ILLINOIS POLLUTION CONTROL BOARD
November 7, 2013

IN THE MATTER OF:)
SDWA UPDATE, USEPA AMENDMENTS) R14-8
(January 1, 2013 through June 30, 2013)) (Identical-in-Substance
) Rulemaking - Public Water Supply)

Proposed Rule. Proposal for Public Comment.

ORDER OF THE BOARD (by J. A. Burke):

SUMMARY OF THIS ACTION

The Board today proposes amendments to the Illinois regulations that are "identical in substance" to drinking water regulations adopted by the United States Environmental Protection Agency (USEPA). The amendments involved in this docket incorporate into the Illinois drinking water regulation amendments in response to three USEPA actions that occurred during the first half of calendar year 2013. The Board further uses this opportunity to make a limited number of minor corrections to the existing text of various provisions.

The federal actions involved in this docket include the following: (1) the February 13, 2013 Revised Total Coliform Rule (RTCR); and (2) the May 31, 2013 summary approval of alternative equivalent methods for drinking water monitoring, (3) which USEPA corrected on June 21, 2013.

Sections 7.2 and 17.5 of the Environmental Protection Act (Act) (415 ILCS 5/7.2 and 17.5 (2012)) provide for quick adoption by the Board of regulations that are identical in substance to federal regulations that USEPA adopts to implement Sections 1412(b), 1414(c), 1417(a), and 1445(a) of the federal Safe Drinking Water Act (SDWA) (42 U.S.C. §§ 300g-1(a), 300g-3(c), 300g-6(a), and 300j-4(a) (2011)). The USEPA National Primary Drinking Water Regulations (NPDWRs) implement Sections 1412(b), 1414(c), 1417(a), and 1445(a) of the federal SDWA (42 U.S.C. §§ 300g-1(a), 300g-3(c), 300g-6(a), and 300j-4(a) (2011)). The federal SDWA regulations are found at 40 C.F.R. 141 through 143. Section 17.5 also provides that Title VII of the Act and Section 5 of the Illinois Administrative Procedure Act (APA) (5 ILCS 100/5-35 and 5-40 (2012)) do not apply to the Board's adoption of identical-in-substance regulations.

Sections 7.2 and 17.5 of the Environmental Protection Act (Act) (415 ILCS 5/7.2 and 17.5 (2010)) provide for quick adoption by the Board of regulations that are identical in substance to federal regulations that USEPA adopts to implement Sections 1412(b), 1414(c), 1417(a), and 1445(a) of the federal Safe Drinking Water Act (SDWA) (42 U.S.C. §§ 300g-1(a), 300g-3(c), 300g-6(a), and 300j-4(a) (2006)). The USEPA National Primary Drinking Water Regulations (NPDWRs) implement Sections 1412(b), 1414(c), 1417(a), and 1445(a) of the federal SDWA (42 U.S.C. §§ 300g-1(a), 300g-3(c), 300g-6(a), and 300j-4(a) (2006)). The federal SDWA regulations are found at 40 C.F.R. 141 through 143. Section 17.5 also provides that Title VII of the Act and Section 5 of the Illinois Administrative Procedure Act (APA) (5

ILCS 100/5-35 and 5-40 (2012)) do not apply to the Board's adoption of identical-in-substance regulations.

An accompanying opinion adopted today supports this order. The Board will cause the proposed amendments to be published in the *Illinois Register* and will hold the docket open to receive public comments for 45 days after the date of publication. The Board will then adopt and file the final rules, taking into account the public comments received. The Board specifically requests comment on one aspect of the rules. The Board requests comments on the way the Board has incorporated the USEPA-approved alternative equivalent analytical methods into the Illinois regulations.

The Board presently expects that rules will be adopted and filed no later than the statutory due date of February13, 2013, pursuant to Section 7.2 of the Act (415 ILCS 5/7.2) (2012)). Adoption of this proposal for public comment today may allow completion by January 14, 2013.

The Board directs the Clerk to provide notice in the *Illinois Register* of the following proposed amendments to the Illinois SDWA National Primary Drinking Water regulations at 35 Ill. Adm. Code 611:

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

PART 611
PRIMARY DRINKING WATER STANDARDS

SUBPART A: GENERAL

Section

SUBPART B: FILTRATION AND DISINFECTION

SUBPART C: USE OF NON-CENTRALIZED TREATMENT DEVICES

SUBPART D: TREATMENT TECHNIQUES

SUBPART F: MAXIMUM CONTAMINANT LEVELS (MCLs) AND MAXIMUM RESIDUAL DISINFECTANT LEVELS (MRDLs)

SUBPART G: LEAD AND COPPER

Section

SUBPART I: DISINFECTANT RESIDUALS, DISINFECTION BYPRODUCTS, AND DISINFECTION BYPRODUCT PRECURSORS

Section

SUBPART K: GENERAL MONITORING AND ANALYTICAL REQUIREMENTS

Section

SUBPART L: MICROBIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

Section

SUBPART M: TURBIDITY MONITORING AND ANALYTICAL REQUIREMENTS

Section

SUBPART N: INORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

Section

SUBPART O: ORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

Section

SUBPART P: THM MONITORING AND ANALYTICAL REQUIREMENTS (REPEALED)

SUBPART Q: RADIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

SUBPART R: ENHANCED FILTRATION AND DISINFECTION: SYSTEMS THAT SERVE 10,000 OR MORE PEOPLE

SUBPART S: GROUNDWATER RULE

SUBPART T: REPORTING AND RECORDKEEPING

SUBPART U: CONSUMER CONFIDENCE REPORTS

Section

SUBPART V: PUBLIC NOTIFICATION OF DRINKING WATER VIOLATIONS

Section

SUBPART W: INITIAL DISTRIBUTION SYSTEM EVALUATIONS

Section

SUBPART X: ENHANCED FILTRATION AND DISINFECTION—SYSTEMS SERVING FEWER THAN 10,000 PEOPLE

Section

SUBPART Y: STAGE 2 DISINFECTION BYPRODUCTS REQUIREMENTS

Section

SUBPART Z: ENHANCED TREATMENT FOR CRYPTOSPORIDIUM

Section

SUBPART AA—REVISED TOTAL COLIFORM RULE

Section

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. 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. _________, effective ________________________.

SUBPART A: GENERAL

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 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)~~ (2010)~~ (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 “$\text{CT}_{99.9}$.”)

“$\text{CT}_{99.9}$” is the CT value required for 99.9 percent (3-log) inactivation of Giardia lamblia cysts. $\text{CT}_{99.9}$ 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 ~~(2010)~~ (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) ~~(2010)~~ (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) ~~(2010)~~ (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(c)~~ 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) ~~(2010)~~ (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 ~~(2010)~~ (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-ethylhexyl)phthalate, dinoseb, diquat, endothall, endrin, glyphosate, hexachlorobenzene, hexachlorocyclopentadiene, oxamyl, picloram, simazine, 2,3,7,8-TCDD, antimony, beryllium, cyanide, nickel, and thallium, as they apply to 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) ~~(2010)~~ (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) ~~(2010)~~ (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 ground water 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 ground water 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) ~~(2010)~~ (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: ~~Drawn~~ Derived from 40 CFR 141.23(b)(2) and 141.24(f)(2) note ~~(2010)~~ (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 ~~(2010)~~ (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) ~~(2010)~~ (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) ~~(2010)~~ (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) ~~(2000)~~ (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) ~~(2010)~~ (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 ~~(2010)~~ (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) ~~(2006)~~ (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) ~~(2010)~~ (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 ~~(2010)~~ (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 ~~(2010)~~ (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 ~~(2010)~~ (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) ~~(2010)~~ (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 ~~(2010)~~ (2013).

(Source: Amended at 38 Ill. Reg. __________, effective __________________________)

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).

“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.

“Colisure Test” means “Colisure Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia Coli in Drinking Water,” available from ~~Millipore Corporation, Technical Services Department~~ 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 ~~Chemicals Inc~~ 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 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™ Method" 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 "Autoanalysis Colilert System," 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 ~~Chemicals Inc~~ 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 ~~Chemicals Inc~~ 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 ~~Analytical Technology, Inc.~~ Thermo Scientific.

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

"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, ~~August 2009~~ 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 (ver. 1.0), 524.3 (rev. 1.0), 524.4, 531.2 (rev. 1.0), 536 (ver. 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, 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 "Autoanalysis Colilert System" 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 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 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, Glyphosate Herbicide~~ (Proposed)~~, 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~~ B~~, Gamma-Emitting Radionuclides, ~~Gamma Spectrometric Method, ~~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 "Autoanalysis Colilert System" 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-~~Si~~ SiO_2 C, Silica, Molybdosilicate Method, referenced in Section 611.611.

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

Method 4500-~~Si~~ 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, Carbamate Pesticide Method, referenced in Section 611.645.

Method 6651 B, Glyphosate Herbicide ~~(Proposed)~~, 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 9215 B, Heterotrophic Plate Count, Pour Plate Method, referenced in Section 611.531.

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

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, 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, 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, ~~and~~ 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 “Autoanalysis Colilert System” and “Colisure Test”), referenced in Sections 611.526 and 611.531.

Method 9223 B, Chromogenic Substrate Coliform Test (also referred to as the variations “Autoanalysis Colilert System” and “Colisure Test”), referenced in Sections 611.526, 611.802, ~~and~~ 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-Ca D, 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,~~ 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, ~~and~~ 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, 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, ~~and~~ 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 "Autoanalysis Colilert System" and "Colisure Test"), referenced in Sections 611.526 and 611.531.

Method 9223 B, Chromogenic Substrate Coliform Test (also referred to as the variations "Autoanalysis Colilert System" and "Colisure Test"), referenced in Sections 611.526, 611.802, ~~and~~ 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 "Autoanalysis Colilert System" and "Colisure Test"), 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.

~~Analytical Technology, Inc. ATI Orion, 529 Main Street, Boston, MA 02129.~~

~~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.~~

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 ~~D2460-90~~ D2460-97, “Standard Test Method for Radionuclides of Radium in Water,” approved ~~1990~~ 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 ~~D2907-91 A or B~~ D2907-97, “Standard Test Methods for Microquantities of Uranium in Water by Fluorometry,” ~~“Test Method A—Direct Fluorometric” & “Test Method B—Extraction,”~~ approved ~~June 15, 1991,~~ in 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 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 June 15, 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 Absorbtion, 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 Absorbtion, 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 Absorbtion, 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 ~~D3972-90~~ D3972-97, “Standard Test Method for Isotopic Uranium in Water by Radiochemistry,” approved ~~1990~~ in 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 (reapproved 2002), referenced in

Section 611.720.

ASTM Method D4107-08, “Standard Test Method for Tritium in Drinking Water,” approved 2008~~ (reapproved 2002)~~, 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 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 (2012), 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 (2012), 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™ Method"), referenced in Sections 611.526 and 611.802. See also NEMI.

EMD ~~Chemicals Inc.~~ Millipore (~~an affiliate~~ division of Merck KGgA, Darmstadt, Germany),~~ 480 S. Democrat Road, Gibbstown, NJ 08027-1297. (800-222-0342/e-mail: adellenbusch@emscience.com).~~ 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, ~~and~~ 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 ~~Section~~ 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.

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.

~~Millipore Corporation, Technical Services Department, 80 Ashby Road, Milford, MA 01730 (800-654-5476).~~

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

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), ~~and~~ 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~~ (referred to as "")~~, 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) (2012): "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., 21 Kenton Lands Road, P.O. Box 18395, Erlanger, KY (800-835-9629).

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 3112 B-09, Metals by Cold-Vapor Atomic Absorption Spectrometry, Cold-Vapor Atomic Absorption Spectrometric Method, referenced in Section 611.611.~~

Method 3113 B-04, Metals by Electrothermal Atomic Absorption Spectrometry, Electrothermal Atomic Absorption Spectrometric Method, referenced in Sections 611.611 and 611.612.

~~Method 3114 B-04, Metals by Hydride Generation/Atomic Absorption Spectrometry, Manual Hydride Generation/Atomic Absorption Spectrometric Method, referenced in Section 611.611.~~

~~Method 6610 B-04, Carbamate Pesticides, High-Performance Liquid Chromatographic Method, referenced in Section 611.645.~~

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 (2012), 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.

~~USDOE, EML.~~ USDHS, STD. United States Department of Homeland Security, Science and Technology Directorate (formerly United States Department of Energy, Environmental Measurements Laboratory)~~, U.S. Department of Energy, 376 Hudson Street, New York, NY 10014-3621~~ 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), ~~and~~ 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) (2012): “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~~ (referred to as "Method 524.3 (rev. 1.0)")~~, 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 8161/R-12/001,~~ 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,” ~~February 2005~~ September 2009, EPA 600/R–09/122, referenced in Section 611.381.

USEPA NERL Method 525.3, ver. 1.0, “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),” 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 ~~Section~~ 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 ~~Section~~ Sections 611.802 and 611.1052. See also The Hach Company.

USEPA Method 1600, “EPA 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 ~~Section~~ 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.

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 ~~(2012)~~ (2013) (How Does This Part Provide for Electronic Reporting?), referenced in Section 611.105.

40 CFR 3.3 ~~(2012)~~ (2013) (What Definitions Are Applicable to This Part?), referenced in Section 611.105.

40 CFR 3.10 ~~(2012)~~ (2013) (What Are the Requirements for Electronic Reporting to EPA?), referenced in Section 611.105.

40 CFR 3.2000 ~~(2012)~~ (2013) (What Are the Requirements Authorized State, Tribe, and Local Programs' Reporting Systems Must Meet?), referenced in Section 611.105.

40 CFR 136.3(a) ~~(2012))~~ (2013), referenced in Section 611.1004.

Appendix B to 40 CFR 136 (2012), referenced in Sections 611.359, 611.609, and 611.646.

40 CFR 142.20(b)(1) ~~(2012)~~ (2013), referenced in Section 611.112.

Subpart G of 40 CFR 142 (2013), reference in Section 611.113.

d) This Part incorporates no later amendments or editions.

(Source: Amended at 38 Ill. Reg. _________, effective ________________________)

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 ~~MCL~~ MCLs for total coliforms and E. coli. ~~However,~~ 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 ~~(2010)~~ (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 ~~(2010)~~ (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. _________, effective _______________________)

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 ~~MCL~~ MCLs for total coliforms and E. coli. ~~However,~~ 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 ~~(2010)~~ (2013). USEPA has established a procedure at 40 CFR 142.23 ~~(2010)~~ (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. _________, effective ________________________)

SUBPART B: FILTRATION AND DISINFECTION

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) ~~(2003)~~ (2013).

(Source: Amended at 38 Ill. Reg. _________, effective ________________________)

Section 611.325 Microbiological Contaminants

a) ~~The~~ 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) ~~Any~~ 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 coliformpositive routine sample.

2) The supplier has a total coliformpositive 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.

~~c~~d) ~~A~~ 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.

~~d~~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 coliforms~~ by appropriate placement and construction;

2) Maintenance of RDC throughout the distribution system;

3) Proper maintenance of the distribution system including appropriate pipe replacement and repair procedures, main flushing programs, proper operation and maintenance of storage tanks and reservoirs, 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 ~~Subpart~~ Subparts B, R, X, and Z of this Part, or disinfection of groundwaterr, 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 ~~(2002)~~ (2013).

(Source: Amended at 38 Ill. Reg. _________, effective ________________________)

SUBPART G: LEAD AND COPPER

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 ~~granted~~ 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 exceedence 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 ~~(2007), as amended at 57782 (October 10, 2007)~~ (2013).

(Source: Amended at 38 Ill. Reg. ________, effective ______________________)

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 ~~granted~~ 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 ~~(2007), as amended at 72 Fed. Reg. 57782 (October 10, 2007)~~ (2013).

(Source: Amended at 38 Ill. Reg. _________, effective ________________________)

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 ~~granted~~ 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 ~~granted~~ 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 ~~granted~~

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 ~~granted~~ 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 ~~(2007), as amended at 72 Fed. Reg. 57782 (October 10, 2007)~~ (2013).

(Source: Amended at 38 Ill. Reg. _________, effective ________________________)

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 ~~granted~~ 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 ~~granted~~ 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 ~~(2007), as amended at 72 Fed. Reg. 57782 (October 10, 2007)~~ (2013).

(Source: Amended at 38 Ill. Reg. _________, effective _______________________)

SUBPART I: DISINFECTANT RESIDUALS, DISINFECTION BYPRODUCTS, AND DISINFECTION BYPRODUCT PRECURSORS

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).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 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, or, ~~or~~ 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).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., 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).

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, ~~or~~ 21st, or 22nd ed., Method 4500-ClO_2 E.

~~BOARD NOTE:~~ ii) By spectrophotometry: USEPA OGWDW Methods, Method 327.0 (rev. 1.1).

iii) 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.

iv) By chemically suppressed chromatography: ASTM Method D6581-08 A.

v) 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).

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 laboratories that have received certification by USEPA or the Agency 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, ~~or~~ 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, ~~or~~ 21st, or 22nd ed., Method 4500-Cl F;

iii) DPD colorimetric: Standard Methods, 19th, 20th, or ~~or~~ 21st, or 22nd., Method 4500-Cl G; or

iv) Syringaldazine (FACTS): Standard Methods, 19th, 20th, ~~or~~ 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.

~~v~~vi) Amperometric sensor: Palintest ChloroSense.

~~vi~~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).

B) Combined Chlorine:

i) Amperometric titration: Standard Methods, 19th, 20th,, ~~or~~ 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,, ~~or~~ 21st, or 22nd ed., Method 4500-Cl F; or

iii) DPD colorimetric: Standard Methods, 19th, 20th,, ~~or~~ 21st, or 22nd ed., Method 4500-Cl G.

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).

C) Total Chlorine:

i) Amperometric titration: Standard Methods, 19th, 20th,, ~~or~~ 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,, ~~or~~ 21st, or 22nd ed., Method 4500-Cl E;

iii) DPD ferrous titration: Standard Methods, 19th, 20th,, ~~or~~ 21st, or 22nd ed., Method 4500-Cl F;

iv) DPD colorimetric: Standard Methods, 19th, 20th,, ~~or~~ 21st, or 22nd ed., Method 4500-Cl G; or

v) Iodometric electrode: Standard Methods, 19th, 20th,, ~~or~~ 21st, or 22nd ed., Method 4500-Cl I.

vi) Amperometric sensor: Palintest ChloroSense.

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).

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, or, ~~or~~ 21st, or 22nd ed., Method 4500-ClO_2 E; or

iii) 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).

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 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,, ~~or~~ 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,, ~~or~~ 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,, ~~or~~ 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 ~~ed.~~ (Supplement), 20th ~~ed.,~~, ~~or~~ 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 ~~ed.~~ (Supplement), 20th ~~ed.~~, or 21st 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,, ~~or~~ 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 absorbtion 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).

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 ~~(2010)~~ (2013).

(Source: Amended at 38 Ill. Reg. _________, effective ________________________)

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. ~~A~~ 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 ~~(2012)~~ (2013).

(Source: Amended at 38 Ill. Reg. _________, effective ________________________)

SUBPART L: MICROBIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.526 Analytical Methodology

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

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, ~~or~~ 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, ~~or~~ 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, ~~or~~ 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, ~~or~~ 21st, or 22nd ed., Method 9223. (The ONPG-MUG test is also known as the Autoanalysis Colilert System.)

5) Colisure Test (Autoanalysis Colilert System). (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.

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., Method 9221 A and B and 9223 B as an approved alternative method for total coliforms in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558).

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., ~~and~~ 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).

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 ed., ~~and~~ 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 Autoanalysis Colilert System (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 (Autoanalysis Colilert System).

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: ~~Stadard~~ Standard Methods, 20th, ~~or~~ 21st, or 22nd ed., Method 9223 B.

12) Modified Colitag™ Method.

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).

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 ~~(2010)~~ (2013).

(Source: Amended at 38 Ill. Reg. _________, effective ________________________)

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. ________, effective ______________________)

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 laboratory certified by the Agency to do such analysis. The following procedures must be performed by the following methods, incorporated by reference in Section 611.102:

a) 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, ~~or~~ 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, or 21st ed., Method 9222 A, B, and C.

iii) ONPG-MUG test (also known as the Autoanalysis Colilert System): Standard Methods, 18th, 19th, 20th, ~~or~~ 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).

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, ~~or~~ 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, ~~or~~ 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).

C) Heterotrophic bacteria.

i) Pour plate method: Standard Methods, 18th, 19th, 20th, ~~or~~ 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).

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, ~~or~~ 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 or AMI Turbiwell Method.

vii) 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, ~~or~~ 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, ~~or~~ 21st, or 22nd ed., Method 4500-Cl F.

C) DPD Colimetric: Standard Methods, 18th, 19th, 20th, ~~or~~ 21st, or 22nd ed., Method 4500-Cl G.

D) Syringaldazine (FACTS): Standard Methods, 18th, 19th, 20th, ~~or~~ 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).

2) Total chlorine.

A) Amperometric Titration:.

i) Standard Methods, 18th, 19th, 20th, ~~or~~ 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, ~~or~~ 21st, or 22nd ed., Method 4500-Cl E.

C) DPD Ferrous Titrimetric: Standard Methods, 18th, 19th, 20th, ~~or~~ 21st, or 22nd ed., Method 4500-Cl F.

D) DPD Colimetric: Standard Methods, 18th, 19th, 20th, ~~or~~ 21st, or 22nd ed., Method 4500-Cl G.

E) Iodometric Electrode: Standard Methods, 18th, 19th, 20th, ~~or~~ 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).

3) Chlorine dioxide.

A) Amperometric Titration: Standard Methods, 18th, 19th, 20th, ~~or~~ 21st, or 22nd ed., Method 4500-ClO_2 C or E.

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).

4) Ozone: Indigo Method: Standard Methods, 18th, 19th, 20th, ~~or~~ 21st, or 22nd ed., Method 4500-O_3 B.

BOARD NOTE: 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: 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).

BOARD NOTE: Derived from 40 CFR 141.74(a) and appendix A to 40 CFR 141 ~~(2010)~~ (2013).

(Source: Amended at 38 Ill. Reg. _________, effective _______________________)

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) ~~The~~ 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~~, except that the~~. 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) ~~(2003)~~ (2013).

(Source: Amended at 38 Ill. Reg. _________, effective ________________________)

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) ~~The~~ 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~~, except that the~~. 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) ~~(2003)~~ (2013).

(Source: Amended at 29 Ill. Reg. 2287, effective January 28, 2005)

SUBPART N: INORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

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, ~~or~~ D1067-06 B, or D1067-11 B;

ii) Standard Methods, 18th, 19th, 20th, ~~or~~ 21st, or 22nd ed., Method 2320 B; or

iii) Standard Methods Online, Method 3113 B-04.

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 ASTM Method D1067-06 B and Standard Methods Online, Method 3113 B-04 as approved alternative methods for alkalinity 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 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, ~~or~~ 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).

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, ~~or~~ 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, or 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-04~~ 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.

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, ~~or~~ 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, ~~or~~ 21st, or 22nd ed., Method 3111 D.

D) Atomic absorption, furnace technique:

i) Standard Methods, 18th, 19th, ~~or~~ 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).

6) Beryllium.

A) Inductively coupled plasma.

i) USEPA Environmental Metals Methods, Method 200.7

(rev. 4.4); or

ii) Standard Methods, 18th, 19th, 20th, ~~or~~ 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, ~~or~~ 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).

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, ~~or~~ 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).

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, ~~or~~ 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, ~~or~~ 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, ~~or~~ 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, ~~or~~ 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, ~~or~~ 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).

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, ~~or~~ 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, ~~or~~ 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, ~~or~~ 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).

11) Conductivity; Conductance.

A) ASTM Method D1125-95(1999) A; or

B) Standard Methods, 18th, 19th, 20th, ~~or~~ 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 ~~2036-06~~ D2036-06 B; or

ii) Standard Methods, 18th, 19th, 20th, ~~or~~ 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, ~~or~~ 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, ~~or~~ 21st, or 22nd ed., Method 4500-CN$^-$ F.

E) UV/Distillation/Spectrophotometric: Kelada 01.

F) Microdistillation/Flow Injection/Spectrophotometric: ~~QuickChem~~ QuikChem 10-204-00-1-X.

G) Ligand exchange and amperometry.

i) ASTM Method ~~D6888-03~~ 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 or D4327-03;

iii) Standard Methods, 18th, 19th, 20th, ~~or~~ 21st, or 22nd ed., Method 4110 B; or

iv) Hach SPADNS 2 Method 10225.

B) Manual distillation, colorimetric SPADNS: Standard Methods, 18th, 19th, 20th, ~~or~~ 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, ~~or~~ 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, ~~or~~ 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).

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, ~~or~~ 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).

15) Magnesium.

A) Atomic absorption.

i) ASTM Method D511-93 B, D511-03 B, or D511-09 B; or

ii) Standard Methods, 18th, 19th, ~~or~~ 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, ~~or~~ 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, ~~or~~ 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 or D3223-02; or

iii) Standard Methods, 18th, 19th, ~~or~~ 21st, or 22nd ed., Method 3112 B~~;~~.

~~iv) Standard Methods Online, Method 3112 B-09.~~

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-09 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 lists only Standard Methods, 22nd ed., Method 3112 B.

17) Nickel.

A) Inductively coupled plasma.

i) USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4); or

ii) Standard Methods, 18th, 19th, 20th, ~~or~~ 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, ~~or~~ 21st, or 22nd ed., Method 3111 B.

E) Atomic absorption, furnace technique:

i) Standard Methods, 18th, 19th, ~~or~~ 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).

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 or D4327-03;

iii) Standard Methods, 18th, 19th, 20th, ~~or~~ 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, ~~or~~ 21st, or 22nd ed., Method 4500-NO_3^- F.

C) Ion selective electrode.

i) Standard Methods, 18th, 19th, 20th, ~~or~~ 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, ~~or~~ 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 4500-NO_3^- D, E, and F and 4110 B 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).

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 or D4327-03;

iii) Standard Methods, 18th, 19th, 20th, ~~or~~ 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, ~~or~~ 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, ~~or~~ 21st, or 22nd ed., Method 4500-NO_3^- E.

D) Spectrophotometric: Standard Methods, 18th, 19th, 20th, ~~or~~ 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 4500-NO_3^- E and F, 4500-NO_2^- B, and 4110 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).

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, ~~or~~ 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, ~~or~~ 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 or D4327-03; or

iii) Standard Methods, 18th, 19th, 20th, ~~or~~ 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).

21) pH: electrometric.

A) USEPA Inorganic Methods, Method 150.1 or Method 150.2;

B) ASTM Method D1293-95, ~~or~~ D1293-99, D1293-12; or

C) Standard Methods, 18th, 19th, 20th, ~~or~~ 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, ~~or~~ 21st, or 22nd ed., Method 3114 B~~; or~~.

~~iii) Standard Methods Online, Method 3114 B-09.~~

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, ~~or~~ 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.

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, ~~or~~ 21st, or 22nd ed., Method 4500-$\mathrm{SiO_2}$ C.

E) Heteropoly blue: Standard Methods, 18th or 19th ed., Method 4500-Si E or Standard Methods, 20th, ~~or~~ 21st, or 22nd ed., Method 4500-$\mathrm{SiO_2}$ D.

F) Automated method for molybdate-reactive silica: Standard Methods, 18th or 19th ed., Method 4500-Si F or Standard Methods, 20th, ~~or~~ 21st, or 22nd ed., Method 4500-$\mathrm{SiO_2}$ E.

G) Inductively coupled plasma.

i) USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4); or

ii) Standard Methods, 18th, 19th, 20th, or 21st 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-$\mathrm{SiO_2}$ 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 4500-SiO_2 C, D, and E and 3120 B 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, ~~or~~ 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, ~~or~~ 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 temparature in appendix A to subpart C of 40 CFR 141 on May 31, 2013 (at 78 Fed. Reg. 32558).

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 laboratories that received approval from USEPA or the Agency. 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 40 CFR 141 ~~(2012)~~ (2013).

(Source: Amended at 38 Ill. Reg. _________, effective _______________________)

Section 611.612 Monitoring Requirements for Old Inorganic MCLs

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

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

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

3) This subsection (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 ~~granted~~ 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 ~~granted~~ 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, ~~or~~ 21st, or 22nd ed.;

ii) Method 3113 B, 18th, 19th, ~~or~~ 21st, or 22nd ed.; or

iii) Method 3120 B, 18th, 19th, 20th, ~~or~~ 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 this method 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 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).~~

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).

3) Manganese.

A) Standard Methods.

i) Method 3111 B, 18th, 19th, ~~or~~ 21st, or 22nded.;

ii) Method 3113 B, 18th, 19th, ~~or~~ 21st, or 22nd ed.; or

iii) Method 3120 B, 18th, 19th, 20th, ~~or~~ 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).

4) Zinc.

A) Standard Methods.

i) Method 3111 B, 18th, 19th, ~~or~~ 21st, or 22nd ed.; or

ii) Method 3120 B, 18th, 19th, ~~or~~ 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) ~~(2012)~~ (2013). 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 ~~(2012)~~ (2013), for secondary MCLs.

(Source: Amended at 38 Ill. Reg. _________, effective _______________________)

SUBPART O: ORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

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, ~~Method~~ 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, ~~Method~~ 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, ~~Method~~ 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, ~~Method~~ 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, ~~Method~~ 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, ~~Method~~ 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, ~~Method~~ 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, ~~Method~~ 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, ~~Method~~ 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, ~~Method~~ 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, ~~Method~~ 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, ~~Method~~ 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
1,1,1-Trichloroethane	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, ~~Method~~ 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, ~~Method~~ 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, Method 524.3 (rev. 1.0)
1,2,4-Trichlorobenzene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, ~~Method~~ 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, Method 524.3 (rev. 1.0)~~
1,1,2-Trichloroethane	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, ~~Method~~ Methods 524.3 (rev. 1.0) and 524.4
Vinyl chloride	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, ~~Method~~ 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, ~~Method~~ 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-Tetrachlorodibenzodioxin (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), 525.3 (ver. 1.0), and 551.1 (rev. 1.0)
Atrazine	USEPA Organic Methods, Methods 505 (rev. 2.1)[1], 507 (rev. 2.1), 508.1 (rev. 2.1), 523 (ver. 1.0), 525.2 (rev. 2.0), 525.3 (ver. 1.0), 536 (ver. 1.0), and 551.1 (rev. 1.0); Syngenta AG-625[2]
Benzo(a)pyrene	USEPA Organic Methods, Methods 525.2 (rev. 2.0), 525.3 (ver. 1.0), 550, and 550.1

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~~;~~ ~~Standard Methods Online, Method 6610 B-04~~
Chlordane	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.1), 525.2 (rev. 2.0), and 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) 525.2 (rev. 2.0), and 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), 525.3 (ver. 1.0), and 551.1 (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, ~~or~~ 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), 525.3 (ver. 1.0), and 551.1 (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), 525.3 (ver. 1.0), and 551.1 (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), 525.3 (ver. 1.0), and 551.1 (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), 525.3 (ver. 1.0), and 551.1 (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), 525.3 (ver. 1.0), and 551.1 (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), 525.3 (ver. 1.0), and 551.1 (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~~;~~ ~~Standard Methods Online, Method 6610 B-04~~
PCBs (measured for compliance purposes as decachlorobiphenyl)	USEPA Organic Methods, Method 508A (rev. 1.0)
PCBs (qualitatively identified as Aroclors)	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 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), 525.3 (ver. 1.0), 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
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), 525.3 (ver. 1.0), 536 (ver. 1.0), and 551.1 (rev. 1.0)
Toxaphene	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 2.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), and 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 aroclors), 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.

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, ~~Method~~ 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 ~~0.0015mg/ℓ~~ 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 ~~(2012)~~ (2013).

(Source: Amended at 38 Ill. Reg. _________, effective _______________________)

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,, ~~or~~ 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, ~~or~~ 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, ~~or~~ 21st, or 22nd ed.; or

iv) Method 7500-Ra C, 17th, 18th, 19th, 20th, ~~or~~ 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, ~~or~~ 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, ~~or~~ 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 ~~or~~ D3972-02, or D3972-09;

iii) Method D5174-97, D5174-02, or D5174-07~~, or D3972-09~~;

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, ~~or~~ 21st, or 22nd ed.; or

ii) Method 7500-Cs B, 17th, 18th, 19th, 20th, ~~or~~ 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,, ~~or~~ 21st, or 22nd ed.;

ii) Method 7500-I B, 17th, 18th, 19th, 20th,, ~~or~~ 21st, or 22nd ed.;

iii) Method 7500-I C, 17th, 18th, 19th, 20th,, ~~or~~ 21st, or 22nd ed.; or

iv) Method 7500-I D, 17th, 18th, 19th, 20th,, ~~or~~ 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, ~~or~~ 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-Cs 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, ~~or~~ 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, ~~or~~ 21st, or 22nd ed.;

ii) Method 7500-Cs B, 17th, 18th, 19th, 20th, ~~or~~ 21st, or 22nd ed.; or

iii) Method 7500-I B, 17th, 18th, 19th, 20th, ~~or~~ 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 ~~(2012)~~ (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 ~~(2012)~~ (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 ~~(2012)~~ (2013).

(Source: Amended at 38 Ill. Reg. _________, effective ________________________)

SUBPART S: GROUNDWATER RULE

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 ~~following~~ 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~~; and~~.

   B) ~~The~~ Until March 31, 2016, thesupplier 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 coliformpositive 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) ~~A~~ 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 ground water 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 ground water 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 ground water 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) Autoanalysis Colilert System, Standard Methods, 20th, ~~or~~ 21st, or 22nd ed., Method 9223 B.

ii) Colisure Test, Standard Methods, 20th, ~~or~~ 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, Standard Methods, 20th, ~~or~~ 21st, or 22nd ed., Method 9223 B.

ix) Readycult® 2007.

x) Modified Colitag™ Method.

xi) Chromomcult® Method.

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).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 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).

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 40 CFR 141 ~~(2010)~~ (2013).

(Source: Amended at 38 Ill. Reg. _________, effective ________________________)

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~~ 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~~, as added at 71 Fed. Reg. 65574 (Nov. 8, 2006)~~ (2013).

(Source: Amended at 38 Ill. Reg. _________, effective _______________________)

SUBPART U: CONSUMER CONFIDENCE REPORTS

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 Section 611.510 (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, ~~and~~ 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 ~~(2006)~~ (2013).

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;~~ and~~

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 (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 subsection (h)(7)(A)(i) and subsections (h)(7)(A)(ii) and (h)(7)(A)(iii) of this Section, as appropriate, filling in the blanks accordingly and the text found in subsections (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 coliformpositive 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 tests 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 they have detected E. coli, they are not in violation of the E. coli MCL.

BOARD NOTE: Derived from 40 CFR 141.153 ~~(2006), as amended at 71 Fed. Reg. 65574 (Nov. 8, 2006)~~ (2013).

(Source: Amended at 38 Ill. Reg. _________, effective ________________________)

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 ~~granted~~ 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 ~~(2002)~~ (2013).

(Source: Amended at 38 Ill. Reg. _________, effective ________________________)

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 exceedence of the nitrate MCL by a non-CWS, where granted permission by the Agency under Section 611.300(d).

   C) An exceedence of the secondary fluoride standard of Section 611.858.

   D) The availability of unregulated contaminant monitoring data.

   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 ~~granted~~ 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 ~~(2002)~~ (2013).

(Source: Amended at 38 Ill. Reg. _________, effective ________________________)

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.

1) ~~Violation~~ 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 exceedence of the nitrate or nitrite MCL, as specified in Section 611.606(b).

3) Exceedence 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 exceedence 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 exceedence 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 ~~(2006), as amended at 71 Fed. Reg. 65574 (Nov. 8, 2006)~~ (2013).

(Source: Amended at 38 Ill. Reg. _________, effective ________________________)

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 exceedence 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~~ (2006), as amended at 71 Fed. Reg. 65574 (Nov. 8, 2006)~~ (2013).

(Source: Amended at 38 Ill. Reg. _________, effective ________________________)

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;~~ and~~

5) Exceedence of the secondary standard for fluoride under Section 611.858, as required under Section 611.908~~.~~; and

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 ~~(2002)~~ (2013).

(Source: Amended at 38 Ill. Reg. __________, effective __________________________)

SUBPART Z: ENHANCED TREATMENT FOR CRYPTOSPORIDIUM

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 ~~(2007)~~ (2013).

(Source: Amended at 38 Ill. Reg. _________, effective _______________________)

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. _________, effective ________________________)

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 rule. 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 regulation. 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.

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®: Standard Methods, 20th or 21st, 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 regulation.

ii) 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 regulation. 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.

iii) E*Colite® test;

iv) Readycult® 2007 test;

v) Modified Colitag™ test;

D) E. coli, (following lactose fermentation methods), EC-MUG medium: section 1 of Standard Methods, 20th, 21st, or 22nd ed., Method 9221 F.

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®: 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 regulation. 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) 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 regulation. 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.

iii) E*Colite® test;

iv) Readycult® 2007 test;

v) Modified Colitag™ 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).

b) Laboratory certification. A supplier must have all compliance samples required by this Subpart AA analyzed by a laboratory that is certified by USEPA, the Agency, or a sister primacy state to analyze drinking water samples. 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 (2013).

(Source: Added at 38 Ill. Reg. _________, effective ________________________)

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. _________, effective _______________________)

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. _________, effective ________________________)

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 Section 611.521 through 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.

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 (2013).

(Source: Added at 38 Ill. Reg. _________, effective ________________________)

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. _________, effective ________________________)

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. _________, effective ________________________)

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 forgo 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. _________, effective _______________________)

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 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. _________, effective _______________________)

Section 611.1060 Violations

a) E. coli MCL Violation. 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. _________, effective _______________________)

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 611.1058 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 (2013).

(Source: Added at 38 Ill. Reg. _________, effective ________________________)

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 coliformpositive 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~~ (2012)~~ (2013).

(Source: Amended at 38 Ill. Reg. _________, effective ________________________)

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 (Monitoring or TT violations resulting from failure to perform assessments or corrective actions), beginning April 1, 2016	2	141.860(b)	3	141.860(c)
1c. Seasonal system failure to follow State-approved start-up plan prior to serving water to the public, beginning April 1, 2016	2	141.860(b)(2)		
2a. Fecal coliform/E. coli, until March 31, 2016	1	611.325(b)	[4] 1, 3	611.525
2b. E. coli, beginning April 1, 2016	1	141.860(a)	3	141.860(c) 141.860(d)(2)
2c. E.coli (TT violations resulting from failure to perform level 2 Assessments or corrective action), beginning April 1, 2016	2	141.860(b)		
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 exceedence 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 exceedence 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 exceedence 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	611.510
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) exceedence	3	611.858	N/A	N/A
B. Exceedence 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	611.510	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 exceedence 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 listed in Section 611.510.

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 ~~(2012)~~ (2013).

(Source: Amended at 38 Ill. Reg. _________, effective ________________________)

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):			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.
i. E. coli	Zero	TT	
ii. enterococci	None	TT	
iii. coliphage	None	TT	
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 141.205(d)(2) must be used. When this violation includes failure to complete other actions, the appropriate elements found in 141.205(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. Hexachlorocyclopentadiene	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 exceedences 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 exceedences 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 exceedences 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. 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 following an E. coli-positive routine sample; (3) the supplier fails to take all required repeat samples following an E. colipositive 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 ~~(2012)~~ (2013).

(Source: Amended at 38 Ill. Reg. _________, effective ________________________)

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)	December 31, 1990

(total coliforms, fecal coliforms, and E. coli)

Surface Water Treatment Rule (40 CFR 141, subpart H) Effective: December 31, 1990
(corresponding with Subpart B of this Part) Compliance: December 30, 1991
(filtration, disinfection, and turbidity)

Lead and Copper (40 CFR 141, subpart I) July 7, 1991
(corresponding with Subpart G of this Part)
(lead and copper monitoring, reporting, and recordkeeping requirements of 40 CFR 141.86 through 141.91)

Phase II IOCs (40 CFR 141.62(b)(2) and (b)(4) through (b)(10)) July 30, 1992
(corresponding with Section 611.301(b))
(asbestos, cadmium, chromium, mercury, nitrate, nitrite, and selenium)

Phase II VOCs (40 CFR 141.61(a)(9) through (a)(18)) July 30, 1992
(corresponding with Section 611.311(a))
(o-dichlorobenzene, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, 1,2-dichloropropane, ethylbenzene, monochlorobenzene, styrene, tetrachloroethylene, toluene, and xylenes (total))

Phase II SOCs (40 CFR 141.61(c)(1) through (c)(18)) July 30, 1992
(corresponding with Section 611.311(c))
(alachlor, atrazine, carbofuran, chlordane, dibromochloropropane, ethylene dibromide, heptachlor, heptachlor epoxide, lindane, methoxychlor, polychlorinated biphenyls, toxaphene, 2,4-D, and 2,4,5-TP (silvex))

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. _________, effective ________________________)

IT IS SO ORDERED

I, John T. Therriault, Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above order on November 7, 2013, by a vote of 4-0.

John T. Therriault

John T. Therriault, Clerk
Illinois Pollution Control Board