, 2015)

Section 611.903 Tier 2 Public Notice: Form, Manner, and Frequency of Notice

a) Violations or situations that require a Tier 2 public notice. This subsection (a) lists the violation categories and other situations requiring a Tier 2 public notice. Appendix G to this Part identifies the tier assignment for each specific violation or situation.

1) All violations of the MCL, MRDL, and treatment technique requirements, except where a Tier 1 notice is required under Section 611.902(a) or where the Agency determines by a SEP issued pursuant to Section 611.110 that a Tier 1 notice is required.

2) Violations of the monitoring and testing procedure requirements, where the Agency determines by a SEP issued pursuant to Section 611.110 that a Tier 2 rather than a Tier 3 public notice is required, taking into account potential health impacts and persistence of the violation.

3) Failure to comply with the terms and conditions of any relief equivalent to a SDWA section 1415 variance or a SDWA section 1416 exemption in place.

4) Failure to take corrective action or failure to maintain at least 4-log treatment of viruses (using inactivation, removal, or an Agency-approved combination of 4-log virus inactivation and removal) before or at the first customer pursuant to Section 611.803(a).

b) When Tier 2 public notice is to be provided.

1) A PWS supplier must provide the public notice as soon as practical, but no later than 30 days after the supplier learns of the violation. If the public notice is posted, the notice must remain in place for as long as the violation or situation persists, but in no case for less than seven days, even if the violation or situation is resolved. The Agency may, in appropriate circumstances, by a SEP issued pursuant to Section 611.110, allow additional time for the initial notice of up to three months from the date the supplier learns of the violation. It is not appropriate for the Agency to grant an extension to the 30-day deadline for any unresolved violation or to allow across-the-board extensions by rule or policy for other violations or situations requiring a Tier 2 public notice. Extensions granted by the Agency must be in writing.

2) The PWS supplier must repeat the notice every three months as long as the violation or situation persists, unless the Agency determines that appropriate circumstances warrant a different repeat notice frequency. In no circumstance may the repeat notice be given less frequently than once per year. It is not appropriate for the Agency to allow less frequent repeat notice for an MCL or treatment technique violation under the Total Coliform Rule or Subpart AA of this Part or a treatment technique violation under the Surface Water Treatment Rule or Interim Enhanced Surface Water Treatment Rule. It is also not appropriate for the Agency to allow across-the-board reductions in the repeat notice frequency for other ongoing violations requiring a Tier 2 repeat notice. An Agency determination allowing repeat notices to be given less frequently than once every three months must be in writing.

3) For the turbidity violations specified in this subsection (b)(3), a PWS supplier must consult with the Agency as soon as practical but no later than 24 hours after the supplier learns of the violation, to determine whether a Tier 1 public notice under Section 611.902(a) is required to protect public health. When consultation does not take place within the 24-hour period, the water system must distribute a Tier 1 notice of the violation within the next 24 hours (i.e., no later than 48 hours after the supplier learns of the violation), following the requirements under Section 611.902(b) and (c). Consultation with the Agency is required for the following:

A) Violation of the turbidity MCL under Section 611.320(b); or

B) Violation of the SWTR, IESWTR, or treatment technique requirement resulting from a single exceedance of the maximum allowable turbidity limit.

c) The form and manner of Tier 2 public notice. A PWS supplier must provide the initial public notice and any repeat notices in a form and manner that is reasonably calculated to reach persons served in the required time period. The form and manner of the public notice may vary based on the specific situation and type of water system, but it must at a minimum meet the following requirements:

1) Unless directed otherwise by the Agency in writing, by a SEP issued pursuant to Section 611.110, a CWS supplier must provide notice by the following:

A) Mail or other direct delivery to each customer receiving a bill and to other service connections to which water is delivered by the PWS supplier; and

B) Any other method reasonably calculated to reach other persons regularly served by the supplier, if they would not normally be reached by the notice required in subsection (c)(1)(A) of this Section. Such persons may include those who do not pay water bills or do not have service connection addresses (e.g., house renters, apartment dwellers, university students, nursing home patients, prison inmates, etc.). Other methods may include: Publication in a local newspaper; delivery of multiple copies for distribution by customers that provide their drinking water to others (e.g., apartment building owners or large private employers);

posting in public places served by the supplier or on the Internet; or delivery to community organizations.

2) Unless directed otherwise by the Agency in writing, by a SEP issued pursuant to Section 611.110, a non-CWS supplier must provide notice by the following means:

A) Posting the notice in conspicuous locations throughout the distribution system frequented by persons served by the supplier, or by mail or direct delivery to each customer and service connection (where known); and

B) Any other method reasonably calculated to reach other persons served by the system if they would not normally be reached by the notice required in subsection (c)(2)(A) of this Section. Such persons may include those served who may not see a posted notice because the posted notice is not in a location they routinely pass by. Other methods may include the following: Publication in a local newspaper or newsletter distributed to customers; use of E-mail to notify employees or students; or delivery of multiple copies in central locations (e.g., community centers).

BOARD NOTE: Derived from 40 CFR 141.203 (2014).

(Source: Amended at 39 Ill. Reg. 15352, effective November 13, 2015)

Section 611.904 Tier 3 Public Notice: Form, Manner, and Frequency of Notice

a) Violations or situations that require a Tier 3 public notice. This subsection (a) lists the violation categories and other situations requiring a Tier 3 public notice. Appendix G of this Part identifies the tier assignment for each specific violation or situation.

1) Monitoring violations under this Part, except where a Tier 1 notice is required under Section 611.902(a) or where the Agency determines by a SEP issued pursuant to Section 611.110 that a Tier 2 notice is required;

2) Failure to comply with a testing procedure established in this Part, except where a Tier 1 notice is required under Section 611.902(a) or where the

Agency determines by a SEP issued pursuant to Section 611.110 that a Tier 2 notice is required;

3) Operation under relief equivalent to a SDWA section 1415 variance granted under Section 611.111 or relief equivalent to a SDWA section 1416 exemption granted under Section 611.112;

4) Availability of unregulated contaminant monitoring results, as required under Section 611.907;

5) The notice for an exceedance of 2 mg/ℓ fluoride (the federal secondary MCL for fluoride (see 40 CFR 143.3)), as required under Section 611.908; and

BOARD NOTE: See the Board Note appended to Section 611.908 for explanation.

6) Reporting and recordkeeping violations under Subpart AA of this Part.

b) When the Tier 3 public notice is to be provided.

1) A PWS supplier must provide the public notice not later than one year after the supplier learns of the violation or situation or begins operating under relief equivalent to a SDWA section 1415 variance or section 1416 exemption. Following the initial notice, the supplier must repeat the notice annually for as long as the violation, relief equivalent to a SDWA section 1415 variance or section 1416 exemption, or other situation persists. If the public notice is posted, the notice must remain in place for as long as the violation, relief equivalent to a SDWA section 1415 variance or section 1416 exemption, or other situation persists, but in no case less than seven days (even if the violation or situation is resolved).

2) Instead of individual Tier 3 public notices, a PWS supplier may use an annual report detailing all violations and situations that occurred during the previous twelve months, as long as the timing requirements of subsection (b)(1) of this Section are met.

c) The form and manner of the Tier 3 public notice. A PWS supplier must provide the initial notice and any repeat notices in a form and manner that is reasonably calculated to reach persons served in the required time period. The form and

manner of the public notice may vary based on the specific situation and type of water system, but it must at a minimum meet the following requirements:

1) Unless directed otherwise by the Agency by a SEP issued pursuant to Section 611.110 in writing, a CWS supplier must provide notice by the following:

   A) Mail or other direct delivery to each customer receiving a bill and to other service connections to which water is delivered by the supplier; and

   B) Any other method reasonably calculated to reach other persons regularly served by the supplier, if they would not normally be reached by the notice required in subsection (c)(1)(A) of this Section. Such persons may include those who do not pay water bills or do not have service connection addresses (e.g., house renters, apartment dwellers, university students, nursing home patients, prison inmates, etc.). Other methods may include the following: publication in a local newspaper; delivery of multiple copies for distribution by customers that provide their drinking water to others (e.g., apartment building owners or large private employers); posting in public places or on the Internet; or delivery to community organizations.

2) Unless directed otherwise by the Agency by a SEP issued pursuant to Section 611.110 in writing, a non-CWS supplier must provide notice by the following:

   A) Posting the notice in conspicuous locations throughout the distribution system frequented by persons served by the supplier, or by mail or direct delivery to each customer and service connection (where known); and

   B) Any other method reasonably calculated to reach other persons served by the supplier, if they would not normally be reached by the notice required in subsection (c)(2)(A) of this Section. Such persons may include those who may not see a posted notice because the notice is not in a location they routinely pass by. Other methods may include the following: publication in a local newspaper or newsletter distributed to customers; use of E-mail to

notify employees or students; or delivery of multiple copies in central locations (e.g., community centers).

d) When the Consumer Confidence Report may be used to meet the Tier 3 public notice requirements. For a CWS supplier, the Consumer Confidence Report (CCR) required under Subpart U of this Part may be used as a vehicle for the initial Tier 3 public notice and all required repeat notices, as long as the following is true:

1) The CCR is provided to persons served no later than 12 months after the supplier learns of the violation or situation as required under Section 611.904(b);

2) The Tier 3 notice contained in the CCR follows the content requirements under Section 611.905; and

3) The CCR is distributed following the delivery requirements under Section 611.904(c).

BOARD NOTE: Derived from 40 CFR 141.204 (2014).

(Source: Amended at 39 Ill. Reg. 15352, effective November 13, 2015)

Section 611.905 Content of the Public Notice

a) Elements included in public notice for violation of an NPDWR or other situations. When a PWS supplier violates an NPDWR or has a situation requiring public notification, each public notice must include the following elements:

1) A description of the violation or situation, including the contaminants of concern, and (as applicable) the contaminant levels;

2) When the violation or situation occurred;

3) Any potential adverse health effects from the violation or situation, including the standard language under subsection (d)(1) or (d)(2) of this Section, whichever is applicable;

4) The population at risk, including subpopulations particularly vulnerable if exposed to the contaminant in their drinking water;

5) Whether alternative water supplies should be used;

6) What actions consumers should take, including when they should seek medical help, if known;

7) What the supplier is doing to correct the violation or situation;

8) When the water supplier expects to return to compliance or resolve the situation;

9) The name, business address, and phone number of the water system owner, operator, or designee of the public water system as a source of additional information concerning the notice; and

10) A statement to encourage the notice recipient to distribute the public notice to other persons served, using the standard language under subsection (d)(3) of this Section, where applicable.

b) The elements that must be included in the public notice for public water systems operating under relief equivalent to a SDWA section 1415 variance or a section 1416 exemption.

1) If a PWS supplier has been granted a relief equivalent to a SDWA section 1415 variance, under Section 611.111, or a section 1416 exemption, under Section 611.112, the public notice must contain the following:

A) An explanation of the reasons for the relief equivalent to a SDWA section 1415 variance or a section 1416 exemption;

B) The date on which the relief equivalent to a SDWA section 1415 variance or a section 1416 exemption was issued;

C) A brief status report on the steps that the supplier is taking to install treatment, find alternative sources of water, or otherwise comply with the terms and schedules of the relief equivalent to a SDWA section 1415 variance or a section 1416 exemption; and

D) A notice of any opportunity for public input in the review of the relief equivalent to a SDWA section 1415 variance or a section 1416 exemption.

2) If a PWS supplier violates the conditions of relief equivalent to a SDWA section 1415 variance or a section 1416 exemption, the public notice must contain the ten elements listed in subsection (a) of this Section.

c) How the public notice is to be presented.

1) Each public notice required by this Section must comply with the following:

A) It must be displayed in a conspicuous way when printed or posted;

B) It must not contain overly technical language or very small print;

C) It must not be formatted in a way that defeats the purpose of the notice;

D) It must not contain language that nullifies the purpose of the notice.

2) Each public notice required by this Section must comply with multilingual requirements, as follows:

A) For a PWS supplier serving a large proportion of non-English speaking consumers, the public notice must contain information in the appropriate languages regarding the importance of the notice or contain a telephone number or address where persons served may contact the water supplier to obtain a translated copy of the notice or to request assistance in the appropriate language.

B) In cases where the Agency has not determined what constitutes a large proportion of non-English speaking consumers, the PWS supplier must include in the public notice the same information as in subsection (c)(2)(A) of this Section, where appropriate to reach a large proportion of non-English speaking persons served by the water supplier.

d) Standard language that a PWS supplier must include in its public notice. A PWS supplier is required to include the following standard language in its public notice:

1) Standard health effects language for MCL or MRDL violations, treatment technique violations, and violations of the condition of relief equivalent to a SDWA section 1415 variance or a section 1416 exemption. A PWS supplier must include in each public notice the health effects language specified in Appendix H to this Part corresponding to each MCL, MRDL, and treatment technique violation listed in Appendix G to this Part, and for each violation of a condition of relief equivalent to a SDWA section 1415 variance or a section 1416 exemption.

2) Standard language for monitoring and testing procedure violations. A PWS supplier must include the following language in its notice, including

the language necessary to fill in the blanks, for all monitoring and testing procedure violations listed in Appendix G of this Part:

> We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. During (compliance period), we "did not monitor or test" or "did not complete all monitoring or testing" for (contaminants), and therefore cannot be sure of the quality of your drinking water during that time.

3) Standard language to encourage the distribution of the public notice to all persons served. A PWS supplier must include the following language in its notice (where applicable):

> Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

BOARD NOTE: Derived from 40 CFR 141.205 (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.906 Notice to New Billing Units or New Customers

a) The requirement for a CWS. A CWS supplier must give a copy of the most recent public notice for any continuing violation, the existence of relief equivalent to a SDWA section 1415 variance or a section 1416 exemption, or other ongoing situations requiring a public notice to all new billing units or new customers prior to or at the time service begins.

b) The requirement for non-CWS. A non-CWS supplier must continuously post the public notice in conspicuous locations in order to inform new consumers of any continuing violation, relief equivalent to a SDWA section 1415 variance or a section 1416 exemption, or other situation requiring a public notice for as long as the violation, the relief equivalent to a SDWA section 1415 variance or a section 1416 exemption, or other situation persists.

BOARD NOTE: Derived from 40 CFR 141.206 (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.907 Special Notice of the Availability of Unregulated Contaminant Monitoring Results

a) When to give special notice. The owner or operator of a CWS supplier or an NTNCWS supplier required to monitor for unregulated contaminants by USEPA pursuant to 40 CFR 141.40 must notify persons served by the supplier of the availability of the results of such sampling no later than 12 months after the monitoring results are known.

b) The form and manner of a special notice. The form and manner of the public notice must follow the requirements for a Tier 3 public notice prescribed in Sections 611.904(c), (d)(1), and (d)(3). The notice must also identify a person and provide the telephone number to contact for information on the monitoring results.

BOARD NOTE: Derived from 40 CFR 141.207 (2014).

(Source: Amended at 39 Ill. Reg. 3713, effective March 13, 2015)

Section 611.908 Special Notice for Exceedence of the Fluoride Secondary Standard

a) When to give special notice. A CWS supplier that exceeds the federal fluoride secondary MCL of 2 mg/ℓ (see 40 CFR 143.3)) (determined by the last single sample taken in accordance with Section 611.603), but does not exceed the maximum contaminant level (MCL) of 4 mg/ℓ for fluoride (as specified in Section 611.301), must provide the public notice in subsection (c) of this Section to persons served. Public notice must be provided as soon as practical but no later than 12 months from the day the supplier learns of the exceedance. A copy of the notice must also be sent to all new billing units and new customers at the time service begins and to the Department of Public Health. The PWS supplier must repeat the notice at least annually for as long as the SMCL is exceeded. If the public notice is posted, the notice must remain in place for as long as the fluoride SMCL is exceeded, but in no case less than seven days (even if the exceedance is eliminated). On a case-by-case basis, the Agency may require an initial notice sooner than 12 months and repeat notices more frequently than annually.

BOARD NOTE: The federal regulations provide at 40 CFR 143.1 that secondary MCLs relate to the aesthetic qualities of water; they are not enforceable standards. The National Primary Drinking Water Regulations, however, include an enforceable requirement, at corresponding 40 CFR 141.208, that requires public notice upon exceedance of the secondary MCL for fluoride.

b) The form and manner of a special notice. The form and manner of the public notice (including repeat notices) must follow the requirements for a Tier 3 public notice in Section 611.904(c), (d)(1), and (d)(3).

c) Mandatory language in a special notice. The notice must contain the following language, including the language necessary to fill in the blanks:

> This is an alert about your drinking water and a cosmetic dental problem that might affect children under nine years of age. At low levels, fluoride can help prevent cavities, but children drinking water containing more than 2 milligrams per liter (mg/ℓ) of fluoride may develop cosmetic discoloration of their permanent teeth (dental fluorosis). The drinking water provided by your community water system (name) has a fluoride concentration of (insert value) mg/ℓ. Dental fluorosis, in its moderate or severe forms, may result in a brown staining or pitting of the permanent teeth. This problem occurs only in developing teeth, before they erupt from the gums. Children under nine should be provided with alternative sources of drinking water or water that has been treated to remove the fluoride to avoid the possibility of staining and pitting of their permanent teeth. You may also want to contact your dentist about proper use by young children of fluoride-containing products. Older children and adults may safely drink the water.
>
> Drinking water containing more than 4 mg/ℓ of fluoride (the USEPA's drinking water standard) can increase your risk of developing bone disease. Your drinking water does not contain more than 4 mg/ℓ of fluoride, but we're required to notify you when we discover that the fluoride levels in your drinking water exceed 2 mg/ℓ because of this cosmetic dental problem.
>
> For more information, please call (name of water system contact) of (name of community water system) at (phone number). Some home water treatment units are also available to remove fluoride from drinking water. To learn more about available home water treatment units, you may call NSF International at 1-877-8-NSF-HELP.

BOARD NOTE: Derived from 40 CFR 141.208 (2014).

(Source: Amended at 39 Ill. Reg. 15352, effective November 13, 2015)

Section 611.909 Special Notice for Nitrate Exceedences above the MCL by a Non-Community Water System

a) When the special notice is to be given. The owner or operator of a non-CWS supplier granted permission by the Agency under Section 611.300(d) to exceed the nitrate MCL must provide notice to persons served according to the requirements for a Tier 1 notice under Section 611.902(a) and (b).

b) The form and manner of the special notice. A non-CWS supplier granted permission by the Agency to exceed the nitrate MCL under Section 611.300(d)

must provide continuous posting of the fact that nitrate levels exceed 10 mg/ℓ and the potential health effects of exposure, according to the requirements for Tier 1 notice delivery under Section 611.902(c) and the content requirements under Section 611.905.

BOARD NOTE: Derived from 40 CFR 141.209 (2014).

(Source: Amended at 39 Ill. Reg. 15352, effective November 13, 2015)

Section 611.910 Notice by the Agency on Behalf of a PWS

a) The Agency may issue the notice required by this Subpart V on behalf of the owner and operator of the PWS supplier if the Agency complies with the requirements of this Subpart V.

b) The responsibility of the PWS supplier when notice is given by the Agency. The owner or operator of the PWS supplier remains responsible for ensuring that the requirements of this Subpart V are met.

BOARD NOTE: Derived from 40 CFR 141.210 (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.911 Special Notice for Cryptosporidium

a) When the special notice for repeated failure to monitor must be given. The owner or operator of a CWS or non-CWS that is required to monitor source water pursuant to Section 611.1001 must notify persons served by its water system that monitoring has not been completed as specified no later than 30 days after the system has failed to collect any three months of monitoring, as specified in Section 611.1001(c). The notice must be repeated as specified in Section 611.903(b).

b) When the special notice for failure to determine bin classification or mean Cryptosporidium level must be given. The owner or operator of a CWS or non-CWS that is required to determine a bin classification pursuant to Section 611.1010, or one that is required to determine mean Cryptosporidium level pursuant to Section 611.1012, must notify persons served by its water system that the determination has not been made as required no later than 30 days after the system has failed report the determination as specified in Section 611.1010(e) or Section 611.1012(a), respectively. The supplier must repeat the notice as specified in Section 611.903(b). The notice is not required if the system is complying with an Agency-approved schedule to address the violation.

c) The form and manner of the special notice. The form and manner of the public notice must follow the requirements for a Tier 2 public notice prescribed in

Section 611.903(c). The public notice must be presented as required in Section 611.905(c).

d) Mandatory language that must be contained in the special notice. The notice must contain all of the following language, including the language necessary to fill in the blanks:

1) The special notice for repeated failure to conduct monitoring must contain the following mandatory language:

> We are required to monitor the source of your drinking water for Cryptosporidium. Results of the monitoring are to be used to determine whether water treatment at the [treatment plant name] is sufficient to adequately remove Cryptosporidium from your drinking water. We are required to complete this monitoring and make this determination before [required bin determination date]. We [insert the applicable of the following at this point: "did not monitor or test" or "did not complete all monitoring or testing"] on schedule and, therefore, we may not be able to determine before the required date what treatment modifications, if any, must be made to ensure adequate Cryptosporidium removal. Missing this deadline may, in turn, jeopardize our ability to have the required treatment modifications, if any, completed before the deadline required, [date]. For more information, please call [name of water system contact] of [name of water system] at [phone number].

2) The special notice for failure to determine bin classification or mean Cryptosporidium level must contain the following mandatory language:

> We are required to monitor the source of your drinking water for Cryptosporidium in order to determine before [date] whether water treatment at the [treatment plant name] is sufficient to adequately remove Cryptosporidium from your drinking water. We have not made this determination before the required date. Our failure to do this may jeopardize our ability to have the required treatment modifications, if any, completed before the required deadline of [date]. For more information, please call [name of water system contact] of [name of water system] at [phone number].

3) Each special notice must also include a description of what the supplier is doing to correct the violation and when the supplier expects to return to compliance or resolve the situation.

BOARD NOTE: Derived from 40 CFR 141.211 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

SUBPART W: INITIAL DISTRIBUTION SYSTEM EVALUATIONS

Section 611.920 General Requirements

a) USEPA has designated that the requirements of this Subpart W constitute National Primary Drinking Water Regulations. The regulations in this Subpart W establish monitoring and other requirements for identifying Subpart Y compliance monitoring locations for determining compliance with maximum contaminant levels for TTHMs and HAA5. The supplier must use an initial distribution system evaluation (IDSE) to determine the locations in its distribution system that are representative of high TTHM and HAA5 concentrations throughout the supplier's distribution system. An IDSE is used in conjunction with, but separate from, Subpart I compliance monitoring, to identify and select Subpart Y compliance monitoring locations.

b) Applicability. A supplier is subject to the requirements of this Subpart W if it fulfills any of the following conditions:

1) The supplier owns or operates a community water system that uses a primary or residual disinfectant other than ultraviolet light;

2) The supplier delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light; or

3) The supplier owns or operates a non-transient non-community water system that serves at least 10,000 people, and it either uses a primary or residual disinfectant other than ultraviolet light, or it delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light.

c) Schedule. A supplier must comply with the requirements of this Subpart W on the schedule provided in subsection (c)(1) of this Section based on its system type, as set forth in the applicable of subsections (c)(1)(A) through (c)(1)(E) of this Section, subject to the conditions of subsections (c)(1)(F) through (c)(1)(H) of this Section:

1) Compliance dates.

A) A supplier that is not part of a combined distribution system, or a supplier that serves the largest population in a combined distribution system, and which serves a population of 100,000 or more persons is required to have either submitted its standard

monitoring plan, its system-specific study plan, or its 40/30 certification or obtained or been subject to a very small system waiver before October 1, 2006. The supplier is further required to have completed its standard monitoring or system-specific study before September 30, 2008 and submitted its IDSE report to the Agency before January 1, 2009.

B) A supplier that is not part of a combined distribution system, or a supplier that serves the largest population in a combined distribution system, and which serves a population of 50,000 to 99,999 persons is required to have either submitted its standard monitoring plan, its system-specific study plan, or its 40/30 certification or obtained or been subject to a very small system waiver before April 1, 2007. The supplier is further required to have completed its standard monitoring or system-specific study before March 31, 2009 and submitted its IDSE report to the Agency before July 1, 2009.

C) A supplier that is not part of a combined distribution system, or a supplier that serves the largest population in a combined distribution system, and which serves a population of 10,000 to 49,999 persons is required to have either submitted its standard monitoring plan, its system-specific study plan, or its 40/30 certification or obtained or been subject to a very small system waiver before October 1, 2007. The supplier is further required to have completed its standard monitoring or system-specific study before September 30, 2009 and submitted its IDSE report to the Agency before January 1, 2010.

D) A supplier that is not part of a combined distribution system, or a supplier that serves the largest population in a combined distribution system, and which serves a population of fewer than 10,000 persons (and which is a CWS) is required to have either submitted its standard monitoring plan, its system-specific study plan, or its 40/30 certification or obtained or been subject to a very small system waiver before April 1, 2008. The supplier is further required to have completed its standard monitoring or system-specific study before March 31, 2010 and submitted its IDSE report to the Agency before July 1, 2010.

E) A supplier that is part of a combined distribution system which does not serve the largest population in the combined system, which is a wholesale system supplier or a consecutive system supplier, is required to have either submitted its standard monitoring plan, its system-specific study plan, or its 40/30

certification or obtained or been subject to a very small system waiver; is further required to have completed its standard monitoring or system-specific study and submitted its IDSE report to the Agency at the same time as the supplier in the combined system that has the earliest compliance date.

F) If, within 12 months after the date when submission of the standard monitoring plan, the system-specific study plan, or the 40/30 certification or becoming subject to a very small system waiver was due, as identified in the applicable of subsections (a)(1) through (a)(4) of this Section, the Agency did not approve a supplier's plan or notify the supplier that it had not yet completed its review, the supplier may consider the plan that it submitted as approved. The supplier is required to have implemented that plan, and it is required to have completed standard monitoring or a system-specific study no later than the date when completion of the standard monitoring or system-specific study is due, as identified in the applicable of subsections (a)(1) through (a)(4) of this Section.

G) The supplier is required to have submitted its 40/30 certification pursuant to Section 611.923 before the date indicated in the applicable of subsections (a)(1) through (a)(4) of this Section.

H) If, within three months after the due date for submission of the IDSE report identified in this subsection (c)(1) (nine months after this date if the supplier is required to have complied on the schedule in subsection (c)(1)(C) of this Section), the Agency did not approve the supplier's IDSE report or notify the supplier that it had not yet completed its review, the supplier could consider the report that it submitted to the Agency as approved, and the supplier is required to have implemented the recommended Subpart Y monitoring as required.

2) For the purpose of determining the applicable compliance schedule in subsection (c)(1) of this Section, the Agency may, by a SEP issued pursuant to Section 611.110, determine that a combined distribution system does not include certain consecutive systems based on such factors as the receipt of water from a wholesale system only on an emergency basis or the receipt of only a small percentage and small volume of water from a wholesale system. The Agency may also determine, by a SEP issued pursuant to Section 611.110, that a combined distribution system does not include certain wholesale systems based on such factors as the delivery of water to a consecutive system only on an emergency basis or

the delivery of only a small percentage and small volume of water to a consecutive system.

d) A supplier must do one of the following: it must conduct standard monitoring that meets the requirements in Section 611.921; it must conduct a system-specific study that meets the requirements in Section 611.922; it must certify to the Agency that it meets the 40/30 certification criteria under Section 611.923; or it must qualify for a very small system waiver under Section 611.924.

1) The supplier must have taken the full complement of routine TTHM and HAA5 compliance samples required of a system that serves the appropriate population and which uses the appropriate source water under Subpart I of this Part (or the supplier must have taken the full complement of reduced TTHM and HAA5 compliance samples required of a system with the supplier's population and source water under Subpart I of this Part if the supplier meets reduced monitoring criteria under Subpart I of this Part) during the period specified in Section 611.923(a) to meet the 40/30 certification criteria in Section 611.923. The supplier must have taken TTHM and HAA5 samples under Sections 611.381 and 611.382 to be eligible for the very small system waiver in Section 611.924.

2) If the supplier has not taken the required samples, the supplier must conduct standard monitoring that meets the requirements in Section 611.921, or a system-specific study that meets the requirements in Section 611.922.

e) The supplier must use only the analytical methods specified in Section 611.381, or otherwise approved by the Agency for monitoring under this Subpart W, to demonstrate compliance with the requirements of this Subpart W.

f) IDSE results will not be used for the purpose of determining compliance with MCLs in Section 611.312.

BOARD NOTE: Derived from 40 CFR 141.600 (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.921 Standard Monitoring

a) Standard monitoring plan. A supplier's standard monitoring plan must comply with subsections (a)(1) through (a)(4) of this Section. The supplier must prepare and submit its standard monitoring plan to the Agency according to the appropriate of the schedules provided in Section 611.920(c).

1) The supplier's standard monitoring plan must include a schematic of its distribution system (including distribution system entry points and their sources, and storage facilities), with notes indicating locations and dates of all projected standard monitoring, and all projected Subpart I compliance monitoring.

2) The supplier's standard monitoring plan must include justification of standard monitoring location selection and a summary of data the supplier relied on to justify standard monitoring location selection.

3) The supplier's standard monitoring plan must specify the population served and its system type (i.e., that it is a Subpart B or groundwater system).

4) The supplier must retain a complete copy of its standard monitoring plan submitted under this subsection (a), including any Agency modification of the plan, for as long as the supplier is required to retain its IDSE report under subsection (c)(4) of this Section.

b) Standard monitoring.

1) The supplier must monitor as indicated in the applicable of subsections (b)(1)(A) through (b)(1)(P) of this Section, subject to the limitations of subsections (b)(1)(Q) and (b)(1)(R) of this Section. The supplier must collect dual sample sets at each monitoring location. One sample in the dual sample set must be analyzed for TTHM. The other sample in the dual sample set must be analyzed for HAA5. The supplier must conduct one monitoring period during the peak historical month for TTHM levels or HAA5 levels or the month of warmest water temperature. The supplier must review available compliance, study, or operational data to determine the peak historical month for TTHM or HAA5 levels or warmest water temperature.

A) A Subpart B system supplier that serves fewer than 500 persons and which operates a consecutive system must collect samples once each calendar year during the peak historical month: one near an entry point to the distribution system and one at a high TTHM location, for a total of two samples during each monitoring period.

B) A Subpart B system supplier that serves fewer than 500 persons and which does not operate a consecutive system must collect samples once each calendar year during the peak historical month: one at a high TTHM location and one at a high HAA5 location, for a total of two samples during each monitoring period.

C) A Subpart B system supplier that serves 500 to 3,300 persons and which operates a consecutive system must collect samples four times each calendar year (once every 90 days): one near an entry point to the distribution system and one at a high TTHM location, for a total of two samples during each monitoring period.

D) A Subpart B system supplier that serves 500 to 3,300 persons and which does not operate a consecutive system must collect samples four times each calendar year (once every 90 days): one at a high TTHM location and one at a high HAA5 location, for a total of two samples during each monitoring period.

E) A Subpart B system supplier that serves 3,301 to 9,999 persons must collect samples four times each calendar year (once every 90 days): one at a location in the distribution system that represents the average residence time, two at high TTHM locations, and one at a high HAA5 location, for a total of four samples during each monitoring period.

F) A Subpart B system supplier that serves 10,000 to 49,999 persons must collect samples six times each calendar year (once every 60 days): one near an entry point to the distribution system, two at locations in the distribution system that represent the average residence time, three at each TTHM location, and two at high HAA5 locations, for a total of eight samples during each monitoring period.

G) A Subpart B system supplier that serves 50,000 to 249,999 persons must collect samples six times each calendar year (once every 60 days): three near entry points to the distribution system, four at locations in the distribution system that represent the average residence time, five at high TTHM locations, and four at high HAA5 locations, for a total of 16 samples during each monitoring period.

H) A Subpart B system supplier that serves 250,000 to 999,999 persons must collect samples six times each calendar year (once every 60 days): four near entry points to the distribution system, six at locations in the distribution system that represent the average residence time, eight at high TTHM locations, and six at high HAA5 locations, for a total of 24 samples during each monitoring period.

I) A Subpart B system supplier that serves 1,000,000 to 4,999,999 persons must collect samples six times each calendar year (once

every 60 days): six near entry points to the distribution system, eight at locations in the distribution system that represent the average residence time, 10 at high TTHM locations, and eight at high HAA5 locations, for a total of 32 samples during each monitoring period.

J) A Subpart B system supplier that serves 5,000,000 or more persons must collect samples six times each calendar year (once every 60 days): eight near entry points to the distribution system, 10 at locations in the distribution system that represent the average residence time, 12 at high TTHM locations, and 10 at high HAA5 locations, for a total of 40 samples during each monitoring period.

K) A groundwater system supplier that serves fewer than 500 persons and which operates a consecutive system must collect samples once each calendar year during the peak historical month: one near an entry point to the distribution system and one at a high TTHM location, for a total of two samples during each monitoring period.

L) A groundwater system supplier that serves fewer than 500 persons and which does not operate a consecutive system must collect samples once each calendar year during the peak historical month: one at a high TTHM location and one at a high HAA5 location, for a total of two samples during each monitoring period.

M) A groundwater system supplier that serves 500 to 9,999 persons must collect samples four times each calendar year (once every 90 days): one at a high TTHM location and one at a high HAA5 location, for a total of two samples during each monitoring period.

N) A groundwater system supplier that serves 10,000 to 99,999 persons must collect samples four times each calendar year (once every 90 days): one near an entry point to the distribution system, one at a location in the distribution system that represents the average residence time, two at high TTHM locations, and two at high HAA5 locations, for a total of six samples during each monitoring period.

O) A groundwater system supplier that serves 100,000 to 499,999 persons must collect samples four times each calendar year (once every 90 days): one near an entry point to the distribution system, one at a location in the distribution system that represents the average residence time, three at high TTHM locations, and three at high HAA5 locations, for a total of eight samples during each monitoring period.

P) A groundwater system supplier that serves 500,000 or more persons must collect samples four times each calendar year (once every 90 days): two near an entry point to the distribution system, two at locations in the distribution system that represent the average residence time, four at high TTHM locations, and four at high HAA5 locations, for a total of 12 samples during each monitoring period.

Q) A dual sample set (i.e., a TTHM and an HAA5 sample) must be taken at each monitoring location during each monitoring period.

R) The "peak historical month," for the purposes of subsections (b)(1)(A), (b)(1)(B), (b)(1)(K), and (b)(1)(L) of this Section, means the month with the highest TTHM or HAA5 levels or the warmest water temperature.

2) The supplier must take samples at locations other than the existing Subpart I monitoring locations. Monitoring locations must be distributed throughout the distribution system.

3) If the number of entry points to the distribution system is fewer than the specified number of entry point monitoring locations, excess entry point samples must be equally replaced at high TTHM and HAA5 locations. If there is an odd extra location number, the supplier must take a sample at a high TTHM location. If the number of entry points to the distribution system is more than the specified number of entry point monitoring locations, the supplier must take samples at the entry points to the distribution system that have the highest annual water flows.

4) The supplier's monitoring under this subsection (b) may not be reduced under the provisions of Section 611.500, and the Agency may not reduce the supplier's monitoring using the provisions of Section 611.161.

c) IDSE report. A supplier's IDSE report must include the elements required in subsections (c)(1) through (c)(4) of this Section. The supplier must submit its IDSE report to the Agency according to the applicable of the schedules set forth in Section 611.920(c).

1) The supplier's IDSE report must include all TTHM and HAA5 analytical results from Subpart I compliance monitoring and all standard monitoring conducted during the period of the IDSE as individual analytical results and LRAAs presented in a tabular or spreadsheet format acceptable to the Agency. If changed from the supplier's standard monitoring plan submitted pursuant to subsection (a) of this Section, the supplier's report

must also include a schematic of the supplier's distribution system, the population served, and system type (Subpart B system or groundwater system).

2) The supplier's IDSE report must include an explanation of any deviations from the supplier's approved standard monitoring plan.

3) The supplier must recommend and justify Subpart Y compliance monitoring locations and timing based on the protocol in Section 611.925.

4) The supplier must retain a complete copy of its IDSE report submitted under this Section for 10 years after the date on which the supplier submitted the supplier's report. If the Agency modifies the Subpart Y monitoring requirements that the supplier recommended in its IDSE report or if the Agency approves alternative monitoring locations pursuant to Section 611.161, the supplier must keep a copy of the Agency's notification on file for 10 years after the date of the Agency's notification. The supplier must make the IDSE report and any Agency notification available for review by the Agency or the public.

BOARD NOTE: Derived from 40 CFR 141.601 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.922 System-Specific Studies

a) System-specific study plan. A supplier's system-specific study plan must be based on either existing monitoring results, as required under subsection (a)(1) of this Section, or modeling, as required under subsection (a)(2) of this Section. The supplier must prepare and submit the supplier's system-specific study plan to the Agency according to the schedule in Section 611.920(c).

1) Existing monitoring results. A supplier may comply by submitting monitoring results collected before it is required to begin monitoring pursuant to Section 611.920(c). The monitoring results and analysis must meet the criteria in subsections (a)(1)(A) and (a)(1)(B) of this Section.

A) Minimum requirements.

i) TTHM and HAA5 results must be based on samples collected and analyzed in accordance with Section 611.381. Samples must be collected no earlier than five years prior to the study plan submission date.

ii) The monitoring locations and frequency must meet the conditions identified in the applicable of subsections (a)(1)(A)(iii) through (a)(1)(A)(xv) of this Section. Each location must be sampled once during the peak historical month for TTHM levels or HAA5 levels or the month of warmest water temperature for every 12 months of data submitted for that location. Monitoring results must include all Subpart I compliance monitoring results, plus additional monitoring results as necessary to meet minimum sample requirements.

iii) A Subpart B system supplier that serves fewer than 500 persons must collect samples from three monitoring locations: three samples for TTHM and three samples for HAA5.

iv) A Subpart B system supplier that serves 500 to 3,300 persons must collect samples from three monitoring locations: nine samples for TTHM and nine samples for HAA5.

v) A Subpart B system supplier that serves 3,301 to 9,999 persons must collect samples from six monitoring locations: 36 samples for TTHM and 36 samples for HAA5.

vi) A Subpart B system supplier that serves 10,000 to 49,999 persons must collect samples from each of 12 monitoring locations: 72 samples for TTHM and 72 samples for HAA5.

vii) A Subpart B system supplier that serves 50,000 to 249,999 persons must collect samples from 24 monitoring locations: 144 samples for TTHM and 144 samples for HAA5.

viii) A Subpart B system supplier that serves 250,000 to 999,999 persons must collect samples from 36 monitoring locations: 216 samples for TTHM and 216 samples for HAA5.

ix) A Subpart B system supplier that serves 1,000,000 to 4,999,999 persons must collect samples from 48 monitoring locations: 288 samples for TTHM and 288 samples for HAA5.

x) A Subpart B system supplier that serves 5,000,000 or more persons must collect samples from 60 monitoring locations: 360 samples for TTHM and 360 samples for HAA5.

xi) A groundwater system supplier that serves fewer than 500 persons must collect samples from three monitoring locations: three samples for TTHM and three samples for HAA5.

xii) A groundwater system supplier that serves 500 to 9,999 persons must collect samples from three monitoring locations: nine samples for TTHM and nine samples for HAA5.

xiii) A groundwater system supplier that serves 10,000 to 99,999 persons must collect samples from 12 monitoring locations: 48 samples for TTHM and 48 samples for HAA5.

xiv) A groundwater system supplier that serves 100,000 to 499,999 persons must collect samples from 18 monitoring locations: 72 samples for TTHM and 72 samples for HAA5.

xv) A groundwater system supplier that serves 500,000 or more persons must collect samples from 24 monitoring locations: 96 samples for TTHM and 96 samples for HAA5.

B) Reporting monitoring results. A supplier must report the following information:

i) The supplier must report previously collected monitoring results and certify that the reported monitoring results include all compliance and noncompliance results generated during the time period that began with the first reported result and which ended with the most recent Subpart I results;

ii) The supplier must certify that the samples were representative of the entire distribution system and treatment and that the distribution system and treatment have not changed significantly since the samples were collected;

iii) The supplier's study monitoring plan must include a schematic of its distribution system (including distribution

system entry points and their sources and storage facilities in the system), with notes indicating the locations and dates of all completed or planned system-specific study monitoring;

iv) The supplier's system-specific study plan must specify the population served and its system type (i.e., that it is a Subpart B or groundwater system);

v) The supplier must retain a complete copy of its system-specific study plan submitted under this subsection (a)(1), including any Agency modification of the supplier's system-specific study plan, for as long as the supplier is required to retain its IDSE report under subsection (b)(5) of this Section; and

vi) If the supplier submits previously collected data that fully meet the number of samples required under subsection (a)(1)(A)(ii) of this Section, and the Agency rejects some of the data in writing, by a SEP issued pursuant to Section 611.110, the supplier must either conduct additional monitoring to replace rejected data on a schedule approved by the Agency in the SEP, or it must conduct standard monitoring under Section 611.921.

2) Modeling. A supplier may comply through analysis of an extended-period simulation hydraulic model. The extended-period simulation hydraulic model and analysis must meet the following criteria:

A) Minimum extended-period hydraulic model requirements.

i) The extended-period hydraulic model must simulate 24 hour variation in demand and show a consistently repeating 24 hour pattern of residence time.

ii) The extended-period hydraulic model must represent the criteria listed in subsection (a)(2)(D) of this Section.

BOARD NOTE: This subsection (a)(2)(A)(ii) is derived from 40 CFR 141.602(a)(2)(i)(B), as added at 71 Fed. Reg. 388 (Jan. 4, 2006). The Board has codified 40 CFR 141.602(a)(2)(i)(B)(*1*) through (a)(2)(i)(B)(*9*) as subsections (a)(2)(D)(i) through (a)(2)(D)(ix) of this Section to comport with Illinois Administrative Code codification requirements.

iii) The extended-period hydraulic model must be calibrated or have calibration plans for the current configuration of the distribution system during the period of high TTHM formation potential. All storage facilities in the system must be evaluated as part of the calibration process. All required calibration must be completed no later than 12 months after the supplier has submitted the plan.

B) Reporting modeling. The supplier's system-specific study plan must include the information described in subsections (a)(2)(B)(i) through (a)(2)(B)(vii) of this Section, subject to the requirements of subsection (a)(2)(B)(vii) of this Section.

i) Tabular or spreadsheet data demonstrating that the model meets requirements in subsections (a)(2)(A)(ii) and (a)(2)(D) of this Section.

ii) A description of all calibration activities undertaken and, if calibration is complete, a graph of predicted tank levels versus measured tank levels for the system storage facility with the highest residence time in each pressure zone, and a time-series graph of the residence time at the longest residence time storage facility in the distribution system showing the predictions for the entire simulation period (i.e., from time zero until the time it takes for the model to reach a consistently repeating pattern of residence time).

iii) Model output showing preliminary 24-hour average residence time predictions throughout the distribution system.

iv) The timing and the number of samples representative of the distribution system planned for at least one monitoring period of TTHM and HAA5 dual-sample monitoring at a number of locations no fewer than would be required for the system under standard monitoring in Section 611.921 during the historical month of high TTHM. These samples must be taken at locations other than existing Subpart I compliance monitoring locations.

v) A description of how all requirements will be completed no later than 12 months after the supplier submits the supplier's system-specific study plan.

vi) A schematic of the supplier's distribution system (including distribution system entry points and their sources and system storage facilities), with notes indicating the locations and dates of all completed system-specific study monitoring (if calibration is complete) and all Subpart I compliance monitoring.

vii) The population served and system type (i.e., that it is a Subpart B or groundwater system).

viii) The supplier must retain a complete copy of the supplier's system-specific study plan submitted under this subsection (a)(2), including any Agency modification of the supplier's system-specific study plan, for as long as the supplier is required to retain the supplier's IDSE report under subsection (b)(7) of this Section.

C) If the supplier submits a model that does not fully meet the requirements under subsection (a)(2) of this Section, the supplier must correct the Agency-cited deficiencies and respond to Agency inquiries concerning the model. If the supplier fails to correct deficiencies or respond to inquiries to the Agency's satisfaction, the supplier must conduct standard monitoring under Section 611.921.

D) The extended-period hydraulic model must represent the following criteria:

i) 75 percent of pipe volume;

ii) 50 percent of pipe length;

iii) All pressure zones;

iv) All 12-inch diameter and larger pipes;

v) All eight-inch and larger pipes that connect pressure zones, influence zones from different sources, storage facilities, major demand areas, pumps, and control valves or which are known or expected to be significant conveyors of water;

vi) All six-inch and larger pipes that connect remote areas of a distribution system to the main portion of the system;

vii) All storage facilities with standard operations represented in the model;

viii) All active pump stations with controls represented in the model; and

ix) All active control valves.

BOARD NOTE: This subsection (a)(2)(D) is derived from 40 CFR 141.602(a)(2)(i)(B), as added at 71 Fed. Reg. 388 (Jan. 4, 2006). The Board has codified 40 CFR 141.602(a)(2)(i)(B)(*1*) through (a)(2)(i)(B)(*9*) as subsections (a)(2)(D)(i) through (a)(2)(D)(ix) of this Section to comport with Illinois Administrative Code codification requirements.

b) IDSE report. The supplier's IDSE report must include the elements required in subsections (b)(1) through (b)(6) of this Section. The supplier must submit its IDSE report according to the applicable of the schedules in Section 611.920(c).

1) The supplier's IDSE report must include all TTHM and HAA5 analytical results from Subpart I compliance monitoring and all system-specific study monitoring conducted during the period of the system-specific study presented in a tabular or spreadsheet format acceptable to the Agency. If changed from the supplier's system-specific study plan submitted under subsection (a) of this Section, the supplier's IDSE report must also include a schematic of its distribution system, the population served, and system type (i.e., that it is a Subpart B or groundwater system).

2) If the supplier used the modeling provision under subsection (a)(2) of this Section, it must include final information for the elements described in subsection (a)(2)(B) of this Section, and a 24-hour time-series graph of residence time for each Subpart Y compliance monitoring location selected.

3) The supplier must recommend and justify Subpart Y compliance monitoring locations and timing based on the protocol in Section 611.925.

4) The supplier's IDSE report must include an explanation of any deviations from its approved system-specific study plan.

5) The supplier's IDSE report must include the basis (analytical and modeling results) and justification that it used to select the recommended Subpart Y monitoring locations.

6) The supplier may submit its IDSE report in lieu of its system-specific study plan on the schedule identified in Section 611.920(c) for submission of the system-specific study plan if the supplier believes that it has the necessary information before the time that the system-specific study plan is due. If the supplier elects this approach, its IDSE report must also include all information required under subsection (a) of this Section.

7) The supplier must retain a complete copy of its IDSE report submitted under this Section for 10 years after the date that the supplier submitted its IDSE report. If the Agency modifies the Subpart Y monitoring requirements that the supplier recommended in the supplier's IDSE report or if the Agency approves alternative monitoring locations, the supplier must keep a copy of the Agency's notification on file for 10 years after the date of the Agency's notification. The supplier must make the IDSE report and any Agency notification available for review by the Agency or the public.

BOARD NOTE: Derived from 40 CFR 141.602 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.923 40/30 Certification

a) Eligibility. A supplier is eligible for 40/ 30 certification if it had no TTHM or HAA5 monitoring violations under Subpart I of this Part and no individual sample exceeded 0.040 mg/ℓ for TTHM or 0.030 mg/ℓ for HAA5 during an eight consecutive calendar quarter period beginning no earlier than the date specified in the applicable of subsections (a)(1) through (a)(4) of this Section, subject to the limitations of subsection (a)(5) of this Section.

1) If the supplier's 40/30 certification was due no later than October 1, 2006, then its eligibility for 40/30 certification was based on eight consecutive calendar quarters of Subpart I compliance monitoring results that began no earlier than January 2004.

2) If the supplier's 40/30 certification was due no later than April 1, 2007, then its eligibility for 40/30 certification was based on eight consecutive calendar quarters of Subpart I compliance monitoring results that began no earlier than January 2004.

3) If the supplier's 40/30 certification was due no later than October 1, 2007, then its eligibility for 40/30 certification was based on eight consecutive calendar quarters of Subpart I compliance monitoring results that began no earlier than January 2005.

4) If the supplier's 40/30 certification was due no later than April 1, 2008, then its eligibility for 40/30 certification was based on eight consecutive calendar quarters of Subpart I compliance monitoring results that began no earlier than January 2005.

5) Eligibility for 40/30 certification is based on eight consecutive calendar quarters of Subpart I compliance monitoring results beginning no earlier than the date set forth in the applicable of subsections (a)(1) through (a)(4) of this Section, unless the supplier is on reduced monitoring under Subpart I of this Part and was not required to monitor during the specified period. If the supplier did not monitor during the specified period, the supplier must base its eligibility on compliance samples taken during the 12 months preceding the specified period.

b) 40/30 certification.

1) A supplier must certify to the Agency that every individual compliance sample taken under Subpart I of this Part during the applicable of the periods specified in subsection (a) of this Section were no more than 0.040 mg/ℓ for TTHM and 0.030 mg/ℓ for HAA5, and that the supplier has not had any TTHM or HAA5 monitoring violations during the period specified in subsection (a) of this Section.

2) The Agency may require the supplier to submit compliance monitoring results, distribution system schematics, or recommended Subpart Y compliance monitoring locations in addition to the supplier's certification. If the supplier fails to submit the requested information, the Agency may require standard monitoring under Section 611.921 or a system-specific study under Section 611.922.

3) The Agency may still require standard monitoring under Section 611.921 or a system-specific study under Section 611.922 even if the supplier meets the criteria in subsection (a) of this Section.

4) The supplier must retain a complete copy of its certification submitted under this Section for 10 years after the date that it submitted the supplier's certification. The supplier must make the certification, all data upon which the certification is based, and any Agency notification available for review by the Agency or the public.

BOARD NOTE: Derived from 40 CFR 141.603 (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.924 Very Small System Waivers

a) If the supplier serves fewer than 500 people and it has taken TTHM and HAA5 samples pursuant to Subpart I of this Part, the supplier is not required to comply with this Subpart W unless the Agency notifies the supplier, by a SEP issued pursuant to Section 611.110, that it must conduct standard monitoring pursuant to Section 611.921 or a system-specific study pursuant to Section 611.922.

b) If the supplier has not taken TTHM and HAA5 samples pursuant to Subpart I of this Part or if the Agency notifies the supplier, by a SEP issued pursuant to Section 611.110, that it must comply with this Subpart W, the supplier must conduct standard monitoring pursuant to Section 611.921 or a system-specific study pursuant to Section 611.922.

BOARD NOTE: Derived from 40 CFR 141.604 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.925 Subpart Y Compliance Monitoring Location Recommendations

a) A supplier's IDSE report must include its recommendations and justification for where and during what months it will conduct TTHM and HAA5 monitoring for Subpart Y of this Part. The supplier must base its recommendations on the criteria set forth in subsections (b) through (e) of this Section.

b) The supplier must select the number of monitoring locations specified in the applicable of subsections (b)(1) through (b)(13) of this Section, subject to the limitations of subsections (b)(14) and (b)(15) of this Section. The supplier will use these recommended locations as Subpart Y routine compliance monitoring locations, unless the Agency requires different or additional locations. The supplier should distribute locations throughout the distribution system to the extent possible.

1) A Subpart B system supplier that serves fewer than 500 persons must annually collect samples from two monitoring locations: one sample from the highest TTHM location and one sample from the highest HAA5 location.

2) A Subpart B system supplier that serves 500 to 3,300 persons must quarterly collect samples from two monitoring locations: one sample from the highest TTHM location and one sample from the highest HAA5 location.

3) A Subpart B system supplier that serves 3,301 to 9,999 persons must quarterly collect samples from two monitoring locations: one sample from

the highest TTHM location and one sample from the highest HAA5 location.

4) A Subpart B system supplier that serves 10,000 to 49,999 persons must quarterly collect samples from four monitoring locations: two samples from the highest TTHM locations, one sample from the highest HAA5 location, and one sample from an existing Subpart I compliance location.

5) A Subpart B system supplier that serves 50,000 to 249,999 persons must quarterly collect samples from eight monitoring locations: three samples from the highest TTHM location, three samples from the highest HAA5 locations, and two samples from existing Subpart I compliance locations.

6) A Subpart B system supplier that serves 250,000 to 999,999 persons must quarterly collect samples from 12 monitoring locations: five samples from the highest TTHM location, four samples from the highest HAA5 locations, and three samples from existing Subpart I compliance locations.

7) A Subpart B system supplier that serves 1,000,000 to 4,999,999 persons must quarterly collect samples from 16 monitoring locations: six samples from the highest TTHM location, six samples from the highest HAA5 locations, and four samples from existing Subpart I compliance locations.

8) A Subpart B system supplier that serves more than 5,000,000 persons must quarterly collect samples from 20 monitoring locations: eight samples from the highest TTHM location, seven samples from the highest HAA5 locations, and five samples from existing Subpart I compliance locations.

9) A groundwater system supplier that serves fewer than 500 persons must annually collect samples from two monitoring locations: one sample from the highest TTHM location and one sample from the highest HAA5 location.

10) A groundwater system supplier that serves 500 to 9,999 persons must annually collect samples from two monitoring locations: one sample from the highest TTHM location and one sample from the highest HAA5 location.

11) A groundwater system supplier that serves 10,000 to 99,999 persons must quarterly collect samples from four monitoring locations: two samples from the highest TTHM locations, one sample from the highest HAA5 location, and one sample from an existing Subpart I compliance location.

12) A groundwater system supplier that serves 100,000 to 499,999 persons must quarterly collect samples from six monitoring locations: three

samples from the highest TTHM locations, two samples from the highest HAA5 locations, and one sample from an existing Subpart I compliance location.

13) A groundwater system supplier that serves more than 500,000 persons must quarterly collect samples from eight monitoring locations: three samples from the highest TTHM locations, three samples from the highest HAA5 locations, and two samples from existing Subpart I compliance locations.

14) The supplier must monitor during the month of highest DBP concentrations.

15) A supplier on quarterly monitoring must take dual sample sets every 90 days at each monitoring location, except for a Subpart B system supplier that serves 500 to 3,300 persons. A groundwater system supplier that serves 500 to 9,999 persons which is on annual monitoring must take dual sample sets at each monitoring location. Any other supplier that is on annual monitoring or which is a Subpart B system supplier that serves 500 to 3,300 persons is required to take individual TTHM and HAA5 samples (instead of a dual sample set) at the locations with the highest TTHM and HAA5 concentrations, respectively. For a supplier that serves fewer than 500 people, only one location with a dual sample set per monitoring period is needed if the highest TTHM and HAA5 concentrations occur at the same location and month.

c) The supplier must recommend Subpart Y compliance monitoring locations based on standard monitoring results, system-specific study results, and Subpart I compliance monitoring results. The supplier must follow the protocol in subsections (c)(1) through (c)(8) of this Section. If required to monitor at more than eight locations, the supplier must repeat the protocol as necessary. If the supplier does not have existing Subpart I compliance monitoring results or if the supplier does not have enough existing Subpart I compliance monitoring results, the supplier must repeat the protocol, skipping the provisions of subsections (c)(3) and (c)(7) of this Section as necessary, until the supplier has identified the required total number of monitoring locations.

1) The location with the highest TTHM LRAA not previously selected as a Subpart Y monitoring location.

2) The location with the highest HAA5 LRAA not previously selected as a Subpart Y monitoring location.

3) The existing Subpart I average residence time compliance monitoring location (maximum residence time compliance monitoring location for a

groundwater system) with the highest HAA5 LRAA not previously selected as a Subpart Y monitoring location.

4) The location with the highest TTHM LRAA not previously selected as a Subpart Y monitoring location.

5) The location with the highest TTHM LRAA not previously selected as a Subpart Y monitoring location.

6) The location with the highest HAA5 LRAA not previously selected as a Subpart Y monitoring location.

7) The existing Subpart I average residence time compliance monitoring location (maximum residence time compliance monitoring location for a groundwater system) with the highest TTHM LRAA not previously selected as a Subpart Y monitoring location.

8) The location with the highest HAA5 LRAA not previously selected as a Subpart Y monitoring location.

d) The supplier may recommend locations other than those specified in subsection (c) of this Section if the supplier includes a rationale for selecting other locations. If the Agency approves the alternative locations, the supplier must monitor at these locations to determine compliance under Subpart Y of this Part.

e) The supplier's recommended schedule must include Subpart Y monitoring during the peak historical month for TTHM and HAA5 concentration, unless the Agency approves another month. Once the supplier has identified the peak historical month, and if the supplier is required to conduct routine monitoring at least quarterly, the supplier must schedule Subpart Y compliance monitoring at a regular frequency of every 90 or fewer days.

BOARD NOTE: Derived from 40 CFR 141.605 (2010).

(Source: Amended at 34 Ill. Reg. 19848, effective December 7, 2010)

SUBPART X: ENHANCED FILTRATION AND DISINFECTION--SYSTEMS SERVING FEWER THAN 10,000 PEOPLE

Section 611.950 General Requirements

a) The requirements of this Subpart X constitute national primary drinking water regulations. These regulations establish requirements for filtration and disinfection that are in addition to criteria under which filtration and disinfection are required under Subpart B of this Part. The regulations in this Subpart X

establish or extend treatment technique requirements in lieu of maximum contaminant levels for the following contaminants: Giardia lamblia, viruses, heterotrophic plate count bacteria, Legionella, Cryptosporidium, and turbidity. The treatment technique requirements consist of installing and properly operating water treatment processes that reliably achieve the following:

1) At least 99 percent (2-log) removal of Cryptosporidium 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 for filtered systems, or Cryptosporidium control under the watershed control plan for unfiltered systems; and

2) Compliance with the profiling and benchmark requirements in Sections 611.953 and 611.954.

b) Applicability of the Subpart X requirements. A supplier is subject to these requirements if the following is true of its system:

1) Is a public water system;

2) Uses surface water or groundwater under the direct influence of surface water as a source; and

3) Serves fewer than 10,000 persons.

c) Compliance deadline. A supplier must comply with these requirements in this Subpart X beginning January 1, 2005, except where otherwise noted.

d) Subpart X requirements. There are seven requirements of this Subpart X, and a supplier must comply with all requirements that are applicable to its system. These requirements are the following:

1) The supplier must cover any finished water reservoir that the supplier began to construct on or after March 15, 2002, as described in Section 611.951;

2) If the supplier's system is an unfiltered system, the supplier must comply with the updated watershed control requirements described in Section 611.952;

3) If the supplier's system is a community or non-transient non-community water system the supplier must develop a disinfection profile, as described in Section 611.953;

4) If the supplier's system is considering making a significant change to its disinfection practices, the supplier must develop a disinfection benchmark and consult with the Agency for approval of the change, as described in Section 611.954;

5) If the supplier's system is a filtered system, the supplier must comply with the combined filter effluent requirements, as described in Section 611.955;

6) If the supplier's system is a filtered system that uses conventional or direct filtration, the supplier must comply with the individual filter turbidity requirements, as described in Section 611.956; and

7) The supplier must comply with the applicable reporting and recordkeeping requirements, as described in Section 611.957.

BOARD NOTE: Derived from 40 CFR 141.500 through 141.503 (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.951 Finished Water Reservoirs

a) Applicability. A Subpart B system supplier that serves fewer than 10,000 persons is subject to this requirement.

b) Requirements. If a supplier begins construction of a finished water reservoir on or after March 15, 2002, the reservoir must be covered. A finished water reservoir for which a supplier began construction prior to March 15, 2002 is not subject to this requirement.

BOARD NOTE: Derived from 40 CFR 141.510 and 141.511 (2002).

Section 611.952 Additional Watershed Control Requirements for Unfiltered Systems

a) Applicability. A Subpart B system supplier that serves fewer than 10,000 persons that does not provide filtration must continue to comply with all of the filtration avoidance criteria in Sections 611.211 and 611.230 through 611.233, as well as the additional watershed control requirements in subsection (b) of this Section.

b) Requirements to avoid filtration. A supplier must take any additional steps necessary to minimize the potential for contamination by Cryptosporidium oocysts in the source water. A watershed control program must fulfill the following for Cryptosporidium:

1) The program must identify watershed characteristics and activities that may have an adverse effect on source water quality; and

2) The program must monitor the occurrence of activities that may have an adverse effect on source water quality.

c) Determination of adequacy of control requirements. During an onsite inspection conducted under the provisions of Section 611.232(c), the Agency must determine whether a watershed control program is adequate to limit potential contamination by Cryptosporidium oocysts. The adequacy of the program must be based on the comprehensiveness of the watershed review; the effectiveness of the program to monitor and control detrimental activities occurring in the watershed; and the extent to which the supplier has maximized land ownership or controlled land use within the watershed.

BOARD NOTE: Derived from 40 CFR 141.520 through 141.522 (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

Section 611.953 Disinfection Profile

a) Applicability. A disinfection profile is a graphical representation of a system's level of Giardia lamblia or virus inactivation measured during the course of a year. A Subpart B community or non-transient non-community water system that serves fewer than 10,000 persons must develop a disinfection profile unless the Agency, by a SEP issued pursuant to Section 611.110, determines that a profile is unnecessary. The Agency may approve the use of a more representative data set for disinfection profiling than the data set required under subsections (c) through (g) of this Section.

b) Determination that a disinfection profile is not necessary. The Agency may only determine that a disinfection profile is not necessary if the system's TTHM and HAA5 levels are below 0.064 mg/ℓ and 0.048 mg/ℓ, respectively. To determine these levels, TTHM and HAA5 samples must have been collected after January 1, 1998, during the month with the warmest water temperature, and at the point of maximum residence time in the distribution system. The Agency may, by a SEP issued pursuant to Section 611.110, approve the use of a different data set to determine these levels if it determines that the data set is representative TTHM and HAA5 data.

c) Development of a disinfection profile. A disinfection profile consists of the following three steps:

1) First, the supplier must collect data for several parameters from the plant, as discussed in subsection (d) of this Section, over the course of 12 months. If the supplier serves between 500 and 9,999 persons it must have begun to collect data no later than July 1, 2003. If the supplier serves fewer than 500 persons, it must begin to collect data no later than January 1, 2004.

2) Second, the supplier must use this data to calculate weekly log inactivation as discussed in subsections (e) and (f) of this Section; and

3) Third, the supplier must use these weekly log inactivations to develop a disinfection profile as specified in subsection (g) of this Section.

d) Data required for a disinfection profile. A supplier must monitor the following parameters to determine the total log inactivation using the analytical methods in Section 611.531, once per week on the same calendar day, over 12 consecutive months:

1) The temperature of the disinfected water at each residual disinfectant concentration sampling point during peak hourly flow;
2) If a supplier uses chlorine, the pH of the disinfected water at each residual disinfectant concentration sampling point during peak hourly flow;
3) The disinfectant contact times ("T") during peak hourly flow; and
4) The residual disinfectant concentrations ("C") of the water before or at the first customer and prior to each additional point of disinfection during peak hourly flow.

e) Calculations based on the data collected. The tables in Appendix B of this Part must be used to determine the appropriate $CT_{99.9}$ value. The supplier must calculate the total inactivation ratio as follows, and multiply the value by 3.0 to determine log inactivation of Giardia lamblia:

1) If the supplier uses only one point of disinfectant application, it must determine either of the following:
   A) One inactivation ratio ($CT_{calc}/CT_{99.9}$) before or at the first customer during peak hourly flow; or
   B) Successive $CT_{calc}/CT_{99.9}$ values, representing sequential inactivation ratios, between the point of disinfectant application and a point before or at the first customer during peak hourly flow. Under this alternative, the supplier must calculate the total inactivation ratio by determining $CT_{calc}/CT_{99.9}$ for each sequence and then adding the $CT_{calc}/CT_{99.9}$ values together to determine $\sum CT_{calc}/CT_{99.9}$.
2) If the supplier uses more than one point of disinfectant application before the first customer, it must determine the $CT_{calc}/CT_{99.9}$ value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow using the procedure specified in subsection (e)(1)(B) of this Section.

f) Use of chloramines, ozone, or chlorine dioxide as a primary disinfectant. If a supplier uses chloramines, ozone, or chlorine dioxide for primary disinfection, the supplier must also calculate the logs of inactivation for viruses and develop an additional disinfection profile for viruses using methods approved by the Agency.

g) Development and maintenance of the disinfection profile in graphic form. Each log inactivation serves as a data point in the supplier's disinfection profile. A supplier will have obtained 52 measurements (one for every week of the year). This will allow the supplier and the Agency the opportunity to evaluate how microbial inactivation varied over the course of the year by looking at all 52 measurements (the supplier's disinfection profile). The supplier must retain the

disinfection profile data in graphic form, such as a spreadsheet, which must be available for review by the Agency as part of a sanitary survey. The supplier must use this data to calculate a benchmark if the supplier is considering changes to disinfection practices.

BOARD NOTE: Derived from 40 CFR 141.530 through 141.536 (2014).

(Source: Amended at 39 Ill. Reg. 3713, effective March 13, 2015)

Section 611.954 Disinfection Benchmark

a) Applicability. A Subpart B system supplier that is required to develop a disinfection profile under Section 611.953 must develop a disinfection benchmark if it decides to make a significant change to its disinfection practice. The supplier must consult with the Agency for approval before it can implement a significant disinfection practice change.

b) Significant changes to disinfection practice. Significant changes to disinfection practice include the following:

1) Changes to the point of disinfection;

2) Changes to the disinfectants used in the treatment plant;

3) Changes to the disinfection process; or

4) Any other modification identified by the Agency.

c) Considering a significant change. A supplier that is considering a significant change to its disinfection practice must calculate disinfection benchmark, as described in subsections (d) and (e) of this Section, and provide the benchmarks to the Agency. A supplier may only make a significant disinfection practice change after consulting with the Agency for approval. A supplier must submit the following information to the Agency as part of the consultation and approval process:

1) A description of the proposed change;

2) The disinfection profile for Giardia lamblia (and, if necessary, viruses) and disinfection benchmark;

3) An analysis of how the proposed change will affect the current levels of disinfection; and

4) Any additional information requested by the Agency.

d) Calculation of a disinfection benchmark. A supplier that is making a significant change to its disinfection practice must calculate a disinfection benchmark using the following procedure:

1) Step 1: Using the data that the supplier collected to develop the disinfection profile, determine the average Giardia lamblia inactivation for each calendar month by dividing the sum of all Giardia lamblia inactivations for that month by the number of values calculated for that month; and

2) Step 2: Determine the lowest monthly average value out of the 12 values. This value becomes the disinfection benchmark.

e) If a supplier uses chloramines, ozone or chlorine dioxide for primary disinfection the supplier must calculate the disinfection benchmark from the data that the supplier collected for viruses to develop the disinfection profile in subsection (d) of this Section. This viral benchmark must be calculated in the same manner used to calculate the Giardia lamblia disinfection benchmark in subsection (d) of this Section.

BOARD NOTE: Derived from 40 CFR 141.540 through 141.544 (2003).

(Source: Amended at 28 Ill. Reg. 5269, effective March 10, 2004)

Section 611.955 Combined Filter Effluent Turbidity Limits

a) Applicability. A Subpart B system supplier that serves fewer than 10,000 persons, which is required to filter, and which utilizes filtration other than slow sand filtration or diatomaceous earth filtration must meet the combined filter effluent turbidity requirements of subsections (b) through (d) of this Section . If the supplier uses slow sand or diatomaceous earth filtration the supplier is not required to meet the combined filter effluent turbidity limits of this Subpart X, but the supplier must continue to meet the combined filter effluent turbidity limits in Section 611.250.

b) Combined filter effluent turbidity limits. A supplier must meet two strengthened combined filter effluent turbidity limits.

1) The first combined filter effluent turbidity limit is a “95th percentile” turbidity limit that a supplier must meet in at least 95 percent of the turbidity measurements taken each month. Measurements must continue to be taken as described in Sections 611.531 and 611.533. Monthly reporting must be completed according to Section 611.957(a). The following are the required limits for specific filtration technologies:

A) For a system with conventional filtration or direct filtration, the 95th percentile turbidity value is 0.3 NTU.

B) For a system with any other alternative filter technology, the 95th percentile turbidity value is a value (not to exceed 1 NTU) to be determined by the Agency, by a SEP issued pursuant to Section 611.110, based on the demonstration described in subsection (c) of this Section.

2) The second combined filter effluent turbidity limit is a "maximum" turbidity limit that a supplier may at no time exceed during the month. Measurements must continue to be taken as described in Sections 611.531 and 611.533. Monthly reporting must be completed according to Section 611.957(a). The following are the required limits for specific filtration technologies:

A) For a system with conventional filtration or direct filtration, the maximum turbidity value is 1 NTU.

B) For a system with any other alternative filter technology, the maximum turbidity value is a value (not to exceed 5 NTU) to be determined by the Agency, by a SEP issued pursuant to Section 611.110, based on the demonstration described in subsection (c) of this Section.

c) Requirements for an alternative filtration system.

1) If a supplier's system consists of alternative filtration (filtration other than slow sand filtration, diatomaceous earth filtration, conventional filtration, or direct filtration) the supplier is required to conduct a demonstration (see tables in subsection (b) of this Section). The supplier must demonstrate to the Agency, using pilot plant studies or other means, that its system's filtration, in combination with disinfection treatment, consistently achieves the following:

A) 99 percent removal of Cryptosporidium oocysts;

B) 99.9 percent removal or inactivation of Giardia lamblia cysts; and

C) 99.99 percent removal or inactivation of viruses.

2) This subsection (c)(2) corresponds with 40 CFR 141.552(b), which USEPA has designated as "reserved." This statement maintains structural correspondence with the corresponding federal regulation.

d) Requirements for a lime-softening system. If a supplier practices lime softening, the supplier may acidify representative combined filter effluent turbidity samples prior to analysis using a protocol approved by the Agency.

BOARD NOTE: Derived from 40 CFR 141.550 through 141.553 (2014).

(Source: Amended at 39 Ill. Reg. 3713, effective March 13, 2015)

Section 611.956 Individual Filter Turbidity Requirements

a) Applicability. A Subpart B system supplier that serves fewer than 10,000 persons and utilizing conventional filtration or direct filtration must conduct continuous monitoring of turbidity for each individual filter in a supplier's system. The following requirements apply to continuous turbidity monitoring:

1) Monitoring must be conducted using an approved method in Section 611.531;

2) Calibration of turbidimeters must be conducted using procedures specified by the manufacturer;

3) Results of turbidity monitoring must be recorded at least every 15 minutes;

4) Monthly reporting must be completed according to Section 611.957(a); and

5) Records must be maintained according to Section 611.957(b).

b) Failure of turbidity monitoring equipment. If there is a failure in the continuous turbidity monitoring equipment, the supplier must conduct grab sampling every four hours in lieu of continuous monitoring until the turbidimeter is back on-line. The supplier has 14 days to resume continuous monitoring before a violation is incurred.

c) Special requirements for systems with two or fewer filters. If a supplier's system only consists of two or fewer filters, the supplier may conduct continuous monitoring of combined filter effluent turbidity in lieu of individual filter effluent turbidity monitoring. Continuous monitoring must meet the same requirements set forth in subsections (a)(1) through (a)(4) and (b) of this Section.

d) Follow-up action. Follow-up action is required according to the following requirements:

1) If the turbidity of an individual filter (or the turbidity of combined filter effluent (CFE) for a system with two filters that monitor CFE in lieu of individual filters) exceeds 1.0 NTU in two consecutive recordings 15 minutes apart, the supplier must report to the Agency by the 10th of the following month and include the filter numbers, corresponding dates, turbidity values that exceeded 1.0 NTU, and the cause (if known) for the exceedances.

2) If a supplier was required to report to the Agency for three months in a row and turbidity exceeded 1.0 NTU in two consecutive recordings 15 minutes apart at the same filter (or CFE for systems with two filters that monitor CFE in lieu of individual filters), the supplier must conduct a self-assessment of the filters within 14 days of the day on which the filter exceeded 1.0 NTU in two consecutive measurements for the third straight month, unless a CPE, as specified in subsection (d)(3) of this Section, was required. A supplier that has a system with two filters that monitor CFE in lieu of individual filters must conduct a self-assessment on both filters. The self-assessment must consist of at least the following components: assessment of filter performance, development of a filter profile,

identification and prioritization of factors limiting filter performance, assessment of the applicability of corrections, and preparation of a filter self-assessment report.

3) If a supplier was required to report to the Agency for two months in a row and turbidity exceeded 2.0 NTU in two consecutive recordings 15 minutes apart at the same filter (or CFE for systems with two filters that monitor CFE in lieu of individual filters), the supplier must arrange to have a comprehensive performance evaluation (CPE) conducted by the Agency or a third party approved by the Agency not later than 60 days following the day the filter exceeded 2.0 NTU in two consecutive measurements for the second straight month. If a CPE has been completed by the Agency or a third party approved by the Agency within the 12 prior months or the system and Agency are jointly participating in an ongoing comprehensive technical assistance (CTA) project at the system, a new CPE is not required. If conducted, a CPE must be completed and submitted to the Agency no later than 120 days following the day the filter exceeded 2.0 NTU in two consecutive measurements for the second straight month.

e) Special individual filter monitoring for a lime-softening system. If a supplier's system utilizes lime softening, the supplier may apply to the Agency for alternative turbidity exceedance levels for the levels specified in subsection (d) of this Section. The supplier must be able to demonstrate to the Agency that higher turbidity levels are due to lime carryover only, and not due to degraded filter performance.

BOARD NOTE: Derived from 40 CFR 141.560 through 141.564 (2014).
(Source: Amended at 39 Ill. Reg. 15352, effective November 13, 2015)

Section 611.957 Reporting and Recordkeeping Requirements

a) Reporting. This Subpart X requires a supplier to report several items to the Agency. Subsections (a)(1) through (a)(4) of this Section describe the items that must be reported and the frequency of reporting. (The supplier is required to report the information described in subsections (a)(1) through (a)(4) of this Section, if it is subject to the specific requirement indicated.)

1) If a supplier is subject to the combined filter effluent requirements (Section 611.955), it must report as follows:

A) The total number of filtered water turbidity measurements taken during the month, by the 10th of the following month.

B) The number and percentage of filtered water turbidity measurements taken during the month that are less than or equal to

the supplier's required 95th percentile limit, by the 10th of the following month.

C) The date and value of any turbidity measurements taken during the month that exceed the maximum turbidity value for the supplier's filtration system, by the 10th of the following month.

2) If the supplier is subject to the individual filter turbidity requirements (Section 611.956), it must report as follows:

A) The fact that the supplier's system conducted individual filter turbidity monitoring during the month, by the 10th of the following month.

B) The filter numbers, corresponding dates, and the turbidity values that exceeded 1.0 NTU during the month, by the 10th of the following month, but only if two consecutive measurements exceeded 1.0 NTU.

C) If a self-assessment is required, the date that it was triggered and the date that it was completed, by the 10th of the following month (or 14 days after the self-assessment was triggered only if the self-assessment was triggered during the last four days of the month).

D) If a CPE is required, the fact that the CPE is required and the date that it was triggered, by the 10th of the following month.

E) A copy of completed CPE report, within 120 days after the CPE was triggered.

3) If the supplier is subject to the disinfection profiling (Section 611.953), it must report results of optional monitoring that show TTHM levels 0.064 mg/ℓ and HAA5 levels 0.048 mg/ℓ (only if the supplier wishes to forgo profiling) or that the supplier has begun disinfection profiling, as follows:

A) For a supplier that serves 500-9,999 persons; or

B) For a supplier that serves fewer than 500 persons, by January 1, 2004.

4) If the supplier is subject to the disinfection benchmarking (Section 611.954), it must report a description of the proposed change in disinfection, its system's disinfection profile for Giardia lamblia (and, if necessary, viruses) and disinfection benchmark, and an analysis of how the

proposed change will affect the current levels of disinfection, anytime the supplier is considering a significant change to its disinfection practice.

b) Recordkeeping. A supplier must keep several types of records based on the requirements of this Subpart X, in addition to recordkeeping requirements under Sections 611.261 and 611.262. Subsections (b)(1) through (b)(3) describe the necessary records, the length of time these records must be kept, and for which requirement the records pertain. (The supplier is required to maintain records described in subsections (b)(1) through (b)(3) of this Section, if it is subject to the specific requirement indicated.)

1) If the supplier is subject to the individual filter turbidity requirements (Section 611.956), it must retain the results of individual filter monitoring as necessary records for at least three years.

2) If the supplier is subject to disinfection profiling (Section 611.953), it must retain the results of its disinfection profile (including raw data and analysis) as necessary records indefinitely.

3) If the supplier is subject to disinfection benchmarking (Section 611.954), it must retain its disinfection benchmark (including raw data and analysis) as necessary records indefinitely.

BOARD NOTE: Derived from 40 CFR 141.570 and 141.571 (2002).

(Source: Amended at 27 Ill. Reg. 16447, effective October 10, 2003)

SUBPART Y: STAGE 2 DISINFECTION BYPRODUCTS REQUIREMENTS

Section 611.970 General Requirements

a) General. The requirements of this Subpart Y constitute NPDWRs. The regulations in this Subpart Y establish monitoring and other requirements for achieving compliance with MCLs based on LRAAs for TTHM and HAA5, and for achieving compliance with MRDLs for chlorine and chloramine for certain consecutive systems.

b) Applicability. A supplier is subject to these requirements if its system is a CWS or a NTNCWS that uses a primary or residual disinfectant other than ultraviolet light or which delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light.

c) Schedule. A supplier must comply with the requirements in this Subpart Y on the applicable schedule set forth in subsections (c)(1) through (c)(6) of this Section

based on the supplier's system type, subject to the limitations of subsection (b)(7) of this Section.

1) A supplier that is not part of a combined distribution system, or a supplier whose system serves the largest population in a combined system, and whose system serves 100,000 or more persons is required to have complied with the requirements of this Subpart Y before April 1, 2012.

2) A supplier that is not part of a combined distribution system, or a supplier whose system serves the largest population in a combined system, and whose system serves 50,000 to 99,999 persons is required to have complied with the requirements of this Subpart Y before October 1, 2012.

3) A supplier that is not part of a combined distribution system, or a supplier whose system serves the largest population in a combined system, and whose system serves 10,000 to 49,999 persons must comply with the requirements of this Subpart Y before October 1, 2013.

4) A supplier that is not part of a combined distribution system, or a supplier whose system serves the largest population in a combined system, and whose system serves fewer than 10,000 persons must comply with the requirements of this Subpart Y before October 1, 2013 if no Cryptosporidium monitoring is required pursuant to Section 611.1001(a)(4).

5) A supplier that is not part of a combined distribution system, or a supplier whose system serves the largest population in a combined system, and whose system serves fewer than 10,000 persons must comply with the requirements of this Subpart Y before October 1, 2014 if Cryptosporidium monitoring is required pursuant to Section 611.1001(a)(4) or (a)(6).

6) A supplier whose consecutive system or wholesale system is part of a combined system, other than a supplier that is subject to any of subsections (c)(1) through (c)(4) of this Section, must comply with the requirements of this Subpart Y before the earliest compliance date applicable to any segment of the combined distribution system.

7) The Agency must, by a SEP issued pursuant to Section 611.110, grant up to an additional 24 months for compliance with MCLs and operational evaluation levels if it finds that the additional time is needed because the supplier requires capital improvements to comply with an MCL.

8) The supplier's monitoring frequency is specified in Section 611.971(a)(2).

A) If a supplier is required to conduct quarterly monitoring, it must begin monitoring in the first full calendar quarter that includes the applicable compliance date set forth in this subsection (c).

B) If a supplier is required to conduct monitoring less frequently than quarterly, it must begin monitoring in the calendar month recommended in the IDSE report prepared pursuant to Section 611.921 or Section 611.922 or in the calendar month identified in the Subpart Y monitoring plan developed pursuant to Section 611.972, but in no instance later than 12 months after the applicable compliance date set forth in this subsection (c).

9) If a supplier is required to conduct quarterly monitoring, it must make compliance calculations at the end of the fourth calendar quarter that follows the compliance date and at the end of each subsequent quarter (or earlier if the LRAA calculated based on fewer than four quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters). If a supplier is required to conduct monitoring less frequently than quarterly, it must make compliance calculations beginning with the first compliance sample taken after the compliance date.

10) For the purpose of the schedule set forth in this subsection (c), the Agency may, by a SEP issued pursuant to Section 611.110, determine that the combined distribution system does not include certain consecutive systems based on factors such as receipt of water from a wholesale system only on an emergency basis or receipt of only a small percentage and small volume of water from a wholesale system. The Agency may also determine that the combined distribution system does not include certain wholesale systems based on factors such as delivery of water to a consecutive system only on an emergency basis or delivery of only a small percentage and small volume of water to a consecutive system.

BOARD NOTE: The Board found it necessary to deviate from the structure of 40 CFR 141.620(c) when incorporating this subsection (c). Subsections (c)(1) through (c)(4) of this Section correspond with 40 CFR 141.620(c)(1) through (c)(4). Subsections (c)(5) and (c)(6) of this Section correspond with the two segments of 40 CFR 141.620(c)(5). Subsection (c)(7) of this Section corresponds with the footnote to the table in 40 CFR 141.620(c). Subsections (c)(8) through (c)(10) of this Section correspond with 40 CFR 141.620(c)(6) through (c)(8).

d) Monitoring and compliance.

1) Suppliers required to monitor quarterly. To comply with Subpart Y MCLs in Section 611.312(b)(2), the supplier must calculate LRAAs for TTHM

and HAA5 using monitoring results collected under this Subpart Y, and it must determine that each LRAA does not exceed the MCL. If the supplier fails to complete four consecutive quarters of monitoring, it must calculate compliance with the MCL based on the average of the available data from the most recent four quarters. If the supplier takes more than one sample per quarter at a monitoring location, it must average all samples taken in the quarter at that location to determine a quarterly average to be used in the LRAA calculation.

2) Suppliers required to monitor yearly or less frequently. To determine compliance with Subpart Y MCLs in Section 611.312(b)(2), the supplier must determine that each sample taken is less than the MCL. If any sample exceeds the MCL, the supplier must comply with the requirements of Section 611.975. If no sample exceeds the MCL, the sample result for each monitoring location is considered the LRAA for that monitoring location.

e) Violation for failure to monitor. A supplier is in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA if the supplier fails to monitor.

BOARD NOTE: Derived from 40 CFR 141.620 (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.971 Routine Monitoring

a) Monitoring.

1) If a supplier submitted an IDSE report, it must begin monitoring at the locations and during the months that the supplier has recommended in its IDSE report submitted pursuant to Section 611.925, following the schedule set forth in Section 611.970(c), unless the Agency, by a SEP issued pursuant to Section 611.110, requires other locations or additional locations after its review. If the supplier submitted a 40/30 certification pursuant to Section 611.923, it qualified for a very small system waiver pursuant to Section 611.924, or it is a NTNCWS that serves fewer than 10,000 persons, the supplier must monitor at the locations and on the dates identified in its monitoring plan as described in Section 611.382(f), updated as required by Section 611.972.

2) The supplier must monitor at no fewer than the number of locations identified in the applicable of subsections (a)(2)(A) through (a)(2)(M) of this Section, subject to the limitations of subsections (a)(2)(N) and (a)(2)(O) of this Section.

A) A Subpart B system supplier that serves fewer than 500 persons must monitor annually at two distribution system monitoring locations during each monitoring period.

B) A Subpart B system supplier that serves 500 to 3,300 persons must monitor quarterly at two distribution system monitoring locations during each monitoring period.

C) A Subpart B system supplier that serves 3,301 to 9,999 persons must monitor quarterly at two distribution system monitoring locations during each monitoring period.

D) A Subpart B system supplier that serves 10,000 to 49,999 persons must monitor quarterly at four distribution system monitoring locations during each monitoring period.

E) A Subpart B system supplier that serves 50,000 to 249,999 persons must monitor quarterly at eight distribution system monitoring locations during each monitoring period.

F) A Subpart B system supplier that serves 250,000 to 999,999 persons must monitor quarterly at 12 distribution system monitoring locations during each monitoring period.

G) A Subpart B system supplier that serves 1,000,000 to 4,999,999 persons must monitor quarterly at 16 distribution system monitoring locations during each monitoring period.

H) A Subpart B system supplier that serves 5,000,000 or more persons must monitor quarterly at 20 distribution system monitoring locations during each monitoring period.

I) A groundwater system supplier that serves fewer than 500 persons must monitor annually at two distribution system monitoring locations during each monitoring period.

J) A groundwater system supplier that serves 500 to 9,999 persons must monitor annually at two distribution system monitoring locations during each monitoring period.

K) A groundwater system supplier that serves 10,000 to 99,999 persons must monitor quarterly at four distribution system monitoring locations during each monitoring period.

L) A groundwater system supplier that serves 100,000 to 499,999 persons must monitor quarterly at six distribution system monitoring locations during each monitoring period.

M) A groundwater system supplier that serves 500,000 or more persons must monitor quarterly at eight distribution system monitoring locations during each monitoring period.

N) The supplier must monitor during month of highest DBP concentrations.

O) A supplier on quarterly monitoring must take dual sample sets every 90 days at each monitoring location, except for a Subpart B system supplier that serves 500 to 3,300. A groundwater system supplier that serves 500 to 9,999 persons which is on annual monitoring must take dual sample sets at each monitoring location. Any other supplier that is on annual monitoring or which is a Subpart B system supplier that serves 500 to 3,300 is required to take individual TTHM and HAA5 samples (instead of a dual sample set) at the locations with the highest TTHM and HAA5 concentrations, respectively. For a supplier that serves fewer than 500 people, only one location with a dual sample set per monitoring period is needed if the highest TTHM and HAA5 concentrations occur at the same location and month.

3) If a supplier is an undisinfected system that begins using a disinfectant other than UV light after the dates set forth in Subpart W of this Part for complying with the IDSE requirements, the supplier must consult with the

Agency to identify compliance monitoring locations for this Subpart Y. The supplier must then develop a monitoring plan pursuant to Section 611.972 that includes those monitoring locations.

b) Analytical methods. A supplier must use an approved method listed in Section 611.381 for TTHM and HAA5 analyses in this Subpart Y. Analyses must be conducted by laboratories that have received certification as specified in Section 611.381.

BOARD NOTE: Derived from 40 CFR 141.621 (2013).

(Source: Amended at 38 Ill. Reg. 9792, effective April 21, 2014)

Section 611.972 Subpart Y Monitoring Plan

a) Development of a monitoring plan.

1) A supplier must develop and implement a monitoring plan that it must keep on file for Agency and public review. The monitoring plan must contain the following elements, and it must be complete no later than the date when the supplier conducts its initial monitoring pursuant to this Subpart Y:

A) The monitoring locations;

B) The monitoring dates;

C) The compliance calculation procedures; and

D) The monitoring plans for any other systems in the combined distribution system if the Agency has reduced monitoring requirements pursuant to Section 611.161.

2) If the supplier was not required to submit an IDSE report pursuant to either Section 611.921 or Section 611.922, and it does not have sufficient Subpart I monitoring locations to identify the required number of Subpart Y compliance monitoring locations indicated in Section 611.925(b), the supplier must identify additional locations by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of compliance monitoring locations have been identified. The supplier must also provide the rationale for identifying the locations as having high levels of TTHM or HAA5. If the supplier has more Subpart I monitoring locations than required for Subpart Y compliance monitoring in Section 611.925(b), it must identify which locations it will

use for Subpart Y compliance monitoring by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of Subpart Y compliance monitoring locations have been identified.

b) A Subpart B system supplier that serves more than 3,300 people must submit a copy of its monitoring plan to the Agency prior to the date it conducts its initial monitoring pursuant to this Subpart Y, unless the supplier's IDSE report submitted pursuant to Subpart W of this Part contains all the information required by this Section.

c) After consultation with the Agency regarding the need for and appropriateness of changes and issuance of a SEP pursuant to Section 611.110 that provides for the changes, a supplier may revise its monitoring plan to reflect changes in treatment, distribution system operations and layout (including new service areas), or other factors that may affect TTHM or HAA5 formation, or for Agency-approved reasons. If the supplier changes monitoring locations, the supplier must replace existing compliance monitoring locations with the lowest LRAA with new locations that reflect the current distribution system locations with expected high TTHM or HAA5 levels. The Agency may, by a SEP issued pursuant to Section 611.110, also require modifications in the supplier's monitoring plan. If a supplier is a Subpart B system supplier that serves more than 3,300 people, it must submit a copy of its modified monitoring plan to the Agency prior to the date when it is required to comply with the revised monitoring plan.

BOARD NOTE: Derived from 40 CFR 141.622 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.973 Reduced Monitoring

a) A supplier may reduce monitoring to the level specified in the applicable of subsections (a)(1) through (a)(13) of this Section, subject to the limitation of subsection (a)(14) of this Section, any time the LRAA is 0.040 mg/ℓ or less for TTHM and 0.030 mg/ℓ or less for HAA5 at all monitoring locations. The supplier may only use data collected pursuant to the provisions of this Subpart Y or pursuant to Subpart I of this Part to qualify for reduced monitoring. In addition, the source water annual average TOC level, before any treatment, must be 4.0 mg/ℓ or less at each treatment plant treating surface water or groundwater under the direct influence of surface water, based on monitoring conducted pursuant to either Section 611.382(b)(1)(C) or Section 611.382(d).

1) A Subpart B system supplier that serves fewer than 500 persons may not qualify for reduced monitoring.

2) A Subpart B system supplier that serves 500 to 3,300 persons qualifies for reduced monitoring to a minimum of one TTHM sample collected annually from the location and during the quarter with the highest single TTHM measurement and one HAA5 sample collected annually from the location and during the quarter with the highest single HAA5 measurement, with the two samples collected as one dual sample set if the highest TTHM and HAA5 measurements occurred at the same location and during the same quarter.

3) A Subpart B system supplier that serves 3,301 to 9,999 persons qualifies for reduced monitoring to a minimum of one dual sample set collected annually for TTHM from the location and during the quarter with the highest single TTHM measurement and one dual sample set collected annually for HAA5 from the location and during the quarter with the highest single HAA5 measurement.

4) A Subpart B system supplier that serves 10,000 to 49,999 persons qualifies for reduced monitoring to a minimum of two dual sample sets collected quarterly from the locations with the highest TTHM and HAA5 LRAAs.

5) A Subpart B system supplier that serves 50,000 to 249,999 persons qualifies for reduced monitoring to a minimum of four dual sample sets collected quarterly from the locations with the two highest TTHM and two HAA5 LRAAs.

6) A Subpart B system supplier that serves 250,000 to 999,999 persons qualifies for reduced monitoring to a minimum of six dual sample sets collected quarterly from the locations with the three highest TTHM and three HAA5 LRAAs.

7) A Subpart B system supplier that serves 1,000,000 to 4,999,999 persons qualifies for reduced monitoring to a minimum of eight dual sample sets collected quarterly from the locations with the four highest TTHM and four HAA5 LRAAs.

8) A Subpart B system supplier that serves more than 5,000,000 persons qualifies for reduced monitoring to a minimum of 10 dual sample sets collected quarterly from the locations with the five highest TTHM and five HAA5 LRAAs.

9) A groundwater system supplier that serves fewer than 500 persons qualifies for reduced monitoring to a minimum of one TTHM sample collected triennially from the location and during the quarter with the highest single TTHM measurement and one HAA5 sample collected annually from the location and during the quarter with the highest single

HAA5 measurement, with the two samples collected as one dual sample set if the highest TTHM and HAA5 measurements occurred at the same location and during the same quarter.

10) A groundwater system supplier that serves 500 to 9,999 persons qualifies for reduced monitoring to a minimum of one TTHM sample collected annually from the location and during the quarter with the highest single TTHM measurement and one HAA5 sample collected annually from the location and during the quarter with the highest single HAA5 measurement, with the two samples collected as one dual sample set if the highest TTHM and HAA5 measurements occurred at the same location and during the same quarter.

11) A groundwater system supplier that serves 10,000 to 99,999 persons qualifies for reduced monitoring to a minimum of one TTHM dual sample set collected annually from the location and during the quarter with the highest single TTHM measurement and one HAA5 dual sample set collected annually from the location and during the quarter with the highest single HAA5 measurement.

12) A groundwater system supplier that serves 100,000 to 499,999 persons qualifies for reduced monitoring to a minimum of two dual sample sets collected quarterly from the locations with the highest TTHM and highest HAA5 LRAAs.

13) A groundwater system supplier that serves more than 500,000 persons qualifies for reduced monitoring to a minimum of four dual sample sets collected quarterly from the two locations with the highest TTHM and two highest HAA5 LRAAs.

14) A supplier on quarterly monitoring must take dual sample sets every 90 days.

b) The supplier may remain on reduced monitoring as long as the TTHM LRAA does not exceed 0.040 mg/ℓ and the HAA5 LRAA does not exceed 0.030 mg/ℓ at each monitoring location (for a supplier with quarterly reduced monitoring) or each TTHM sample does not exceed 0.060 mg/ℓ and each HAA5 sample does not exceed 0.045 mg/ℓ (for a supplier with annual or less frequent monitoring). In addition, the source water annual average TOC level, before any treatment, must not exceed 4.0 mg/ℓ at each treatment plant treating surface water or groundwater under the direct influence of surface water, based on monitoring conducted pursuant to either Section 611.382(b)(1)(C) or (d).

c) If the LRAA based on quarterly monitoring at any monitoring location exceeds either 0.040 mg/ℓ for TTHM or 0.030 mg/ℓ for HAA5, if the annual (or less

frequent) sample at any location exceeds either 0.060 mg/ℓ for TTHM or 0.045 mg/ℓ for HAA5, or if the source water annual average TOC level, before any treatment, exceeds 4.0 mg/ℓ at any treatment plant treating surface water or groundwater under the direct influence of surface water, the supplier must resume routine monitoring pursuant to Section 611.971 or begin increased monitoring if Section 611.975 applies.

d) The Agency may return a supplier to routine monitoring by a SEP issued pursuant to Section 611.110.

BOARD NOTE: Derived from 40 CFR 141.623 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.974 Additional Requirements for Consecutive Systems

If a supplier has a consecutive system that does not add a disinfectant but which delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light, it must comply with the analytical and monitoring requirements for chlorine and chloramines in Sections 611.381(c) and 611.382(c)(1) and with the compliance requirements in Section 611.383(c)(1), and the supplier must report monitoring results pursuant to Section 611.384(c).

BOARD NOTE: Derived from 40 CFR 141.624 (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.975 Conditions Requiring Increased Monitoring

a) If a supplier is required to monitor at a particular location annually or less frequently than annually pursuant to Section 611.971 or Section 611.973, it must increase monitoring to dual sample sets once per quarter (taken every 90 days) at all locations if a TTHM sample exceeds 0.080 mg/ℓ or an HAA5 sample exceeds 0.060 mg/ℓ at any location.

b) A supplier is in violation of the MCL when the LRAA exceeds the Subpart Y MCLs in Section 611.312(b)(2), calculated based on four consecutive quarters of monitoring (or the LRAA calculated based on fewer than four quarters of data if the MCL would be exceeded regardless of the monitoring results of subsequent quarters). The supplier is in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA if it fails to monitor.

c) A supplier may return to routine monitoring once it has conducted increased monitoring for at least four consecutive quarters, and the LRAA for every

monitoring location does not exceed 0.060 mg/ℓ for TTHM and 0.045 mg/ℓ for HAA5.

BOARD NOTE: Derived from 40 CFR 141.625 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.976 Operational Evaluation Levels

a) A supplier has exceeded the operational evaluation level at any monitoring location where the sum of the two previous quarters' TTHM results plus twice the current quarter's TTHM result, divided by four to determine an average, exceeds 0.080 mg/ℓ, or where the sum of the two previous quarters' HAA5 results plus twice the current quarter's HAA5 result, divided by four to determine an average, exceeds 0.060 mg/ℓ.

b) Effects of exceeding the operational evaluation level.

1) If a supplier exceeds the operational evaluation level, the supplier must conduct an operational evaluation and submit a written report of the evaluation to the Agency no later than 90 days after being notified of the analytical result that causes it to exceed the operational evaluation level. The written report must be made available to the public upon request.

2) The supplier's operational evaluation must include an examination of system treatment and distribution operational practices, including storage tank operations, excess storage capacity, distribution system flushing, changes in sources or source water quality, and treatment changes or problems that may contribute to TTHM and HAA5 formation and what steps could be considered to minimize future exceedances.

A) A supplier may request and the Agency may allow the supplier to limit the scope of its evaluation if the supplier is able to identify the cause of the operational evaluation level exceedance.

B) A supplier's request to limit the scope of the evaluation does not extend the schedule in subsection (b)(1) of this Section for submitting the written report. The Agency must approve this limited scope of evaluation in writing, and the supplier must keep that approval with the completed report.

BOARD NOTE: Derived from 40 CFR 141.626 (2014).

(Source: Amended at 39 Ill. Reg. 15352, effective November 13, 2015)

Section 611.977 Requirements for Remaining on Reduced TTHM and HAA5 Monitoring Based on Subpart I Results

A supplier may remain on reduced monitoring after the applicable dates identified in Section 611.970(c) for compliance with this Subpart Y only if the supplier fulfills each of the requirements set forth in subsections (a) through (c) of this Section, subject to the limitations of subsection (d) of this Section:

a) The supplier qualifies for a 40/30 certification pursuant to Section 611.923 or it has received a very small system waiver pursuant to Section 611.924;

b) The supplier meets the reduced monitoring criteria set forth in Section 611.973(a); and

c) The supplier does not change or add monitoring locations from those used for compliance monitoring under Subpart I of this Part.

d) If the supplier's monitoring locations pursuant to this Subpart Y differ from its monitoring locations pursuant to Subpart I of this Part, the supplier may not remain on reduced monitoring after the dates identified in Section 611.970(c) for the purposes of compliance with this Subpart Y.

BOARD NOTE: Derived from 40 CFR 141.627 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.978 Requirements for Remaining on Increased TTHM and HAA5 Monitoring Based on Subpart I Results

If a supplier was on increased monitoring pursuant to Section 611.382(b)(1), it must remain on increased monitoring until it qualifies for a return to routine monitoring pursuant to Section 611.975(c). The supplier must conduct increased monitoring pursuant to Section 611.975 at the monitoring locations in the monitoring plan developed pursuant to Section 611.972 beginning at the applicable date identified in Section 611.970(c) for compliance with this Subpart Y, and it must remain on increased monitoring until the supplier qualifies for a return to routine monitoring pursuant to Section 611.975(c).

BOARD NOTE: Derived from 40 CFR 141.628 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.979 Reporting and Recordkeeping Requirements

a) Reporting.

1) A supplier must report the following information to the Agency within 10 days after the end of any quarter in which monitoring is required for each monitoring location:

A) The number of samples taken during the last quarter;

B) The date and results of each sample taken during the last quarter;

C) The arithmetic average of quarterly results for the last four quarters for each monitoring location (LRAA), beginning at the end of the fourth calendar quarter that follows the compliance date and at the end of each subsequent quarter. If the LRAA calculated based on fewer than four quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters, the supplier must report this information to the Agency as part of the first report due following the compliance date or anytime thereafter that this determination is made. If the supplier is required to conduct monitoring at a frequency that is less than quarterly, it must make compliance calculations beginning with the first compliance sample taken after the compliance date, unless the supplier is required to conduct increased monitoring pursuant to Section 611.975;

D) A statement whether, based on Section 611.312(b)(2) and this Subpart Y, the MCL was violated at any monitoring location; and

E) Any operational evaluation levels that were exceeded during the quarter and, if so, the location and date, and the calculated TTHM and HAA5 levels.

2) If a supplier is a Subpart B system supplier that seeks to qualify for or remain on reduced TTHM and HAA5 monitoring, it must report the following source water TOC information for each treatment plant that treats surface water or groundwater under the direct influence of surface water to the Agency within 10 days after the end of any quarter in which monitoring is required:

A) The number of source water TOC samples taken each month during last quarter;

B) The date and result of each sample taken during last quarter;

C) The arithmetic average of monthly samples taken during the last quarter or the result of the quarterly sample;

D) The running annual average (RAA) of quarterly averages from the past four quarters; and

E) Whether the RAA exceeded 4.0 mg/ℓ.

3) The Agency may, by a SEP issued pursuant to Section 611.110, choose to perform calculations and determine whether the MCL was exceeded or the system is eligible for reduced monitoring in lieu of having the system report that information pursuant to this Section.

b) Recordkeeping. A supplier must retain any Subpart Y monitoring plans and the supplier's Subpart Y monitoring results as required by Section 611.860.

BOARD NOTE: Derived from 40 CFR 141.629 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

SUBPART Z: ENHANCED TREATMENT FOR CRYPTOSPORIDIUM

Section 611.1000 General Requirements

a) The requirements of this Subpart Z are NPDWRs. The regulations in this Subpart Z establish or extend treatment technique requirements in lieu of maximum contaminant levels for Cryptosporidium. These requirements are in addition to requirements for filtration and disinfection in Subparts B, R, and X of this Part.

b) Applicability. The requirements of this Subpart Z apply to all Subpart B systems, which are PWSs supplied by a surface water source and PWSs supplied by a groundwater source under the direct influence of surface water.

1) A wholesale system supplier, as defined in Section 611.102, must comply with the requirements of this Subpart Z based on the population of the largest system in the combined distribution system.

2) The requirements of this Subpart Z for filtered system suppliers apply to a supplier required by NPDWRs to provide filtration treatment, whether or not the supplier is currently operating a filtration system.

3) The requirements of this Subpart Z for an unfiltered system supplier apply only to an unfiltered system supplier that timely met and has continued to meet the filtration avoidance criteria in Subparts B, R, and X of this Part, as applicable.

c) Requirements. A supplier subject to this Subpart Z must comply with the following requirements:

1) The supplier must conduct an initial and a second round of source water monitoring for each plant that treats a surface water or groundwater under the direct influence of surface water source. This monitoring may include sampling for Cryptosporidium, E. coli, and turbidity as described in Sections 611.1001 through 611.1006, to determine what level, if any, of additional Cryptosporidium treatment the supplier must provide.

2) The supplier that plans to make a significant change to its disinfection practice must develop disinfection profiles and calculate disinfection benchmarks, as described in Sections 611.1008 through 611.1009.

3) A filtered system supplier must determine its Cryptosporidium treatment bin classification as described in Section 611.1010, and provide additional treatment for Cryptosporidium, if required, as described in Section 611.1011. An unfiltered system supplier must provide treatment for Cryptosporidium as described in Section 611.1012. A filtered or unfiltered system supplier must implement Cryptosporidium treatment according to the schedule in Section 611.1013.

4) A supplier whose system has uncovered finished water storage facilities must comply with the requirements to cover the facility or treat the discharge from the facility as described in Section 611.1014.

5) A supplier required to provide additional treatment for Cryptosporidium must implement microbial toolbox options that are designed and operated as described in Sections 611.1015 through 611.1020.

6) The supplier must comply with the applicable recordkeeping and reporting requirements described in Sections 611.1021 and 611.1022.

7) The supplier must address significant deficiencies identified in sanitary surveys performed by USEPA or the Agency, as described in Section 611.1023.

BOARD NOTE: Derived from 40 CFR 141.700 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.1001 Source Water Monitoring Requirements: Source Water Monitoring

a) Initial round of source water monitoring. A supplier must conduct the following monitoring on the schedule in subsection (c) of this Section, unless it meets the monitoring exemption criteria in subsection (d) of this Section.

1) A filtered system supplier that serves 10,000 or more people must sample its source water for Cryptosporidium, E. coli, and turbidity at least monthly for 24 months.

2) An unfiltered system supplier that serves 10,000 or more people must sample its source water for Cryptosporidium at least monthly for 24 months.

3) Smaller system suppliers monitoring for E. coli.

   A) A filtered system supplier that serves fewer than 10,000 people must sample its source water for E. coli at least once every two weeks for 12 months.

   B) A filtered system supplier that serves fewer than 10,000 people may avoid E. coli monitoring if the system notifies the Agency that it will monitor for Cryptosporidium as described in subsection (a)(4) of this Section. The system must notify the Agency no later than three months prior to the date before which the system is otherwise required to start E. coli monitoring pursuant to Section 611.1001(c).

4) Smaller system suppliers monitoring for Cryptosporidium. A filtered system supplier that serves fewer than 10,000 people must sample its source water for Cryptosporidium at least twice per month for 12 months or at least monthly for 24 months if it meets any of the conditions set forth in subsections (a)(4)(A) through (a)(4)(C) of this Section, subject to the limitations of subsection (a)(4)(D) of this Section, based on monitoring conducted pursuant to subsection (a)(3) of this Section.

   A) For a supplier that uses a lake or reservoir source, the annual mean E. coli concentration is greater than 10 E. coli/100 mℓ.

   B) For a supplier that uses a flowing stream source, the annual mean E. coli concentration is greater than 50 E. coli/ 100 mℓ.

   C) The supplier does not conduct E. coli monitoring as described in subsection (a)(3) of this Section.

   D) A supplier that uses groundwater under the direct influence of surface water must comply with the requirements of subsection (a)(4) of this Section based on the E. coli level that applies to the nearest surface water body. If no surface water body is nearby, the system must comply based on the requirements that apply to a supplier that uses a lake or reservoir source.

5) For a filtered system supplier that serves fewer than 10,000 people, the Agency may, by a SEP issued pursuant to Section 611.110, approve monitoring for an indicator other than E. coli pursuant to subsection (a)(3) of this Section. The Agency may also, by a SEP issued pursuant to Section 611.110, approve an alternative to the E. coli concentration in subsection (a)(4)(A), (a)(4)(B) or (a)(4)(D) of this Section to trigger Cryptosporidium monitoring. This approval by the Agency must be provided to the supplier in writing, and it must include the basis for the Agency's determination that the alternative indicator or trigger level will provide a more accurate identification of whether a system will exceed the Bin 1 Cryptosporidium level set forth in Section 611.1010.

6) An unfiltered system supplier that serves fewer than 10,000 people must sample its source water for Cryptosporidium at least twice per month for 12 months or at least monthly for 24 months.

7) A supplier may sample more frequently than required by this Section if the sampling frequency is evenly spaced throughout the monitoring period.

b) Second round of source water monitoring. A supplier must conduct a second round of source water monitoring that meets the requirements for monitoring parameters, frequency, and duration described in subsection (a) of this Section, unless it meets the monitoring exemption criteria in subsection (d) of this Section. The supplier must conduct this monitoring on the schedule set forth in subsection (c) of this Section.

c) Monitoring schedule. A supplier must begin the monitoring required in subsections (a) and (b) of this Section no later than the month beginning with the applicable date listed in subsections (c)(1) through (c)(5) of this Section.

1) A supplier that serves 100,000 or more persons is required to have begun the first round of source water monitoring no later than the month beginning October 1, 2006, and it must begin the second round of source water monitoring no later than the month beginning April 1, 2015.

2) A supplier that serves 50,000 to 99,999 persons is required to have begun the first round of source water monitoring no later than the month beginning April 1, 2007, and it must begin the second round of source water monitoring no later than the month beginning October 1, 2015.

3) A supplier that serves 10,000 to 49,999 persons is required to have begun the first round of source water monitoring no later than the month beginning April 1, 2008, and it must begin the second round of source water monitoring no later than the month beginning October 1, 2016.

4) A supplier that serves fewer than 10,000 persons, that is a filtered system supplier, and which monitors for E. coli is required to have begun the first round of source water monitoring no later than the month beginning October 1, 2008, and it must begin the second round of source water monitoring no later than the month beginning October 1, 2017.

5) A supplier that serves fewer than 10,000 persons, that is an unfiltered system supplier, or that is a filtered system supplier which meets the conditions of subsection (a)(4) of this Section, and which monitors for Cryptosporidium, is required to have begun the first round of source water monitoring no later than the month beginning April 1, 2010, and it must begin the second round of source water monitoring no later than the month beginning April 1, 2019.

d) Monitoring avoidance.

1) A filtered system supplier is not required to conduct source water monitoring pursuant to this Subpart Z if the system will provide a total of at least 5.5-log of treatment for Cryptosporidium, equivalent to meeting the treatment requirements of Bin 4 in Section 611.1011.

2) An unfiltered system supplier is not required to conduct source water monitoring pursuant to this Subpart Z if the system will provide a total of at least 3-log Cryptosporidium inactivation, equivalent to meeting the treatment requirements for an unfiltered system supplier with a mean Cryptosporidium concentration of greater than 0.01 oocysts/ℓ in Section 611.1012.

3) If a supplier chooses to provide the level of treatment set forth in subsection (d)(1) or (d)(2) of this Section, as applicable, rather than start source water monitoring, it must notify the Agency in writing no later than the date on which the system is otherwise required to submit a sampling schedule for monitoring pursuant to Section 611.1002. Alternatively, a supplier may choose to stop sampling at any point after it has initiated monitoring if it notifies the Agency in writing that it will provide this level of treatment. The supplier must install and operate technologies to provide this level of treatment before the applicable treatment compliance date set forth in Section 611.1013.

e) Plants operating only part of the year. A supplier that has a Subpart B plant that operates for only part of the year must conduct source water monitoring in accordance with this Subpart Z, but with the following modifications:

1) The supplier must sample its source water only during the months that the plant operates, unless the Agency, by a SEP issued pursuant to Section 611.110, specifies another monitoring period based on plant operating practices.

2) A supplier with plants that operate less than six months per year and which monitors for Cryptosporidium must collect at least six Cryptosporidium samples per year during each of two years of monitoring. Samples must be evenly spaced throughout the period during which the plant operates.

f) New sources and new systems.

1) New sources. A supplier that begins using a new source of surface water or groundwater under the direct influence of surface water after the supplier is required to begin monitoring pursuant to subsection (c) of this Section must monitor the new source on a schedule that the Agency has approved by a SEP issued pursuant to Section 611.110. Source water monitoring must meet the requirements of this Subpart Z. The supplier must also meet the bin classification and Cryptosporidium treatment requirements of Sections 611.1010 and 611.1011 or Section 611.1012, as applicable, for the new source on a schedule that the Agency has approved by a SEP issued pursuant to Section 611.110.

2) The requirements of Section 611.1001(f) apply to a Subpart B system supplier that begins operation after the applicable monitoring start date set forth in subsection (c) of this Section.

3) The supplier must begin a second round of source water monitoring no later than six years following initial bin classification pursuant to Section 611.1010 or determination of the mean Cryptosporidium level pursuant to Section 611.1012.

g) Failure to collect any source water sample required under this Section in accordance with the sampling schedule, sampling location, analytical method, approved laboratory, and reporting requirements of Sections 611.1002 through 611.1006 is a monitoring violation.

h) Grandfathering monitoring data. A supplier may use (grandfather) monitoring data collected prior to the applicable monitoring start date in subsection (c) of this Section to meet the initial source water monitoring requirements in subsection (a) of this Section. Grandfathered data may substitute for an equivalent number of months at the end of the monitoring period. All data submitted pursuant to this subsection must meet the requirements set forth in Section 611.1007.

BOARD NOTE: Derived from 40 CFR 141.701 (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.1002 Source Water Monitoring Requirements: Sampling Schedules

a) A supplier required to conduct source water monitoring pursuant to Section 611.1001 must submit a sampling schedule that specifies the calendar dates on which it will collect each required sample.

1) The supplier must submit sampling schedules no later than three months prior to the applicable date listed in Section 611.1001(c) for each round of required monitoring.

2) Submission of the sampling schedule to USEPA.

A) A supplier that serves 10,000 or more people must submit its sampling schedule for the initial round of source water monitoring pursuant to Section 611.1001(a) to USEPA electronically at https://intranet.epa.gov/lt2/.

B) If a supplier is unable to submit the sampling schedule electronically, the supplier may use an alternative approach for submitting the sampling schedule that USEPA approves.

3) A supplier that serves fewer than 10,000 people must submit to the Agency its sampling schedules for the initial round of source water monitoring Section 611.1001(a).

4) A supplier must submit to the Agency sampling schedules for the second round of source water monitoring required by Section 611.1001(b).

5) If USEPA or the Agency does not respond to a supplier regarding its sampling schedule, the supplier must sample at the reported schedule.

b) A supplier must collect samples within two days before or two days after the dates indicated in its sampling schedule (i.e., within a five-day period around the schedule date) unless one of the conditions of subsection (b)(1) or (b)(2) of this Section applies.

1) If an extreme condition or situation exists that may pose danger to the sample collector, or one that cannot be avoided and which causes the supplier to be unable to sample in the scheduled five-day period, the supplier must sample as close to the scheduled date as is feasible, unless the Agency approves an alternative sampling date by a SEP issued pursuant to Section 611.110. The supplier must submit an explanation for

the delayed sampling date to the Agency concurrent with the shipment of the sample to the laboratory.

2) Replacement samples.

A) If a supplier is unable to report a valid analytical result for a scheduled sampling date due to equipment failure; loss of or damage to the sample; failure to comply with the analytical method requirements, including the quality control requirements in Section 611.1004; or the failure of an approved laboratory to analyze the sample, then the supplier must collect a replacement sample.

B) The supplier must collect the replacement sample not later than 21 days after receiving information that an analytical result cannot be reported for the scheduled date, unless the supplier demonstrates that collecting a replacement sample within this time frame is not feasible or the Agency approves an alternative resampling date by a SEP issued pursuant to Section 611.110. The supplier must submit an explanation for the delayed sampling date to the Agency concurrent with the shipment of the sample to the laboratory.

c) A supplier that fails to meet the criteria of subsection (b) of this Section for any source water sample required pursuant to Section 611.1001 must revise its sampling schedule to add dates for collecting all missed samples. A supplier must submit the revised schedule to the Agency for approval prior to collecting the missed samples.

BOARD NOTE: Derived from 40 CFR 141.702 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.1003 Source Water Monitoring Requirements: Sampling Locations

a) A supplier required to conduct source water monitoring pursuant to Section 611.1001 must collect samples for each plant that treats a surface water or groundwater under the direct influence of surface water source. Where multiple plants draw water from the same influent, such as the same pipe or intake, the Agency may, by a SEP issued pursuant to Section 611.110, approve one set of monitoring results to be used to satisfy the requirements of Section 611.1001 for all of the plants.

b) Source water sampling.

1) A supplier must collect source water samples prior to chemical treatment, such as coagulants, oxidants, and disinfectants, unless the supplier meets the condition of subsection (b)(2) of this Section.

2) The Agency may, by a SEP issued pursuant to Section 611.110, approve a supplier to collect a source water sample after chemical treatment. To grant this approval, the Agency must determine that collecting a sample prior to chemical treatment is not feasible for the supplier and that the chemical treatment is unlikely to have a significant adverse effect on the analysis of the sample.

c) A supplier that recycles filter backwash water must collect source water samples prior to the point of filter backwash water addition.

d) Bank filtration.

1) A supplier that receives Cryptosporidium treatment credit for bank filtration pursuant to Section 611.743(b) or Section 611.955(c)(1), as applicable, must collect source water samples in the surface water prior to bank filtration.

2) A supplier that uses bank filtration as pretreatment to a filtration plant must collect source water samples from the well (i.e., after bank filtration). The use of bank filtration during monitoring must be consistent with routine operational practice. A supplier collecting samples after a bank filtration process may not receive treatment credit for the bank filtration pursuant to Section 611.1017(c).

e) Multiple sources. A supplier with plants that use multiple water sources, including multiple surface water sources and blended surface water and groundwater sources, must collect samples as specified in subsection (e)(1) or (e)(2) of this Section. The use of multiple sources during monitoring must be consistent with routine operational practice.

1) If a sampling tap is available where the sources are combined prior to treatment, the supplier must collect samples from the tap.

2) If a sampling tap where the sources are combined prior to treatment is not available, the supplier must collect samples at each source near the intake on the same day, and it must follow either of the following procedures for sample analysis:

A) The supplier may composite samples from each source into one sample prior to analysis. The volume of sample from each source

must be weighted according to the proportion of the source in the total plant flow at the time the sample is collected; or

B) The supplier may analyze samples from each source separately and calculate a weighted average of the analysis results for each sampling date. The weighted average must be calculated by multiplying the analysis result for each source by the fraction the source contributed to total plant flow at the time the sample was collected and then summing these values.

f) Additional Requirements. A supplier must submit a description of its sampling locations to the Agency at the same time as the sampling schedule required pursuant to Section 611.1002. This description must address the position of the sampling location in relation to the supplier's water sources and treatment processes, including pretreatment, points of chemical treatment, and filter backwash recycle. If the Agency does not respond to a supplier regarding sampling locations, the supplier must sample at the reported locations.

BOARD NOTE: Derived from 40 CFR 141.703 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.1004 Source Water Monitoring Requirements: Analytical Methods

a) Cryptosporidium. A supplier must analyze for Cryptosporidium using USEPA OGWDW Methods, Method 1623 (05), 1623.1, or 1622 (05), each incorporated by reference in Section 611.102, or alternative methods approved by the Agency pursuant to Section 611.480.

1) The supplier must analyze at least a 10 ℓ sample or a packed pellet volume of at least 2 mℓ as generated by the methods listed in subsection (a) of this Section. A supplier unable to process a 10 ℓ sample must analyze as much sample volume as can be filtered by two filters approved by USEPA for the methods listed in subsection (a) of this Section, up to a packed pellet volume of at least 2 mℓ.

2) Matrix spike (MS) samples.

A) MS samples, as required by the methods in subsection (a) of this Section, must be spiked and filtered by a laboratory approved for Cryptosporidium analysis pursuant to Section 611.1005.

B) If the volume of the MS sample is greater than 10 ℓ, the supplier may filter all but 10 ℓ of the MS sample in the field, and ship the filtered sample and the remaining 10 ℓ of source water to the laboratory. In this case, the laboratory must spike the remaining 10 ℓ of water and filter it through the filter used to collect the balance of the sample in the field.

3) Flow cytometer-counted spiking suspensions must be used for MS samples and ongoing precision and recovery samples.

b) E. coli. A supplier must use methods for enumeration of E. coli in source water approved in 40 CFR 136.3(a), incorporated by reference in Section 611.102, or alternative methods approved by the Agency pursuant to Section 611.480.

1) The time from sample collection to initiation of analysis may not exceed 30 hours, unless the supplier meets the condition of subsection (b)(2) of this Section.

2) The Agency may, by a SEP issued pursuant to Section 611.110, approve on a case-by-case basis the holding of an E. coli sample for up to 48 hours between sample collection and initiation of analysis if it determines that analyzing an E. coli sample within 30 hours is not feasible. E. coli samples held between 30 to 48 hours must be analyzed by the Colilert® Test reagent version of Standard Methods, 18th, 19th, or 20th ed., Method 9223 B incorporated by reference in Section 611.102.

3) A supplier must maintain the temperature of its samples between 0ºC and 10ºC during storage and transit to the laboratory.

4) The supplier may use the membrane filtration, two-step procedure described in Standard Methods, 20th ed., Method 9222 D and G, incorporated by reference in Section 611.102.

BOARD NOTE: On June 3, 2008 (at 73 Fed. Reg. 31616), USEPA added appendix A to subpart C of 40 CFR 141, which authorized alternative methods to those listed for E. coli by multiple-tube technique at corresponding 40 CFR 141.402(c)(2) to allow the use of Standard Methods for the Examination of Water and Wastewater, 20th ed., Method 9222 D and G.

c) Turbidity. A supplier must use methods for turbidity measurement approved in Section 611.531(a).

BOARD NOTE: Derived from 40 CFR 141.704 and appendix A to subpart C of 40 CFR 141 (2014).

(Source: Amended at 39 Ill. Reg. 3713, effective March 13, 2015)

Section 611.1005 Source Water Monitoring Requirements: Approved Laboratories

a) Cryptosporidium. A supplier must have Cryptosporidium samples analyzed by a laboratory that is approved under USEPA's Laboratory Quality Assurance Evaluation Program for Analysis of Cryptosporidium in Water or a certified laboratory in one of the categories listed in Section 611.490(a) that has been certified for Cryptosporidium analysis.

b) E. coli. Any laboratory certified, by the National Environmental Laboratory Accreditation Conference, or by a certified laboratory in one of the categories listed in Section 611.490(a) that has been certified for total coliform or fecal

coliform analysis pursuant to Section 611.531 is approved for E. coli analysis pursuant to this Subpart Z when the laboratory uses the same technique for E. coli that the laboratory uses for the purposes of Section 611.531.

c) Turbidity. Measurements of turbidity must be made by a party approved by the Agency.

BOARD NOTE: Derived from 40 CFR 141.705 (2013).

(Source: Amended at 38 Ill. Reg. 9792, effective April 21, 2014)

Section 611.1006 Source Water Monitoring Requirements: Reporting Source Water Monitoring Results

a) A supplier must report results from the source water monitoring required pursuant to Section 611.1001 no later than 10 days after the end of the first month following the month when the sample is collected.

b) Submission of analytical results to USEPA.

1) A supplier that serves at least 10,000 people must report the results from the initial source water monitoring required pursuant to Section 611.1001(a) to USEPA electronically at https://intranet.epa.gov/lt2/.

2) If a supplier is unable to report monitoring results electronically, the supplier may use an alternative approach for reporting monitoring results that USEPA approves.

c) A supplier that serves fewer than 10,000 people must report results from the initial source water monitoring required pursuant to Section 611.1001(a) to the Agency.

d) A supplier must report results from the second round of source water monitoring required pursuant to Section 611.1001(b) to the Agency.

e) A supplier must report the applicable information in subsections (e)(1) and (e)(2) of this Section for the source water monitoring required pursuant to Section 611.1001.

1) A supplier must report the data elements set forth in subsection (e)(1)(D) of this Section for each Cryptosporidium analysis.

A) For matrix spike samples, a supplier must also report the sample volume spiked and estimated number of oocysts spiked. These data are not required for field samples.

B) For samples in which less than 10 ℓ is filtered or less than 100% of the sample volume is examined, the supplier must also report the number of filters used and the packed pellet volume.

C) For samples in which less than 100% of sample volume is examined, the supplier must also report the volume of resuspended concentrate and volume of this resuspension processed through immunomagnetic separation.

D) Data elements.

i) The PWS ID;

ii) The Facility ID;

iii) The sample collection date;

iv) The sample type (field or matrix spike);

v) The sample volume filtered (ℓ), to nearest 1⁄4 ℓ;

vi) Whether 100 percent of the filtered volume was examined; and

vii) The number of oocysts counted.

BOARD NOTE: Subsection (e)(1)(D) is derived from unnumbered tabulated text in 40 CFR 141.706(e)(1) (2006).

2) A supplier must report the following data elements for each E. coli analysis:

A) The PWS ID;

B) The Facility ID;

C) The sample collection date;

D) The analytical method number;

E) The method type;

F) The source type (flowing stream, lake or reservoir, groundwater under the direct influence of surface water);

G) The E. coli count per 100 mℓ.

H) The turbidity, except that a supplier which serves fewer than 10,000 people that is not required to monitor for turbidity pursuant to Section 611.1001 is not required to report turbidity with its E. coli results.

BOARD NOTE: Derived from 40 CFR 141.706 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.1007 Source Water Monitoring Requirements: Grandfathering Previously Collected Data

a) Initial source monitoring and Cryptosporidium samples.

1) A supplier may comply with the initial source water monitoring requirements of Section 611.1001(a) by grandfathering sample results collected before the supplier is required to begin monitoring (i.e., previously collected data). To be grandfathered, the sample results and analysis must meet the criteria in this Section and the Agency must approve the use of the data by a SEP issued pursuant to Section 611.110.

2) A filtered system supplier may grandfather Cryptosporidium samples to meet the requirements of Section 611.1001(a) when the supplier does not have corresponding E. coli and turbidity samples. A supplier that grandfathers Cryptosporidium samples without E. coli and turbidity samples is not required to collect E. coli and turbidity samples when it completes the requirements for Cryptosporidium monitoring pursuant to Section 611.1001(a).

b) E. coli sample analysis. The analysis of E. coli samples must meet the analytical method and approved laboratory requirements of Sections 611.1004 and 611.1005.

c) Cryptosporidium sample analysis. The analysis of Cryptosporidium samples must meet the criteria in this subsection (c).

1) Laboratories must analyze Cryptosporidium samples using one of the following analytical methods, or alternative methods approved by the Agency pursuant to Section 611.480:

A) USEPA OGWDW Methods, Method 1623 (05), incorporated by reference in Section 611.102;

B) USEPA OGWDW Methods, Method 1622 (05), incorporated by reference in Section 611.102;

C) USEPA OGWDW Methods, Method 1623 (01), incorporated by reference in Section 611.102;

D) USEPA OGWDW Methods, Method 1622 (01), incorporated by reference in Section 611.102;

E) USEPA OGWDW Methods, Method 1623 (99), incorporated by reference in Section 611.102; or

F) USEPA OGWDW Methods, Method 1622 (99), incorporated by reference in Section 611.102.

2) For each Cryptosporidium sample, the laboratory analyzed at least 10 ℓ of sample or at least 2 mℓ of packed pellet or as much volume as could be filtered by two filters that USEPA approved for the methods listed in subsection (c)(1) of this Section.

d) Sampling location. The sampling location must meet the conditions in Section 611.1003.

e) Sampling frequency. Cryptosporidium samples were collected no less frequently than each calendar month on a regular schedule, beginning no earlier than January 1999. Sample collection intervals may vary for the conditions specified in Section 611.1002(b)(1) and (b)(2) if the supplier provides documentation of the condition when reporting monitoring results.

1) The Agency may, by a SEP issued pursuant to Section 611.110, approve grandfathering of previously collected data where there are time gaps in

the sampling frequency if the supplier conducts additional monitoring that the Agency has specified by a SEP issued pursuant to Section 611.110 to ensure that the data used to comply with the initial source water monitoring requirements of Section 611.1001(a) are seasonally representative and unbiased.

2) A supplier may grandfather previously collected data where the sampling frequency within each month varied. If the Cryptosporidium sampling frequency varied, the supplier must follow the monthly averaging procedure in Section 611.1010(b)(5) or Section 611.1012(a)(3), as applicable, when calculating the bin classification for a filtered system supplier or the mean Cryptosporidium concentration for an unfiltered system supplier.

f) Reporting monitoring results for grandfathering. A supplier that requests to grandfather previously collected monitoring results must report the following information by the applicable dates listed in this subsection. A supplier must report this information to the Agency.

1) A supplier must report that it intends to submit previously collected monitoring results for grandfathering. This report must specify the number of previously collected results the supplier will submit, the dates of the first and last sample, and whether a supplier will conduct additional source water monitoring to meet the requirements of Section 611.1001(a). The supplier must report this information no later than the applicable date set forth in Section 611.1002.

2) A supplier must report previously collected monitoring results for grandfathering, along with the associated documentation listed in subsections (f)(2)(A) through (f)(2)(D) of this Section, no later than two months after the applicable date listed in Section 611.1001(c).

A) For each sample result, a supplier must report the applicable data elements in Section 611.1006.

B) A supplier must certify that the reported monitoring results include all results that it generated during the time period beginning with the first reported result and ending with the final reported result. This applies to samples that were collected from the sampling location specified for source water monitoring pursuant to this Subpart Z, which were not spiked, and which were analyzed using

the laboratory's routine process for the analytical methods listed in this Section.

C) The supplier must certify that the samples were representative of a plant's source waters and the source waters have not changed. It must report a description of the sampling locations, which must address the position of the sampling location in relation to its water sources and treatment processes, including points of chemical addition and filter backwash recycle.

D) For Cryptosporidium samples, the laboratory or laboratories that analyzed the samples must provide a letter certifying that the quality control criteria specified in the methods listed in subsection (c)(1) of this Section were met for each sample batch associated with the reported results. Alternatively, the laboratory may provide bench sheets and sample examination report forms for each field, matrix spike, initial precision and recovery, ongoing precision and recovery, and method blank sample associated with the reported results.

g) If the Agency determines that a previously collected data set submitted for grandfathering was generated during source water conditions that were not normal for the supplier, such as a drought, the Agency may, by a SEP issued pursuant to Section 611.110, disapprove the data. Alternatively, the Agency may, by a SEP issued pursuant to Section 611.110, approve the previously collected data if the supplier reports additional source water monitoring data, as determined by the Agency, to ensure that the data set used pursuant to Section 611.1010 or Section 611.1012 represents average source water conditions for the supplier.

h) If a supplier submits previously collected data that fully meet the number of samples required for initial source water monitoring pursuant to Section 611.1001(a), and some of the data are rejected due to not meeting the requirements of this Section, the supplier must conduct additional monitoring to replace rejected data on a schedule that the Agency has approved by a SEP issued pursuant to Section 611.110. A supplier is not required to begin this additional monitoring until two months after notification that data have been rejected and additional monitoring is necessary.

BOARD NOTE: Derived from 40 CFR 141.707 (2013).

(Source: Amended at 38 Ill. Reg. 3608, effective January 27, 2014)

Section 611.1008 Disinfection Profiling and Benchmarking Requirements: Requirements When Making a Significant Change in Disinfection Practice

a) Following the completion of initial source water monitoring pursuant to Section 611.1001(a), a supplier that plans to make a significant change to its disinfection practice, as defined in subsection (b) of this Section, must develop disinfection profiles and calculate disinfection benchmarks for Giardia lamblia and viruses, as described in Section 611.1009. Prior to changing the disinfection practice, the supplier must notify the Agency, and it must include in this notice the following information:

1) A completed disinfection profile and disinfection benchmark for Giardia lamblia and viruses, as described in Section 611.1009;

2) A description of the proposed change in disinfection practice; and

3) An analysis of how the proposed change will affect the current level of disinfection.

b) Significant changes to disinfection practice are defined as any of the following:

1) Changes to the point of disinfection;

2) Changes to the disinfectants used in the treatment plant;

3) Changes to the disinfection process; or

4) Any other modification identified by the Agency, by a SEP issued pursuant to Section 611.110, as a significant change to disinfection practice.

BOARD NOTE: Derived from 40 CFR 141.708 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.1009 Disinfection Profiling and Benchmarking Requirements: Developing the Disinfection Profile and Benchmark

a) A supplier required to develop disinfection profiles pursuant to Section 611.1008 must follow the requirements of this Section. The supplier must monitor at least weekly for a period of 12 consecutive months to determine the total log inactivation for Giardia lamblia and viruses. If the supplier monitors more frequently than weekly, the monitoring frequency must be evenly spaced. A supplier that operates for fewer than 12 months per year must monitor weekly

during the period of operation. A supplier must determine log inactivation for Giardia lamblia through the entire plant, based on the applicable $CT_{99.9}$ values in Appendix B to this Part. A supplier must determine log inactivation for viruses through the entire treatment plant based on a protocol approved by the Agency by a SEP issued pursuant to Section 611.110.

b) A supplier with a single point of disinfectant application prior to the entrance to the distribution system must conduct the monitoring in subsections (b)(1) through (b)(4) of this Section. A supplier with more than one point of disinfectant application must conduct the monitoring in subsections (b)(1) through (b)(4) of this Section for each disinfection segment. A supplier must monitor the parameters necessary to determine the total inactivation ratio, using analytical methods in Section 611.531.

1) For a supplier using a disinfectant other than UV, the temperature of the disinfected water must be measured at each residual disinfectant concentration sampling point during peak hourly flow or at an alternative location approved by the Agency by a SEP issued pursuant to Section 611.110.

2) For a supplier using chlorine, the pH of the disinfected water must be measured at each chlorine residual disinfectant concentration sampling point during peak hourly flow or at an alternative location approved by the Agency by a SEP issued pursuant to Section 611.110.

3) The disinfectant contact times (t) must be determined during peak hourly flow.

4) The residual disinfectant concentrations (C) of the water before or at the first customer and prior to each additional point of disinfectant application must be measured during peak hourly flow.

c) In lieu of conducting new monitoring pursuant to subsection (b) of this Section, a supplier may elect to meet the following requirements:

1) A supplier that has at least one year of existing data that are substantially equivalent to data collected pursuant to the provisions of subsection (b) of this Section may use these data to develop disinfection profiles as specified in this Section if the supplier has neither made a significant change to its treatment practice nor changed sources since the data were collected. The supplier may develop disinfection profiles using up to three years of existing data.

2) A supplier may use disinfection profiles developed pursuant to Section 611.742 or Section 611.953 in lieu of developing a new profile if the

supplier has neither made a significant change to its treatment practice nor changed sources since the profile was developed. A supplier that has not developed a virus profile pursuant to Section 611.742 or Section 611.953 must develop a virus profile using the same monitoring data on which the Giardia lamblia profile is based.

d) A supplier must calculate the total inactivation ratio for Giardia lamblia, as specified in subsections (d)(1) through (d)(3) of this Section.

1) A supplier using only one point of disinfectant application may determine the total inactivation ratio for the disinfection segment based on either of the following methods:

A) It may determine one inactivation ratio (Ai) before or at the first customer during peak hourly flow; or

B) It may determine successive Ai values, representing sequential inactivation ratios, between the point of disinfectant application and a point before or at the first customer during peak hourly flow. The supplier must calculate the total inactivation ratio by determining Ai for each sequence and then adding the Ai values together to determine the total inactivation ratio (Σ Ai).

2) A supplier using more than one point of disinfectant application before the first customer must determine the CT value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow. The Ai value of each segment and Σ Ai must be calculated using the method in subsection (d)(1)(B) of this Section.

3) The supplier must determine the total logs of inactivation by multiplying the value calculated in subsection (d)(1) or (d)(2) of this Section by 3.0.

4) The supplier must calculate the log of inactivation for viruses using a protocol approved by the Agency by regulation or by a SEP issued pursuant to Section 611.110.

e) A supplier must use the following procedures to calculate a disinfection benchmark:

1) For each year of profiling data collected and calculated pursuant to subsections (a) through (d) of this Section, the supplier must determine the lowest mean monthly level of both Giardia lamblia and virus inactivation. A supplier must determine the mean Giardia lamblia and virus inactivation for each calendar month for each year of profiling data by dividing the sum

of daily or weekly Giardia lamblia and virus log inactivation by the number of values calculated for that month.

2) The disinfection benchmark is the lowest monthly mean value (for a supplier with one year of profiling data) or the mean of the lowest monthly mean values (for a supplier with more than one year of profiling data) of Giardia lamblia and virus log inactivation in each year of profiling data.

BOARD NOTE: Derived from 40 CFR 141.709 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.1010 Treatment Technique Requirements: Bin Classification for Filtered Suppliers

a) Following completion of the initial round of source water monitoring required pursuant to Section 611.1001(a), a filtered system supplier must calculate an initial Cryptosporidium bin concentration for each plant for which monitoring was required. Calculation of the bin concentration must use the Cryptosporidium results reported pursuant to Section 611.1001(a) and must follow the appropriate of the procedures set forth in subsection (b) of this Section.

b) Bin concentration calculation procedures.

1) For a supplier that collects a total of at least 48 samples, the bin concentration is equal to the arithmetic mean of all sample concentrations.

2) For a supplier that collects a total of at least 24 samples, but not more than 47 samples, the bin concentration is equal to the highest arithmetic mean of all sample concentrations in any 12 consecutive months during which Cryptosporidium samples were collected.

3) For a supplier that serves fewer than 10,000 people and which monitors for Cryptosporidium for only one year (i.e., collect 24 samples in 12 months), the bin concentration is equal to the arithmetic mean of all sample concentrations.

4) For a supplier with plants operating only part of the year that monitors fewer than 12 months per year pursuant to Section 611.1001(e), the bin concentration is equal to the highest arithmetic mean of all sample concentrations during any year of Cryptosporidium monitoring.

5) If the monthly Cryptosporidium sampling frequency varies, a supplier must first calculate a monthly average for each month of monitoring. A supplier must then use these monthly average concentrations, rather than

individual sample concentrations, in the applicable calculation for bin classification in subsections (b)(1) through (b)(4) of this Section.

c) A filtered system supplier must determine its initial bin classification according to subsections (c)(1) through (c)(5), subject to the limitations of subsection (c)(6) of this Section, and using the Cryptosporidium bin concentration calculated pursuant to subsections (a) and (b) of this Section.

1) For a supplier that is required to monitor for Cryptosporidium pursuant to Section 611.1001 and which has a Cryptosporidium bin concentration of less than 0.075 oocysts/ℓ, the bin classification is Bin 1.

2) For a supplier that is required to monitor for Cryptosporidium pursuant to Section 611.1001 and which has a Cryptosporidium bin concentration of 0.075 oocysts/ℓ or more, but less than 1.0 oocysts/ℓ, the bin classification is Bin 2.

3) For a supplier that is required to monitor for Cryptosporidium pursuant to Section 611.1001 and which has a Cryptosporidium bin concentration of 1.0 oocysts/ℓ or more, but less than 3.0 oocysts/ℓ, the bin classification is Bin 3.

4) For a supplier that is required to monitor for Cryptosporidium pursuant to Section 611.1001 and which has a Cryptosporidium bin concentration of 3.0 oocysts/ℓ or more, the bin classification is Bin 4.

5) For a supplier that that serves fewer than 10,000 people and which is not required to monitor for Cryptosporidium pursuant to Section 611.1001(a)(4), the bin classification is Bin 1.

6) The Cryptosporidium concentration is based on the applicable of the calculations set forth in subsection (a) or (d) of this Section.

d) Following completion of the second round of source water monitoring required pursuant to Section 611.1001(b), a filtered system supplier must recalculate its Cryptosporidium bin concentration using the Cryptosporidium results reported pursuant to Section 611.1001(b) and following the applicable of the procedures set forth in subsection (b)(1) through (b)(4) of this Section. A supplier must then redetermine its bin classification using this bin concentration and subsection (c) of this Section.

e) Reporting the bin classification.

1) A filtered system supplier must report its initial bin classification pursuant to subsection (c) of this Section to the Agency for approval no later than

six months after the supplier is required to complete initial source water monitoring based on the applicable schedule set forth in Section 611.1001(c).

2) A supplier must report its bin classification pursuant to subsection (d) of this Section to the Agency for approval no later than six months after the supplier is required to complete the second round of source water monitoring based on the applicable schedule set forth in Section 611.1001(c).

3) The bin classification report to the Agency must include a summary of source water monitoring data and the calculation procedure used to determine bin classification.

f) A failure to comply with the conditions of subsection (e) of this Section is a violation of the treatment technique requirement.

BOARD NOTE: Derived from 40 CFR 141.710 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.1011 Treatment Technique Requirements: Filtered System Additional Cryptosporidium Treatment Requirements

a) A filtered system supplier must provide the level of additional treatment for Cryptosporidium specified in subsections (a)(1) through (a)(4) of this Section based on its bin classification, as determined pursuant to Section 611.1010, and according to the applicable schedule set forth in Section 611.1013.

1) If the supplier's bin classification is Bin 1, and the supplier uses conventional filtration treatment (including softening) in full compliance with the applicable provisions of Subparts B, R, and X of this Part, no additional treatment is required.

2) If the supplier's bin classification is Bin 2, and the supplier uses conventional filtration treatment (including softening) in full compliance with the applicable provisions of Subparts B, R, and X of this Part, then the additional Cryptosporidium treatment requirements are a 1-log treatment.

3) If the supplier's bin classification is Bin 2, and the supplier uses direct filtration in full compliance with the applicable provisions of Subparts B, R, and X of this Part, then the additional Cryptosporidium treatment requirements are a 1.5-log treatment.

4) If the supplier's bin classification is Bin 2, and the supplier uses slow sand or diatomaceous earth filtration in full compliance with the applicable provisions of Subparts B, R, and X of this Part, then the additional Cryptosporidium treatment requirements are a 1-log treatment.

5) If the supplier's bin classification is Bin 2, and the supplier uses alternative filtration technologies in full compliance with the applicable provisions of Subparts B, R, and X of this Part, then the additional Cryptosporidium treatment requirements are as determined by the Agency, by a SEP issued pursuant to Section 611.110, such that the total Cryptosporidium removal and inactivation is at least 4.0-log.

6) If the supplier's bin classification is Bin 3, and the supplier uses conventional filtration treatment (including softening) in full compliance with the applicable provisions of Subparts B, R, and X of this Part, then the additional Cryptosporidium treatment requirements are a 2-log treatment.

7) If the supplier's bin classification is Bin 3, and the supplier uses direct filtration in full compliance with the applicable provisions of Subparts B, R, and X of this Part, then the additional Cryptosporidium treatment requirements are a 2.5-log treatment.

8) If the supplier's bin classification is Bin 3, and the supplier uses slow sand or diatomaceous earth filtration in full compliance with the applicable provisions of Subparts B, R, and X of this Part, then the additional Cryptosporidium treatment requirements are a 2-log treatment.

9) If the supplier's bin classification is Bin 3, and the supplier uses alternative filtration technologies in full compliance with the applicable provisions of Subparts B, R, and X of this Part, then the additional Cryptosporidium treatment requirements are as determined by the Agency, by a SEP issued pursuant to Section 611.110, such that the total Cryptosporidium removal and inactivation is at least 5.0-log.

10) If the supplier's bin classification is Bin 4, and the supplier uses conventional filtration treatment (including softening) in full compliance with the applicable provisions of Subparts B, R, and X of this Part, then the additional Cryptosporidium treatment requirements are a 2.5-log treatment.

11) If the supplier's bin classification is Bin 4, and the supplier uses direct filtration in full compliance with the applicable provisions of Subparts B, R, and X of this Part, then the additional Cryptosporidium treatment requirements are a 3-log treatment.

12) If the supplier's bin classification is Bin 4, and the supplier uses slow sand or diatomaceous earth filtration in full compliance with the applicable provisions of Subparts B, R, and X of this Part, then the additional Cryptosporidium treatment requirements are a 2.5-log treatment.

13) If the supplier's bin classification is Bin 4, and the supplier uses alternative filtration technologies in full compliance with the applicable provisions of Subparts B, R, and X of this Part, then the additional Cryptosporidium treatment requirements are as determined by the Agency, by a SEP issued pursuant to Section 611.110, such that the total Cryptosporidium removal and inactivation is at least 5.5-log.

b) Required treatment.

1) A filtered system supplier must use one or more of the treatment and management options listed in Section 611.1015, termed the microbial toolbox, to comply with the additional Cryptosporidium treatment required in subsection (a) of this Section.

2) A supplier classified in Bin 3 or Bin 4 must achieve at least 1-log of the additional Cryptosporidium treatment required pursuant to subsection (a) of this Section using either one or a combination of the following: bag filters, bank filtration, cartridge filters, chlorine dioxide, membranes, ozone, or UV, as described in Sections 611.1016 through 611.1020.

c) A failure by a supplier in any month to achieve treatment credit by meeting criteria in Sections 611.1016 through 611.1020 for microbial toolbox options that is at least equal to the level of treatment required in subsection (a) of this Section is a violation of the treatment technique requirement.

d) If the Agency determines, by a SEP issued pursuant to Section 611.110, during a sanitary survey or an equivalent source water assessment that after a supplier completed the monitoring conducted pursuant to Section 611.1001(a) or 611.1001(b), significant changes occurred in the supplier's watershed that could lead to increased contamination of the source water by Cryptosporidium, the supplier must take actions specified by the Agency in the SEP to address the contamination. These actions may include additional source water monitoring or implementing microbial toolbox options listed in Section 611.1015.

BOARD NOTE: Derived from 40 CFR 141.711 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.1012 Treatment Technique Requirements: Unfiltered System Cryptosporidium Treatment Requirements

a) Determination of the mean Cryptosporidium level.

1) Following completion of the initial source water monitoring required by Section 611.1001(a), an unfiltered system supplier is required to have calculated the arithmetic mean of all Cryptosporidium sample concentrations reported pursuant to Section 611.1001(a). The supplier is required to have reported this value to the Agency for approval no later than six months after the month the supplier is required to have completed initial source water monitoring based on the applicable schedule set forth in Section 611.1001(c).

2) Following completion of the second round of source water monitoring required by Section 611.1001(b), an unfiltered system supplier must calculate the arithmetic mean of all Cryptosporidium sample concentrations reported pursuant to Section 611.1001(b). The supplier must report this value to the Agency for approval no later than six months after the month the supplier is required to complete the second round of source water monitoring based on the applicable schedule set forth in Section 611.1001(c).

3) If the monthly Cryptosporidium sampling frequency varies, a supplier must first calculate a monthly average for each month of monitoring. The supplier must then use these monthly average concentrations, rather than individual sample concentrations, in the calculation of the mean Cryptosporidium level in subsection (a)(1) or (a)(2) of this Section.

4) The report to the Agency of the mean Cryptosporidium levels calculated pursuant to subsections (a)(1) and (a)(2) of this Section must include a summary of the source water monitoring data used for the calculation.

5) A failure to comply with the conditions of subsection (a) of this Section is a violation of the treatment technique requirement.

b) Cryptosporidium inactivation requirements. An unfiltered system supplier must provide the level of inactivation for Cryptosporidium specified in this subsection, based on its mean Cryptosporidium levels, as determined pursuant to subsection (a) of this Section and according to the applicable schedule set forth in Section 611.1013.

1) An unfiltered system supplier with a mean Cryptosporidium level of 0.01 oocysts/ℓ or less must provide at least 2-log Cryptosporidium inactivation.

2) An unfiltered system supplier with a mean Cryptosporidium level of greater than 0.01 oocysts/ℓ must provide at least 3-log Cryptosporidium inactivation.

c) Inactivation treatment technology requirements. An unfiltered system supplier must use chlorine dioxide, ozone, or UV, as described in Section 611.1020, to meet the Cryptosporidium inactivation requirements of this Section.

1) A supplier that uses chlorine dioxide or ozone and fails to achieve the Cryptosporidium inactivation required in subsection (b) of this Section on more than one day in the calendar month is in violation of the treatment technique requirement.

2) A supplier that uses UV light and fails to achieve the Cryptosporidium inactivation required in subsection (b) of this Section by meeting the criteria in Section 611.1020(d)(3)(B) is in violation of the treatment technique requirement.

d) Use of two disinfectants. An unfiltered system supplier must meet the combined Cryptosporidium inactivation requirements of this Section and Giardia lamblia and virus inactivation requirements of Section 611.241 using a minimum of two disinfectants, and each of two disinfectants must separately achieve the total inactivation required for any of Cryptosporidium, Giardia lamblia, or viruses.

BOARD NOTE: Derived from 40 CFR 141.712 (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.1013 Treatment Technique Requirements: Schedule for Compliance with Cryptosporidium Treatment Requirements

a) Following initial bin classification pursuant to Section 611.1010(c), a filtered system supplier must provide the level of treatment for Cryptosporidium required by Section 611.1011 according to the applicable schedule set forth in subsection (c) of this Section.

b) Following initial determination of the mean Cryptosporidium level pursuant to Section 611.1012(a)(1), an unfiltered system supplier must provide the level of treatment for Cryptosporidium required by Section 611.1012 according to the applicable schedule set forth in subsection (c) of this Section.

c) Cryptosporidium treatment compliance dates.

1) A supplier that serves 100,000 or more persons is required to have complied with Cryptosporidium treatment requirements before April 1, 2012.

2) A supplier that serves 50,000 to 99,999 persons is required to have complied with Cryptosporidium treatment requirements before October 1, 2012.

3) A supplier that serves 10,000 to 49,999 persons must comply with Cryptosporidium treatment requirements before October 1, 2013.

4) A supplier that serves fewer than 10,000 persons must comply with Cryptosporidium treatment requirements before October 1, 2014.

5) The Agency may, by a SEP issued pursuant to Section 611.110, allow up to an additional two years from the applicable date set forth in this subsection (c) for complying with the treatment requirement if it determines that the additional time is necessary for the supplier to make capital improvements to implement the treatment.

d) If the bin classification for a filtered system supplier changes following the second round of source water monitoring, as determined pursuant to Section 611.1010(d), the supplier must provide the level of treatment for Cryptosporidium required by Section 611.1011 on a schedule approved by the Agency by a SEP issued pursuant to Section 611.110.

e) If the mean Cryptosporidium level for an unfiltered system supplier changes following the second round of monitoring, as determined pursuant to Section 611.1012(a)(2), and if the supplier must provide a different level of Cryptosporidium treatment pursuant to Section 611.1012 due to this change, the supplier must meet this treatment requirement on a schedule approved by the Agency by a SEP issued pursuant to Section 611.110.

BOARD NOTE: Derived from 40 CFR 141.713 (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.1014 Treatment Technique Requirements: Requirements for Uncovered Finished Water Storage Facilities

a) A supplier that uses uncovered finished water storage facilities must comply with the conditions of this Section.

b) A supplier is required to have notified the Agency in writing of the use of each uncovered finished water storage facility no later than April 1, 2008.

c) A supplier is required to have met either of the following conditions for each uncovered finished water storage facility, or it is required to have been in compliance with an Agency-approved schedule to meet these conditions, no later than April 1, 2009:

1) The supplier must cover any uncovered finished water storage facility; or

2) The supplier must treat the discharge from the uncovered finished water storage facility to the distribution system to achieve inactivation or removal of at least 4-log virus, 3-log Giardia lamblia, and 2-log Cryptosporidium using a protocol approved by the Agency.

d) A failure to comply with the requirements of this Section is a violation of the treatment technique requirement.

BOARD NOTE: Derived from 40 CFR 141.714 (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.1015 Requirements for Microbial Toolbox Components: Microbial Toolbox Options for Meeting Cryptosporidium Treatment Requirements

a) Treatment credits.

1) A supplier receives the applicable of the treatment credits set forth in subsection (b) of this Section by meeting the conditions for microbial toolbox options described in Sections 611.1016 through 611.1020. The supplier applies these treatment credits to meet the applicable treatment requirements set forth in Section 611.1011 or Section 611.1012.

2) An unfiltered system supplier is eligible for treatment credits for the microbial toolbox options described in Section 611.1020 only.

b) Subsections (b)(1) through (b)(5) of this Section summarize options in the microbial toolbox:

1) Source protection and management toolbox options.

A) Watershed control program: 0.5-log credit for Agency-approved program comprising required elements, annual program status report to Agency, and regular watershed survey. An unfiltered system supplier is not eligible for credit. Specific criteria are set forth in Section 611.1016(a).

B) Alternative source or intake management: No prescribed credit. A supplier may conduct simultaneous monitoring for treatment bin classification at alternative intake locations or under alternative intake management strategies. Specific criteria are set forth in Section 611.1016(b).

2) Pre-filtration toolbox options.

A) Presedimentation basin with coagulation: 0.5-log credit during any month that presedimentation basins achieve a monthly mean reduction of 0.5-log or greater in turbidity or alternative Agency-approved performance criteria. To be eligible, basins must be operated continuously with coagulant addition and all plant flow must pass through basins. Specific criteria are set forth in Section 611.1017(a).

B) Two-stage lime softening: 0.5-log credit for two-stage softening where chemical addition and hardness precipitation occur in both stages. All plant flow must pass through both stages. Single-stage softening is credited as equivalent to conventional treatment. Specific criteria are set forth in Section 611.1017(b).

C) Bank filtration: 0.5-log credit for 25-foot setback or 1.0-log credit for 50-foot setback; the aquifer must be unconsolidated sand containing at least 10 percent fines and average turbidity in the wells must be less than 1 NTU. A supplier using wells followed by filtration when conducting source water monitoring must sample the well to determine bin classification and is not eligible for additional credit. Specific criteria are set forth in Section 611.1017(c).

3) Treatment performance toolbox options.

A) Combined filter performance: 0.5-log credit for combined filter effluent turbidity less than or equal to 0.15 NTU in at least 95 percent of measurements each month. Specific criteria are set forth in Section 611.1018(a).

B) Individual filter performance: 0.5-log credit (in addition to 0.5-log combined filter performance credit) if individual filter effluent turbidity is less than or equal to 0.15 NTU in at least 95 percent of samples each month in each filter and is never greater than 0.3 NTU in two consecutive measurements in any filter. Specific criteria are set forth in Section 611.1018(b).

C) Demonstration of performance: Credit awarded to unit process or treatment train based on a demonstration to the Agency with an Agency-approved protocol. Specific criteria are set forth in Section 611.1018(c).

4) Additional filtration toolbox options.

A) Bag or cartridge filters (individual filters): Up to 2-log credit based on the removal efficiency demonstrated during challenge testing with a 1.0-log factor of safety. Specific criteria are set forth in Section 611.1019(a).

B) Bag or cartridge filters (in series): Up to 2.5-log credit based on the removal efficiency demonstrated during challenge testing with a 0.5-log factor of safety. Specific criteria are set forth in Section 611.1019(a).

C) Membrane filtration: Log credit equivalent to removal efficiency demonstrated in challenge test for device if supported by direct integrity testing. Specific criteria are set forth in Section 611.1019(b).

D) Second stage filtration: 0.5-log credit for second separate granular media filtration stage if treatment train includes coagulation prior to first filter. Specific criteria are set forth in Section 611.1019(c).

E) Slow sand filters: 2.5-log credit as a secondary filtration step or 3.0-log credit as a primary filtration process. No prior chlorination for either option. Specific criteria are set forth in Section 611.1019(d).

5) Inactivation toolbox options.

A) Chlorine dioxide: Log credit based on measured CT in relation to CT table. Specific criteria are set forth in Section 611.1020(b).

B) Ozone: Log credit based on measured CT in relation to CT table. Specific criteria are set forth in Section 611.1020(b).

C) UV: Log credit based on validated UV dose in relation to UV dose table; reactor validation testing required to establish UV dose and associated operating conditions. Specific criteria are set forth in Section 611.1020(d).

BOARD NOTE: Derived from 40 CFR 141.715 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.1016 Requirements for Microbial Toolbox Components: Source Toolbox Components

a) Watershed control program. A supplier receives 0.5-log Cryptosporidium treatment credit for implementing a watershed control program that meets the requirements of this Section.

1) A supplier that intends to apply for the watershed control program credit must notify the Agency of its intent no later than two years prior to the treatment compliance date applicable to the supplier in Section 611.1013.

2) A supplier must submit to the Agency a proposed watershed control plan no later than one year before the applicable treatment compliance date in Section 611.1013. The Agency must approve the watershed control plan for the supplier to receive watershed control program treatment credit. The watershed control plan must include the following elements:

A) Identification of an "area of influence" outside of which the likelihood of Cryptosporidium or fecal contamination affecting the treatment plant intake is not significant. This is the area to be evaluated in future watershed surveys pursuant to subsection (a)(5)(B) of this Section;

B) Identification of both potential and actual sources of Cryptosporidium contamination and an assessment of the relative impact of these sources on the supplier's source water quality;

C) An analysis of the effectiveness and feasibility of control measures that could reduce Cryptosporidium loading from sources of contamination to the supplier's source water; and

D) A statement of goals and specific actions the supplier will undertake to reduce source water Cryptosporidium levels. The plan must explain how the actions are expected to contribute to specific goals, identify watershed partners and their roles, identify resource requirements and commitments, and include a schedule for plan implementation with deadlines for completing specific actions identified in the plan.

3) A supplier with an existing watershed control program (i.e., a program in place on January 5, 2006) is eligible to seek this credit. Its watershed control plans must meet the criteria in subsection (a)(2) of this Section and

must specify ongoing and future actions that will reduce source water Cryptosporidium levels.

4) If the Agency does not respond to a supplier regarding approval of a watershed control plan submitted pursuant to this Section and the supplier meets the other requirements of this Section, the watershed control program will be considered approved and 0.5 log Cryptosporidium treatment credit will be awarded, unless and until the Agency subsequently withdraws such approval by a SEP issued pursuant to Section 611.110.

5) A supplier must complete each of the following actions to maintain the 0.5-log credit.

A) It must submit an annual watershed control program status report to the Agency. The annual watershed control program status report must describe the supplier's implementation of the approved plan and assess the adequacy of the plan to meet its goals. The report must explain how the supplier is addressing any shortcomings in plan implementation, including those previously identified by the Agency or as the result of the watershed survey conducted pursuant to subsection (a)(5)(B) of this Section. The report must also describe any significant changes that have occurred in the watershed since the last watershed sanitary survey. If a supplier determines during implementation that making a significant change to its approved watershed control program is necessary, the supplier must notify the Agency prior to making any such changes. If any change is likely to reduce the level of source water protection, the supplier must also list in its notification the actions the supplier will take to mitigate this effect;

B) The supplier must undergo a watershed sanitary survey every three years for a CWS supplier and every five years for a non-CWS supplier and submit the survey report to the Agency. The survey must be conducted according to Agency guidelines and by persons that the Agency approves.

i) The watershed sanitary survey must meet the following criteria: it must encompass the region identified in the Agency-approved watershed control plan as the area of influence; assess the implementation of actions to reduce source water Cryptosporidium levels; and identify any significant new sources of Cryptosporidium.

ii) If the Agency determines that significant changes may have occurred in the watershed since the previous watershed

sanitary survey, the supplier must undergo another watershed sanitary survey before a date the Agency requires by a SEP issued pursuant to Section 611.110, which may be earlier than the regular date in subsection (a)(5)(B) of this Section; and

C) The supplier must make the watershed control plan, annual status reports, and watershed sanitary survey reports available to the public upon request. These documents must be in a plain language style and include criteria by which to evaluate the success of the program in achieving plan goals. The Agency may, by a SEP issued pursuant to Section 611.110, approve that a supplier withhold from the public portions of the annual status report, watershed control plan, and watershed sanitary survey based on water supply security considerations.

6) If the Agency determines that a supplier is not carrying out the approved watershed control plan, the Agency may, by a SEP issued pursuant to Section 611.110, withdraw the watershed control program treatment credit.

b) Alternative source.

1) A supplier may conduct source water monitoring that reflects a different intake location (either in the same source or for an alternate source) or a different procedure for the timing or level of withdrawal from the source (alternative source monitoring). If the Agency approves by a SEP issued pursuant to Section 611.110, a supplier may determine its bin classification pursuant to Section 611.1010 based on the alternative source monitoring results.

2) If a supplier conducts alternative source monitoring pursuant to subsection (b)(1) of this Section, it must also monitor their current plant intake concurrently as described in Section 611.1001.

3) Alternative source monitoring pursuant to subsection (b)(1) of this Section must meet the requirements for source monitoring to determine bin classification, as described in Sections 611.1001 through 611.1006. A supplier must report the alternative source monitoring results to the Agency, along with supporting information documenting the operating conditions under which the samples were collected.

4) If a supplier determines its bin classification pursuant to Section 611.1010 using alternative source monitoring results that reflect a different intake location or a different procedure for managing the timing or level of

withdrawal from the source, the supplier must relocate the intake or permanently adopt the withdrawal procedure, as applicable, no later than the applicable treatment compliance date in Section 611.1013.

BOARD NOTE: Derived from 40 CFR 141.716 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.1017 Requirements for Microbial Toolbox Components: Pre-Filtration Treatment Toolbox Components

a) Presedimentation. A supplier receives 0.5-log Cryptosporidium treatment credit for a presedimentation basin during any month the process meets the criteria in this subsection (a).

1) The presedimentation basin must be in continuous operation and must treat the entire plant flow taken from a surface water or groundwater under the direct influent of surface water source.

2) The supplier must continuously add a coagulant to the presedimentation basin.

3) The presedimentation basin must achieve both of the following performance criteria:

A) It demonstrates at least 0.5-log mean reduction of influent turbidity. This reduction must be determined using daily turbidity measurements in the presedimentation process influent and effluent, and it must be calculated as follows: $\log_{10}$(monthly mean of daily influent turbidity)-$\log_{10}$(monthly mean of daily effluent turbidity); and

B) It complies with Agency-approved performance criteria that demonstrate at least 0.5-log mean removal of micronsized particulate material through the presedimentation process.

b) Two-stage lime softening. A supplier receives an additional 0.5-log Cryptosporidium treatment credit for a two-stage lime softening plant if chemical addition and hardness precipitation occur in two separate and sequential softening stages prior to filtration. Both softening stages must treat the entire plant flow taken from a surface water or groundwater under the direct influent of surface water source.

c) Bank filtration. A supplier receives Cryptosporidium treatment credit for bank filtration that serves as pretreatment to a filtration plant by meeting the criteria in

this subsection (c). A supplier using bank filtration when it begins source water monitoring pursuant to Section 611.1001(a) must collect samples as described in Section 611.1003(d), and it is not eligible for this credit.

1) A well with a groundwater flow path of at least 25 feet receives 0.5-log treatment credit, or a well with a groundwater flow path of at least 50 feet receives 1.0-log treatment credit. The groundwater flow path must be determined as specified in subsection (c)(4) of this Section.

2) Only a well in granular aquifers is eligible for treatment credit. A granular aquifer is one comprised of sand, clay, silt, rock fragments, pebbles or larger particles, and minor cement. A supplier must characterize the aquifer at the well site to determine aquifer properties. A supplier must extract a core from the aquifer and demonstrate that in at least 90 percent of the core length, grains less than 1.0 mm in diameter constitute at least 10 percent of the core material.

3) Only a horizontal or vertical well is eligible for treatment credit.

4) For a vertical well, the groundwater flow path is the measured distance from the edge of the surface water body under high flow conditions (determined by the 100 year floodplain elevation boundary or by the floodway, as defined in Federal Emergency Management Agency flood hazard maps) to the well screen. For a horizontal well, the groundwater flow path is the measured distance from the bed of the river under normal flow conditions to the closest horizontal well lateral screen.

5) The supplier must monitor each wellhead for turbidity at least once every four hours while the bank filtration process is in operation. If monthly average turbidity levels, based on daily maximum values in the well, exceed 1 NTU, the supplier must report this result to the Agency and conduct an assessment within 30 days to determine the cause of the high turbidity levels in the well. If the Agency determines that microbial removal has been compromised, it may, by a SEP issued pursuant to Section 611.110, revoke treatment credit until the supplier implements corrective actions approved by the Agency to remediate the problem.

6) Springs and infiltration galleries are not eligible for treatment credit pursuant to this Section, but are eligible for credit pursuant to Section 611.1018(c).

7) Bank filtration demonstration of performance. The Agency may, by a SEP issued pursuant to Section 611.110, approve Cryptosporidium treatment credit for bank filtration based on a demonstration of performance study that meets the criteria in this subsection. This treatment credit may be

greater than 1.0-log and may be awarded to bank filtration that does not meet the criteria in subsections (c)(1) through (c)(5) of this Section.

A) The study must follow an Agency-approved protocol and must involve the collection of data on the removal of Cryptosporidium or a surrogate for Cryptosporidium and related hydrogeologic and water quality parameters during the full range of operating conditions.

B) The study must include sampling both from the production wells and from monitoring wells that are screened and located along the shortest flow path between the surface water source and the production wells.

BOARD NOTE: Derived from 40 CFR 141.717 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.1018 Requirements for Microbial Toolbox Components: Treatment Performance Toolbox Components

a) Combined filter performance. A supplier that uses conventional filtration treatment or direct filtration treatment receives an additional 0.5-log Cryptosporidium treatment credit during any month it meets the criteria in this subsection (a). Its combined filter effluent (CFE) turbidity must be less than or equal to 0.15 NTU in at least 95 percent of the measurements. Turbidity must be measured as described in Sections 611.531 and 611.533.

b) Individual filter performance. A supplier that uses conventional filtration treatment or direct filtration treatment receives 0.5-log Cryptosporidium treatment credit, which can be in addition to the 0.5-log credit pursuant to subsection (a) of this Section, during any month it meets the criteria in this subsection (b). Compliance with these criteria must be based on individual filter turbidity monitoring as described in Section 611.744 or 611.956(a), as applicable.

1) The filtered water turbidity for each individual filter must be less than or equal to 0.15 NTU in at least 95 percent of the measurements recorded each month.

2) No individual filter may have a measured turbidity greater than 0.3 NTU in two consecutive measurements taken 15 minutes apart.

3) Any supplier that has received treatment credit for individual filter performance and fails to meet the requirements of subsection (b)(1) or (b)(2) of this Section during any month does not receive a treatment

technique violation pursuant to Section 611.1011(c) if the Agency determines the following:

A) The failure was due to unusual and short-term circumstances that could not reasonably be prevented through optimizing treatment plant design, operation, and maintenance; and

B) The supplier has experienced no more than two such failures in any calendar year.

c) Demonstration of performance. The Agency may, by a SEP issued pursuant to Section 611.110, approve Cryptosporidium treatment credit for drinking water treatment processes based on a demonstration of performance study that meets the criteria in this subsection (c). This treatment credit may be greater than or less than the prescribed treatment credits in Section 611.1011 or Sections 611.1017 through 611.1020 and may be awarded to treatment processes that do not meet the criteria for the prescribed credits.

1) The supplier cannot receive the prescribed treatment credit for any toolbox option in Sections 611.1017 through 611.1020 if that toolbox option is included in a demonstration of performance study for which treatment credit is awarded pursuant to this subsection (b).

2) The demonstration of performance study must follow an Agency-approved protocol and must demonstrate the level of Cryptosporidium reduction the treatment process will achieve under the full range of expected operating conditions for the supplier.

3) Approval by the Agency must be in writing and may include monitoring and treatment performance criteria that the supplier must demonstrate and report on an ongoing basis to remain eligible for the treatment credit. The Agency may, by a SEP issued pursuant to Section 611.110, designate such criteria where necessary to verify that the conditions under which the demonstration of performance credit was approved are maintained during routine operation.

BOARD NOTE: Derived from 40 CFR 141.718 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.1019 Requirements for Microbial Toolbox Components: Additional Filtration Toolbox Components

a) Bag and cartridge filters. A supplier receives Cryptosporidium treatment credit of up to 2.0-log for individual bag or cartridge filters and up to 2.5-log for bag or

cartridge filters operated in series by meeting the criteria set forth in subsections (a)(1) through (a)(10) of this Section. To be eligible for this credit, the supplier must report the results of challenge testing that meets the requirements of subsections (a)(2) through (a)(9) of this Section to the Agency. The filters must treat the entire plant flow taken from a Subpart B source.

1) The Cryptosporidium treatment credit awarded to bag or cartridge filters must be based on the removal efficiency demonstrated during challenge testing that is conducted according to the criteria set forth in subsections (a)(2) through (a)(9) of this Section. A factor of safety equal to 1-log for individual bag or cartridge filters and 0.5-log for bag or cartridge filters in series must be applied to challenge testing results to determine removal credit. A supplier may use results from challenge testing conducted prior to January 5, 2006 if the prior testing was consistent with the criteria specified in subsections (a)(2) through (a)(9) of this Section.

2) Challenge testing must be performed on full-scale bag or cartridge filters, and the associated filter housing or pressure vessel, that are identical in material and construction to the filters and housings the supplier will use for removal of Cryptosporidium. Bag or cartridge filters must be challenge tested in the same configuration that the supplier will use, either as individual filters or as a series configuration of filters.

3) Challenge testing must be conducted using Cryptosporidium or a surrogate that is removed no more efficiently than Cryptosporidium. The microorganism or surrogate used during challenge testing is referred to as the challenge particulate. The concentration of the challenge particulate must be determined using a method capable of discreetly quantifying the specific microorganism or surrogate used in the test; gross measurements such as turbidity may not be used.

4) The maximum feed water concentration that can be used during a challenge test must be based on the detection limit of the challenge particulate in the filtrate (i.e., filtrate detection limit) and must be calculated using the following equation:

$$\text{Maximum Feed Concentration} = 1 \times 10^{4} \times (\text{Filtrate Detection Limit})$$

5) Challenge testing must be conducted at the maximum design flow rate for the filter as specified by the manufacturer.

6) Each filter evaluated must be tested for a duration sufficient to reach 100 percent of the terminal pressure drop, which establishes the maximum

pressure drop under which the filter may be used to comply with the requirements of this Subpart Z.

7) Removal efficiency of a filter must be determined from the results of the challenge test and expressed in terms of log removal values using the following equation:

$$LRV = Log_{10}(C_f) - Log_{10}(C_p)$$

Where:

LRV = log removal value demonstrated during challenge testing

C_f = the feed concentration measured during the challenge test

C_p = the filtrate concentration measured during the challenge test. In applying this equation, the same units must be used for the feed and filtrate concentrations. If the challenge particulate is not detected in the filtrate, then the term Cp must be set equal to the detection limit.

8) Each filter tested must be challenged with the challenge particulate during three periods over the filtration cycle: within two hours of start-up of a new filter; when the pressure drop is between 45 and 55 percent of the terminal pressure drop; and at the end of the cycle after the pressure drop has reached 100 percent of the terminal pressure drop. An LRV must be calculated for each of these challenge periods for each filter tested. The LRV for the filter (LRV_{filter}) must be assigned the value of the minimum LRV observed during the three challenge periods for that filter.

9) If fewer than 20 filters are tested, the overall removal efficiency for the filter product line must be set equal to the lowest LRV_{filter} among the filters tested. If 20 or more filters are tested, the overall removal efficiency for the filter product line must be set equal to the 10th percentile of the set of LRV_{filter} values for the various filters tested. The percentile is defined by (i/(n+1)) where i is the rank of n individual data points ordered lowest to highest. If necessary, the 10th percentile may be calculated using linear interpolation.

10) If a previously tested filter is modified in a manner that could change the removal efficiency of the filter product line, challenge testing to demonstrate the removal efficiency of the modified filter must be conducted and submitted in writing to the Agency.

b) Membrane filtration.

1) A supplier receives Cryptosporidium treatment credit for membrane filtration that meets the criteria of this subsection (b). Membrane cartridge filters that meet the definition of membrane filtration in Section 611.102 are eligible for this credit. The level of treatment credit a supplier receives is equal to the lower of the following values:

A) The removal efficiency demonstrated during challenge testing conducted pursuant to the conditions in subsection (b)(2) of this Section; or

B) The maximum removal efficiency that can be verified through direct integrity testing used with the membrane filtration process pursuant to the conditions in subsection (b)(3) of this Section.

2) Challenge testing. The membrane used by the supplier must undergo challenge testing to evaluate removal efficiency, and the supplier must report the results of challenge testing to the Agency. Challenge testing must be conducted according to the criteria set forth in subsections (b)(2)(A) through (b)(2)(G) of this Section. A supplier may use data from challenge testing conducted prior to January 5, 2006 if the prior testing was consistent with the criteria set forth in subsections (b)(2)(A) through (b)(2)(G) of this Section.

A) Challenge testing must be conducted on either a full-scale membrane module, identical in material and construction to the membrane modules used in the supplier's treatment facility, or a smaller-scale membrane module, identical in material and similar in construction to the full-scale module. A module is defined as the smallest component of a membrane unit in which a specific membrane surface area is housed in a device with a filtrate outlet structure.

B) Challenge testing must be conducted using Cryptosporidium oocysts or a surrogate that is removed no more efficiently than Cryptosporidium oocysts. The organism or surrogate used during challenge testing is referred to as the challenge particulate. The concentration of the challenge particulate, in both the feed and filtrate water, must be determined using a method capable of discretely quantifying the specific challenge particulate used in the test; gross measurements such as turbidity may not be used.

C) The maximum feed water concentration that can be used during a challenge test is based on the detection limit of the challenge

particulate in the filtrate and must be determined according to the following equation:

Maximum Feed Concentration = $3.16 \times 10^6 \times$ □(Filtrate Detection Limit)

D) Challenge testing must be conducted under representative hydraulic conditions at the maximum design flux and maximum design process recovery specified by the manufacturer for the membrane module. Flux is defined as the throughput of a pressure driven membrane process expressed as flow per unit of membrane area. Recovery is defined as the volumetric percent of feed water that is converted to filtrate over the course of an operating cycle uninterrupted by events such as chemical cleaning or a solids removal process (i.e., backwashing).

E) Removal efficiency of a membrane module must be calculated from the challenge test results and expressed as a log removal value according to the following equation:

$$\mathrm{LRV} = \mathrm{Log}_{10}(C_f) - \mathrm{Log}_{10}(C_p)$$

Where:

LRV = log removal value demonstrated during the challenge test

C_f = the feed concentration measured during the challenge test

C_p = the filtrate concentration measured during the challenge test. Equivalent units must be used for the feed and filtrate concentrations. If the challenge particulate is not detected in the filtrate, the term C_p is set equal to the detection limit for the purpose of calculating the LRV. An LRV must be calculated for each membrane module evaluated during the challenge test.

F) The removal efficiency of a membrane filtration process demonstrated during challenge testing must be expressed as a log removal value ($LRV_{C\text{-}Test}$). If fewer than 20 modules are tested, then $LRV_{C\text{-}Test}$ is equal to the lowest of the representative LRVs among the modules tested. If 20 or more modules are tested, then LRVC-Test is equal to the 10th percentile of the representative

LRVs among the modules tested. The percentile is defined by (i/(n+1)) where i is the rank of n individual data points ordered lowest to highest. If necessary, the 10th percentile may be calculated using linear interpolation.

G) The challenge test must establish a quality control release value (QCRV) for a non-destructive performance test that demonstrates the Cryptosporidium removal capability of the membrane filtration module. This performance test must be applied to each production membrane module used by the supplier that was not directly challenge tested in order to verify Cryptosporidium removal capability. Production modules that do not meet the established QCRV are not eligible for the treatment credit demonstrated during the challenge test.

H) If a previously tested membrane is modified in a manner that could change the removal efficiency of the membrane or the applicability of the non-destructive performance test and associated QCRV, additional challenge testing to demonstrate the removal efficiency of, and determine a new QCRV for, the modified membrane must be conducted and submitted to the Agency.

3) Direct integrity testing. A supplier must conduct direct integrity testing in a manner that demonstrates a removal efficiency equal to or greater than the removal credit awarded to the membrane filtration process and meets the requirements described in subsections (b)(3)(A) through (b)(3)(F) of this Section. A "direct integrity test" is defined as a physical test applied to a membrane unit in order to identify and isolate integrity breaches (i.e., one or more leaks that could result in contamination of the filtrate).

A) The direct integrity test must be independently applied to each membrane unit in service. A membrane unit is defined as a group of membrane modules that share common valving that allows the unit to be isolated from the rest of the treatment system for the purpose of integrity testing or other maintenance.

B) The direct integrity method must have a resolution of three micrometers or less, where resolution is defined as the size of the smallest integrity breach that contributes to a response from the direct integrity test.

C) The direct integrity test must have a sensitivity sufficient to verify the log treatment credit awarded to the membrane filtration process by the Agency, where sensitivity is defined as the maximum log removal value that can be reliably verified by a direct integrity test.

Sensitivity must be determined using the appropriate of the following approaches, considering the type of direct integrity test the supplier uses:

i) For a direct integrity test that uses an applied pressure or vacuum, the direct integrity test sensitivity must be calculated according to the following equation:

$$LRV_{DIT} = Log_{10}\left(\frac{Q_p}{VCF \times Q_{breach}}\right)$$

Where:

LRV_{DIT} = the sensitivity of the direct integrity test

Q_p = total design filtrate flow from the membrane unit

Q_{breach} = flow of water from an integrity breach associated with the smallest integrity test response that can be reliably measured

VCF = volumetric concentration factor. The volumetric concentration factor is the ratio of the suspended solids concentration on the high pressure side of the membrane relative to that in the feed water; or

ii) For a direct integrity test that uses a particulate or molecular marker, the direct integrity test sensitivity must be calculated according to the following equation:

$$LRV_{DIT} = Log_{10}(C_f) - Log_{10}(C_p)$$

Where:

LRV_{DIT} = the sensitivity of the direct integrity test

C_f = the typical feed concentration of the marker used in the test

C_p = the filtrate concentration of the marker from an integral membrane unit

D) A supplier must establish a control limit within the sensitivity limits of the direct integrity test that is indicative of an integral membrane unit capable of meeting the removal credit awarded by the Agency.

E) If the result of a direct integrity test exceeds the control limit established pursuant to subsection (b)(3)(D) of this Section, the supplier must remove the membrane unit from service. The supplier must conduct a direct integrity test to verify any repairs, and it may return the membrane unit to service only if the direct integrity test is within the established control limit.

F) A supplier must conduct direct integrity testing on each membrane unit at a frequency of not less than once each day that the membrane unit is in operation. The Agency may, by a SEP issued pursuant to Section 611.110, approve less frequent testing, based on demonstrated process reliability, the use of multiple barriers effective for Cryptosporidium, or reliable process safeguards.

4) Indirect integrity monitoring. A supplier must conduct continuous indirect integrity monitoring on each membrane unit according to the criteria in subsections (b)(4)(A) through (b)(4)(E) of this Section. "Indirect integrity monitoring" is defined as monitoring some aspect of filtrate water quality that is indicative of the removal of particulate matter. A supplier that implements continuous direct integrity testing of membrane units in accordance with the criteria in subsections (b)(3)(A) through (b)(3)(E) of this Section is not subject to the requirements for continuous indirect integrity monitoring. The supplier must submit a monthly report to the Agency summarizing all continuous indirect integrity monitoring results triggering direct integrity testing and the corrective action that was taken in each case.

A) Unless the Agency approves an alternative parameter by a SEP issued pursuant to Section 611.110, continuous indirect integrity monitoring must include continuous filtrate turbidity monitoring.

B) Continuous indirect integrity monitoring must be conducted at a frequency of no less than once every 15 minutes.

C) Continuous indirect integrity monitoring must be separately conducted on each membrane unit.

D) If continuous indirect integrity monitoring includes turbidity and if the filtrate turbidity readings are above 0.15 NTU for a period greater than 15 minutes (i.e., two consecutive 15-minute readings above 0.15 NTU), direct integrity testing must immediately be performed on the associated membrane unit, as specified in subsections (b)(3)(A) through (b)(3)(E) of this Section.

E) If indirect integrity monitoring includes an Agency-approved alternative parameter and if the alternative parameter exceeds an Agency-approved control limit for a period greater than 15 minutes, direct integrity testing must immediately be performed on the associated membrane units, as specified in subsections (b)(3)(A) through (b)(3)(E) of this Section.

c) Second stage filtration. A supplier receives 0.5-log Cryptosporidium treatment credit for a separate second stage of filtration that consists of sand, dual media, GAC, or other fine grain media following granular media filtration if the Agency approves by a SEP issued pursuant to Section 611.110. To be eligible for this credit, the first stage of filtration must be preceded by a coagulation step and both filtration stages must treat the entire plant flow taken from a surface water or groundwater under the direct influence of surface water source. A cap, such as GAC, on a single stage of filtration is not eligible for this credit. The Agency must approve the treatment credit based on an assessment of the design characteristics of the filtration process.

d) Slow sand filtration (as secondary filter). A supplier is eligible to receive 2.5-log Cryptosporidium treatment credit by a SEP issued pursuant to Section 611.110 for a slow sand filtration process that follows a separate stage of filtration if both filtration stages treat entire plant flow taken from a surface water or groundwater under the direct influence of surface water source and no disinfectant residual is present in the influent water to the slow sand filtration process. The Agency must approve the treatment credit based on an assessment of the design characteristics of the filtration process. This subsection (d) does not apply to treatment credit awarded to slow sand filtration used as a primary filtration process.

BOARD NOTE: Derived from 40 CFR 141.719 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.1020 Requirements for Microbial Toolbox Components: Inactivation Toolbox Components

a) Calculation of CT values.

1) CT is the product of the disinfectant contact time (T, in minutes) and disinfectant concentration (C, in milligrams per liter). A supplier with treatment credit for chlorine dioxide or ozone pursuant to subsection (b) or (c) of this Section must calculate CT at least once each day, with both C and T measured during peak hourly flow, as specified in Sections 611.531 and 611.532.

2) A supplier with several disinfection segments in sequence may calculate CT for each segment, where a disinfection segment is defined as a treatment unit process with a measurable disinfectant residual level and a liquid volume. Under this approach, the supplier must add the Cryptosporidium CT values in each segment to determine the total CT for the treatment plant.

b) CT values for chlorine dioxide and ozone.

1) A supplier receives the Cryptosporidium treatment credit listed in Table H to this Part by meeting the corresponding chlorine dioxide CT value for the applicable water temperature, as described in subsection (a) of this Section.

2) A supplier receives the Cryptosporidium treatment credit listed in Table I to this Part by meeting the corresponding ozone CT values for the applicable water temperature, as described in subsection (a) of this Section.

c) Site-specific study. The Agency may, by a SEP issued pursuant to Section 611.110, approve alternative chlorine dioxide or ozone CT values to those listed in Tables H and I to this Part on a site-specific basis. The Agency must base this approval on a site-specific study conducted by the supplier according to an Agency-approved protocol.

d) Ultraviolet light. A supplier receives Cryptosporidium, Giardia lamblia, and virus treatment credits for ultraviolet (UV) light reactors by achieving the corresponding UV dose values shown in Table J to this Part. The supplier must validate and monitor UV reactors, as described in subsections (d)(2) and (d)(3) of this Section, to demonstrate that they are achieving a particular UV dose value for treatment credit.

1) UV dose table. The treatment credits listed in Table J to this Part are for UV light at a wavelength of 254 nm as produced by a low-pressure mercury vapor lamp. To receive treatment credit for other lamp types, a supplier must demonstrate an equivalent germicidal dose through reactor validation testing, as described in subsection (d)(2) of this Section. The UV dose values in this table are applicable only to post-filter applications of UV in a filtered system supplier and to an unfiltered system supplier.

2) Reactor validation testing. A supplier must use UV reactors that have undergone validation testing to determine the operating conditions under which the reactor delivers the UV dose required in subsection (d)(1) of this Section (i.e., validated operating conditions). These operating conditions must include flow rate; UV intensity, as measured by a UV sensor; and UV lamp status.

A) When determining validated operating conditions, a supplier must account for the following factors: UV absorbance of the water; lamp fouling and aging; measurement uncertainty of on-line sensors; UV dose distributions arising from the velocity profiles through the reactor; failure of UV lamps or other critical treatment system components; and inlet and outlet piping or channel configurations of the UV reactor.

B) Validation testing must include the following: Full scale testing of a reactor that conforms uniformly to the UV reactors used by the supplier and inactivation of a test microorganism whose dose response characteristics have been quantified with a low pressure mercury vapor lamp.

C) The Agency may, by a SEP issued pursuant to Section 611.110, approve an alternative approach to validation testing.

3) Reactor monitoring.

A) A supplier must monitor its UV reactors to determine if the reactors are operating within validated conditions, as determined pursuant to subsection (d)(2) of this Section. This monitoring must include UV intensity, as measured by a UV sensor; flow rate; lamp status; and other parameters that the Agency has designated by a SEP issued pursuant to Section 611.110 based on UV reactor operation. A supplier must verify the calibration of UV sensors and must recalibrate sensors in accordance with a protocol that the Agency has approved by the SEP issued pursuant to Section 611.110.

B) To receive treatment credit for UV light, a supplier must treat at least 95 percent of the water delivered to the public during each month by UV reactors operating within validated conditions for the required UV dose, as described in subsections (d)(1) and (d)(2) of this Section. The supplier must demonstrate compliance with this condition by the monitoring required pursuant to subsection (d)(3)(A) of this Section.

BOARD NOTE: Derived from 40 CFR 141.720 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.1021 Reporting and Recordkeeping Requirements: Reporting Requirements

a) A supplier must report sampling schedules pursuant to Section 611.1002 and source water monitoring results pursuant to Section 611.1006 unless it notifies the Agency that it will not conduct source water monitoring because the supplier meets the criteria of Section 611.1001(d).

b) A supplier must report the use of uncovered finished water storage facilities to the Agency, as described in Section 611.1014.

c) A filtered system supplier must report its Cryptosporidium bin classification, as described in Section 611.1010.

d) An unfiltered system supplier must report its mean source water Cryptosporidium level, as described in Section 611.1012.

e) A supplier must report disinfection profiles and benchmarks to the Agency, as described in Sections 611.1008 and 611.1009, prior to making a significant change in disinfection practice.

f) A supplier must report to the Agency in accordance with subsections (f)(1) through (f)(15) of this Section for any microbial toolbox options used to comply with treatment requirements pursuant to Section 611.1011 or Section 611.1012. Alternatively, the Agency may, by a SEP issued pursuant to Section 611.110, approve a supplier to certify operation within required parameters for treatment credit rather than reporting monthly operational data for toolbox options.

1) A supplier that uses the watershed control program toolbox option must submit the following information on the indicated schedule:

A) A notice of intention to develop a new or continue an existing watershed control program no later than two years before the applicable treatment compliance date in Section 611.1013;

B) A watershed control plan no later than one year before the applicable treatment compliance date in Section 611.1013;

C) An annual watershed control program status report every 12 months, beginning one year after the applicable treatment compliance date in Section 611.1013; and

D) A watershed sanitary survey report: for a CWS supplier, every three years beginning three years after the applicable treatment compliance date in Section 611.1013 or, for a non-CWS supplier, every five years beginning five years after the applicable treatment compliance date in Section 611.1013.

2) A supplier that uses the alternative source or intake management toolbox option must submit verification that it has relocated the intake or adopted the intake withdrawal procedure reflected in monitoring results no later than the applicable treatment compliance date in Section 611.1013.

3) A supplier that uses the presedimentation toolbox option must submit monthly verification of the information set forth in each of subsections (f)(3)(A) through (f)(3)(D) of this Section, subject to the limitations of subsection (f)(3)(E) of this Section.

A) Continuous basin operation;

B) Treatment of 100% of the flow;

C) Continuous addition of a coagulant; and

D) At least 0.5-log mean reduction of influent turbidity or compliance with alternative Agency-approved performance criteria.

E) Monthly reporting must occur within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in Section 611.1013.

4) A supplier that uses the two-stage lime softening toolbox option must submit monthly verification of the information set forth in each of subsections (f)(4)(A) and (f)(4)(B) of this Section, subject to the limitations of subsection (f)(4)(C) of this Section.

A) That chemical addition and hardness precipitation occurred in two separate and sequential softening stages prior to filtration; and

B) That both stages treated 100% of the plant flow.

C) Monthly reporting must occur within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in Section 611.1013.

5) A supplier that uses the bank filtration toolbox option must submit the following information on the indicated schedule:

A) An initial demonstration of the following no later than the applicable treatment compliance date in Section 611.1013:

i) The existence of unconsolidated, predominantly sandy aquifer; and

ii) A setback distance of at least 25 ft. (0.5-log credit) or 50 ft. (1.0-log credit).

B) If the monthly average of daily maximum turbidity is greater than 1 NTU, then the supplier must report that result and submit an assessment of the cause within 30 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in Section 611.1013.

6) A supplier that uses the combined filter performance toolbox option must submit monthly verification of combined filter effluent (CFE) turbidity levels less than or equal to 0.15 NTU in at least 95 percent of the four-hour CFE measurements taken each month. Monthly reporting must occur within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in Section 611.1013.

7) A supplier that uses the individual filter performance toolbox option must submit monthly verification of the information set forth in each of subsections (f)(7)(A) and (f)(7)(B) of this Section, subject to the limitations of subsection (f)(7)(C) of this Section.

A) That individual filter effluent (IFE) turbidity levels were less than or equal to 0.15 NTU in at least 95 percent of samples each month in each filter; and

B) That no individual filter measured greater than 0.3 NTU in two consecutive readings 15 minutes apart.

C) Monthly reporting must occur within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in Section 611.1013.

8) A supplier that uses the demonstration of performance toolbox option must submit the information set forth in each of subsections (f)(8)(A) and (f)(8)(B) of this Section on the indicated schedule:

A) Results from testing following an Agency-approved protocol no later than the applicable treatment compliance date in Section 611.1013; and

B) As required by the Agency, monthly verification of operation within conditions of Agency approval for demonstration of performance credit within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in Section 611.1013.

9) A supplier that uses the bag filters and cartridge filters toolbox option must submit the information set forth in each of subsections (f)(9)(A) and (f)(9)(B) of this Section on the indicated schedule:

A) A demonstration, no later than the applicable treatment compliance date in Section 611.1013, that the following criteria are met:

i) It must demonstrate that the process meets the definition of bag or cartridge filtration; and

ii) It must demonstrate that the removal efficiency established through challenge testing that meets criteria in this Subpart Z; and

B) Monthly verification, within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in Section 611.1013, that 100% of plant flow was filtered.

10) A supplier that uses the membrane filtration toolbox option must submit the following information on the indicated schedule:

A) Results of verification testing no later than the applicable treatment compliance date in Section 611.1013 that demonstrate the following:

i) It must demonstrate that the removal efficiency established through challenge testing that meets criteria set forth in this Subpart Z; and

ii) It must demonstrate the integrity test method and parameters, including resolution, sensitivity, test frequency, control limits, and associated baseline; and

B) A monthly report within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in Section 611.1013, that summarizes the following:

i) It must summarize all direct integrity tests above the control limit; and

ii) If applicable, it must summarize any turbidity or alternative Agency-approved indirect integrity monitoring results triggering direct integrity testing and the corrective action that was taken.

11) A supplier that uses the second stage filtration toolbox option must submit monthly verification within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in Section 611.1013, that 100% of flow was filtered through both stages and that first stage was preceded by coagulation step.

12) A supplier that uses the slow sand filtration (as secondary filter) toolbox option must submit monthly verification within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in Section 611.1013, that both a slow sand filter and a preceding separate stage of filtration treated 100% of flow from Subpart B sources.

13) A supplier that uses the chlorine dioxide toolbox option must submit a monthly summary of CT values for each day within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in Section 611.1013, as described in Section 611.1020.

14) A supplier that uses the ozone toolbox option must submit a monthly summary of CT values for each day within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in Section 611.1013, as described in Section 611.1020.

15) A supplier that uses the UV toolbox option must submit the following information on the indicated schedule:

A) Validation test results no later than the applicable treatment compliance date in Section 611.1013, that demonstrate operating conditions that achieve required UV dose.

B) A monthly report summarizing the percentage of water entering the distribution system that was not treated by UV reactors operating within validated conditions for the required dose within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in Section 611.1013, as specified in Section 611.1020(d).

BOARD NOTE: Derived from 40 CFR 141.721 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.1022 Reporting and Recordkeeping Requirements: Recordkeeping Requirements

a) A supplier must keep results from the initial round of source water monitoring pursuant to Section 611.1001(a) and the second round of source water monitoring pursuant to Section 611.1001(b) until three years after bin classification pursuant to Section 611.1010 for a filtered system supplier or determination of the mean Cryptosporidium level pursuant to Section 611.1010 for an unfiltered system supplier for the particular round of monitoring.

b) A supplier must keep any notification to the Agency that it will not conduct source water monitoring due to meeting the criteria of Section 611.1001(d) for three years.

c) A supplier must keep the results of treatment monitoring associated with microbial toolbox options pursuant to Sections 611.1016 through 611.1020 and with uncovered finished water reservoirs pursuant to Section 611.1014, as applicable, for three years.

BOARD NOTE: Derived from 40 CFR 141.722 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

Section 611.1023 Requirements to Respond to Significant Deficiencies Identified in Sanitary Surveys Performed by USEPA or the Agency

a) A "sanitary survey" is an onsite review of the water source (identifying sources of contamination by using results of source water assessments where available), facilities, equipment, operation, maintenance, and monitoring compliance of a PWS to evaluate the adequacy of the PWS, its sources and operations, and the distribution of safe drinking water.

b) For the purposes of this Section, a "significant deficiency" includes a defect in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution supplier that USEPA or the Agency determines to be causing, or has the potential for causing, the introduction of contamination into the water delivered to consumers.

c) For sanitary surveys performed by USEPA or the Agency, the supplier must respond in writing to significant deficiencies identified in sanitary survey reports no later than 45 days after receipt of the report, indicating how and on what schedule the supplier will address significant deficiencies noted in the survey.

d) A supplier must correct significant deficiencies identified in sanitary survey reports according to the schedule approved by USEPA or the Agency, or if there is no approved schedule, according to the schedule reported pursuant to subsection (c) of this Section if such deficiencies are within the control of the supplier.

BOARD NOTE: Derived from 40 CFR 141.723 (2006).

(Source: Added at 31 Ill. Reg. 31 Ill. Reg. 11757, effective July 27, 2007)

SUBPART AA—REVISED TOTAL COLIFORM RULE

Section 611.1051 General

a) General. The provisions of this Subpart AA include both MCL and treatment technique requirements.

b) Applicability. The provisions of this Subpart AA apply to all PWSs.

c) Compliance date. Systems must comply with the provisions of this Subpart AA beginning April 1, 2016, unless otherwise specified in this Subpart AA.

d) This subsection (d) corresponds with 40 CFR 141.851(d), a provision that pertains to USEPA implementation which is not necessary in the Illinois regulations. This statement maintains structural consistency with the federal regulations.

e) Violations of NPDWRs. Failure to comply with the applicable requirements of Sections 611.1051 through 611.1061, including requirements established by the State pursuant to these provisions, is a violation of the NPDWRs in this Subpart AA.

BOARD NOTE: Derived from 40 CFR 141.851 (2013).

(Source: Added at 38 Ill. Reg. 3608, effective January 27, 2014)

Section 611.1052 Analytical Methods and Laboratory Certification

a) Analytical methodology.

1) The standard sample volume required for analysis, regardless of analytical method used, is 100 mℓ.

2) A supplier needs only determine the presence or absence of total coliforms and E. coli; a determination of density is not required.

3) The time from sample collection to initiation of test medium incubation may not exceed 30 hours. Suppliers are encouraged but not required to hold samples below 10º C during transit.

4) If water having residual chlorine (measured as free, combined, or total chlorine) is to be analyzed, sufficient sodium thiosulfate ($Na_2S_2O_3$) must be added to the sample bottle before sterilization to neutralize any residual chlorine in the water sample. Dechlorination procedures are addressed in section 2 of Standard Methods, 20th or 21st ed., Method 9060 A, each incorporated by reference in Section 611.102.

5) The supplier must conduct total coliform and E. coli analyses in accordance with one of the following analytical methods, each incorporated by reference in Section 611.102:

BOARD NOTE: All monitoring and analyses must be done in accordance with the version of the approved method recited in this subsection (a) and incorporated by reference in Section 611.102. The methods listed are the only versions that may be used for compliance with this Subpart AA. Laboratories should be careful to use only the approved versions of the

methods, as product package inserts may not be the same as the approved versions of the methods.

A) Total coliforms, lactose fermentation methods:

i) Standard total coliform fermentation technique: sections 1 and 2 of Standard Methods, 20th, 21st, or 22nd ed., Method 9221 B; or

BOARD NOTE: Lactose broth, as commercially available, may be used in lieu of lauryl tryptose broth, if the supplier conducts at least 25 parallel tests between lactose broth and lauryl tryptose broth using the water normally tested, and if the findings from this comparison demonstrate that the false-positive rate and false-negative rate for total coliforms, using lactose broth, is less than 10 percent. Because Standard Methods, 21st ed., Method 9221 B is the same version as Standard Methods Online 9221 B-99, the Board has not listed the Standard Methods Online version separately.

ii) Presence-absence (P–A) coliform test: sections 1 and 2 of Standard Methods, 20th or 21st, Method 9221 D.

BOARD NOTE: A multiple tube enumerative format, as described in Standard Methods, 20th or 21st, Method 9221 D, is approved for this method for use in presence-absence determination under this Subpart AA. Because Standard Methods, 21st ed., Method 9221 D is the same version as Standard Methods Online 9221 D-99, the Board has not listed the Standard Methods Online version separately.

BOARD NOTE: USEPA added sections 1 and 2 of Standard Methods Online, Method 9221 B-06 as an approved alternative method for total coliforms in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 9221 B is the same version as Standard Methods Online, Method 9221 B-06, the Board has not listed the Standard Methods Online versions separately.

B) Total coliforms, membrane filtration methods:

i) Standard total coliform membrane filter procedure: Standard Methods, 20th or 21st ed., Method 9222 B or C.

BOARD NOTE: Because Standard Methods, 20th ed., Methods 9222 B and C are the same version as Standard

Methods Online 9222 B and C-97, the Board has not listed the Standard Methods Online version separately.

ii) Membrane filtration using MI medium: USEPA Method 1604.

iii) m-ColiBlue24® Test.

BOARD NOTE: All filtration series must begin with membrane filtration equipment that has been sterilized by autoclaving. Exposure of filtration equipment to UV light is not adequate to ensure sterilization. Subsequent to the initial autoclaving, exposure of the filtration equipment to UV light may be used to sanitize the funnels between filtrations within a filtration series. Alternatively, membrane filtration equipment that is pre-sterilized by the manufacturer (i.e., disposable funnel units) may be used.

iv) Chromocult.

BOARD NOTE: All filtration series must begin with membrane filtration equipment that has been sterilized by autoclaving. Exposure of filtration equipment to UV light is not adequate to ensure sterilization. Subsequent to the initial autoclaving, exposure of the filtration equipment to UV light may be used to sanitize the funnels between filtrations within a filtration series. Alternatively, membrane filtration equipment that is pre-sterilized by the manufacturer (i.e., disposable funnel units) may be used.

C) Total coliforms, enzyme substrate methods:

i) Colilert® Test: Standard Methods, 20th, 21st, or 22nd ed., Method 9223 B;

BOARD NOTE: Multiple-tube and multi-well enumerative formats for this method are approved for use in presence-absence determination under this Subpart AA.

ii) Colilert-18® Test: Standard Methods, 20th, 21st, or 22nd ed., Method 9223 B;

iii) Colisure™ Test: Standard Methods, 20th, 21st, or 22nd ed., Method 9223 B;

BOARD NOTE: Multiple-tube and multi-well enumerative formats for this method are approved for use in presence-

absence determination under this Subpart AA. Colisure™ Test results may be read after an incubation time of 24 hours. Because Standard Methods, 20th ed., Method 9223 B is the same version as Standard Methods Online 9223 B-97, the Board has not listed the Standard Methods Online version separately.

iv) E*Colite® Test;

v) Readycult® 2007 Test;

vi) Modified Colitag™ Test; or

vii) Tecta EC/TC P-A Test.

BOARD NOTE: USEPA added Standard Methods Online, Method 9223 B-04, Colilert-18® Test, and Tecta EC/TC P-A Test as approved alternative methods for total coliforms in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 9223 B is the same version as Standard Methods Online, Method 9223 B-04, the Board has not listed the Standard Methods Online versions separately.

D) E. coli (following lactose fermentation methods), EC-MUG medium: section 1 of Standard Methods, 20th or 21st ed., or 22nd ed., Method 9221 F.

BOARD NOTE: USEPA added section 1 of Standard Methods Online, Method 9221 F-06 as an approved alternative method for E. coli in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 9221 F is the same version as Standard Methods Online, Method 9221 F-06, the Board has not listed the Standard Methods Online versions separately.

E) E. coli, partition method:

i) EC broth with MUG (EC-MUG): section 1.c(2) of Standard Methods, 20th or 21st ed., Method 9222 G; or

BOARD NOTE: The following changes must be made to the EC broth with MUG (EC–MUG) formulation: potassium dihydrogen phosphate (KH_2PO_4) must be 1.5 g, and 4-methylumbelliferyl-β-D-glucuronide must be 0.05 g.

ii) NA-MUG medium: section 1.c(1) of Standard Methods, 20th or 21st ed., Method 9222 G.

F) E. coli, membrane filtration methods:

i) Membrane filtration using MI medium: USEPA Method 1604.

ii) m-ColiBlue24® Test.

BOARD NOTE: All filtration series must begin with membrane filtration equipment that has been sterilized by autoclaving. Exposure of filtration equipment to UV light is not adequate to ensure sterilization. Subsequent to the initial autoclaving, exposure of the filtration equipment to UV light may be used to sanitize the funnels between filtrations within a filtration series. Alternatively, membrane filtration equipment that is pre-sterilized by the manufacturer (i.e., disposable funnel units) may be used.

iii) Chromocult.

BOARD NOTE: All filtration series must begin with membrane filtration equipment that has been sterilized by autoclaving. Exposure of filtration equipment to UV light is not adequate to ensure sterilization. Subsequent to the initial autoclaving, exposure of the filtration equipment to UV light may be used to sanitize the funnels between filtrations within a filtration series. Alternatively, membrane filtration equipment that is pre-sterilized by the manufacturer (i.e., disposable funnel units) may be used.

G) E. coli, enzyme substrate methods:

i) Colilert® Test: Standard Methods, 20th, 21st, or 22nd ed., Method 9223 B;

BOARD NOTE: Multiple-tube and multi-well enumerative formats for this method are approved for use in presence-absence determination under this Subpart AA. Because Standard Methods, 20th ed., Method 9223 B is the same version as Standard Methods Online 9223 B-97, the Board has not listed the Standard Methods Online version separately.

ii) Colilert-18® Test: Standard Methods, 20th, 21st, or 22nd ed., Method 9223 B;

iii) Colisure™: Standard Methods, 20th, 21st, or 22nd ed., Method 9223 B;

BOARD NOTE: Multiple-tube and multi-well enumerative formats for this method are approved for use in presence-absence determination under this Subpart AA. Colisure™ results may be read after an incubation time of 24 hours. Because Standard Methods, 20th ed., Method 9223 B is the same version as Standard Methods Online 9223 B-97, the Board has not listed the Standard Methods Online version separately.

iv) E*Colite® Test;

v) Readycult® 2007 Test;

vi) Modified Colitag™ Test; or

vii) Tecta EC/TC P-A Test.

BOARD NOTE: USEPA added of Standard Methods, 22nd ed., Methods 9221 B (sections 1 and 2) and 9223 B as approved alternative methods for total coliforms and Standard Methods, 22nd ed., Methods 9221 F (section 1) and 9223 B for as approved alternative methods for E. coli in appendix A to subpart C of 40 CFR 141 on June 21, 2013 (at 78 Fed. Reg. 37463).: USEPA added Standard Methods Online, Method 9223 B-04, Colilert-18® Test, and Tecta EC/TC P-A Test as approved alternative methods for E.coli in appendix A to subpart C of 40 CFR 141 on June 19, 2014 (at 79 Fed. Reg. 35081). Because Standard Methods, 22nd ed., Method 9223 B is the same version as Standard Methods Online, Method 9223 B-04, the Board has not listed the Standard Methods Online versions separately.

b) Laboratory certification. A supplier must have all compliance samples required by this Subpart AA analyzed by a certified laboratory in one of the categories listed in Section 611.490(a). The laboratory used by the supplier must be certified for each method (and associated contaminants) that is used for compliance monitoring analyses under this Subpart AA.

c) This subsection (c) corresponds with 40 CFR 141.1052(c), which is a centralized listing of incorporations by reference for the purposes of subpart Y to 40 CFR 141. The Board has centrally located all incorporations by reference in Section 611.102. This statement maintains structural consistency with the federal rules.

BOARD NOTE: Derived from 40 CFR 141.852 and appendix A to subpart C of 40 CFR 141 (2014).

(Source: Amended at 39 Ill. Reg. 3713, effective March 13, 2015)

Section 611.1053 General Monitoring Requirements for all PWSs

a) Sample siting plans.

1) A supplier must develop a written sample siting plan that identifies sampling sites and a sample collection schedule that are representative of water throughout the distribution system not later than March 31, 2016. These plans are subject to Agency review and revision. The supplier must collect total coliform samples according to the written sample siting plan. Monitoring required by Sections 611.1054 through 611.1058 may take place at a customer's premises, a dedicated sampling station, or another designated compliance sampling location. Routine and repeat sample sites and any sampling points necessary to meet the requirements of Subpart S of this Part must be reflected in the sampling plan.

2) A supplier must collect samples at regular time intervals throughout the month, except that systems that use only ground water and serve 4,900 or fewer people may collect all required samples on a single day if they are taken from different sites.

3) A supplier must take at least the minimum number of required samples even if the system has had an E. coli MCL violation or has exceeded the coliform treatment technique triggers in Section 611.1059(a).

4) A supplier may conduct more compliance monitoring than is required by this Subpart AA to investigate potential problems in the distribution system and use monitoring as a tool to assist in uncovering problems. A supplier may take more than the minimum number of required routine samples and must include the results in calculating whether the coliform treatment technique trigger in Section 611.1059(a)(1)(A) and (a)(1)(B) has been exceeded only if the samples are taken in accordance with the existing sample siting plan and are representative of water throughout the distribution system.

5) A supplier must identify repeat monitoring locations in the sample siting plan. Unless the provisions of subsections (a)(5)(A) or (a)(5)(B) of this Section are met, the supplier must 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 service connection away from the end of the distribution system, the supplier must still take all required repeat samples. However, the Agency may grant a SEP pursuant to Section 611.110 that allows an alternative sampling location in lieu of the requirement to collect at least one repeat sample upstream or downstream of the original sampling site. Except as provided for in subsection (a)(5)(B) of this Section, a supplier required to conduct triggered source water monitoring pursuant to Section 611.802(a) must take ground water source samples in addition to repeat samples required under this Subpart AA.

A) A supplier may propose repeat monitoring locations to the Agency that the supplier believes to be representative of a pathway for contamination of the distribution system. A supplier may elect to specify either alternative fixed locations or criteria for selecting repeat sampling sites on a situational basis in a standard operating procedure (SOP) in its sample siting plan. The supplier must design its SOP to focus the repeat samples at locations that best verify and determine the extent of potential contamination of the distribution system area based on specific situations. The Agency may, by a SEP issued pursuant to Section 611.110, modify the SOP or require alternative monitoring locations as the Agency determines is necessary.

B) A GWS supplier that serves 1,000 or fewer people may propose repeat sampling locations to the Agency that differentiate potential source water and distribution system contamination (e.g., by sampling at entry points to the distribution system). A GWS supplier that has a single well and which is required to conduct triggered source water monitoring may, as allowed by a SEP issued pursuant to Section 611.110, take one of its repeat samples at the monitoring location required for triggered source water monitoring pursuant to Section 611.802(a). The supplier must justify an Agency determination that the sample siting plan remains representative of water quality in the distribution system. If approved by a SEP issued pursuant to Section 611.110, the supplier may use that sample result to meet the monitoring requirements in both Section 611.802(a) and this Section.

i) If a repeat sample taken at the monitoring location required for triggered source water monitoring is E. coli-positive, the supplier has violated the E. coli MCL and must also comply with Section 611.802(a)(3). If a supplier takes more than one repeat sample at the monitoring location required for triggered source water monitoring, the supplier may reduce the number of additional source water samples required under Section 611.802(a)(3) by the number of repeat samples taken at that location that were not E. coli-positive.

ii) If a supplier takes more than one repeat sample at the monitoring location required for triggered source water monitoring under Section 611.802(a), and more than one repeat sample is E. coli-positive, the supplier has violated the E. coli MCL and must also comply with Section 611.803(a)(1).

iii) If all repeat samples taken at the monitoring location required for triggered source water monitoring are E. coli-negative and a repeat sample taken at a monitoring location other than the one required for triggered source water monitoring is E. coli-positive, the supplier has violated the E. coli MCL, but is not required to comply with Section 611.802(a)(3).

6) The Agency may, by a SEP issued pursuant to Section 611.110, review, revise, and approve, as appropriate, repeat sampling proposed by a supplier pursuant to subsections (a)(5)(A) and (a)(5)(B) of this Section. The supplier must justify an Agency determination that the sample siting plan remains representative of the water quality in the distribution system. The Agency may determine that monitoring at the entry point to the distribution system (especially for undisinfected ground water systems) is effective to differentiate between potential source water and distribution system problems.

b) Special purpose samples. Special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, must not be used to determine whether the coliform treatment technique trigger has been exceeded. Repeat samples taken pursuant to Section 611.1058 are not considered special purpose samples, and must be used to determine whether the coliform treatment technique trigger has been exceeded.

c) Invalidation of total coliform samples. A total coliform-positive sample invalidated under this subsection (c) does not count toward meeting the minimum monitoring requirements of this Subpart AA.

1) The Agency may, by a SEP issued pursuant to Section 611.110, invalidate a total coliform-positive sample only if the conditions of subsection (c)(1)(A), (c)(1)(B), or (c)(1)(C) of this Section are met.

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

B) The Agency, on the basis of the results of repeat samples collected as required under Section 611.1058(a), 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 samples collected at the same tap as the original total coliform-positive sample are also total coliform-positive, and all repeat samples collected at a location other than the original tap are total coliform-negative (e.g., a 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 system has only one service connection).

C) The Agency has substantial grounds to believe that a total coliform-positive result is due to a circumstance or condition that does not reflect water quality in the distribution system. In this case, the system must still collect all repeat samples required under Section 611.1058(a), and use them to determine whether a coliform treatment technique trigger in Section 611.1059 has been exceeded. To invalidate a total coliform-positive sample under this subsection (c)(1), the decision and supporting rationale must be documented in writing and approved and signed by the Agency, as a SEP issued pursuant to Section 611.110. The Agency must 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 may not invalidate a total coliform-positive sample solely on the grounds that all repeat samples are total coliform-negative.

2) A laboratory must 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 presence-absence (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 must 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 must continue to re-sample within 24 hours and have the samples analyzed until it obtains a valid result. The Agency may, by a SEP issued pursuant to Section 611.110, waive the 24-hour time limit on a case-by-case basis. Alternatively, the Agency or any interested person may file a petition for rulemaking, pursuant to Sections 27 and 28 of the Act [415 ILCS 5/27 and 28], to establish criteria for waiving the 24-hour sampling time limit to use in lieu of case-by-case extensions.

BOARD NOTE: Derived from 40 CFR 141.853 (2013).

(Source: Added at 38 Ill. Reg. 3608, effective January 27, 2014)

Section 611.1054 Routine Monitoring Requirements for Non-CWSs That Serve 1,000 or Fewer People Using Only Groundwater

a) General.

1) This Section applies to non-CWS suppliers that use only groundwater (except groundwater under the direct influence of surface water, as defined in Section 611.102) and which serve 1,000 or fewer people.

2) Following any total coliform-positive sample taken pursuant to this Section, a supplier must comply with the repeat monitoring requirements and E. coli analytical requirements in Section 611.1058.

3) Once all monitoring required by this Section and Section 611.1058 for a calendar month has been completed, a supplier must determine whether any coliform treatment technique triggers specified in Section 611.1059

have been exceeded. If any trigger has been exceeded, the supplier must complete assessments as required by Section 611.1059.

4) For the purpose of determining eligibility for remaining on or qualifying for quarterly monitoring under the provisions of subsections (f)(4) and (g)(2), respectively, of this Section for transient non-CWS suppliers, the Agency may elect to not count monitoring violations under Section 611.1060(c)(1) if the missed sample is collected no later than the end of the monitoring period following the monitoring period in which the sample was missed. The supplier must collect the make-up sample in a different week than the routine sample for that monitoring period and should collect the sample as soon as possible during the monitoring period. The Agency may not use this provision under subsection (h) of this Section. This authority does not affect the provisions of Sections 611.1060(c)(1) and 611.1061(a)(4) of this Part.

b) Monitoring frequency for total coliforms. A supplier must monitor each calendar quarter that the supplier provides water to the public, except for a seasonal system supplier or as provided under subsections (c) through (h) and (j) of this Section. A seasonal system supplier must meet the monitoring requirements of subsection (i) of this Section.

c) Transition to this Subpart AA.

1) A supplier, including a seasonal system supplier, must continue to monitor according to the total coliform monitoring schedules under Sections 611.521 through 611.527 that were in effect on March 31, 2016, unless any of the conditions for increased monitoring in subsection (f) of this Section are triggered on or after April 1, 2016, or unless otherwise directed by the Agency.

2) Beginning April 1, 2016, the Agency must perform a special monitoring evaluation during each sanitary survey to review the status of the supplier's system, including the distribution system, to determine whether the supplier is on an appropriate monitoring schedule. After the Agency has performed the special monitoring evaluation during each sanitary survey, the Agency may modify the supplier's monitoring schedule, as the Agency determines is necessary, or the Agency may allow the supplier to stay on its existing monitoring schedule, consistent with the provisions of this Section. The Agency may not allow a supplier to begin less frequent monitoring under the special monitoring evaluation unless the supplier has already met the applicable criteria for less frequent monitoring in this

Section. For a seasonal system supplier on quarterly or annual monitoring, this evaluation must include review of the approved sample siting plan, which must designate the time periods for monitoring based on site-specific considerations (e.g., during periods of highest demand or highest vulnerability to contamination). The seasonal system supplier must collect compliance samples during these time periods.

d) Annual site visits. Beginning no later than calendar year 2017, a supplier on annual monitoring, including a seasonal system supplier, must have an initial and recurring annual site visit by the Agency that is equivalent to a Level 2 assessment or an annual voluntary Level 2 assessment that meets the criteria in Section 611.1059(b) to remain on annual monitoring. The periodic required sanitary survey may be used to meet the requirement for an annual site visit for the year in which the sanitary survey was completed.

e) Criteria for annual monitoring. Beginning April 1, 2016, the Agency may, by a SEP issued pursuant to Section 611.110, reduce the monitoring frequency for a well-operated GWS supplier from quarterly routine monitoring to no less than annual monitoring, if the supplier demonstrates that it meets the criteria for reduced monitoring in subsections (e)(1) through (e)(3) of this Section, except for a supplier that has been on increased monitoring under the provisions of subsection (f) of this Section. A supplier on increased monitoring under subsection (f) of this Section must meet the provisions of subsection (g) of this Section to go to quarterly monitoring and must meet the provisions of subsection (h) of this Section to go to annual monitoring.

1) The supplier's system has a clean compliance history for a minimum of 12 months;

2) The most recent sanitary survey shows that the supplier's system is free of sanitary defects or has corrected all identified sanitary defects, has a protected water source, and meets Agency-approved construction standards; and

3) The Agency has conducted an annual site visit within the last 12 months, and the supplier has corrected all identified sanitary defects. The supplier may substitute a Level 2 assessment that meets the criteria in Section 611.1059(b) for the Agency annual site visit.

f) Increased monitoring requirements for suppliers on quarterly or annual monitoring. A supplier on quarterly or annual monitoring that experiences any of

the events identified in subsections (f)(1) through (f)(4) of this Section must begin monthly monitoring the month following the event. A supplier on annual monitoring that experiences the event identified in subsections (f)(5) of this Section must begin quarterly monitoring the quarter following the event. The supplier must continue monthly or quarterly monitoring until the requirements in subsection (g) of this Section for quarterly monitoring or subsection (h) of this Section for annual monitoring are met. A supplier on monthly monitoring for reasons other than those identified in subsections (f)(1) through (f)(4) of this Section is not considered to be on increased monitoring for the purposes of subsections (g) and (h) of this Section.

1) The supplier's system triggers a Level 2 assessment or two Level 1 assessments under the provisions of Section 611.1059 in a rolling 12-month period.

2) The supplier's system has an E. coli MCL violation.

3) The supplier's system has a coliform treatment technique violation.

4) The supplier's system has two Subpart AA monitoring violations or one Subpart AA monitoring violation and one Level 1 assessment under the provisions of Section 611.1059 in a rolling 12-month period for a system on quarterly monitoring.

5) The supplier's system has one Subpart AA monitoring violation for a system on annual monitoring.

g) Requirements for returning to quarterly monitoring. The Agency may, by a SEP issued pursuant to Section 611.110, reduce the monitoring frequency for a supplier on monthly monitoring triggered under subsection (f) of this Section to quarterly monitoring if the supplier's system meets the criteria in subsections (g)(1) and (g)(2) of this Section.

1) Within the last 12 months, the supplier must have a completed sanitary survey or a site visit of its system by the Agency or a voluntary Level 2 assessment of its system by a party approved by the Agency, the supplier's system must be free of sanitary defects, and the supplier's system must have a protected water source; and

2) The supplier's system must have a clean compliance history for a minimum of 12 months.

h) Requirements for a supplier on increased monitoring to qualify for annual monitoring. The Agency may, by a SEP issued pursuant to Section 611.110, reduce the monitoring frequency for a supplier on increased monitoring under subsection (f) of this Section if the supplier's system meets the criteria in subsection (g) of this Section and the criteria in subsections (h)(1) and (h)(2) of this Section.

1) An annual site visit by the Agency and correction of all identified sanitary defects. The supplier may substitute a voluntary Level 2 assessment by a party approved by the Agency for the Agency annual site visit in any given year.

2) The supplier must have in place or adopt one or more of the following additional enhancements to the water system barriers to contamination:

A) Cross connection control, as approved by the Agency.

B) An operator certified by an appropriate Agency certification program or regular visits by a circuit rider certified by an appropriate Agency certification program.

C) Continuous disinfection entering the distribution system and a residual in the distribution system in accordance with criteria specified by the Agency.

D) Demonstration of maintenance of at least a four-log removal or inactivation of viruses as provided for under Section 141.403(b)(3).

E) Other equivalent enhancements to water system barriers as approved by the State.

i) Seasonal systems.

1) Beginning April 1, 2016, all seasonal system suppliers must demonstrate completion of an Agency-approved start-up procedure, which may include a requirement for startup sampling prior to serving water to the public.

2) A seasonal system supplier must monitor every month that it is in operation unless it meets the criteria in subsections (i)(2)(i) through (iii) of this Section to be eligible for monitoring less frequently than monthly beginning April 1, 2016, except as provided under subsection (c) of this Section.

A) Seasonal a system supplier monitoring less frequently than monthly must have an approved sample siting plan that designates the time period for monitoring based on site-specific considerations (e.g., during periods of highest demand or highest vulnerability to contamination). A seasonal system supplier must collect compliance samples during this time period.

B) To be eligible for quarterly monitoring, the supplier must meet the criteria in subsection (g) of this Section.

C) To be eligible for annual monitoring, the supplier must meet the criteria under subsection (h) of this Section.

3) The Agency may, by a SEP issued pursuant to Section 611.110, exempt any seasonal system supplier from some or all of the requirements for seasonal system suppliers if the entire distribution system remains pressurized during the entire period that the supplier's system is not operating, except that a supplier that monitors less frequently than monthly must still monitor during the vulnerable period designated by the Agency.

j) Additional routine monitoring the month following a total coliform-positive sample. A supplier that collects samples on a quarterly or annual frequency must conduct additional routine monitoring the month following one or more total coliform-positive samples (with or without a Level 1 treatment technique trigger). The supplier must collect at least three routine samples during the next month, except that the Agency may, by a SEP issued pursuant to Section 611.110, waive this requirement if the conditions of subsection (j)(1), (j)(2), or (j)(3) of this Section are met. The supplier may either collect samples at regular time intervals throughout the month or may collect all required routine samples on a single day if samples are taken from different sites. The supplier must use the results of

additional routine samples in coliform treatment technique trigger calculations under Section 611.1059(a).

1) The Agency may, by a SEP issued pursuant to Section 611.110, waive the requirement to collect three routine samples the next month in which the supplier provides water to the public if the Agency, or an agent approved by the Agency, performs a site visit before the end of the next month in which the supplier's system 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. The Agency cannot approve an employee of the supplier to perform this site visit, even if the employee is an agent approved by the Agency to perform sanitary surveys.

2) The Agency may, by a SEP issued pursuant to Section 611.110, waive the requirement to collect three routine samples the next month in which the supplier provides water to the public if the Agency has determined why the sample was total coliform-positive and has established that the supplier has corrected the problem or will correct the problem before the end of the next month in which the supplier's system serves water to the public. In this case, the Agency must document this decision to waive the following month's additional monitoring requirement in writing, have it approved and signed by the supervisor of the Agency official who recommends such a decision, and make this document available to USEPA and 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 this problem.

3) The Agency may not waive the requirement to collect three additional routine samples the next month in which the supplier's system provides water to the public solely on the grounds that all repeat samples are total coliform-negative. If the Agency determines that the supplier has corrected the contamination problem before the supplier takes the set of repeat samples required in Section 611.1058, and all repeat samples were total coliform-negative, the Agency may, by a SEP issued pursuant to Section 611.110, waive the requirement for additional routine monitoring the next month.

BOARD NOTE: Derived from 40 CFR 141.854 (2013).

(Source: Added at 38 Ill. Reg. 3608, effective January 27, 2014)

Section 611.1055 Routine Monitoring Requirements for CWSs That Serve 1,000 or Fewer People Using Only Groundwater

a) General.

1) This Section applies to CWS suppliers that use only ground water (except ground water under the direct influence of surface water, as defined in Section 611.102) and which serve 1,000 or fewer people.

2) Following any total coliform-positive sample taken under the provisions of this Section, the supplier must comply with the repeat monitoring requirements and E. coli analytical requirements in Section 611.1058.

3) Once all monitoring required by this Section and Section 611.1058 for a calendar month has been completed, the supplier must determine whether any coliform treatment technique triggers specified in Section 611.1059 have been exceeded. If any trigger has been exceeded, the supplier must complete assessments as required by Section 611.1059.

b) Monitoring frequency for total coliforms. The monitoring frequency for total coliforms is one sample per month, except as provided for under subsections (c) through (f) of this Section.

c) Transition to Subpart AA.

1) A supplier must continue to monitor according to the total coliform monitoring schedules under Sections 611.521 through 611.527 that were in effect on March 31, 2016, unless any of the conditions in subsection (e) of this Section are triggered on or after April 1, 2016, or unless otherwise directed by the Agency, by a SEP issued pursuant to Section 611.110.

2) Beginning April 1, 2016, the Agency must perform a special monitoring evaluation during each sanitary survey to review the status of the supplier's system, including the distribution system, to determine whether the system is on an appropriate monitoring schedule. After the Agency has performed the special monitoring evaluation during each sanitary survey, the Agency may, by a SEP issued pursuant to Section 611.110, modify the supplier's monitoring schedule, as necessary. Alternatively, the Agency may allow the supplier to stay on its existing monitoring schedule, consistent with the provisions of this Section. The Agency may not allow a supplier to begin less frequent monitoring under the special monitoring evaluation unless the supplier has already met the applicable criteria for less frequent monitoring in this Section.

d) Criteria for reduced monitoring.

1) The Agency may, by a SEP issued pursuant to Section 611.110, reduce the monitoring frequency from monthly monitoring to no less than quarterly monitoring if the supplier is in compliance with Agency-certified operator provisions and demonstrates that it meets the criteria in subsections (d)(1)(A) through (d)(1)(C) of this Section. A supplier that loses its certified operator must return to monthly monitoring the month following that loss.

A) The supplier has a clean compliance history for a minimum of 12 months.

B) The most recent sanitary survey shows the supplier is free of sanitary defects (or has an approved plan and schedule to correct them and is in compliance with the plan and the schedule), has a protected water source, and meets Agency-approved construction standards.

C) The supplier meets at least one of the following criteria:

i) An annual site visit by the Agency that is equivalent to a Level 2 assessment or an annual Level 2 assessment by a party approved by the Agency and correction of all identified sanitary defects (or an approved plan and schedule to correct them and is in compliance with the plan and schedule).

ii) Cross connection control, as approved by the Agency.

iii) Continuous disinfection entering the distribution system and a residual in the distribution system in accordance with criteria specified by the Agency.

iv) Demonstration of maintenance of at least a 4-log removal or inactivation of viruses as provided for under Section 611.803(b)(3).

v) Other equivalent enhancements to water system barriers as approved by the Agency.

2) This subsection (d)(2) corresponds with 40 CFR 141.855(d)(2), which USEPA has marked "reserved." This statement maintains structural consistency with the corresponding federal provision.

e) Return to routine monthly monitoring requirements. A supplier on quarterly monitoring that experience any of the events in subsections (e)(1) through (e)(4) of this Section must begin monthly monitoring the month following the event.

The supplier must continue monthly monitoring until it meets the reduced monitoring requirements in subsection (d) of this Section.

1) The supplier triggers a Level 2 assessment or two Level 1 assessments in a rolling 12-month period.

2) The supplier has an E. coli MCL violation.

3) The supplier has a coliform treatment technique violation.

4) The supplier has two Subpart AA monitoring violations in a rolling 12-month period.

f) Additional routine monitoring the month following a total coliform-positive sample. A supplier collecting samples on a quarterly frequency must conduct additional routine monitoring the month following one or more total coliform-positive samples (with or without a Level 1 treatment technique trigger). A supplier must collect at least three routine samples during the next month, except that the Agency may, by a SEP issued pursuant to Section 611.110, waive this requirement if the conditions of subsection (f)(1), (f)(2), or (f)(3) of this Section are met. A supplier may either collect samples at regular time intervals throughout the month or may collect all required routine samples on a single day if samples are taken from different sites. A supplier must use the results of additional routine samples in coliform treatment technique trigger calculations.

1) The Agency may, by a SEP issued pursuant to Section 611.110, waive the requirement to collect three routine samples the next month in which the supplier's system provides water to the public if the Agency, or an agent approved by the Agency, performs a site visit before the end of the next month in which the supplier's system 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. The Agency cannot approve an employee of the supplier to perform this site visit, even if the employee is an agent approved by the Agency to perform sanitary surveys.

2) The Agency may, by a SEP issued pursuant to Section 611.110, waive the requirement to collect three routine samples the next month in which the supplier's system provides water to the public if the Agency has determined why the sample was total coliform-positive and has established that the supplier has corrected the problem or will correct the problem before the end of the next month in which the supplier's system serves water to the public. In this case, the Agency must document this decision to waive the following month's additional monitoring requirement in writing, have it approved and signed by the supervisor of the Agency official who recommends such a decision, and make this 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 this problem.

3) The Agency may not waive the requirement to collect three additional routine samples the next month in which the supplier's system provides water to the public solely on the grounds that all repeat samples are total coliform-negative. If the Agency determines that the supplier has corrected the contamination problem before the supplier takes the set of repeat samples required in Section 611.1058, and all repeat samples were total coliform-negative, the Agency may, by a SEP issued pursuant to Section 611.110, waive the requirement for additional routine monitoring the next month.

BOARD NOTE: Derived from 40 CFR 141.855 (2014).

(Source: Amended at 39 Ill. Reg. 3713, effective March 13, 2015)

Section 611.1056 Routine Monitoring Requirements for Subpart B Systems That Serve 1,000 or Fewer People

a) General.

1) The provisions of this Section apply to a Subpart B system supplier that serves 1,000 or fewer people.

2) Following any total coliform-positive sample taken under the provisions of this Section, a supplier must comply with the repeat monitoring requirements and E. coli analytical requirements in Section 611.1058.

3) Once all monitoring required by this Section and Section 611.1058 for a calendar month has been completed, a supplier must determine whether any coliform treatment technique triggers specified in Section 611.1059 have been exceeded. If any trigger has been exceeded, the supplier must complete assessments as required by Section 611.1059.

4) Seasonal system suppliers.

A) Beginning April 1, 2016, all seasonal system suppliers must demonstrate completion of an Agency-approved start-up

procedure, which may include a requirement for start-up sampling prior to serving water to the public.

B) The Agency may, by a SEP issued pursuant to Section 611.110, exempt any seasonal system supplier from some or all of the requirements for seasonal system suppliers if the supplier's entire distribution system remains pressurized during the entire period that the supplier's system is not operating.

b) Routine monitoring frequency for total coliforms. A Subpart B system supplier (including a consecutive system supplier) must monitor monthly. A supplier may not reduce monitoring.

c) Unfiltered Subpart B system suppliers. A Subpart B system supplier that does not practice filtration in compliance with Subparts B, R, X, and Z of this Part must collect at least one total coliform sample near the first service connection each day that the turbidity level of the source water, measured as specified in Section 611.532(b), exceeds 1 NTU. When one or more turbidity measurements in any day exceed 1 NTU, the supplier must collect this coliform sample within 24 hours of the first exceedance, unless the Agency determines that the supplier, for logistical reasons outside the supplier's control, cannot have the sample analyzed within 30 hours of collection, and the Agency identifies an alternative sample collection schedule. Sample results from the coliform monitoring required by this subsection (c) must be included in determining whether the coliform treatment technique trigger in Section 611.1059 has been exceeded.

BOARD NOTE: Derived from 40 CFR 141.856 (2013).

(Source: Added at 38 Ill. Reg. 3608, effective January 27, 2014)

Section 611.1057 Routine Monitoring Requirements for PWSs That Serve More Than 1,000 People

a) General.

1) The provisions of this Section apply to public water systems serving more than 1,000 persons.

2) Following any total coliform-positive sample taken under the provisions of this Section, the supplier must comply with the repeat monitoring requirements and E. coli analytical requirements in Section 611.1058.

3) Once all monitoring required by this Section and Section 611.1058 for a calendar month has been completed, a supplier must determine whether any coliform treatment technique triggers specified in Section 611.1059 have been exceeded. If any trigger has been exceeded, the supplier must complete assessments as required by Section 611.1059.

4) Seasonal systems.

A) Beginning April 1, 2016, a seasonal system supplier must demonstrate completion of an Agency-approved start-up procedure, which may include a requirement for start-up sampling prior to serving water to the public.

B) The Agency may, by a SEP issued pursuant to Section 611.110, exempt any seasonal system supplier from some or all of the requirements for seasonal system suppliers if the supplier's entire distribution system remains pressurized during the entire period that the supplier's system is not operating.

b) Monitoring frequency for total coliforms. The monitoring frequency for total coliforms is based on the population served by the supplier's system, as follows:

TOTAL COLIFORM MONITORING FREQUENCY FOR PUBLIC WATER SYSTEMS SERVING MORE THAN 1,000 PEOPLE

Population served	Minimum number of samples per month
1,001 to 2,500	2
2,501 to 3,300	3
3,301 to 4,100	4
4,101 to 4,900	5
4,901 to 5,800	6

5,801 to 6,700	7
6,701 to 7,600	8
7,601 to 8,500	9
8,501 to 12,900	10
12,901 to 17,200	15
17,201 to 21,500	20
21,501 to 25,000	25
25,001 to 33,000	30
33,001 to 41,000	40
41,001 to 50,000	50
50,001 to 59,000	60
59,001 to 70,000	70
70,001 to 83,000	80
83,001 to 96,000	90
96,001 to 130,000	100
130,001 to 220,000	120
220,001 to 320,000	150
320,001 to 450,000	180
450,001 to 600,000	210
600,001 to 780,000	240
780,001 to 970,000	270
970,001 to 1,230,000	300
1,230,001 to 1,520,000	330
1,520,001 to 1,850,000	360
1,850,001 to 2,270,000	390

2,270,001 to 3,020,000	420
3,020,001 to 3,960,000	450
3,960,001 or more	480

c) Unfiltered Subpart B systems. A Subpart B system supplier that does not practice filtration in compliance with Subparts B, R, X, and Z of this Part must collect at least one total coliform sample near the first service connection each day that the turbidity level of the source water, measured as specified in Section 611.532(b), exceeds 1 NTU. When one or more turbidity measurements in any day exceed 1 NTU, the supplier must collect this coliform sample within 24 hours of the first exceedance, unless the Agency determines that the supplier, for logistical reasons outside the supplier's control, cannot have the sample analyzed within 30 hours of collection, and the Agency identifies an alternative sample collection schedule. Sample results from this coliform monitoring must be included in determining whether the coliform treatment technique trigger in Section 611.1059 has been exceeded.

d) Reduced monitoring. A supplier may not reduce monitoring, except for a non-CWS supplier that uses only ground water (and not ground water under the direct influence of surface water) and which serves 1,000 or fewer people in some months and more than 1,000 persons in other months. In months when more than 1,000 persons are served, the supplier must monitor at the frequency specified in subsection (a) of this Section. In months when the supplier serves 1,000 or fewer people, the Agency may, by a SEP issued pursuant to Section 611.110, reduce the monitoring frequency, in writing, to a frequency allowed under Section 611.1054 for a similarly situated supplier that always serves 1,000 or fewer people, taking into account the provisions in Section 611.1054(e) through (g).

BOARD NOTE: Derived from 40 CFR 141.857 (2013).

(Source: Added at 38 Ill. Reg. 3608, effective January 27, 2014)

Section 611.1058 Repeat Monitoring and E. coli Requirements

a) Repeat monitoring.

1) If a sample taken under Sections 611.1054 though 611.1057 is total coliform-positive, the supplier must collect a set of repeat samples within 24 hours of being notified of the positive result. The supplier must collect

no fewer than three repeat samples for each total coliform-positive sample found. The Agency may, by a SEP issued pursuant to Section 611.110, extend the 24- hour limit on a case-by-case basis if the supplier has a logistical problem in collecting the repeat samples within 24 hours that is beyond its control. Alternatively, the Agency may implement criteria for the supplier to use in lieu of case-by-case extensions. In the case of an extension, the Agency must specify how much time the supplier has to collect the repeat samples. The Agency cannot waive the requirement for a supplier to collect repeat samples in subsections (a)(1) through (a)(3) of this Section.

2) The supplier must collect all repeat samples on the same day, except that the Agency may, by a SEP issued pursuant to Section 611.110, allow a supplier with a single service connection to collect the required set of repeat samples over a three-day period or to collect a larger volume repeat samples in one or more sample containers of any size, as long as the total volume collected is at least 300 mℓ.

3) The supplier must collect an additional set of repeat samples in the manner specified in subsections (a)(1) through (a)(3) of this Section if one or more repeat samples in the current set of repeat samples is total coliform-positive. The supplier must collect the additional set of repeat samples within 24 hours of being notified of the positive result, unless the Agency extends the limit as provided in subsection (a)(1) of this Section. The supplier must continue to collect additional sets of repeat samples until either total coliforms are not detected in one complete set of repeat samples or the supplier determines that a coliform treatment technique trigger specified in Section 611.1059(a) has been exceeded as a result of a repeat sample being total coliform-positive and notifies the Agency. If a trigger identified in Section 611.1059 is exceeded as a result of a routine sample being total coliform-positive, the supplier is required to conduct only one round of repeat monitoring for each total coliform-positive routine sample.

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

5) Results of all routine and repeat samples taken under Sections 611.1054 through 611.1058 not invalidated by the Agency must be used to determine whether a coliform treatment technique trigger specified in Section 611.1059 has been exceeded.

b) Escherichia coli (E. coli) testing.

1) If any routine or repeat sample is total coliform-positive, the supplier must analyze that total coliform-positive culture medium to determine if E. coli are present. If E. coli are present, the supplier must notify the Agency by the end of the day when the supplier is notified of the test result, unless the supplier is notified of the result after the Agency office is closed and the Agency does not have either an after-hours phone line or an alternative notification procedure, in which case the supplier must notify the Agency before the end of the next business day.

2) The Agency has the discretion to allow a supplier, on a case-by-case basis, to forego E. coli testing on a total coliform-positive sample if that supplier assumes that the total coliform-positive sample is E. coli-positive. Accordingly, the supplier must notify the Agency as specified in subsection (b)(1) of this Section and the provisions of Section 141.63(c) apply.

BOARD NOTE: Derived from 40 CFR 141.858 (2013).

(Source: Added at 38 Ill. Reg. 3608, effective January 27, 2014)

Section 611.1059 Coliform Treatment Technique Triggers and Assessment Requirements for Protection Against Potential Fecal Contamination

a) Treatment technique triggers. A supplier must conduct assessments in accordance with subsection (b) of this Section after exceeding treatment technique triggers in subsections (a)(1) and (a)(2) of this Section.

1) Level 1 treatment technique triggers.

A) For a supplier taking 40 or more samples per month, the supplier exceeds 5.0% total coliform-positive samples for the month.

B) For a supplier taking fewer than 40 samples per month, the supplier has two or more total coliform-positive samples in the same month.

C) The supplier fails to take every required repeat sample after any single total coliform-positive sample.

2) Level 2 treatment technique triggers.

A) An E. coli MCL violation, as specified in Section 611.1060(a).

B) A second Level 1 trigger as defined in subsection (a)(1) of this Section, within a rolling 12-month period, unless the Agency, by a SEP issued pursuant to Section 611.110, has determined a likely reason that the samples that caused the first Level 1 treatment technique trigger were total coliform-positive and has established that the supplier has corrected the problem.

C) For a supplier with approved annual monitoring, a Level 1 trigger in two consecutive years.

b) Requirements for assessments.

1) A supplier must ensure that Level 1 and Level 2 assessments are conducted in order to identify the possible presence of sanitary defects and defects in distribution system coliform monitoring practices. Level 2 assessments must be conducted by parties approved by the Agency.

2) When conducting assessments, the supplier must ensure that the assessor evaluates minimum elements that include review and identification of inadequacies in sample sites; sampling protocol; sample processing; atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., small ground water systems); and existing water quality monitoring data. The supplier must conduct the assessment consistent with any Agency directives that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system.

3) Level 1 assessments. A supplier must conduct a Level 1 assessment consistent with Agency requirements if the supplier exceeds one of the treatment technique triggers in subsection (a)(1) of this Section.

A) The supplier must complete a Level 1 assessment as soon as practical after any trigger in subsection (a)(1) of this Section. In the completed assessment form, the supplier must describe sanitary defects detected, corrective actions completed, and a proposed timetable for any corrective actions not already completed. The assessment form may also note that no sanitary defects were identified. The supplier must submit the completed Level 1 assessment form to the Agency within 30 days after the supplier learns that it has exceeded a trigger.

B) If the Agency reviews the completed Level 1 assessment and determines that the assessment is not sufficient (including any proposed timetable for any corrective actions not already completed), the Agency must consult with the supplier. If the Agency, by a SEP issued pursuant to Section 611.110, requires revisions after consultation, the supplier must submit a revised assessment form to the Agency on an agreed-upon schedule not to exceed 30 days from the date of the consultation.

C) Upon completion and submission of the assessment form by the supplier, the Agency must determine if the supplier has identified a likely cause for the Level 1 trigger and, if so, establish that the supplier has corrected the problem, or has included a schedule acceptable to the Agency for correcting the problem.

4) Level 2 assessments. A supplier must ensure that a Level 2 assessment consistent with Agency requirements is conducted if the supplier exceeds one of the treatment technique triggers in subsection (a)(2) of this Section. The supplier must comply with any expedited actions or additional actions required by the Agency, by a SEP issued pursuant to Section 611.110, in the case of an E. coli MCL violation.

A) The supplier must ensure that a Level 2 assessment is completed by the Agency or by a party approved by the Agency as soon as practical after any trigger in subsection (a)(2) of this Section. The supplier must submit a completed Level 2 assessment form to the Agency within 30 days after the supplier learns that it has exceeded a trigger. The assessment form must describe sanitary defects

detected, corrective actions completed, and a proposed timetable for any corrective actions not already completed. The assessment form may also note that no sanitary defects were identified.

B) The supplier may conduct Level 2 assessments if the supplier has staff or management with the certification or qualifications specified by the Agency unless otherwise directed by the Agency, by a SEP issued pursuant to Section 611.110.

C) If the Agency reviews the completed Level 2 assessment and determines that the assessment is not sufficient (including any proposed timetable for any corrective actions not already completed), the Agency must consult with the system. If the Agency requires revisions after consultation, the supplier must submit a revised assessment form to the Agency on an agreed-upon schedule not to exceed 30 days.

D) Upon completion and submission of the assessment form by the supplier, the Agency must determine if the system has identified a likely cause for the Level 2 trigger and determine whether the supplier has corrected the problem, or has included a schedule acceptable to the Agency for correcting the problem.

c) Corrective action. A supplier must correct sanitary defects found through either Level 1 or 2 assessments conducted under subsection (b) of this Section. For corrections not completed by the time of submission of the assessment form, the supplier must complete the corrective actions in compliance with a timetable approved by the Agency, by a SEP issued pursuant to Section 611.110, in consultation with the supplier. The supplier must notify the Agency when each scheduled corrective action is completed.

d) Consultation. At any time during the assessment or corrective action phase, either the water supplier or the Agency may request a consultation with the other party to determine the appropriate actions to be taken. The supplier may consult with the Agency on all relevant information that may impact on its ability to comply with a requirement of this Subpart AA, including the method of accomplishment, an appropriate timeframe, and other relevant information.

BOARD NOTE: Derived from 40 CFR 141.859 (2013).

(Source: Added at 38 Ill. Reg. 3608, effective January 27, 2014)

Section 611.1060 Violations

a) E. coli MCL violations. A supplier is in violation of the MCL for E. coli when any of the conditions identified in subsections (a)(1) through (a)(4) of this Section occur.

1) The supplier has an E. coli-positive repeat sample following a total coliform-positive routine sample.

2) The supplier has a total coliform-positive repeat sample following an E. coli-positive routine sample.

3) The supplier fails to take all required repeat samples following an E. coli-positive routine sample.

4) The supplier fails to test for E. coli when any repeat sample tests positive for total coliform.

b) Treatment technique violation.

1) A treatment technique violation occurs when a supplier exceeds a treatment technique trigger specified in Section 611.1059(a) and then fails to conduct the required assessment or corrective actions within the timeframe specified in Section 611.1059(b) and (c).

2) A treatment technique violation occurs when a seasonal system supplier fails to complete an Agency-approved start-up procedure prior to serving water to the public.

c) Monitoring violations.

1) Failure to take every required routine or additional routine sample in a compliance period is a monitoring violation.

2) Failure to analyze for E. coli following a total coliform-positive routine sample is a monitoring violation.

d) Reporting violations.

1) Failure to submit a monitoring report or completed assessment form after a supplier properly conducts monitoring or assessment in a timely manner is a reporting violation.

2) Failure to notify the Agency following an E. coli-positive sample as required by Section 611.1058(b)(1) in a timely manner is a reporting violation.

3) Failure to submit certification of completion of Agency-approved start-up procedure by a seasonal system is a reporting violation.

BOARD NOTE: Derived from 40 CFR 141.860 (2013).

(Source: Added at 38 Ill. Reg. 3608, effective January 27, 2014)

Section 611.1061 Reporting and Recordkeeping

a) Reporting.

1) E. coli.

A) A supplier must notify the Agency by the end of the day when the system learns of an E. coli MCL violation, unless the supplier learns of the violation after the Agency office is closed and the Agency does not have either an after-hours phone line or an alternative notification procedure, in which case the supplier must notify the Agency before the end of the next business day, and the supplier notifies the public in accordance with Subpart V of this Part.

B) A supplier must notify the Agency by the end of the day when the supplier is notified of an E. coli-positive routine sample, unless the supplier is notified of the result after the Agency office is closed and the Agency does not have either an after-hours phone line or an alternative notification procedure, in which case the supplier must notify the Agency before the end of the next business day.

2) A supplier that has violated the treatment technique for coliforms in Section 611.1059 must report the violation to the Agency no later than the end of the next business day after it learns of the violation, and notify the public in accordance with Subpart V of this Part.

3) A supplier required to conduct an assessment under the provisions of Section 611.1059 must submit the assessment report within 30 days. The supplier must notify the Agency in accordance with Section 611.1059(c) when each scheduled corrective action is completed for corrections not completed by the time of submission of the assessment form.

4) A supplier that has failed to comply with a coliform monitoring requirement must report the monitoring violation to the Agency within 10 days after the supplier discovers the violation, and notify the public in accordance with Subpart V of this Part.

5) A seasonal system supplier must certify, prior to serving water to the public, that it has complied with the Agency-approved start-up procedure.

b) Recordkeeping.

1) The supplier must maintain any assessment form, regardless of who conducts the assessment, and documentation of corrective actions completed as a result of those assessments, or other available summary documentation of the sanitary defects and corrective actions taken under Section 611.1059 for Agency review. This record must be maintained by the supplier for a period not less than five years after completion of the assessment or corrective action.

2) The supplier must maintain a record of any repeat sample taken that meets Agency criteria for an extension of the 24- hour period for collecting repeat samples as provided for under Section 611.1058(a)(1).

BOARD NOTE: Derived from 40 CFR 141.861 (2014).

(Source: Amended at 39 Ill. Reg. 3713, effective March 13, 2015)

Section 611.APPENDIX A Regulated Contaminants

Microbiological contaminants.

Contaminant (units): Total Coliform Bacteria, until March 31, 2016
Traditional MCL in mg/ℓ: MCL: (a supplier that collects 40 or more samples/month) five percent or fewer of monthly samples are positive; (systems that collect fewer than 40 samples/month) one or fewer positive monthly samples.
To convert for CCR, multiply by: —

MCL in CCR units: MCL: (a supplier that collects 40 or more samples/month) five percent or fewer of monthly samples are positive; (a supplier that collects fewer than 40 samples/month) one or fewer positive monthly samples.
MCLG: 0
Major sources in drinking water: Naturally present in the environment.
Health effects language: Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.

Contaminant (units): Total Coliform Bacteria, beginning April 1, 2016
Traditional MCL in mg/ℓ: TT
To convert for CCR, multiply by: —
MCL in CCR units: TT
MCLG: N/A
Major sources in drinking water: Naturally present in the environment.
Health effects language: Use language found in Section 611.883(h)(7)(A)(i)

Contaminant (units): Fecal coliform and E. coli, until March 31, 2016
Traditional MCL in mg/ℓ: 0
To convert for CCR, multiply by: —
MCL in CCR units: 0
MCLG: 0
Major sources in drinking water: Human and animal fecal waste.
Health effects language: Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely-compromised immune systems.

Contaminant (units): E. coli, beginning April 1, 2016
Traditional MCL in mg/ℓ: Routine and repeat samples are total coliform-positive and either is E. coli-positive or system fails to take repeat samples following E. coli-positive routine sample or system fails to analyze total coliform-positive repeat sample for E. coli.
To convert for CCR, multiply by: —
MCL in CCR units: Routine and repeat samples are total coliform-positive and either is E. coli-positive or system fails to take repeat samples following E. coli-positive routine sample or system fails to analyze total coliform-positive repeat sample for E. coli.
MCLG: 0
Major sources in drinking water: Human and animal fecal waste.

Health effects language: E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, the elderly, and people with severely-compromised immune systems.

Contaminant (units): Fecal Indicators (enterococci or coliphage).
Traditional MCL in mg/ℓ: TT.
To convert for CCR, multiply by: —
MCL in CCR units: TT.
MCLG: N/A
Major sources in drinking water: Human and animal fecal waste.
Health effects language: Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.

Contaminant (units): Total organic carbon (ppm)
Traditional MCL in mg/ℓ: TT
To convert for CCR, multiply by: —
MCL in CCR units: TT
MCLG: N/A
Major sources in drinking water: Naturally present in the environment.
Health effects language: Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.

Contaminant (units): Turbidity (NTU)
Traditional MCL in mg/ℓ: TT
To convert for CCR, multiply by: —
MCL in CCR units: TT
MCLG: N/A
Major sources in drinking water: Soil runoff.
Health effects language: Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

Radioactive contaminants.

Contaminant (units): Beta/photon emitters (mrem/yr)
Traditional MCL in mg/ℓ: 4 mrem/yr
To convert for CCR, multiply by: —
MCL in CCR units: 4
MCLG: 0
Major sources in drinking water: Decay of natural and man-made deposits.
Health effects language: Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta particle and photon radioactivity in excess of the MCL over many years may have an increased risk of getting cancer.

Contaminant (units): Alpha emitters (pCi/ℓ)
Traditional MCL in mg/ℓ: 15 pCi/ℓ
To convert for CCR, multiply by: —
MCL in CCR units: 15
MCLG: 0
Major sources in drinking water: Erosion of natural deposits.
Health effects language: Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.

Contaminant (units): Combined radium (pCi/ℓ)
Traditional MCL in mg/ℓ: 5 pCi/ℓ
To convert for CCR, multiply by: —
MCL in CCR units: 5
MCLG: 0
Major sources in drinking water: Erosion of natural deposits.
Health effects language: Some people who drink water containing radium-226 or -228 in excess of the MCL over many years may have an increased risk of getting cancer.

Contaminant (units): Uranium (μg/ℓ)
Traditional MCL in mg/ℓ: 30 μg/ℓ
To convert for CCR, multiply by: —
MCL in CCR units: 30
MCLG: 0
Major sources in drinking water: Erosion of natural deposits.
Health effects language: Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer and kidney toxicity.

Inorganic contaminants.

Contaminant (units): Antimony (ppb)
Traditional MCL in mg/ℓ: 0.006
To convert for CCR, multiply by: 1000
MCL in CCR units: 6
MCLG: 6
Major sources in drinking water: Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder.
Health effects language: Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.

Contaminant (units): Arsenic (ppb)
Traditional MCL in mg/ℓ: 0.010
To convert for CCR, multiply by: 1000
MCL in CCR units: 50
MCLG: 0
Major sources in drinking water: Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes.
Health effects language: Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.

Contaminant (units): Asbestos (MFL)
Traditional MCL in mg/ℓ: 7 MFL
To convert for CCR, multiply by: —
MCL in CCR units: 7
MCLG: 7
Major sources in drinking water: Decay of asbestos cement water mains; erosion of natural deposits.
Health effects language: Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.

Contaminant (units): Barium (ppm)
Traditional MCL in mg/ℓ: 2
To convert for CCR, multiply by: —
MCL in CCR units: 2
MCLG: 2
Major sources in drinking water: Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.

Health effects language: Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.

Contaminant (units): Beryllium (ppb)
Traditional MCL in mg/ℓ: 0.004
To convert for CCR, multiply by: 1000
MCL in CCR units: 4
MCLG: 4
Major sources in drinking water: Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries.
Health effects language: Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions.

Contaminant (units): Bromate (ppb)
Traditional MCL in mg/ℓ: 0.010
To convert for CCR, multiply by: 1000
MCL in CCR units: 10
MCLG: 0
Major sources in drinking water: By-product of drinking water disinfection.
Health effects language: Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer.

Contaminant (units): Cadmium (ppb)
Traditional MCL in mg/ℓ: 0.005
To convert for CCR, multiply by: 1000
MCL in CCR units: 5
MCLG: 5
Major sources in drinking water: Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints.
Health effects language: Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.

Contaminant (units): Chloramines (ppm)
Traditional MCL in mg/ℓ: MRDL=4
To convert for CCR, multiply by: —
MCL in CCR units: MRDL=4
MCLG: MRDLG=4
Major sources in drinking water: Water additive used to control microbes.
Health effects language: Some people who drink water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia.

Contaminant (units): Chlorine (ppm)
Traditional MCL in mg/ℓ: MRDL=4
To convert for CCR, multiply by: —
MCL in CCR units: MRDL=4
MCLG: MRDLG=4
Major sources in drinking water: Water additive used to control microbes.
Health effects language: Some people who drink water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.

Contaminant (units): Chlorine dioxide (ppb)
Traditional MCL in mg/ℓ: MRDL=800
To convert for CCR, multiply by: 1000
MCL in CCR units: MRDL=800
MCLG: MRDLG=800
Major sources in drinking water: Water additive used to control microbes.
Health effects language: Some infants and young children who drink water containing chlorine dioxide well in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia.

Contaminant (units): Chlorite (ppm)
Traditional MCL in mg/ℓ: MRDL=1
To convert for CCR, multiply by: —
MCL in CCR units: MRDL=1
MCLG: MRDLG=0.8
Major sources in drinking water: By-product of drinking water disinfection.
Health effects language: Some infants and young children who drink water containing chlorite well in excess of the MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia.

Contaminant (units): Chromium (ppb)
Traditional MCL in mg/ℓ: 0.1
To convert for CCR, multiply by: 1000
MCL in CCR units: 100
MCLG: 100
Major sources in drinking water: Discharge from steel and pulp mills; erosion of natural deposits.
Health effects language: Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.

Contaminant (units): Copper (ppm)
Traditional MCL in mg/ℓ: AL=1.3
To convert for CCR, multiply by: —
MCL in CCR units: AL=1.3
MCLG: 1.3
Major sources in drinking water: Corrosion of household plumbing systems; erosion of natural deposits.
Health effects language: Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

Contaminant (units): Cyanide (ppb)
Traditional MCL in mg/ℓ: 0.2
To convert for CCR, multiply by: 1000
MCL in CCR units: 200
MCLG: 200
Major sources in drinking water: Discharge from steel/metal factories; discharge from plastic and fertilizer factories.
Health effects language: Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid.

Contaminant (units): Fluoride (ppm)
Traditional MCL in mg/ℓ: 4
To convert for CCR, multiply by: —
MCL in CCR units: 4
MCLG: 4
Major sources in drinking water: Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories.
Health effects language: Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in children less than nine years old. Mottling, also known as dental fluorosis, may include brown staining or pitting of the teeth, and occurs only in developing teeth before they erupt from the gums.

Contaminant (units): Lead (ppb)
Traditional MCL in mg/ℓ: AL=0.015
To convert for CCR, multiply by: 1000
MCL in CCR units: AL=15

MCLG: 0
Major sources in drinking water: Corrosion of household plumbing systems; erosion of natural deposits.
Health effects language: Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

Contaminant (units): Mercury (inorganic) (ppb)
Traditional MCL in mg/ℓ: 0.002
To convert for CCR, multiply by: 1000
MCL in CCR units: 2
MCLG: 2
Major sources in drinking water: Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland.
Health effects language: Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage.

Contaminant (units): Nitrate (ppm)
Traditional MCL in mg/ℓ: 10
To convert for CCR, multiply by: —
MCL in CCR units: 10
MCLG: 10
Major sources in drinking water: Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Health effects language: Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.

Contaminant (units): Nitrite (ppm)
Traditional MCL in mg/ℓ: 1
To convert for CCR, multiply by: —
MCL in CCR units: 1
MCLG: 1
Major sources in drinking water: Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Health effects language: Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.

Contaminant (units): Selenium (ppb)

Traditional MCL in mg/ℓ: 0.05
To convert for CCR, multiply by: 1000
MCL in CCR units: 50
MCLG: 50
Major sources in drinking water: Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines.
Health effects language: Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with their circulation.

Contaminant (units): Thallium (ppb)
Traditional MCL in mg/ℓ: 0.002
To convert for CCR, multiply by: 1000
MCL in CCR units: 2
MCLG: 0.5
Major sources in drinking water: Leaching from ore-processing sites; discharge from electronics, glass, and drug factories.
Health effects language: Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, changes in their blood, or problems with their kidneys, intestines, or liver.

Synthetic organic contaminants including pesticides and herbicides.

Contaminant (units): 2,4-D (ppb)
Traditional MCL in mg/ℓ: 0.07
To convert for CCR, multiply by: 1000
MCL in CCR units: 70
MCLG: 70
Major sources in drinking water: Runoff from herbicide used on row crops.
Health effects language: Some people who drink water containing the weed killer 2,4-D well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands.

Contaminant (units): 2,4,5-TP (silvex) (ppb)
Traditional MCL in mg/ℓ: 0.05
To convert for CCR, multiply by: 1000
MCL in CCR units: 50
MCLG: 50
Major sources in drinking water: Residue of banned herbicide.
Health effects language: Some people who drink water containing silvex in excess of the MCL over many years could experience liver problems.

Contaminant (units): Acrylamide
Traditional MCL in mg/ℓ: TT
To convert for CCR, multiply by: —
MCL in CCR units: TT
MCLG: 0
Major sources in drinking water: Added to water during sewage/wastewater treatment.
Health effects language: Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer.

Contaminant (units): Alachlor (ppb)
Traditional MCL in mg/ℓ: 0.002
To convert for CCR, multiply by: 1000
MCL in CCR units: 2
MCLG: 0
Major sources in drinking water: Runoff from herbicide used on row crops.
Health effects language: Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer.

Contaminant (units): Atrazine (ppb)
Traditional MCL in mg/ℓ: 0.003
To convert for CCR, multiply by: 1000
MCL in CCR units: 3
MCLG: 3
Major sources in drinking water: Runoff from herbicide used on row crops.
Health effects language: Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties.

Contaminant (units): Benzo(a)pyrene (PAH) (nanograms/ℓ)
Traditional MCL in mg/ℓ: 0.0002
To convert for CCR, multiply by: 1,000,000
MCL in CCR units: 200
MCLG: 0
Major sources in drinking water: Leaching from linings of water storage tanks and distribution lines.
Health effects language: Some people who drink water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.

Contaminant (units): Carbofuran (ppb)

Traditional MCL in mg/ℓ: 0.04
To convert for CCR, multiply by: 1000
MCL in CCR units: 40
MCLG: 40
Major sources in drinking water: Leaching of soil fumigant used on rice and alfalfa.
Health effects language: Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood, or nervous or reproductive systems.

Contaminant (units): Chlordane (ppb)
Traditional MCL in mg/ℓ: 0.002
To convert for CCR, multiply by: 1000
MCL in CCR units: 2
MCLG: 0
Major sources in drinking water: Residue of banned termiticide.
Health effects language: Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver or nervous system, and may have an increased risk of getting cancer.

Contaminant (units): Dalapon (ppb)
Traditional MCL in mg/ℓ: 0.2
To convert for CCR, multiply by: 1000
MCL in CCR units: 200
MCLG: 200
Major sources in drinking water: Runoff from herbicide used on rights of way.
Health effects language: Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.

Contaminant (units): Di(2-ethylhexyl)adipate (ppb)
Traditional MCL in mg/ℓ: 0.4
To convert for CCR, multiply by: 1000
MCL in CCR units: 400
MCLG: 400
Major sources in drinking water: Discharge from chemical factories.
Health effects language: Some people who drink water containing di(2-ethylhexyl)adipate well in excess of the MCL over many years could experience toxic effects, such as weight loss, liver enlargement, or possible reproductive difficulties.

Contaminant (units): Di(2-ethylhexyl)phthalate (ppb)
Traditional MCL in mg/ℓ: 0.006
To convert for CCR, multiply by: 1000

MCL in CCR units: 6
MCLG: 0
Major sources in drinking water: Discharge from rubber and chemical factories.
Health effects language: Some people who drink water containing di(2-ethylhexyl)phthalate well in excess of the MCL over many years may have problems with their liver or experience reproductive difficulties, and they may have an increased risk of getting cancer.

Contaminant (units): Dibromochloropropane (DBCP) (ppt)
Traditional MCL in mg/ℓ: 0.0002
To convert for CCR, multiply by: 1,000,000
MCL in CCR units: 200
MCLG: 0
Major sources in drinking water: Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards.
Health effects language: Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive problems and may have an increased risk of getting cancer.

Contaminant (units): Dinoseb (ppb)
Traditional MCL in mg/ℓ: 0.007
To convert for CCR, multiply by: 1000
MCL in CCR units: 7
MCLG: 7
Major sources in drinking water: Runoff from herbicide used on soybeans and vegetables.
Health effects language: Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties.

Contaminant (units): Diquat (ppb)
Traditional MCL in mg/ℓ: 0.02
To convert for CCR, multiply by: 1000
MCL in CCR units: 20
MCLG: 20
Major sources in drinking water: Runoff from herbicide use.
Health effects language: Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.

Contaminant (units): Dioxin (2,3,7,8-TCDD) (ppq)
Traditional MCL in mg/ℓ: 0.00000003
To convert for CCR, multiply by: 1,000,000,000
MCL in CCR units: 30

MCLG: 0
Major sources in drinking water: Emissions from waste incineration and other combustion; discharge from chemical factories.
Health effects language: Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.

Contaminant (units): Endothall (ppb)
Traditional MCL in mg/ℓ: 0.1
To convert for CCR, multiply by: 1000
MCL in CCR units: 100
MCLG: 100
Major sources in drinking water: Runoff from herbicide use.
Health effects language: Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines.

Contaminant (units): Endrin (ppb)
Traditional MCL in mg/ℓ: 0.002
To convert for CCR, multiply by: 1000
MCL in CCR units: 2
MCLG: 2
Major sources in drinking water: Residue of banned insecticide.
Health effects language: Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.

Contaminant (units): Epichlorohydrin
Traditional MCL in mg/ℓ: TT
To convert for CCR, multiply by: —
MCL in CCR units: TT
MCLG: 0
Major sources in drinking water: Discharge from industrial chemical factories; an impurity of some water treatment chemicals.
Health effects language: Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer.

Contaminant (units): Ethylene dibromide (ppt)
Traditional MCL in mg/ℓ: 0.00005
To convert for CCR, multiply by: 1,000,000
MCL in CCR units: 50
MCLG: 0

Major sources in drinking water: Discharge from petroleum refineries.
Health effects language: Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive system, or kidneys, and may have an increased risk of getting cancer.

Contaminant (units): Glyphosate (ppb)
Traditional MCL in mg/ℓ: 0.7
To convert for CCR, multiply by: 1000
MCL in CCR units: 700
MCLG: 700
Major sources in drinking water: Runoff from herbicide use.
Health effects language: Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties.

Contaminant (units): Heptachlor (ppt)
Traditional MCL in mg/ℓ: 0.0004
To convert for CCR, multiply by: 1,000,000
MCL in CCR units: 400
MCLG: 0
Major sources in drinking water: Residue of banned pesticide.
Health effects language: Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer.

Contaminant (units): Heptachlor epoxide (ppt)
Traditional MCL in mg/ℓ: 0.0002
To convert for CCR, multiply by: 1,000,000
MCL in CCR units: 200
MCLG: 0
Major sources in drinking water: Breakdown of heptachlor.
Health effects language: Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer.

Contaminant (units): Hexachlorobenzene (ppb)
Traditional MCL in mg/ℓ: 0.001
To convert for CCR, multiply by: 1000
MCL in CCR units: 1
MCLG: 0

Major sources in drinking water: Discharge from metal refineries and agricultural chemical factories.
Health effects language: Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer.

Contaminant (units): Hexachlorocyclopentadiene (ppb)
Traditional MCL in mg/ℓ: 0.05
To convert for CCR, multiply by: 1000
MCL in CCR units: 50
MCLG: 50
Major sources in drinking water: Discharge from chemical factories.
Health effects language: Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.

Contaminant (units): Lindane (ppt)
Traditional MCL in mg/ℓ: 0.0002
To convert for CCR, multiply by: 1,000,000
MCL in CCR units: 200
MCLG: 200
Major sources in drinking water: Runoff/leaching from insecticide used on cattle, lumber, gardens.
Health effects language: Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.

Contaminant (units): Methoxychlor (ppb)
Traditional MCL in mg/ℓ: 0.04
To convert for CCR, multiply by: 1000
MCL in CCR units: 40
MCLG: 40
Major sources in drinking water: Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock.
Health effects language: Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties.

Contaminant (units): Oxamyl (vydate) (ppb)
Traditional MCL in mg/ℓ: 0.2
To convert for CCR, multiply by: 1000
MCL in CCR units: 200
MCLG: 200

Major sources in drinking water: Runoff/leaching from insecticide used on apples, potatoes and tomatoes.
Health effects language: Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.

Contaminant (units): PCBs (polychlorinated biphenyls) (ppt)
Traditional MCL in mg/ℓ: 0.0005
To convert for CCR, multiply by: 1,000,000
MCL in CCR units: 500
MCLG: 0
Major sources in drinking water: Runoff from landfills; discharge of waste chemicals.
Health effects language: Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer.

Contaminant (units): Pentachlorophenol (ppb)
Traditional MCL in mg/ℓ: 0.001
To convert for CCR, multiply by: 1000
MCL in CCR units: 1
MCLG: 0
Major sources in drinking water: Discharge from wood preserving factories.
Health effects language: Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and may have an increased risk of getting cancer.

Contaminant (units): Picloram (ppb)
Traditional MCL in mg/ℓ: 0.5
To convert for CCR, multiply by: 1000
MCL in CCR units: 500
MCLG: 500
Major sources in drinking water: Herbicide runoff.
Health effects language: Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver.

Contaminant (units): Simazine (ppb)
Traditional MCL in mg/ℓ: 0.004
To convert for CCR, multiply by: 1000
MCL in CCR units: 4
MCLG: 4
Major sources in drinking water: Herbicide runoff.

Health effects language: Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.

Contaminant (units): Toxaphene (ppb)
Traditional MCL in mg/ℓ: 0.003
To convert for CCR, multiply by: 1000
MCL in CCR units: 3
MCLG: 0
Major sources in drinking water: Runoff/leaching from insecticide used on cotton and cattle.
Health effects language: Some people who drink water containing toxaphene in excess of the MCL over many years could have problems with their kidneys, liver, or thyroid, and may have an increased risk of getting cancer.

Volatile organic contaminants.

Contaminant (units): Benzene (ppb)
Traditional MCL in mg/ℓ: 0.005
To convert for CCR, multiply by: 1000
MCL in CCR units: 5
MCLG: 0
Major sources in drinking water: Discharge from factories; leaching from gas storage tanks and landfills.
Health effects language: Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer.

Contaminant (units): Carbon tetrachloride (ppb)
Traditional MCL in mg/ℓ: 0.005
To convert for CCR, multiply by: 1000
MCL in CCR units: 5
MCLG: 0
Major sources in drinking water: Discharge from chemical plants and other industrial activities.
Health effects language: Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.

Contaminant (units): Chlorobenzene (ppb)
Traditional MCL in mg/ℓ: 0.1
To convert for CCR, multiply by: 1000
MCL in CCR units: 100

MCLG: 100
Major sources in drinking water: Discharge from chemical and agricultural chemical factories.
Health effects language: Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys.

Contaminant (units): o-Dichlorobenzene (ppb)
Traditional MCL in mg/ℓ: 0.6
To convert for CCR, multiply by: 1000
MCL in CCR units: 600
MCLG: 600
Major sources in drinking water: Discharge from industrial chemical factories.
Health effects language: Some people who drink water containing o-dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory systems.

Contaminant (units): p-Dichlorobenzene (ppb)
Traditional MCL in mg/ℓ: 0.075
To convert for CCR, multiply by: 1000
MCL in CCR units: 75
MCLG: 75
Major sources in drinking water: Discharge from industrial chemical factories.
Health effects language: Some people who drink water containing p-dichlorobenzene in excess of the MCL over many years could experience anemia; damage to their liver, kidneys, or spleen; or changes in their blood.

Contaminant (units): 1,2-Dichloroethane (ppb)
Traditional MCL in mg/ℓ: 0.005
To convert for CCR, multiply by: 1000
MCL in CCR units: 5
MCLG: 0
Major sources in drinking water: Discharge from industrial chemical factories.
Health effects language: Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer.

Contaminant (units): 1,1-Dichloroethylene (ppb)
Traditional MCL in mg/ℓ: 0.007
To convert for CCR, multiply by: 1000
MCL in CCR units: 7
MCLG: 7
Major sources in drinking water: Discharge from industrial chemical factories.

Health effects language: Some people who drink water containing 1,1-dichloroethylene in excess of the MCL over many years could experience problems with their liver.

Contaminant (units): cis-1,2-Dichloroethylene (ppb)
Traditional MCL in mg/ℓ: 0.07
To convert for CCR, multiply by: 1000
MCL in CCR units: 70
MCLG: 70
Major sources in drinking water: Discharge from industrial chemical factories.
Health effects language: Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver.

Contaminant (units): trans-1,2-Dichloroethylene (ppb)
Traditional MCL in mg/ℓ: 0.1
To convert for CCR, multiply by: 1000
MCL in CCR units: 100
MCLG: 100
Major sources in drinking water: Discharge from industrial chemical factories.
Health effects language: Some people who drink water containing trans-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver.

Contaminant (units): Dichloromethane (ppb)
Traditional MCL in mg/ℓ: 0.005
To convert for CCR, multiply by: 1000
MCL in CCR units: 5
MCLG: 0
Major sources in drinking water: Discharge from pharmaceutical and chemical factories.
Health effects language: Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer.

Contaminant (units): 1,2-Dichloropropane (ppb)
Traditional MCL in mg/ℓ: 0.005
To convert for CCR, multiply by: 1000
MCL in CCR units: 5
MCLG: 0
Major sources in drinking water: Discharge from industrial chemical factories.
Health effects language: Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.

Contaminant (units): Ethylbenzene (ppb)
Traditional MCL in mg/ℓ: 0.7
To convert for CCR, multiply by: 1000
MCL in CCR units: 700
MCLG: 700
Major sources in drinking water: Discharge from petroleum refineries.
Health effects language: Some people who drink water containing ethylbenzene well in excess of the MCL over many years could experience problems with their liver or kidneys.

Contaminant (units): Haloacetic acids (HAA5) (ppb)
Traditional MCL in mg/ℓ: 0.060
To convert for CCR, multiply by: 1000
MCL in CCR units: 60
MCLG: N/A
Major sources in drinking water: Byproduct of drinking water disinfection.
Health effects language: Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

Contaminant (units): Styrene (ppb)
Traditional MCL in mg/ℓ: 0.1
To convert for CCR, multiply by: 1000
MCL in CCR units: 100
MCLG: 100
Major sources in drinking water: Discharge from rubber and plastic factories; leaching from landfills.
Health effects language: Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system.

Contaminant (units): Tetrachloroethylene (ppb)
Traditional MCL in mg/ℓ: 0.005
To convert for CCR, multiply by: 1000
MCL in CCR units: 5
MCLG: 0
Major sources in drinking water: Discharge from factories and dry cleaners.
Health effects language: Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer.

Contaminant (units): 1,2,4-Trichlorobenzene (ppb)
Traditional MCL in mg/ℓ: 0.07

To convert for CCR, multiply by: 1000
MCL in CCR units: 70
MCLG: 70
Major sources in drinking water: Discharge from textile-finishing factories.
Health effects language: Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands.

Contaminant (units): 1,1,1-Trichloroethane (ppb)
Traditional MCL in mg/ℓ: 0.2
To convert for CCR, multiply by: 1000
MCL in CCR units: 200
MCLG: 200
Major sources in drinking water: Discharge from metal degreasing sites and other factories.
Health effects language: Some people who drink water containing 1,1,1-trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system.

Contaminant (units): 1,1,2-Trichloroethane (ppb)
Traditional MCL in mg/ℓ: 0.005
To convert for CCR, multiply by: 1000
MCL in CCR units: 5
MCLG: 3
Major sources in drinking water: Discharge from industrial chemical factories.
Health effects language: Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune systems.

Contaminant (units): Trichloroethylene (ppb)
Traditional MCL in mg/ℓ: 0.005
To convert for CCR, multiply by: 1000
MCL in CCR units: 5
MCLG: 0
Major sources in drinking water: Discharge from metal degreasing sites and other factories.
Health effects language: Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.

Contaminant (units): TTHMs (total trihalomethanes) (ppb)
Traditional MCL in mg/ℓ: 0.10/0.080

To convert for CCR, multiply by: 1000
MCL in CCR units: 100/80
MCLG: N/A
Major sources in drinking water: Byproduct of drinking water disinfection.
Health effects language: Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.

Contaminant (units): Toluene (ppm)
Traditional MCL in mg/ℓ: 1
To convert for CCR, multiply by: —
MCL in CCR units: 1
MCLG: 1
Major sources in drinking water: Discharge from petroleum factories.
Health effects language: Some people who drink water containing toluene well in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver.

Contaminant (units): Vinyl Chloride (ppb)
Traditional MCL in mg/ℓ: 0.002
To convert for CCR, multiply by: 1000
MCL in CCR units: 2
MCLG: 0
Major sources in drinking water: Leaching from PVC piping; discharge from plastics factories.
Health effects language: Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.

Contaminant (units): Xylenes (ppm)
Traditional MCL in mg/ℓ: 10
To convert for CCR, multiply by: —
MCL in CCR units: 10
MCLG: 10
Major sources in drinking water: Discharge from petroleum factories; discharge from chemical factories.
Health effects language: Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system.

Key.

Abbreviation	Meaning
AL	action level

MCL	maximum contaminant level
MCLG	maximum contaminant level goal
MFL	million fibers per liter
MRDL	maximum residual disinfectant level
MRDLG	maximum residual disinfectant level goal
mrem/year	millirems per year (a measure of radiation absorbed by the body)
N/A	not applicable
NTU	nephelometric turbidity units(a measure of water clarity)
pCi/ℓ	picocuries per liter (a measure of radioactivity)
ppm	parts per million, or milligrams per liter (mg/ℓ)
ppb	parts per billion, or micrograms per liter (μg/ℓ)
ppt	parts per trillion, or nanograms per liter
ppq	parts per quadrillion, or picograms per liter
TT	treatment technique

BOARD NOTE: Derived from appendix A to subpart O to 40 CFR 141 (2013).

(Source: Amended at 38 Ill. Reg. 3608, effective January 27, 2014)

Section 611.APPENDIX B Percent Inactivation of G. Lamblia Cysts

Table 1.1
CT-99.9 for 99.9 Percent Inactivation of Giardia Lamblia Cysts by Free Chlorine
at 0.5° C or Lower

These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the CT 99.9 value at the lower temperature and at the higher pH.

Free Residual (mg/ℓ)	PH ≤6.0	6.5	7.0	7.5	8.0	8.5	≥9.0
≤0.4	137	163	195	237	277	329	390
0.6	141	168	200	239	286	342	407
0.8	145	172	205	246	295	354	422
1.0	148	176	210	253	304	365	437
1.2	152	180	215	259	313	376	451
1.4	155	184	221	266	321	387	464
1.6	157	189	226	273	329	397	477

1.8	162	193	231	279	338	407	489
2.0	165	197	236	286	346	417	500
2.2	169	201	242	297	353	426	511
2.4	172	205	247	298	361	435	522
2.6	175	209	252	304	368	444	533
2.8	178	213	257	310	375	452	543
3.0	181	217	261	316	382	460	552

Table 1.2
CT-99.9 for 99.9 Percent Inactivation of Giardia Lamblia Cysts by Free Chlorine
at 5.0° C

These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the CT 99.9 value at the lower temperature and at the higher pH.

Free Residual (mg/ℓ)	PH ≤6.0	6.5	7.0	7.5	8.0	8.5	≥9.0
≤0.4	97	117	139	166	198	236	279
0.6	100	120	143	171	204	244	291
0.8	103	122	146	175	210	252	301
1.0	105	125	149	179	216	260	312
1.2	107	127	152	183	221	267	320
1.4	109	130	155	187	227	274	329
1.6	111	132	158	192	232	281	337
1.8	114	135	162	196	238	287	345
2.0	116	138	165	200	243	294	353
2.2	118	140	169	204	248	300	361
2.4	120	143	172	209	253	306	368

2.6	122	146	175	213	258	312	375
2.8	124	148	178	217	263	318	382
3.0	126	151	182	221	268	324	369

Table 1.3
CT-99.9 for 99.9 Percent Inactivation of Giardia Lamblia Cysts by Free Chlorine
at 10.0° C

These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the CT 99.9 value at the lower temperature and at the higher pH.

Free Residual (mg/ℓ)	PH ≤6.0	6.5	7.0	7.5	8.0	8.5	≥9.0
≤0.4	73	88	104	125	149	177	209
0.6	75	90	107	128	153	183	218
0.8	78	92	110	131	158	189	226
1.0	79	94	112	134	162	195	234
1.2	80	95	114	137	166	200	240
1.4	82	98	116	140	170	206	247
1.6	83	99	119	144	174	211	253
1.8	86	101	122	147	179	215	259
2.0	87	104	124	150	182	221	265
2.2	89	105	127	153	186	225	271
2.4	90	107	129	157	190	230	276
2.6	92	110	131	160	194	234	281
2.8	93	111	134	163	197	239	287
3.0	95	113	137	166	201	243	292

Table 1.4
CT-99.9 for 99.9 Percent Inactivation of Giardia Lamblia Cysts by Free Chlorine
at 15.0° C

These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the CT 99.9 value at the lower temperature and at the higher pH.

Free Residual (mg/ℓ)	PH ≤6.0	6.5	7.0	7.5	8.0	8.5	≥9.0
≤0.4	49	59	70	83	99	118	140
0.6	50	60	72	86	102	122	146
0.8	52	61	73	88	105	126	151
1.0	53	63	75	90	108	130	156
1.2	54	64	76	92	111	134	160
1.4	55	65	78	94	114	137	165
1.6	56	66	79	96	116	141	169
1.8	57	68	81	98	119	144	173
2.0	58	69	83	100	122	147	177
2.2	59	70	85	102	124	150	181
2.4	60	72	86	105	127	153	184
2.6	61	73	88	107	129	156	188
2.8	62	74	89	109	132	159	191
3.0	63	76	91	111	134	162	195

Table 1.5
CT-99.9 for 99.9 Percent Inactivation of Giardia Lamblia Cysts by Free Chlorine
at 20° C

These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. CT values between the

indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the CT 99.9 value at the lower temperature and at the higher pH.

Free Residual (mg/ℓ)	PH ≤6.0	6.5	7.0	7.5	8.0	8.5	≥9.0
≤0.4	36	44	52	62	74	89	105
0.6	38	45	54	64	77	92	109
0.8	39	46	55	66	79	95	113
1.0	39	47	56	67	81	98	117
1.2	40	48	57	69	83	100	120
1.4	41	49	58	70	85	103	123
1.6	42	50	59	72	87	105	126
1.8	43	51	61	74	89	108	129
2.0	44	52	62	75	91	110	132
2.2	44	53	63	77	93	113	135
2.4	45	54	65	78	95	115	138
2.6	46	55	66	80	97	117	141
2.8	47	56	67	81	99	119	143
3.0	47	57	68	83	101	122	146

Table 1.6
CT-99.9 for 99.9 Percent Inactivation of Giardia Lamblia Cysts by Free Chlorine
at 25° C and Higher

These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the CT 99.9 value at the lower temperature and at the higher pH.

Free Residual (mg/ℓ)	PH ≤6.0	6.5	7.0	7.5	8.0	8.5	≥9.0
≤0.4	24	29	35	42	50	59	70
0.6	25	30	36	43	51	61	73
0.8	26	31	37	44	53	63	75
1.0	26	31	37	45	54	65	78
1.2	27	32	38	46	55	67	80
1.4	27	33	39	47	57	69	82
1.6	28	33	40	48	58	70	84
1.8	29	34	41	49	60	72	86
2.0	29	35	41	50	61	74	88
2.2	30	35	42	51	62	75	90
2.4	30	36	43	52	63	77	92
2.6	31	37	44	53	65	78	94
2.8	31	37	45	54	66	80	96
3.0	32	38	46	55	67	81	97

Table 2.1
CT-99.9 for 99.9 Percent Inactivation of Giardia Lamblia Cysts by Chlorine Dioxide and Ozone

These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature for determining $CT_{99.9}$ values between indicated temperatures.

	≤1°C	5°C	10°C	15°C	20°C	≥25°C
Chlorine dioxide	63	26	23	19	15	11
Ozone	2.9	1.9	1.4	0.95	0.72	0.48

Table 3.1
CT-99.9 for 99.9 Percent Inactivation of Giardia Lamblia Cysts by Chloramines

These values are for pH values of 6 to 9. These CT values may be assumed to achieve greater than a 99.99 percent inactivation of viruses only if chlorine is added and mixed in the water prior to the addition of ammonia. If this condition is not met, the system must demonstrate, based on on-site studies or other information, as approved by the Agency, that the system is achieving at least a 99.99 percent inactivation of viruses. CT values between the indicated temperatures may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature for determining $CT_{99.9}$ values between indicated temperatures.

	≤1°C	5°C	10°C	15°C	20°C	≥25°C
Chloramines	3800	2200	1850	1500	1100	750

BOARD NOTE: Derived from 40 CFR 141.74(b) Tables 1.1 through 3.1 (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.APPENDIX C Common Names of Organic Chemicals

The following common names are used for certain organic chemicals:

Common Name	CAS No.	CAS Name
Aldrin	309-00-2	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha, 4alpha, 4abeta, 5alpha, 8alpha, 8abeta)-
Bromoform	75-25-2	Methane, tribromo-
Chlordane	57-74-9	4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-
Chloroform	67-66-3	Methane, trichloro-
2,4-D	94-75-7	Acetic acid, 2,4-dichlorophenoxy-
DDT	50-29-3	Benzene, 1,1'-(2, 2, 2-trichloroethylidene) bis(4-chloro-
Dieldrin	60-57-1	2,7:3,6-Dimethanonaphth(2,3-

		b)oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha, 2beta, 2aalpha, 3beta, 6beta, 6aalpha, 7beta, 7aalpha)-
Endrin	72-20-8	2,7:3,6-Dimethanonaphth(2,3-b)oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha, 2beta, 2abeta, 3alpha, 6alpha, 6abeta, 7beta, 7aalpha)-,
Heptachlor	76-44-8	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-
Heptachlor epoxide	1024-57-3	2, 5-Methano-2H-indeno(1, 2b)oxirene, 2, 3, 4, 5, 6, 7, 7-heptachloro-1a, 1b, 5, 5a, 6, 6a-hexahydro-, (1a alpha, 1b beta, 2 alpha, 5 alpha, 5a beta, 6beta, 6a alpha)-
Lindane	58-89-9	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1 alpha,2 alpha,3 beta,4 alpha,5 alpha,6 beta)-
Methoxychlor	72-43-5	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis(4-methoxy-
Silvex (2,4,5-TP)	93-72-1	Propanoic acid, 2-(2,4,5-trichlorophenoxy)-
Toxaphene	8001-35-2	Toxaphene
TTHM	Total trihalomethanes (See Section 611.101)	

BOARD NOTE: Derived from 40 CFR 141.30 and 261, appendix VIII (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

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 (one 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 in Section 611.102(b) (2012). This method is for use in conjunction with the requirements of Section 611.526.

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.APPENDIX E Mandatory Lead Public Education Information for Community Water Systems

1) INTRODUCTION

The United States Environmental Protection Agency (USEPA) and (insert name of water supplier) are concerned about lead in your drinking water. Although most homes have very low levels of lead in their drinking water, some homes in the community have lead levels above the USEPA action level of 15 parts per billion (ppb), or 0.015 milligrams of lead per liter of water (mg/ℓ). Under Federal law we are required to have a program in place to minimize lead in your drinking water by (insert date when corrosion control will be completed for your system). This program includes corrosion control treatment, source water treatment, and public education. We are also required to replace the portion of each lead service line that we own if the line contributes lead concentrations of more than 15 ppb after we have completed the comprehensive treatment program. If you have any questions about how we are carrying out the requirements of the lead regulation please give us a call at (insert water system's phone number). This brochure

explains the simple steps you can take to protect you and your family by reducing your exposure to lead in drinking water.

2) HEALTH EFFECTS OF LEAD

Lead is a common metal found throughout the environment in lead-based paint; air; soil; household dust; food; certain types of pottery, porcelain, and pewter; and water. Lead can pose a significant risk to your health if too much of it enters your body. Lead builds up in the body over many years and can cause damage to the brain, red blood cells, and kidneys. The greatest risk is to young children and pregnant women. Amounts of lead that won't hurt adults can slow down normal mental and physical development of growing bodies. In addition, a child at play often comes into contact with sources of lead contamination—like dirt and dust—that rarely affect an adult. It is important to wash children's hands and toys often, and to try to make sure they only put food in their mouths.

3) LEAD IN DRINKING WATER

A) Lead in drinking water, although rarely the sole cause of lead poisoning, can significantly increase a person's total lead exposure, particularly the exposure of infants who drink baby formulas and concentrated juices that are mixed with water. The EPA estimates that drinking water can make up 20 percent or more of a person's total exposure to lead.

B) Lead is unusual among drinking water contaminants in that it seldom occurs naturally in water supplies like rivers and lakes. Lead enters drinking water primarily as a result of the corrosion, or wearing away, of materials containing lead in the water distribution system and household plumbing. These materials include lead-based solder used to join copper pipe, brass and chrome plated brass faucets, and in some cases, pipes made of lead that connect your house to the water main (service lines). In 1986, Congress banned the use of lead solder containing greater than 0.2% lead, and restricted the lead content of faucets, pipes and other plumbing materials to 8.0%.

C) When water stands in lead pipes or plumbing systems containing lead for several hours or more, the lead may dissolve into your drinking water. This means the first water drawn from the tap in the morning, or later in the afternoon after returning from work or school, can contain fairly high levels of lead.

4) STEPS YOU CAN TAKE IN THE HOME TO REDUCE EXPOSURE TO LEAD IN DRINKING WATER

A) Despite our best efforts mentioned earlier to control water corrosivity and remove lead from the water supply, lead levels in some homes or buildings can be high. To find out whether you need to take action in your own home, have your drinking water tested to determine if it contains excessive concentrations of lead.

Testing the water is essential because you cannot see, taste, or smell lead in drinking water. Some local laboratories that can provide this service are listed at the end of this booklet. For more information on having your water tested, please call (insert phone number of water system).

B) If a water test indicates that the drinking water drawn from a tap in your home contains lead above 15 ppb, then you should take the following precautions:

i) Let the water run from the tap before using it for drinking or cooking any time the water in a faucet has gone unused for more than six hours. The longer water resides in your home's plumbing the more lead it may contain. Flushing the tap means running the cold water faucet until the water gets noticeably colder, usually about 15-30 seconds. If your house has a lead service line to the water main, you may have to flush the water for a longer time, perhaps one minute, before drinking. Although toilet flushing or showering flushes water through a portion of your home's plumbing system, you still need to flush the water in each faucet before using it for drinking or cooking. Flushing tap water is a simple and inexpensive measure you can take to protect your family's health. It usually uses less than one or two gallons of water and costs less than (insert a cost estimate based on flushing two times a day for 30 days) per month. To conserve water, fill a couple of bottles for drinking water after flushing the tap, and whenever possible use the first flush water to wash the dishes or water the plants. If you live in a high-rise building, letting the water flow before using it may not work to lessen your risk from lead. The plumbing systems have more, and sometimes larger pipes than smaller buildings. Ask your landlord for help in locating the source of the lead and for advice on reducing the lead level.

ii) Try not to cook with or drink water from the hot water tap. Hot water can dissolve more lead more quickly than cold water. If you need hot water, draw water from the cold tap and heat it on the stove.

iii) Remove loose lead solder and debris from the plumbing materials installed in newly constructed homes, or homes in which the plumbing has recently been replaced, by removing the faucet strainers from all taps and running the water from 3 to 5 minutes. Thereafter, periodically remove the strainers and flush out any debris that has accumulated over time.

iv) If your copper pipes are joined with lead solder that has been installed illegally since it was banned in 1986, notify the plumber who did the work and request that he or she replace the lead solder with lead-free solder. Lead solder looks dull gray, and when scratched with a key looks shiny. In addition, notify the Illinois Environmental Protection Agency about the violation.

v) Determine whether or not the service line that connects your home or apartment to the water main is made of lead. The best way to determine if your service line is made of lead is by either hiring a licensed plumber to inspect the line or by contacting the plumbing contractor who installed the line. You can identify the plumbing contractor by checking the city's record of building permits which should be maintained in the files of the (insert name of department that issues building permits). A licensed plumber can at the same time check to see if your home's plumbing contains lead solder, lead pipes, or pipe fittings that contain lead. The public water system that delivers water to your home should also maintain records of the materials located in the distribution system. If the service line that connects your dwelling to the water main contributes more than 15 ppb to drinking water, after our comprehensive treatment program is in place, we are required to replace the portion of the line that we own. If the line is only partially owned by the (insert name of the city, county, or water system that controls the line), we are required to provide the owner of the privately-owned portion of the line with information on how to replace the privately-owned portion of the service line, and offer to replace that portion of the line at the owner's expense. If we replace only the portion of the line that we own, we also are required to notify you in advance and provide you with information on the steps that you can take to minimize exposure to any temporary increase in lead levels which may result from the partial replacement, to take a follow-up sample at our expense from the line within 72 hours after the partial replacement, and to mail or otherwise provide you with the results of that sample within three business days after receiving the results. Acceptable replacement alternatives include copper, steel, iron, and plastic pipes.

vi) Have an electrician check your wiring. If grounding wires from the electrical system are attached to your pipes, corrosion may be greater. Check with a licensed electrician or your local electrical code to determine if your wiring can be grounded elsewhere. DO NOT attempt to change the wiring yourself because improper grounding can cause electrical shock and fire hazards.

C) The steps described above will reduce the lead concentrations in your drinking water. However, if a water test indicates that the drinking water coming from your tap contains lead concentrations in excess of 15 ppb after flushing, or after we have completed our actions to minimize lead levels, then you may want to take the following additional measures:

i) Purchase or lease a home treatment device. Home treatment devices are limited in that each unit treats only the water that flows from the faucet to which it is connected, and all of the devices require periodic maintenance

and replacement. Devices such as reverse osmosis systems or distillers can effectively remove lead from your drinking water. Some activated carbon filters may reduce lead levels at the tap, however all lead reduction claims should be investigated. Be sure to check the actual performance of a specific home treatment device before and after installing the unit.

ii) Purchase bottled water for drinking and cooking.

D) You can consult a variety of sources for additional information. Your family doctor or pediatrician can perform a blood test for lead and provide you with information about the health effects of lead. State and local government agencies that can be contacted include the following:

i) (Insert the name of city or county department of public utilities) at (insert phone number) can provide you with information about your community's water supply, and a list of local laboratories that have been certified by EPA for testing water quality;

ii) (Insert the name of city or county department that issues building permits) at (insert phone number) can provide you with information about building permit records that should contain the names of plumbing contractors that plumbed your home; and

iii) The Illinois Department of Public Health at 217-782-4977 or 312-814-2608 or the (insert the name of the city or county health department) at (insert phone number) can provide you with information about the health effects of lead and how you can have your child's blood tested.

E) The following is a list of some State-approved laboratories in your area that you can call to have your water tested for lead. (Insert names and phone numbers of at least two laboratories.)

BOARD NOTE: Derived from 40 CFR 141.85(a)(1) (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.APPENDIX F Mandatory Lead Public Education Information for Non-Transient Non-Community Water Systems

1) INTRODUCTION

The United States Environmental Protection Agency (USEPA) and (insert name of water supplier) are concerned about lead in your drinking water. Some drinking water samples taken from this facility have lead levels above the USEPA action level of 15 parts per billion (ppb), or 0.015 milligrams of lead per liter of water (mg/ℓ). Under Federal law we are required to have a

program in place to minimize lead in your drinking water by (insert date when corrosion control will be completed for your system). This program includes corrosion control treatment, source water treatment, and public education. We are also required to replace the portion of each lead service line that we own if the line contributes lead concentrations of more than 15 ppb after we have completed the comprehensive treatment program. If you have any questions about how we are carrying out the requirements of the lead regulation please give us a call at (insert water system's phone number). This brochure explains the simple steps you can take to protect you and your family by reducing your exposure to lead in drinking water.

2) HEALTH EFFECTS OF LEAD

Lead is found throughout the environment in lead-based paint; air; soil; household dust; food; certain types of pottery, porcelain, and pewter; and water. Lead can pose a significant risk to your health if too much of it enters your body. Lead builds up in the body over many years and can cause damage to the brain, red blood cells, and kidneys. The greatest risk is to young children and pregnant women. Amounts of lead that won't hurt adults can slow down normal mental and physical development of growing bodies. In addition, a child at play often comes into contact with sources of lead contamination—like dirt and dust -- that rarely affect an adult. It is important to wash children's hands and toys often, and to try to make sure they only put food in their mouths.

3) LEAD IN DRINKING WATER

A) Lead in drinking water, although rarely the sole cause of lead poisoning, can significantly increase a person's total lead exposure, particularly the exposure of infants who drink baby formulas and concentrated juices that are mixed with water. The EPA estimates that drinking water can make up 20 percent or more of a person's total exposure to lead.

B) Lead is unusual among drinking water contaminants in that it seldom occurs naturally in water supplies like rivers and lakes. Lead enters drinking water primarily as a result of the corrosion, or wearing away, of materials containing lead in the water distribution system and household plumbing. These materials include lead-based solder used to join copper pipe, brass, and chrome plated brass faucets, and in some cases, pipes made of lead that connect houses and buildings to the water main (service lines). In 1986, Congress banned the use of lead solder containing greater than 0.2% lead, and restricted the lead content of faucets, pipes, and other plumbing materials to 8.0%.

C) When water stands in lead pipes or plumbing systems containing lead for several hours or more, the lead may dissolve into your drinking water. This means the first water drawn from the tap in the morning, or later in the afternoon after returning from work or school, can contain fairly high levels of lead.

4) STEPS YOU CAN TAKE TO REDUCE EXPOSURE TO LEAD IN DRINKING WATER

A) Let the water run from the tap before using it for drinking or cooking any time the water in a faucet has gone unused for more than six hours. The longer water resides in plumbing the more lead it may contain. Flushing the tap means running the cold water faucet until the water gets noticeably colder, usually about 15-30 seconds. Although toilet flushing or showering flushes water through a portion of the plumbing system, you still need to flush the water in each faucet before using it for drinking or cooking. Flushing tap water is a simple and inexpensive measure you can take to protect your family's health. It usually uses less than one gallon.

B) Do not cook with or drink water from the hot water tap. Hot water can dissolve more lead more quickly than cold water. If you need hot water, draw water from the cold tap and heat it.

C) The steps described above will reduce the lead concentrations in your drinking water. However, if you are still concerned, you may wish to use bottled water for drinking and cooking.

D) You can consult a variety of sources for additional information. Your family doctor or pediatrician can perform a blood test for lead and provide you with information about the health effects of lead. State and local government agencies that can be contacted include the following:

i) (Insert the name or title of facility official if appropriate) at (insert phone number) can provide you with information about your facility's water supply; and

ii) The Illinois Department of Public Health at 217-782-4977 or 312-814-2608 or the (insert the name of the city or county health department) at (insert phone number) can provide you with information about the health effects of lead.

BOARD NOTE: Derived from 40 CFR 141.85(a)(2) (2011). The Department of Public Health (Department) regulates non-community water supplies, including non-transient, non-community water supplies. The Department has incorporated this Part into its regulations at 77 Ill. Adm. Code 900.15(a)(2)(A) and 900.20(k)(2). Thus, the Board has included the notice language of 40 CFR 141.85(a)(2) in this Section for the purposes of facilitating federal review and authorization of the Illinois drinking water regulations.

(Source: Amended at 36 Ill. Reg. 36 Ill. Reg. 7110, effective April 25, 2012)

Section 611.APPENDIX G NPDWR Violations and Situations Requiring Public Notice

See note 1 at the end of this Appendix G for an explanation of the Agency's authority to alter the magnitude of a violation from that set forth in the following table.

	MCL/MRDL/TT violations[2]		Monitoring & testing procedure violations	
Contaminant	Tier of public notice required	Citation	Tier of public notice required	Citation

I. Violations of National Primary Drinking Water Regulations (NPDWR):[3]

A. Microbiological Contaminants

1a. Total coliform bacteria, until March 31, 2016	2	611.325(a)	3	611.521-611.525
1b. Total coliform (TT violations resulting from failure to perform assessments or corrective actions, monitoring violations, and reporting violations), beginning April 1, 2016	2	611.1060(b)(1)	3	611.1060(c)(1) 611.1060(d)(1)
1c. Seasonal system failure to follow State-approved start-up plan prior to serving water to the public or failure to provide certification to the Agency, beginning April 1, 2016	2	611.1060(b)(2)	3	611.1060(d)(3)
2a. Fecal coliform/E. coli, until March 31, 2016	1	611.325(b)	[4] 1, 3	611.525
2b. E. coli (MCL, monitoring, and reporting violations), beginning April 1, 2016	1	611.1060(a)	3	611.1060(c)611.1060(d)(2)

2c. E.coli (TT violations resulting from failure to perform Level 2 assessments or corrective action), beginning April 1, 2016	2	611.1060(b)(1)		
3. Turbidity MCL	2	611.320(a)	3	611.560
4. Turbidity MCL (average of two days' samples greater than 5 NTU)	[5] 2, 1	611.320(b)	3	611.560
5. Turbidity (for TT violations resulting from a single exceedance of maximum allowable turbidity level)	[6] 2, 1	611.231(b), 611.233(b)(1), 611.250(a)(2), 611.250(b)(2), 611.250(c)(2), 611.250(d), 611.743(a)(2), 611.743(b), 611.955(b)(2)	3	611.531(a), 611.532(b), 611.533(a), 611.744, 611.956(a)(1)-(a)(3), 611.956(b)
6. Surface Water Treatment Rule violations, other than violations resulting from single exceedance of max. allowable turbidity level (TT)	2	611.211, 611.213, 611.220, 611.230-611.233, 611.240-611.242, 611.250	3	611.531-611.533
7. Interim Enhanced Surface Water Treatment Rule violations, other than violations resulting from single exceedance of max. turbidity level (TT)	2	[7] 611.740-611.743, 611.950-611.955	3	611.742, 611.744, 611.953, 611.954, 611.956
8. Filter Backwash Recycling Rule violations	2	611.276(c)	3	611.276(b), (d)
9. Long Term 1 Enhanced Surface Water Treatment Rule violations	2	611.950-611.955	3	611.953, 611.954, 611.956

10. LT2ESWTR violations	2	611.1010-611.1020	[19] 2, 3	611.1001-611.1005 and 611.1008-611.1009
11. Groundwater Rule violations	2	611.804	3	611.802(h)

B. Inorganic Chemicals (IOCs)

1. Antimony	2	611.301(b)	3	611.600, 611.601, 611.603
2. Arsenic	2	611.301(b)	3	611.601, 611.603
3. Asbestos (fibers greater than 10 µm)	2	611.301(b)	3	611.600, 611.601, 611.602
4. Barium	2	611.301(b)	3	611.600, 611.601, 611.603
5. Beryllium	2	611.301(b)	3	611.600, 611.601, 611.603
6. Cadmium	2	611.301(b)	3	611.600, 611.601, 611.603
7. Chromium (total)	2	611.301(b)	3	611.600, 611.601, 611.603
8. Cyanide	2	611.301(b)	3	611.600, 611.601, 611.603
9. Fluoride	2	611.301(b)	3	611.600, 611.601, 611.603

10. Mercury (inorganic)	2	611.301(b)	3	611.600, 611.601, 611.603
11. Nitrate	1	611.301(b)	[8] 1, 3	611.600, 611.601, 611.604, 611.606
12. Nitrite	1	611.301(b)	[8] 1, 3	611.600, 611.601, 611.605, 611.606
13. Total Nitrate and Nitrite	1	611.301(b)	3	611.600, 611.601
14. Selenium	2	611.301(b)	3	611.600, 611.601, 611.603
15. Thallium	2	611.301(b)	3	611.600, 611.601, 611.603

C. Lead and Copper Rule (Action Level for lead is 0.015 mg/ℓ, for copper is 1.3 mg/ℓ)

1. Lead and Copper Rule (TT)	2	611.350-611.355	3	611.356-611.359

D. Synthetic Organic Chemicals (SOCs)

1. 2,4-D	2	611.310(c)	3	611.648
2. 2,4,5-TP (silvex)	2	611.310(c)	3	611.648
3. Alachlor	2	611.310(c)	3	611.648
4. Atrazine	2	611.310(c)	3	611.648
5. Benzo(a)pyrene (PAHs)	2	611.310(c)	3	611.648
6. Carbofuran	2	611.310(c)	3	611.648
7. Chlordane	2	611.310(c)	3	611.648

8. Dalapon	2	611.310(c)	3	611.648
9. Di(2-ethylhexyl)adipate	2	611.310(c)	3	611.648
10. Di(2-ethylhexyl)phthalate	2	611.310(c)	3	611.648
11. Dibromochloropropane (DBCP)	2	611.310(c)	3	611.648
12. Dinoseb	2	611.310(c)	3	611.648
13. Dioxin (2,3,7,8-TCDD)	2	611.310(c)	3	611.648
14. Diquat	2	611.310(c)	3	611.648
15. Endothall	2	611.310(c)	3	611.648
16. Endrin	2	611.310(c)	3	611.648
17. Ethylene dibromide	2	611.310(c)	3	611.648
18. Glyphosate	2	611.310(c)	3	611.648
19. Heptachlor	2	611.310(c)	3	611.648
20. Heptachlor epoxide	2	611.310(c)	3	611.648
21. Hexachlorobenzene	2	611.310(c)	3	611.648
22. Hexachlorocyclopentadiene	2	611.310(c)	3	611.648
23. Lindane	2	611.310(c)	3	611.648
24. Methoxychlor	2	611.310(c)	3	611.648
25. Oxamyl (Vydate)	2	611.310(c)	3	611.648
26. Pentachlorophenol	2	611.310(c)	3	611.648
27. Picloram	2	611.310(c)	3	611.648
28. Polychlorinated biphenyls (PCBs)	2	611.310(c)	3	611.648
29. Simazine	2	611.310(c)	3	611.648
30. Toxaphene	2	611.310(c)	3	611.648

E. Volatile Organic Chemicals (VOCs)

1. Benzene	2	611.310(a)	3	611.646
2. Carbon tetrachloride	2	611.310(a)	3	611.646
3. Chlorobenzene (monochlorobenzene)	2	611.310(a)	3	611.646
4. o-Dichlorobenzene	2	611.310(a)	3	611.646
5. p-Dichlorobenzene	2	611.310(a)	3	611.646
6. 1,2-Dichloroethane	2	611.310(a)	3	611.646
7. 1,1-Dichloroethylene	2	611.310(a)	3	611.646
8. cis-1,2-Dichloroethylene	2	611.310(a)	3	611.646
9. trans-1,2-Dichloroethylene	2	611.310(a)	3	611.646
10. Dichloromethane	2	611.310(a)	3	611.646
11. 1,2-Dichloropropane	2	611.310(a)	3	611.646
12. Ethylbenzene	2	611.310(a)	3	611.646
13. Styrene	2	611.310(a)	3	611.646
14. Tetrachloroethylene	2	611.310(a)	3	611.646
15. Toluene	2	611.310(a)	3	611.646
16. 1,2,4-Trichlorobenzene	2	611.310(a)	3	611.646

17. 1,1,1-Trichloroethane	2	611.310(a)	3	611.646
18. 1,1,2-Trichloroethane	2	611.310(a)	3	611.646
19. Trichloroethylene	2	611.310(a)	3	611.646
20. Vinyl chloride	2	611.310(a)	3	611.646
21. Xylenes (total)	2	611.310(a)	3	611.646

F. Radioactive Contaminants

1. Beta/photon emitters	2	611.330(d)	3	611.720(a), 611.732
2. Alpha emitters	2	611.330(c)	3	611.720(a), 611.731
3. Combined radium (226 & 228)	2	611.330(b)	3	611.720(a), 611.731
4. Uranium	2	611.330(e)	3	611.720(a), 611.731

G. Disinfection Byproducts (DBPs), Byproduct Precursors, Disinfectant Residuals. Where disinfection is used in the treatment of drinking water, disinfectants combine with organic and inorganic matter present in water to form chemicals called disinfection byproducts (DBPs). USEPA sets standards for controlling the levels of disinfectants and DBPs in drinking water, including trihalomethanes (THMs) and haloacetic acids (HAAs).[13]

1. Total trihalomethanes (TTHMs)	2	[11] 611.312(b)	3	Subparts W and Y of this Part
2. Haloacetic Acids (HAA5)	2	611.312(b)	3	Subpart Y of this Part
3. Bromate	2	611.312(a)	3	611.382(a)-(b)
4. Chlorite	2	611.312(a)	3	611.382(a)-(b)
5. Chlorine (MRDL)	2	611.313(a)	3	611.382(a), (c)

6. Chloramine (MRDL)	2	611.313(a)	3	611.382(a), (c)
7. Chlorine dioxide (MRDL), where any two consecutive daily samples at entrance to distribution system only are above MRDL	2	611.313(a), 611.383(c)(3)	2[12], 3	611.382(a), (c), 611.383(c)(2)
8. Chlorine dioxide (MRDL), where samples in distribution system the next day are also above MRDL	[13] 1	611.313(a), 611.383(c)(3)	1	611.382(a), (c), 611.383(c)(2)
9. Control of DBP precursors—TOC (TT)	2	611.385(a)-(b)	3	611.382(a), (d)
10. Benchmarking and disinfection profiling	N/A	N/A	3	611.742, 611.953, 611.954
11. Development of monitoring plan	N/A	N/A	3	611.382(f)

H. Other Treatment Techniques

1. Acrylamide (TT)	2	611.296	N/A	N/A
2. Epichlorohydrin (TT)	2	611.296	N/A	N/A

II. Unregulated Contaminant Monitoring: [14]

A. Unregulated contaminants	N/A	N/A	3	as required by USEPA pursuant to 40 CFR 141.40
B. Nickel	N/A	N/A	3	611.603, 611.611

III. Public Notification for Relief Equivalent to a SDWA section 1415 Variance or a section 1416 Exemption.

A. Operation under relief equivalent to a SDWA section 1415 variance or a section 1416 exemption	3	[15] 1415, 1416	N/A	N/A
B. Violation of conditions of relief equivalent to a SDWA section 1415 variance or a section 1416 exemption	2	1415, 1416, [16] 611.111, 611.112	N/A	N/A

IV. Other Situations Requiring Public Notification.

A. Fluoride secondary maximum contaminant level (SMCL) exceedance	3	611.858	N/A	N/A
B. Exceedance of nitrate MCL for a non-CWS supplier, as allowed by the Agency	1	611.300(d)	N/A	N/A
C. Availability of unregulated contaminant monitoring data	3	as required by USEPA pursuant to 40 CFR 141.40	N/A	N/A
D. Waterborne disease outbreak	1	611.101, 611.233(b)(2)	N/A	N/A
E. Other waterborne emergency[17]	1	N/A	N/A	N/A
F. Source water sample positive for Groundwater Rule fecal indicators: E. coli, enterococci, or coliphage	1	611.802(g)	N/A	N/A
G. Other situations as determined by the Agency by a SEP issued pursuant to Section 611.110	[18] 1, 2, 3	N/A	N/A	N/A

Appendix G—Endnotes

1. Violations and other situations not listed in this table (e.g., failure to prepare Consumer Confidence Reports) do not require notice, unless otherwise determined by the Agency by a SEP issued pursuant to Section 611.110. The Agency may, by a SEP issued pursuant to Section 611.110, further require a more stringent public notice tier (e.g., Tier 1 instead of Tier 2 or Tier 2 instead of Tier 3) for specific violations and situations listed in this Appendix, as authorized under Sections 611.902(a) and 611.903(a).

2. Definition of the abbreviations used: "MCL" means maximum contaminant level, "MRDL" means maximum residual disinfectant level, and "TT" means treatment technique.

3. The term "violations of National Primary Drinking Water Regulations (NPDWR)" is used here to include violations of MCL, MRDL, treatment technique, monitoring, and testing procedure requirements.

4. Failure to test for fecal coliform or E. coli is a Tier 1 violation if testing is not done after any repeat sample tests positive for coliform. All other total coliform monitoring and testing procedure violations are Tier 3 violations.

5. A supplier that violates the turbidity MCL of 5 NTU based on an average of measurements over two consecutive days must consult with the Agency within 24 hours after learning of the violation. Based on this consultation, the Agency may subsequently decide to issue a SEP pursuant to Section 611.110 that elevates the violation to a Tier 1 violation. If a supplier is unable to make contact with the Agency in the 24-hour period, the violation is automatically elevated to a Tier 1 violation.

6. A supplier with a treatment technique violation involving a single exceedance of a maximum turbidity limit under the Surface Water Treatment Rule (SWTR), the Interim Enhanced Surface Water Treatment Rule (IESWTR), or the Long Term 1 Enhanced Surface Water Treatment Rule are required to consult with the Agency within 24 hours after learning of the violation. Based on this consultation, the Agency may subsequently decide to issue a SEP pursuant to Section 611.110 that elevates the violation to a Tier 1 violation. If a supplier is unable to make contact with the Agency in the 24-hour period, the violation is automatically elevated to a Tier 1 violation.

7. The Surface Water Treatment Rule (SWTR) remains in effect for a supplier that serves at least 10,000 persons; the Interim Enhanced Surface Water Treatment Rule adds additional requirements and does not in many cases supercede the SWTR.

8. Failure to take a confirmation sample within 24 hours for nitrate or nitrite after an initial sample exceeds the MCL is a Tier 1 violation. Other monitoring violations for nitrate are Tier 3.

9. Failure to take a confirmation sample within 24 hours for nitrate or nitrite after an initial sample exceeds the MCL is a Tier 1 violation. Other monitoring violations for nitrate are Tier 3.

10. A Subpart B community or non-transient non-community system supplier must comply with new DBP MCLs, disinfectant MRDLs, and related monitoring requirements. A Subpart B transient non-community system supplier that serves10,000 or more persons that uses chlorine dioxide as a disinfectant or oxidant or a Subpart B transient non-community system supplier that serves fewer than 10,000 persons, which uses only groundwater not under the direct influence of surface water, and which uses chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL.

11. Sections 611.312(b)(1) and 611.382(a) and (b) apply until Subpart Y of this Part takes effect under the schedule set forth in Section 611.970(c).

12. Failure to monitor for chlorine dioxide at the entrance to the distribution system the day after exceeding the MRDL at the entrance to the distribution system is a Tier 2 violation.

13. If any daily sample taken at the entrance to the distribution system exceeds the MRDL for chlorine dioxide and one or more samples taken in the distribution system the next day exceed the MRDL, Tier 1 notification is required. A failure to take the required samples in the distribution system after the MRDL is exceeded at the entry point also triggers Tier 1 notification.

14. Some water suppliers must monitor for certain unregulated contaminants as required by USEPA pursuant to 40 CFR 141.40.

15. This citation refers to sections 1415 and 1416 of the federal Safe Drinking Water Act. sections 1415 and 1416 require that “a schedule prescribed . . . for a public water system granted relief equivalent to a SDWA section 1415 variance or a section 1416 exemption must require compliance by the system . . ..”

16. In addition to sections 1415 and 1416 of the federal Safe Drinking Water Act, 40 CFR 142.307 specifies the items and schedule milestones that must be included in relief equivalent to a SDWA section 1415 small system variance. In granting any form of relief from an NPDWR, the Board will consider all applicable federal requirements for and

limitations on the State's ability to grant relief consistent with federal law.

17. Other waterborne emergencies require a Tier 1 public notice under Section 611.902(a) for situations that do not meet the definition of a waterborne disease outbreak given in Section 611.101, but which still have the potential to have serious adverse effects on health as a result of short-term exposure. These could include outbreaks not related to treatment deficiencies, as well as situations that have the potential to cause outbreaks, such as failures or significant interruption in water treatment processes, natural disasters that disrupt the water supply or distribution system, chemical spills, or unexpected loading of possible pathogens into the source water.

18. The Agency may place any other situation in any tier it deems appropriate in writing, based on the prospective threat which it determines that the situation poses to public health, and subject to Board review pursuant to Section 40 of the Act [415 ILCS 5/40].

19. A failure to collect three or more samples for Cryptosporidium analysis is a Tier 2 violation requiring special notice, as specified in Section 611.911. All other monitoring and testing procedure violations are Tier 3.

BOARD NOTE: Derived from Appendix A to Subpart Q to 40 CFR 141 (2014).

(Source: Amended at 39 Ill. Reg. 15352, effective November 13, 2015)

Section 611.APPENDIX H Standard Health Effects Language for Public Notification

Contaminant	MCLG[1] mg/ℓ	MCL[2] mg/ℓ	Standard health effects language for public notification
National Primary Drinking Water Regulations (NPDWR):			
A. Microbiological Contaminants			
1a. Total coliform, until March 31, 2016	Zero	See footnote 3	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.

1b. Fecal coliform/E. coli, until March 31, 2016	Zero	Zero	Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.
1c. Fecal indicators (GWR): i. E. coli ii. enterococci iii. coliphage	 Zero None None	 TT TT TT	Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.
1d. Groundwater Rule TT violations	None	TT	Inadequately treated or inadequately protected water may contain disease-causing organisms. These organisms can cause symptoms such as diarrhea, nausea, cramps, and associated headaches.

1e. Subpart Y Coliform Assessment and/or Corrective Action Violations, beginning April 1, 2016	N/A	TT	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessments to identify problems and to correct any problems that are found. (The system must use the following applicable sentences:) We failed to conduct the required assessment. We failed to correct all identified sanitary defects that were found during the assessment(s).

1f. Subpart Y E.coli Assessment and/or Corrective Action Violations, beginning April 1, 2016	N/A	TT	E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We violated the standard for E. coli, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct a detailed assessment to identify problems and to correct any problems that are found. (The system must use the following applicable sentences:) We failed to conduct the required assessment. We failed to correct all identified sanitary defects that were found during the assessment that we conducted.
1g. E. coli, beginning April 1, 2016	Zero	See footnote 22	E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems.

1h. Subpart Y Seasonal System TT Violations, beginning April 1, 2016	N/A	TT	When this violation includes the failure to monitor for total coliforms or E. coli prior to serving water to the public, the mandatory language found at Section 611.905(d)(2) must be used. When this violation includes failure to complete other actions, the appropriate elements found in Section 611.905(a) to describe the violation must be used.
2a. Turbidity (MCL) [4]	None	1 NTU[5]/ 5 NTU	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
2b. Turbidity (SWTR TT)	None	TT[7]	Turbidity has no health effects. However,[6] turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
2c. Turbidity (IESWTR TT and LT1ESWTR TT)	None	TT	Turbidity has no health effects. However,[8] turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

B. Surface Water Treatment Rule (SWTR), Interim Enhanced Surface Water Treatment Rule (IESWTR), Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR), and Filter Backwash Recycling Rule (FBRR) violations:			
3. Giardia lamblia (SWTR/IESWTR/ LT1ESWTR)	Zero	TT[10]	Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
4. Viruses (SWTR/IESWTR/ LT1ESWTR)			Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
5. Heterotrophic plate count (HPC) bacteria[9] (SWTR/IESWTR/ LT1ESWTR)			Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
6. Legionella (SWTR/IESWTR/ LT1ESWTR)			Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
7. Cryptosporidium (IESWTR/FBRR/ LT1ESWTR)			Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
C. Inorganic Chemicals (IOCs)			
8. Antimony	0.006	0.006	Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.

9. Arsenic	0	0.010	Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.
10. Asbestos (10 µm)	7 MFL[11]	7 MFL	Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.
11. Barium	2	2	Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.
12. Beryllium	0.004	0.004	Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions.
13. Cadmium	0.005	0.005	Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.
14. Chromium (total)	0.1	0.1	Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.
15. Cyanide	0.2	0.2	Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid.

16. Fluoride	4.0	4.0	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in children less than nine years old. Mottling, also known as dental fluorosis, may include brown staining or pitting of the teeth, and occurs only in developing teeth before they erupt from the gums.
17. Mercury (inorganic)	0.002	0.002	Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage.
18. Nitrate	10	10	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
19. Nitrite	1	1	Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
20. Total Nitrate and Nitrite	10	10	Infants below the age of six months who drink water containing nitrate and nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.

21. Selenium	0.05	0.05	Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with their circulation.
22. Thallium	0.0005	0.002	Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, changes in their blood, or problems with their kidneys, intestines, or liver.
D. Lead and Copper Rule			
23. Lead	Zero	TT[12]	Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.
24. Copper	1.3	TT[13]	Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

E. Synthetic Organic Chemicals (SOCs)			
25. 2,4-D	0.07	0.07	Some people who drink water containing the weed killer 2,4-D well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands.
26. 2,4,5-TP (silvex)	0.05	0.05	Some people who drink water containing silvex in excess of the MCL over many years could experience liver problems.
27. Alachlor	Zero	0.002	Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer.
28. Atrazine	0.003	0.003	Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties.
29. Benzo(a)pyrene (PAHs).	Zero	0.0002	Some people who drink water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.
30. Carbofuran	0.04	0.04	Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood, or nervous or reproductive systems.

31. Chlordane	Zero	0.002	Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver or nervous system, and may have an increased risk of getting cancer.
32. Dalapon	0.2	0.2	Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.
33. Di(2-ethylhexyl)adipate	0.4	0.4	Some people who drink water containing di(2-ethylhexyl)adipate well in excess of the MCL over many years could experience toxic effects, such as weight loss, liver enlargement, or possible reproductive difficulties.
34. Di(2-ethylhexyl)-phthalate	Zero	0.006	Some people who drink water containing di(2-ethylhexyl)phthalate well in excess of the MCL over many years may have problems with their liver or experience reproductive difficulties, and they may have an increased risk of getting cancer.
35. Dibromochloropropane (DBCP)	Zero	0.0002	Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
36. Dinoseb	0.007	0.007	Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties.

37. Dioxin (2,3,7,8-TCDD)	Zero	3×10^{-8}	Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
38. Diquat	0.02	0.02	Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.
39. Endothall	0.1	0.1	Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines.
40. Endrin	0.002	0.002	Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.
41. Ethylene dibromide	Zero	0.00005	Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive system, or kidneys, and may have an increased risk of getting cancer.
42. Glyphosate	0.7	0.7	Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties.
43. Heptachlor	Zero	0.0004	Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer.

44. Heptachlor epoxide	Zero	0.0002	Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer.
45. Hexachlorobenzene	Zero	0.001	Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer.
46. Hexachlorocyclopenta-diene	0.05	0.05	Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.
47. Lindane	0.0002	0.0002	Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.
48. Methoxychlor	0.04	0.04	Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties.
49. Oxamyl (Vydate)	0.2	0.2	Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.
50. Pentachlorophenol	Zero	0.001	Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and may have an increased risk of getting cancer.

51. Picloram	0.5	0.5	Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver.
52. Polychlorinated biphenyls (PCBs)	Zero	0.0005	Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer.
53. Simazine	0.004	0.004	Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.
54. Toxaphene	Zero	0.003	Some people who drink water containing toxaphene in excess of the MCL over many years could have problems with their kidneys, liver, or thyroid, and may have an increased risk of getting cancer.
F. Volatile Organic Chemicals (VOCs)			
55. Benzene	Zero	0.005	Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer.
56. Carbon tetrachloride	Zero	0.005	Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.

57. Chlorobenzene (monochlorobenzene)	0.1	0.1	Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys.
58. o-Dichlorobenzene	0.6	0.6	Some people who drink water containing o-dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory systems.
59. p-Dichlorobenzene	0.075	0.075	Some people who drink water containing p-dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood.
60. 1,2-Dichloroethane	Zero	0.005	Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer.
61. 1,1-Dichloroethylene	0.007	0.007	Some people who drink water containing 1,1-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
62. cis-1,2-Dichloro-ethylene	0.07	0.07	Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
63. trans-1,2-Dichloro-ethylene	0.1	0.1	Some people who drink water containing trans-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver.

64. Dichloromethane	Zero	0.005	Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer.
65. 1,2-Dichloropropane	Zero	0.005	Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.
66. Ethylbenzene	0.7	0.7	Some people who drink water containing ethylbenzene well in excess of the MCL over many years could experience problems with their liver or kidneys.
67. Styrene	0.1	0.1	Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system.
68. Tetrachloroethylene	Zero	0.005	Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer.
69. Toluene	1	1	Some people who drink water containing toluene well in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver.
70. 1,2,4-Trichlorobenzene	0.07	0.07	Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands.

71. 1,1,1-Trichloroethane	0.2	0.2	Some people who drink water containing 1,1,1-trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system.
72. 1,1,2-Trichloroethane	0.003	0.005	Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune systems.
73. Trichloroethylene	Zero	0.005	Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
74. Vinyl chloride	Zero	0.002	Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.
75. Xylenes (total)	10	10	Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system.
G. Radioactive Contaminants			
76. Beta/photon emitters	Zero	4 mrem/yr[14]	Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.

77. Alpha emitters	Zero	15 pCi/ℓ[15]	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
78. Combined radium (226 & 228)	Zero	5 pCi/ℓ	Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.
79. Uranium	Zero	30 μg/ℓ	Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer and kidney toxicity.
H. Disinfection Byproducts (DBPs), Byproduct Precursors, and Disinfectant Residuals: Where disinfection is used in the treatment of drinking water, disinfectants combine with organic and inorganic matter present in water to form chemicals called disinfection byproducts (DBPs). USEPA sets standards for controlling the levels of disinfectants and DBPs in drinking water, including trihalomethanes (THMs) and haloacetic acids (HAA5)[16]			
80. Total trihalomethanes (TTHMs)	N/A	0.080[17, 18]	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.
81. Haloacetic Acids (HAA5)	N/A	0.060[19]	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.
82. Bromate	Zero	0.010	Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer.

83. Chlorite	0.08	1.0	Some infants and young children who drink water containing chlorite in excess of the MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia.
84. Chlorine	4 (MRDLG)[20]	4.0 (MRDL)[21]	Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.
85. Chloramines	4 (MRDLG)	4.0 (MRDL)	Some people who use water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia.
85a. Chlorine dioxide, where any two consecutive daily samples taken at the entrance to the distribution system are above the MRDL	0.8 (MRDLG)	0.8 (MRDL)	Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia.

			Add for public notification only: The chlorine dioxide violations reported today are the result of exceedances at the treatment facility only, not within the distribution system that delivers water to consumers. Continued compliance with chlorine dioxide levels within the distribution system minimizes the potential risk of these violations to consumers.
86a. Chlorine dioxide, where one or more distribution system samples are above the MRDL	0.8 (MRDLG)	0.8 (MRDL)	Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia. Add for public notification only: The chlorine dioxide violations reported today include exceedances of the USEPA standard within the distribution system that delivers water to consumers. Violations of the chlorine dioxide standard within the distribution system may harm human health based on short-term exposures. Certain groups, including fetuses, infants, and young children, may be especially susceptible to nervous system effects from excessive chlorine dioxide exposure.

87. Control of DBP precursors (TOC)	None	TT	Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.
I. Other Treatment Techniques:			
88. Acrylamide	Zero	TT	Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer.
89. Epichlorohydrin	Zero	TT	Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer.

Appendix H—Endnotes

1. “MCLG” means maximum contaminant level goal.

2. “MCL” means maximum contaminant level.

3. For a water supplier analyzing at least 40 samples per month, no more than 5.0 percent of the monthly samples may be positive for total coliforms. For a supplier analyzing fewer than 40 samples per month, no more than one sample per month may be positive for total coliforms.

4. There are various regulations that set turbidity standards for different types of systems, including Section 611.320, the 1989 Surface Water Treatment Rule (SWTR), the 1998 Interim Enhanced Surface Water Treatment Rule (IESWTR), and the 2002 Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR). The MCL for the monthly turbidity average is 1 NTU; the MCL for the 2-day average is 5 NTU for a supplier that is required to filter but has not yet installed filtration (Section 611.320).

5. "NTU" means nephelometric turbidity unit.

6. There are various regulations that set turbidity standards for different types of systems, including Section 611.320, the 1989 SWTR, the 1998 IESWTR, and the 2002 LT1ESWTR. A supplier subject to the SWTR (both filtered and unfiltered) may not exceed 5 NTU. In addition, in filtered systems, 95 percent of samples each month must not exceed 0.5 NTU in systems using conventional or direct filtration and must not exceed 1 NTU in systems using slow sand or diatomaceous earth filtration or other filtration technologies approved by the Agency.

7. "TT" means treatment technique.

8. There are various regulations that set turbidity standards for different types of systems, including Section 611.320, the 1989 SWTR, the 1998 IESWTR, and the 2002 LT1ESWTR. For a supplier subject to the IESWTR (a supplier that serves at least 10,000 people, using surface water or groundwater under the direct influence of surface water), that use conventional filtration or direct filtration, the turbidity level of a system's combined filter effluent may not exceed 0.3 NTU in at least 95 percent of monthly measurements, and the turbidity level of a system's combined filter effluent must not exceed 1 NTU at any time. A supplier subject to the IESWTR using technologies other than conventional, direct, slow sand, or diatomaceous earth filtration must meet turbidity limits set by the Agency. For a supplier subject to the LT1ESWTR (a supplier that serves fewer than 10,000 people, using surface water or groundwater under the direct influence of surface water) that uses conventional filtration or direct filtration, after January 1, 2005, the turbidity level of the supplier's combined filter effluent may not exceed 0.3 NTU in at least 95 percent of monthly measurements, and the turbidity level of the supplier's combined filter effluent must not exceed 1 NTU at any time. A supplier subject to the LT1ESWTR using technologies other than conventional, direct, slow sand, or diatomaceous earth filtration must meet turbidity limits set by the Agency.

9. The bacteria detected by heterotrophic plate count (HPC) are not necessarily harmful. HPC is simply an alternative method of determining disinfectant residual levels. The number of such bacteria is an indicator of whether there is enough disinfectant in the distribution system.

10. SWTR, IESWTR, and LT1ESWTR treatment technique violations that involve turbidity exceedances may use the health effects language for turbidity instead.

11. Millions of fibers per liter.

12. Action Level = 0.015 mg/ℓ.

13. Action Level = 1.3 mg/ℓ.

14. Millirems per year.

15. Picocuries per liter.

16. A surface water system supplier or a groundwater system supplier under the direct influence of surface water is regulated under Subpart B of this Part. A Supbart B community water system supplier or a non-transient non-community system supplier must comply with Subpart I DBP MCLs and disinfectant maximum residual disinfectant levels (MRDLs). A Subpart B transient non-community system supplier that uses chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL.

17. Community and non-transient non-community systems must comply with Subpart Y TTHM and HAA5 MCLs of 0.080 mg/ℓ and 0.060 mg/ℓ, respectively (with compliance calculated as a locational running annual average) on the schedule in Section 611.970.

18. The MCL for total trihalomethanes is the sum of the concentrations of the individual trihalomethanes.

19. The MCL for haloacetic acids is the sum of the concentrations of the individual haloacetic acids.

20. “MRDLG” means maximum residual disinfectant level goal.

21. “MRDL” means maximum residual disinfectant level.

22. The supplier is in compliance unless one of the following conditions occurs: (1) the supplier’s system has an E. coli-positive repeat sample following a total coliform- positive routine sample; (2) the supplier’s system has a total coliform-positive repeat sample fol-

lowing an E. coli-positive routine sample; (3) the supplier fails to take all required repeat samples following an E. coli-positive routine sample; or (4) the supplier fails to test for E. coli when any repeat sample tests positive for total coliform.

BOARD NOTE: Derived from appendix B to subpart Q to 40 CFR 141 (2014).

(Source: Amended at 39 Ill. Reg. 15352, effective November 13, 2015)

Section 611.APPENDIX I Acronyms Used in Public Notification Regulation

CCR	Consumer Confidence Report
CWS	Community Water System
DBP	Disinfection Byproduct
GWR	Groundwater Rule
HPC	Heterotrophic Plate Count
IESWTR	Interim Enhanced Surface Water Treatment Rule
IOC	Inorganic Chemical
LCR	Lead and Copper Rule
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MRDL	Maximum Residual Disinfectant Level
MRDLG	Maximum Residual Disinfectant Level Goal
NCWS	Non-Community Water System
NPDWR	National Primary Drinking Water Regulation
NTNCWS	Non-Transient Non-Community Water System
NTU	Nephelometric Turbidity Unit
OGWDW	USEPA, Office of Ground Water and Drinking Water
OW	USEPA, Office of Water
PN	Public Notification
PWS	Public Water System
SDWA	Safe Drinking Water Act
SMCL	Secondary Maximum Contaminant Level
SOC	Synthetic Organic Chemical
SWTR	Surface Water Treatment Rule
TCR	Total Coliform Rule
TT	Treatment Technique
TWS	Transient Non-Community Water System
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Chemical

BOARD NOTE: Derived from Appendix C to Subpart Q to 40 CFR 141 (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.TABLE A Total Coliform Monitoring Frequency

TOTAL COLIFORM MONITORING FREQUENCY FOR CWSs

Population Served			Minimum Number of Samples per Month
25	to	1000	1
1001	to	2500	2
2501	to	3300	3
3301	to	4100	4
4101	to	4900	5
4901	to	5800	6
5801	to	6700	7
6701	to	7600	8
7601	to	8500	9
8501	to	12,900	10
12,901	to	17,200	15
17,201	to	21,500	20
21,501	to	25,000	25
25,001	to	33,000	30
33,001	to	41,000	40
41,001	to	50,000	50
50,001	to	59,000	60
59,001	to	70,000	70
70,001	to	83,000	80
83,001	to	96,000	90

96,001	to	130,000	100
130,001	to	220,000	120
220,001	to	320,000	150
320,001	to	450,000	180
450,001	to	600,000	210
600,001	to	780,000	240
780,001	to	970,000	270
970,001	to	1,230,000	300
1,230,001	to	1,520,000	330
1,520,001	to	1,850,000	360
1,850,001	to	2,270,000	390
2,270,001	to	3,020,000	420
3,020,001	to	3,960,000	450
3,960,001	or	more	480

PWSs that have at least 15 service connections, but serve fewer than 25 persons are included are included in the entry for 25 to 1000 persons served.

BOARD NOTE: Derived from 40 CFR 141.21(a)(2) (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.TABLE B Fecal or Total Coliform Density Measurements

System Size (Persons Served)			Samples per Week
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) (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.TABLE C Frequency of RDC Measurement

System Size (Persons Served)			Samples per Day
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 a SEP issued pursuant to Section 611.110.

BOARD NOTE: Derived from 40 CFR 141.74(b)(5) and (c)(2) (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.TABLE D Number of Lead and Copper Monitoring Sites

System Size (Persons Served)	Number of Sites (Standard Monitoring)	Number of Sites (Reduced Monitoring)
More than 100,000	100	50
10,001-100,000	60	30
3,301 to 10,000	40	20
501 to 3,300	20	10
101 to 500	10	5
100 or fewer	5	5

BOARD NOTE: Derived from 40 CFR 141.86(c) (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.TABLE E Lead and Copper Monitoring Start Dates

System Size (Persons served)	First Six-month Monitoring Period Begins
more than 50,000	January 1, 1992
3,301 to 50,000	July 1, 1992
3,300 or fewer	July 1, 1993

BOARD NOTE: Derived from 40 CFR 141.86(d)(1) (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.TABLE F Number of Water Quality Parameter Sampling Sites

	Number of Sites	
System Size (Persons Served)	(Standard Monitoring)	(Reduced Monitoring)
more than 100,000	25	10
10,001 to 100,000	10	7
3,301 to 10,000	3	3
501 to 3,300	2	2
101 to 500	1	1
100 or fewer	1	1

BOARD NOTE: Derived from 40 CFR 141.87(a)(2) and (e) (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.TABLE G Summary of Section 611.357 Monitoring Requirements for Water Quality Parameters

See end note 1 below.

Monitoring Period	Parameters[2]	Location	Frequency
Initial Monitoring	pH, alkalinity, orthophosphate or silica[3], calcium, conductivity, temperature	Taps and at entry points to the distribution system	Every six months
After installation of corrosion control	pH, alkalinity, orthophosphate or silica[3], calcium[4]	Taps	Every six months
	pH, alkalinity dosage rate and concentration (if alkalinity is adjusted as part of corrosion control), inhibitor dosage rate, and inhibitor residual[5]	Entry points to the distribution system[6]	No less frequently than every two weeks
After the Agency specifies parameter values for optimal corrosion control	pH, alkalinity, orthophosphate or silica[3], calcium[4]	Taps	Every six months
	pH, alkalinity dosage rate and concentration (if alkalinity is adjusted as part of corrosion control), inhibitor dosage rate, and inhibitor residual[5]	Entry points to the distribution system[6]	No less frequently than every two weeks
Reduced monitoring	pH, alkalinity, orthophosphate or silica[3], calcium[4]	Taps	Every six months, annually[7] or every three years[8]; reduced number of sites

	pH, alkalinity dosage rate and concentration (if alkalinity is adjusted as part of corrosion control), inhibitor dosage rate, and inhibitor residual[5]	Entry points to the distribution system[6]	No less frequently than every two weeks

1. This Table G is for illustrative purposes; consult the text of Section 611.357 for precise regulatory requirements.

2. Small- and medium-sized systems have to monitor for water quality parameters only during monitoring periods in which the system exceeds the lead or copper action level.

3. Orthophosphate must be measured only when an inhibitor containing a phosphate compound is used. Silica must be measured only when an inhibitor containing silicate compound is used.

4. Calcium must be measured only when calcium carbonate stabilization is used as part of corrosion control.

5. Inhibitor dosage rates and inhibitor residual concentrations (orthophosphate or silica) must be measured only when an inhibitor is used.

6. A groundwater system supplier may limit monitoring to representative locations throughout the system.

7. A water supplier may reduce frequency of monitoring for water quality parameters at the tap from every six months to annually if it has maintained the range of values for water quality parameters reflecting optimal corrosion control during three consecutive years of monitoring.

8. A water supplier may further reduce the frequency of monitoring for water quality parameters at the tap from annually to once every three years if it has maintained the range of values for water quality parameters reflecting optimal corrosion control during three consecutive years of annual monitoring. A water supplier may accelerate to triennial monitoring for water quality parameters at the tap if it has maintained 90th percentile lead levels less than or equal to 0.005 mg/ℓ, 90th percentile copper levels less than or equal to 0.65 mg/ℓ, and the range of water quality parameters designated by the Agency under Section 611.352(f) as representing optimal corrosion control during two consecutive six-month monitoring periods.

BOARD NOTE: Derived from the table to 40 CFR 141.87 (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.TABLE H CT Values (mg·min/ℓ) for Cryptosporidium Inactivation by Chlorine Dioxide

	Water Temperature (°C)										
Log Credit	≤0.5	1	2	3	5	7	10	15	20	25	30
0.25	159	153	140	128	107	90	69	45	29	19	12
0.5	319	305	279	256	214	180	138	89	58	38	24
1.0	637	610	558	511	429	360	277	179	116	75	49
1.5	956	915	838	767	643	539	415	268	174	113	73
2.0	1275	1220	1117	1023	858	719	553	357	232	150	98
2.5	1594	1525	1396	1278	1072	899	691	447	289	188	122
3.0	1912	1830	1675	1534	1286	1079	830	536	347	226	147

A supplier may use the following equation to determine log credit between the indicated values:

$$\text{Log credit} = (0.001506 \times (1.09116)^{\text{Temp(in °C)}}) \times \text{CT}.$$

BOARD NOTE: Derived from the table at 40 CFR 141.720(b)(1) (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.TABLE I CT Values (mg·min/ℓ) for Cryptosporidium Inactivation by Ozone

	Water Temperature (°C)										
Log Credit	≤0.5	1	2	3	5	7	10	15	20	25	30
0.25	6.0	5.8	5.2	4.8	4.0	3.3	2.5	1.6	1.0	0.6	0.39
0.5	12	12	10	9.5	7.9	6.5	4.9	3.1	2.0	1.2	0.78
1.0	24	23	21	19	16	13	9.9	6.2	3.9	2.5	1.6
1.5	36	35	31	29	24	20	15	9.3	5.9	3.7	2.4
2.0	48	46	42	38	32	26	20	12	7.8	4.9	3.1

2.5	60	58	52	48	40	33	25	16	9.8	6.2	3.9
3.0	72	69	63	57	47	39	30	19	12	7.4	4.7

A supplier may use the following equation to determine log credit between the indicated values:

$$\text{Log credit} = (0.0397 \times (1.09757)^{\text{Temp(in °C)}}) \times \text{CT}.$$

BOARD NOTE: Derived from the table at 40 CFR 141.720(b)(2) (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.TABLE J UV Dose Table for Cryptosporidium, Giardia lamblia, and Virus Inactivation Credit

	UV dose (mJ/cm^2)		
Log credit	Cryptosporidium	Giardia lamblia	Virus
0.5	1.6	1.5	39
1.0	2.5	2.1	58
1.5	3.9	3.0	79
2.0	5.8	5.2	100
2.5	8.5	7.7	121
3.0	12	11	143
3.5	15	15	163
4.0	22	22	186

BOARD NOTE: Derived from the table at 40 CFR 141.720(d)(1) (2012).

(Source: Amended at 37 Ill. Reg. 1978, effective February 4, 2013)

Section 611.TABLE Z Federal Effective Dates

The following are the effective dates of the various federal NPDWRs:

Fluoride (40 CFR 141.62(b)(1)) (corresponding with Section 611.301(b))	October 2, 1987
Phase I VOCs (40 CFR 141.61(a)(1) through (a)(8)) (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)	January 9, 1989
Total Coliforms Rule (40 CFR 141.21 & 141.63) (corresponding with Sections 611.521-611.527 & 611.325) (total coliforms, fecal coliforms, and E. coli)	December 31, 1990
Surface Water Treatment Rule (40 CFR 141, subpart H) (corresponding with Subpart B of this Part) (filtration, disinfection, and turbidity)	Effective: December 31, 1990 Compliance: December 30, 1991
Lead and Copper (40 CFR 141, subpart I) (corresponding with Subpart G of this Part) (lead and copper monitoring, reporting, and recordkeeping requirements of 40 CFR 141.86 through 141.91)	July 7, 1991
Phase II IOCs (40 CFR 141.62(b)(2) and (b)(4) through (b)(10)) (corresponding with Section 611.301(b)) (asbestos, cadmium, chromium, mercury, nitrate, nitrite, and selenium)	July 30, 1992
Phase II VOCs (40 CFR 141.61(a)(9) through (a)(18)) (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 141.61(c)(1) through (c)(18)) (corresponding with Section 611.311(c))	July 30, 1992

(alachlor, atrazine, carbofuran, chlordane, dibromochloropropane, ethylene dibromide, heptachlor, heptachlor epoxide, lindane, methoxychlor, polychlorinated biphenyls, toxaphene, 2,4-D, and 2,4,5-TP (silvex))

Phase V SOC (40 CFR 141.61(c)(3)) August 17, 1992
(corresponding with Section 611.311(c))
(endrin)

Lead and Copper (40 CFR 141, subpart I) December 7, 1992
(corresponding with Subpart G of this Part)
(lead and copper corrosion control, water treatment, public education, and lead service line replacement requirements of 40 CFR 141.81 through 141.85)

Phase IIB IOC (40 CFR 141.62(b)(3)) January 1, 1993
(corresponding with Section 611.301(b))
(barium)

Phase IIB SOCs (40 CFR 141.61(a)(9) through (a)(18)) January 1, 1993
(corresponding with Section 611.311(c))
(aldicarb, aldicarb sulfone, aldicarb sulfoxide, and pentachlorophenol. See the Board note appended to Section 611.311(c) for information relating to implementation of requirements relating to aldicarb, aldicarb sulfone, and aldicarb sulfoxide.)

Phase V IOCs (40 CFR 141.62(b)(11) through (b)(15)) January 17, 1994
(corresponding with Section 611.301(b))
(antimony, beryllium, cyanide, nickel, and thallium)

Phase V VOCs (40 CFR 141.61(b)(19) through (b)(21)) January 17, 1994
(corresponding with Section 611.311(a))
(dichloromethane, 1,2,4-trichlorobenzene, and 1,1,2-trichloroethane)

Phase V SOCs (40 CFR 141.61(c)(19) through (c)(25)) January 17, 1994
(corresponding with Section 611.311(c))
(benzo(a)pyrene, dalapon, di(2-ethylhexyl)adipate, di(2-ethylhexyl)phthalate dinoseb, diquat, endothall, glyphosate, hexachlorobenzene, hexachlorocyclopentadiene, oxamyl, picloram, simazine, and 2,3,7,8-TCDD)

Consumer Confidence Report Rule (40 CFR 141, subpart Q) September 18, 1998
(corresponding with Subpart O of this Part)

(notification to public of drinking water quality)

Interim Enhanced Surface Water Treatment Rule (40 CFR 141, subpart P)
February 16, 1999
(corresponding with Subpart R of this Part)
(applicable to suppliers providing water to fewer than 10,000 persons)
(Giardia lamblia, viruses, heterotrophic plate count bacteria, Legionella, Cryptosporidium, and turbidity)

Public Notification Rule (40 CFR 141, subpart Q) June 5, 2000
(corresponding with Subpart V of this Part)
(notification to public of NPDWR violations, variances or exemptions, or other situations that could bear on public health)

Filter Backwash Rule (40 CFR 141.76) August 7, 2001
(corresponding with Section 611.276)
(reuse of spent filter backwash water, thickener supernatant, or liquids from dewatering processes)

Disinfection/Disinfectant Byproducts Rule (40 CFR 141.64, 141.65 & 141, subpart L)
Smaller Systems (serving 10,000 or fewer persons) December 16, 2001
Larger Systems (serving more than 10,000 persons) December 16, 2003
(corresponding with Sections 611.312 & 611.313)
(total trihalomethanes, haloacetic acids (five), bromate, chlorite, chlorine, chloramines, and chlorine dioxide)

Long Term 1 Enhanced Surface Water Treatment Rule (40 CFR 141, subpart T)
February 13, 2002
(corresponding with Subpart X of this Part)
(applicable to suppliers providing water to 10,000 or more persons)
(Giardia lamblia, viruses, heterotrophic plate count bacteria, Legionella, Cryptosporidium, and turbidity)

Radionuclides (40 CFR 141.66) December 8, 2003
(corresponding with Section 611.330)
(combined radium (Ra-226 + Ra-228), gross alpha particle activity, beta particle and photon activity, and uranium)

Arsenic (40 CFR 141.62(b)(16)) January 23, 2006
(corresponding with Section 611.301(b))

(arsenic)

Stage 2 Disinfection/Disinfectant Byproducts Rule (40 CFR 141, subparts U & V)

Systems that serve fewer than 10,000 persons)	
Submit plan	April 1, 2008
Complete monitoring or study	March 31, 2010
Submit IDSE report	July 1, 2010
Compliance with monitoring requirements	
If no Cryptosporidium monitoring is required	October 1, 2013
If Cryptosporidium monitoring is required	October 1, 2014
Systems that serve 10,000 to 49,999 persons)	
Submit plan	October 1, 2007
Complete monitoring or study	September 30, 2009
Submit IDSE report	January 1, 2010
Compliance with monitoring requirements	October 1, 2013
Systems that serve 50,000 to 99,999 persons)	
Submit plan	April 1, 2007
Complete monitoring or study	March 31, 2009
Submit IDSE report	July 1, 2009
Compliance with monitoring requirements	October 1, 2012
Systems that serve 100,000 or more persons)	
Submit plan	October 1, 2006
Complete monitoring or study	September 30, 2008
Submit IDSE report	January 1, 2009
Compliance with monitoring requirements	April 1, 2012

(corresponding with Subparts W & Y of this Part)
(total trihalomethanes and haloacetic acids (five))

Long Term 2 Enhanced Surface Water Treatment Rule (40 CFR 141, subpart W)

Systems that serve fewer than 10,000 persons)	
And which monitor for E. coli	
Begin first round of monitoring	October 1, 2008
Begin treatment for Cryptosporidium	October 1, 2014
Begin second round of monitoring	October 1, 2017
And which monitor for cryptosporidium	
Begin first round of monitoring	April 1, 2010
Begin treatment for Cryptosporidium	October 1, 2014
Begin second round of monitoring	April 1, 2019
Systems that serve 10,000 to 49,999 persons)	
Begin first round of monitoring	April 1, 2008
Begin treatment for Cryptosporidium	October 1, 2013
Begin second round of monitoring	October 1, 2016
Systems that serve 50,000 to 99,999 persons)	
Begin first round of monitoring	April 1, 2007

Begin treatment for Cryptosporidium	October 1, 2012
Begin second round of monitoring	October 1, 2015
Systems that serve 100,000 or more persons)	
Begin first round of monitoring	October 1, 2006
Begin treatment for Cryptosporidium	April 1, 2012
Begin second round of monitoring	April 1, 2015
(corresponding with Subpart Z of this Part)	
(E. coli, Cryptosporidium, Giardia lamblia, viruses, and turbidity)	

Groundwater Rule (40 CFR 141, subpart S)	December 1, 2009
(corresponding with Subpart S of this Part)	
(E. coli, enterococci, and coliphage)	

Revised Total Coliforms Rule (40 CFR 141, subpart Y)	Effective: April 15, 2013
(corresponding with Subpart AA of this Part)	Compliance: April 1, 2016
(total coliforms (indicator), E. coli)	

(Source: Amended at 38 Ill. Reg. 3608, effective January 27, 2014)