

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

PART 611
PRIMARY DRINKING WATER STANDARDS

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

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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. 3608, effective January 27, 2014; amended in R14-9 at 38 Ill. Reg. 9792, effective April 21, 2014; amended in R15-6 at 39 Ill. Reg. 3713, effective February 24, 2015; amended in R15-23 at 39 Ill. Reg. 15144, effective November 9, 2015; amended in R16-4 at 39 Ill. Reg. 15352, effective November 13, 2015; amended in R17-12 at 42 Ill. Reg. 1140, effective January 4, 2018; amended in R18-9 at 42 Ill. Reg. 9316, effective May 29, 2018; amended in R18-17 at 43 Ill. Reg. 8206, effective July 26, 2019; amended in R19-16 at 44 Ill. Reg. 6996, effective April 17, 2020; amended in R18-26 at 47 Ill. Reg. 7556, effective May 16, 2023; amended in R21-10/R22-2 at 47 Ill. Reg. 16486, effective November 2, 2023; amended in R23-9 at 47 Ill. Reg. 18996, effective December 7, 2023; amended in R25-1/R25-9 at 50 Ill. Reg. 2531, effective February 17, 2026; amended in 25-1(A) at 50 Ill. Reg. _____, effective _____.

SUBPART A: GENERAL

Section 611.102 Incorporations by Reference

- a) Analytical Methods. The Board incorporates by reference the following analytical methods. The rules refer to the methods by the defined short-form names given them in this Section.

“AMI Turbiwell (09)” means “Continuous Measurement of Turbidity Using a SWAN AMI Turbiwell Turbidimeter” (August 10, 2009). Available from SWAN Analytische Instrumente AG, Studbachstrasse 13, CH-8340, Hinwil, Switzerland. Referenced in Section 611.531. Available from the publisher; NEMI; and USEPA, OGWDW (under “Surface Water Treatment Rule (PDF)”).

ASTM Methods. Available from ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 (<https://www.astm.org/products-services/standards-and-publications.html>).

“ASTM D511-93 A” means “Standard Test Methods for Calcium and Magnesium in Water”, “Test Method A—Complexometric Titration”, approved 1993, referenced in Section 611.611.

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

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

“ASTM D511-14 A” means “Standard Test Methods for Calcium and Magnesium in Water”, “Test Method A—Complexometric Titration”, approved 2014, referenced in Section 611.611.

“ASTM D511-93 B” means “Standard Test Methods for Calcium and Magnesium in Water”, “Test Method B—Atomic Absorption Spectrophotometric”, approved 1993, referenced in Section 611.611.

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

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

“ASTM D511-14 B” means “Standard Test Methods for Calcium and Magnesium in Water”, “Test Method B—Atomic Absorption Spectrophotometric”, approved 2014, referenced in Section 611.611.

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

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

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

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

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

“ASTM D859-16” means “Standard Test Method for Silica in Water”, approved 2016, referenced in Section 611.611.

“ASTM D1067-92 B” means “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 D1067-02 B” means “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 D1067-06 B” means “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 D1067-11 B” means “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 D1067-16 B” means “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 D1125-95(1999) A” means “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 D1179-93 B” means “Standard Test Methods for Fluoride in Water”, “Test Method B—Ion Selective Electrode”, approved 1993, referenced in Section 611.611.

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

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

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

“ASTM D1179-16 B” means “Standard Test Methods for Fluoride in Water”, “Test Method B—Ion Selective Electrode”, approved 2010, referenced in Section 611.611.

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

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

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

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

“ASTM D1253-14” means “Standard Test Method for Residual Chlorine in Water”, approved 2014, referenced in Sections 611.381 and 611.531.

“ASTM D1293-95” means “Standard Test Methods for pH of Water”, approved 1995, referenced in Section 611.611.

“ASTM D1293-99” means “Standard Test Methods for pH of Water”, approved 1999, referenced in Section 611.611.

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

“ASTM D1293-18” means “Standard Test Methods for pH of Water”, approved 2018, referenced in Section 611.611.

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

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

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

“ASTM D1688-12 A” means “Standard Test Methods for Copper in Water”, “Test Method A—Atomic Absorption, Direct”, approved 2012, referenced in Section 611.611.

“ASTM D1688-17 A” means “Standard Test Methods for Copper in Water”, “Test Method A—Atomic Absorption, Direct”, approved 2017, referenced in Section 611.611.

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

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

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

“ASTM D1688-12 C” means “Standard Test Methods for Copper in Water”, “Test Method C—Atomic Absorption, Graphite Furnace”, approved 2012, referenced in Section 611.611.

“ASTM D1688-17 C” means “Standard Test Methods for Copper in Water”, “Test Method C—Atomic Absorption, Graphite Furnace”, approved 2017, referenced in Section 611.611.

“ASTM D2036-98 A” means “Standard Test Methods for Cyanide in Water”, “Test Method A—Total Cyanides after Distillation”, approved 1998, referenced in Section 611.611.

“ASTM D2036-06 A” means “Standard Test Methods for Cyanide in Water”, “Test Method A—Total Cyanides after Distillation”, approved 2006, referenced in Section 611.611.

“ASTM D2036-98 B” means “Standard Test Methods for Cyanide in Water”, “Test Method B—Cyanides Amenable to Chlorination by Difference”, approved 1998, referenced in Section 611.611.

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

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

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

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

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

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

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

“ASTM D2972-15 B” means “Standard Test Methods for Arsenic in Water”, “Test Method B—Atomic Absorption, Hydride Generation”, approved 2015, referenced in Section 611.611.

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

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

“ASTM D2972-15 C” means “Standard Test Methods for Arsenic in Water”, “Test Method C—Atomic Absorption, Graphite Furnace”, approved 2015, referenced in Section 611.611.

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

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

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

“ASTM D3223-17” means “Standard Test Method for Total Mercury in Water”, approved 2017, referenced in Section 611.611.

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

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

“ASTM D3454-18” means “Standard Test Method for Radium-226 in Water”, approved 2018, referenced in Section 611.720.

“ASTM D3454-21” means “Standard Test Method for Radium-226 in Water”, approved 2021, referenced in Section 611.720.

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

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

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

“ASTM D3559-15 D” means “Standard Test Methods for Lead in Water”, “Test Method D—Atomic Absorption, Graphite Furnace”, approved 2015, referenced in Section 611.611.

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

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

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

“ASTM D3645-15 B” means “Standard Test Methods for Beryllium in Water”, “Method B—Atomic Absorption, Graphite Furnace”, approved 2015, referenced in Section 611.611.

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

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

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

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

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

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

“ASTM D3697-12” means “Standard Test Method for Antimony in Water”, approved 2012, referenced in Section 611.611.

“ASTM D3697-17” means “Standard Test Method for Antimony in Water”, approved 2017, referenced in Section 611.611.

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

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

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

“ASTM D3859-15 A” means “Standard Test Methods for Selenium in Water”, “Method A—Atomic Absorption, Hydride Method”, approved 2015, referenced in Section 611.611.

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

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

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

“ASTM D3859-15 B” means “Standard Test Methods for Selenium in Water”, “Method B—Atomic Absorption, Graphite Furnace”, approved 2015, referenced in Section 611.611.

“ASTM D3867-90 A” means “Standard Test Methods for Nitrite-Nitrate in Water”, “Test Method A—Automated Cadmium Reduction”, approved 1990, referenced in Section 611.611.

“ASTM D3867-90 B” means “Standard Test Methods for Nitrite-Nitrate in Water”, “Test Method B—Manual Cadmium Reduction”, approved January 10, 1990, referenced in Section 611.611.

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

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

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

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

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

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

“ASTM D4107-20” means “Standard Test Method for Tritium in Drinking Water”, approved 2020, referenced in Section 611.720.

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

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

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

“ASTM D4327-17” means “Standard Test Method for Anions in Water by Ion Chromatography”, approved 2017, referenced in Section 611.611.

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

“ASTM D4785-00a” means “Standard Test Method for Low-Level Iodine-131 in Water”, approved 2000, referenced in Section 611.720.

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

“ASTM D4785-20” means “Standard Test Method for Low-Level Iodine-131 in Water”, approved 2020, referenced in Section 611.720.

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

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

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

“ASTM D5317-93” means “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 D5317-98(2003)” means “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 D5317-20” means “Standard Test Method for Determination of Chlorinated Organic Acid Compounds in Water by Gas Chromatography with an Electron Capture Detector”, approved 2020, referenced in Section 611.645.

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

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

“ASTM D5673-10” means “Standard Test Method for Elements in Water by Inductively Coupled Plasma-Mass Spectrometry”, approved 2010, referenced in Section 611.720.

“ASTM D5673-16” means “Standard Test Method for Elements in Water by Inductively Coupled Plasma-Mass Spectrometry”, approved 2016, referenced in Section 611.720.

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

“ASTM D6508-00(2005)” means “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 D6508-15” means “Standard Test Method for Determination of Dissolved Inorganic Anions in Aqueous Matrices Using Capillary Ion Electrophoresis and Chromate Electrolyte”, approved 2015, referenced in Section 611.611.

“ASTM D6581-00” means “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 D6581-08 A” means “Standard Test Method for Bromate, Bromide, Chlorate, and Chlorite in Drinking Water by Suppressed Ion Chromatography”, “Test Method A—Chemically Suppressed Ion Chromatography”, approved 2008, referenced in Section 611.381.

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

“ASTM D6888-04” means “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.

“ASTM D6919-03” means “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 D6919-09” means “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 D6919-17” means “Standard Test Method for Determination of Dissolved Alkali and Alkaline Earth Cations and Ammonium in Water and Wastewater by Ion Chromatography”, approved 2017, referenced in Section 611.611.

“ASTM D7283-17” means “Standard Test Method for Alpha and Beta Activity in Water by Liquid Scintillation Counting”, approved 2017, referenced in Section 611.720.

“ATI Orion Technical Bulletin 601 (94)” means “Standard Method of Testing for Nitrate in Drinking Water” (July 1994), Part Number 221890-001. Available from Thermo-Fisher Scientific, 168 Third Ave, Waltham, MA 02451 (800-556-2323; www.thermofisher.com). Referenced in Section 611.611.

“Charm Fast Phage (12)” means “Fast Phage Test: Presence/Absence for Coliphage in Ground Water with Same Day Positive Prediction”, ATP Case No. D09-0007, Version 009 (November 28, 2012). Available from Charm Sciences, Inc., 659 Andover St., Lawrence, MA 01843–1032. Referenced in Section 611.802 and USEPA, OGWDW (under “Ground Water Rule (PDF)”).

“Chromocult® (00)” means “Chromocult® Coliform Agar Presence/Absence Membrane Filter Test Method for Detection and Identification of Coliform Bacteria and Escherichia coli in Finished Waters”, Version 1.0 (November 2000). Available from EMD Millipore (division of Merck KGaA, Darmstadt, Germany), 290 Concord Road, Billerica, MA 01821 (800-645-5476 or 781-533-6000) and USEPA, OGWDW (under “Ground Water Rule (PDF)” and “Revised Total Coliforms Rules (PDF)”). Referenced in Sections 611.802 and 611.1052.

“E*Colite (98)” means “Alternative Test Procedure Case #D95-0007: Charm E*Colite Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia coli in Drinking Water” (January 9, 1998). Available from Charm Sciences, Inc., 659 Andover St., Lawrence,

MA 01843–1032 and USEPA, OGWDW (under “Ground Water Rule (PDF)” and “Revised Total Coliforms Rules (PDF)”). Referenced in Sections 611.802 and 611.1052.

EML Methods. Available from USEPA, OGWDW (listed under “Radionuclides (PDF)” by individual method numbers).

EML (90). In “EML Procedures Manual”, HASL 300, Volumes 1 and 2, 27th ed. (November 1990).

“EML (90) Ga-01” means section 4.5.2.3, Ga-01, “Gamma Radioassay”, in section 4.5.2.3, “Radiometry”, in 27th ed. Referenced in Section 611.720. USEPA, OGWDW lists EML (90) Ga-01 as “4.5.2.3”.

“EML (90) Ra-05” means Ra-05, “Radium-226 in Tap Water, Urine, and Feces”, in section 4.5.4, “Radiochemical”, in 27th ed. Referenced in Section 611.720.

“EML (90) Sr-01” means Sr-01, “Strontium-89”, in section 4.5.4, “Radiochemical”, in 27th ed. Referenced in Section 611.720.

“EML (90) Sr-02” means Sr-02, “Strontium-90”, in section 4.5.4, “Radiochemical”, in 27th ed. Referenced in Section 611.720.

“EML (90) U-02” means U-02, “Isotopic Uranium in Biological and Environmental Materials”, in section 4.5.4, “Radiochemical”, in 27th ed.

“EML (90) U-04” means U-04, “Uranium in Biological and Environmental Materials”, in section 4.5.4, “Radiochemical”, in 27th ed. Referenced in Section 611.720.

EML (97). In “EML Procedures Manual”, HASL 300, Volumes 1 and 2, 28th ed., Revision 0 (February 1997). Currently available on-line from United States Department of Homeland Security, Science and Technology Directorate (formerly United States Department of Energy, Environmental Measurements Laboratory) (<https://www.hSDL.org/c/view?docid=487142>).

“EML (97) Ga-01-R” means Ga-01-R, “Gamma Radioassay”, in section 4.5.2, “Radiometrology”, in 28th ed. Referenced in Section 611.720.

“EML (97) Ra-04” means Ra-04-RC, “Radium-226 in Tap Water, Urine, and Feces”, in section 4.5.4, “Radiochemical”, in 28th ed. Referenced in Section 611.720.

“EML (97) Sr-01” means Sr-01-RC, “Strontium-89”, in section 4.5.4, “Radiochemical”, in 28th ed. Referenced in Section 611.720.

“EML (97) Sr-02” means Sr-02-RC, “Strontium-90”, in section 4.5.4, “Radiochemical”, in 28th ed. Referenced in Section 611.720.

“EML (97) U-02” means U-02-RC, “Isotopic Uranium in Biological and Environmental Materials”, in section 4.5.4, “Radiochemical”, in 28th ed.

“EML (97) U-04” means U-04-RC, “Uranium in Biological and Environmental Materials”, in section 4.5.4, “Radiochemical”, in 28th ed. Referenced in Section 611.720.

“Enterolert (96)” means “Evaluation of Enterolert for Enumeration of Enterococci in Recreational Waters”, Applied and Environmental Microbiology, Oct. 1996, vol. 62, no. 10, p. 3881. Available from American Society for Microbiology, 1752 N Street N.W., Washington, DC 20036 (202-737-3600; <https://journals.asm.org/doi/epdf/10.1128/aem.62.10.3881-3884.1996>). Referenced in Section 611.802.

BOARD NOTE: In 40 CFR 141.402(c)(2), USEPA approved the method the above literature review describes. The method itself is in the printed instructions to the proprietary kit available from IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, Maine 04092 (800-548-6733); <https://www.idexx.com/en/water/water-products-services/enterolert/>. ASTM approved the method as “Standard Test Method for Enterococci in Water Using Enterolert™”, which is available in two versions from ASTM: ASTM D6503-99 and ASTM D6503-99(2005). While it is more conventional to incorporate by reference the method as presented in the kit instructions or as approved by ASTM, the Board is constrained to incorporate by reference the version that USEPA explicitly approves, which is the version the technical literature describes.

“Georgia Radium (04)” means “Method for 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 Georgia Tech Research Institute, Robert Rosson, 925 Dalney Road, Atlanta, GA 30332 (404-407-6339) and USEPA, OGWDW (under “Radionuclides (PDF)”). Referenced in Section 611.720.

“GLI Method 2 (92)” means “Turbidity GLI Method 2” (November 2, 1992). Available from Great Lakes Instruments, Inc., 8855 North 55th Street, Milwaukee, WI 53223. Also available from USEPA, OGWDW (under “Surface Water Treatment Rule (PDF)”). Referenced in Section 611.531.

“Guidance Manual for Filtration and Disinfection (91)” means “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, USEPA, Office of Drinking Water, Criteria and Standards Division, Science and Technology Branch. Available from NTRL (document number PB93-222933) and USEPA, NSCEP (search “570391001”). Referenced in Sections 611.111 and 611.212.

Hach Methods. Available from Hach Company, P.O. Box 389, Loveland, CO 80539-0389 (800-227-4224 or www.hach.com).

“Hach 8026 (15)” means Hach Method 8026, “Spectrophotometric Measurement of Copper in Finished Drinking Water”, Revision 1.2 (December 2015). Referenced in Section 611.611.
BOARD NOTE: Also available from USEPA, OGWDW (under “Inorganic Contaminants and Other Inorganic Constituents (PDF)”).

“Hach 8195 (18)” means Hach Method 8195, “Determination of Turbidity by Nephelometry”, Revision 3.0 (March 2018). Referenced in Section 611.531.

“Hach 10029 (99) (m-ColiBlue24[®])” means m-ColiBlue24[®] Test, Method No. 10029, “Total Coliforms and E. coli Membrane Filtration Method with m-ColiBlue24[®] Broth”, Revision 2 (August 17, 1999), document number DOC316.53.001213. Referenced in Sections 611.802 and 611.1052.
BOARD NOTE: Also available from USEPA, OGWDW (under “Ground Water Rule (PDF)”).

“Hach 10133 (00) (FilterTrak)” means Hach FilterTrak Method 10133, “Determination of Turbidity by Laser Nephelometry”, Revision 2.0 (January 7, 2000) in Appendix A of “Introduction to Laser Nephelometry: An Alternative to Conventional Particulate Analysis Methods”. Referenced in Section 611.531.

BOARD NOTE: Also available from USEPA, OGWDW (under “Surface Water Treatment Rule (PDF)”).

“Hach 10206 (11) (TNTplus 835/836)” means Hach TNTplus 835/836 Method 10206, “Spectrophotometric Measurement of Nitrate in Water and Wastewater”, Revision 2.0 (January 2011). Referenced in Section 611.611.

BOARD NOTE: Also available from USEPA, OGWDW (under “Inorganic Contaminants and Other Inorganic Constituents (PDF)”).

“Hach 10225 (11) (SPADNS 2)” means Hach SPADNS 2 Method 10225, “Fluoride, USEPA SPADNS 2 Method 10225”, Revision 2.0 (January 2011). Referenced in Section 611.611.

BOARD NOTE: Also available from USEPA, OGWDW (under “Inorganic Contaminants and Other Inorganic Constituents (PDF)”).

“Hach 10241 (15)” means Hach Method 10241, “Spectrophotometric Measurement of Free Chlorine (Cl₂) in Finished Drinking Water”, Revision 1.2 (November 2015). Referenced in Sections 611.381 and 611.531.

BOARD NOTE: Also available from USEPA, OGWDW (under “Disinfection Byproduct Rules (PDF)”).

“Hach 10258 (16)” means Hach Method 10258, “Determination of Turbidity by 360° Nephelometry”, Revision 1.0 (January 2016). Referenced in Section 611.531.

BOARD NOTE: Also available from USEPA, OGWDW (under “Surface Water Treatment Rule (PDF)”).

“Hach 10258 (18)” means Hach Method 10258, “Determination of Turbidity by 360° Nephelometry”, Revision 2.0 (March 2018). Referenced in Section 611.531.

“Hach 10260 (13)” means Hach Method 10260, “Determination of Chlorinated Oxidants (Free and Total) in Water Using Disposable Planar Reagent-filled Cuvettes and Mesofluic Channel Colorimetry” (April 2013). Referenced in Sections 611.381 and 611.531.

BOARD NOTE: Also available from USEPA, OGWDW (under “Disinfection Byproduct Rules (PDF)”).

“Hach 10261 (15)” means Hach Method 10261, “Total Organic Carbon in Finished Drinking Water by Catalyzed Ozone Hydroxyl Radical Oxidation Infrared Analysis”, Revision 1.2 (December 2015). Referenced in Section 611.381.

BOARD NOTE: Also available from USEPA, OGWDW (under “Disinfection Byproduct Rules (PDF)”).

“Hach 10267 (15)” means Hach Method 10267, “Spectrophotometric Measurement of Total Organic Carbon (TOC) in Finished Drinking Water”, Revision 1.2 (December 2015). Referenced in Section 611.381.

BOARD NOTE: Also available from USEPA, OGWDW (under “Disinfection Byproduct Rules (PDF)”).

“Hach 10272 (15)” means Hach Method 10272, “Spectrophotometric Measurement of Copper in Finished Drinking Water”, Revision 1.2 (December 2015). Referenced in Section 611.611.

BOARD NOTE: Also available from USEPA, OGWDW (under “Inorganic Contaminants and Other Inorganic Constituents (PDF)”).

“Hach 10312 (22)” means Hach Method 10312, “Spectrophotometric Measurement of Fluoride in Finished Drinking Water Aluminum -Chromazurol S Complex (AL-CAS) Using Planar Reagent-filled Cuvettes,” [Loveland, CO: Hach Company](#)” Revision 1.0 (August 2022). Referenced in Section 611.611.

“ITS D99-003 (03)” means “Method # (D99-003): Free Chlorine Species (HOCl^- and OCl^-) by Test Strip”, Revision 3.0 (November 21, 2003). Available from Industrial Test Systems, Inc., 1875 Langston St., Rock Hill, SC 29730 (803-329-2999) and USEPA, OGWDW (under “Disinfection Byproduct Rules (PDF)”).

“Kelada 01 (01)” means “Method Kelada-01: Kelada Automated Test Methods for Total Cyanide, Acid Dissociable Cyanide, and Thiocyanate”, Revision 1.2 (August 2001), USEPA Office of Water, document number EPA 821/B-01-009. Available from NTRL (document number PB2001-108275) and USEPA, OGWDW (under “Inorganic Contaminants and Other Inorganic Constituents (PDF)”).

Lovibond Methods. Available from Tintometer, Inc., 6456 Parkland Drive, Sarasota, FL 34243 (800-922-5242, 941-758-6410, or www.lovibond.us) and USEPA, OGWDW (under “Surface Water Treatment Rule (PDF)”).

“Lovibond PTV 1000 (16)” means “Continuous Measurement of Drinking Water Turbidity Using a Lovibond PTV 1000 White Light LED Turbidimeter”, Revision 1.0 (December 20, 2016). Referenced in Section 611.531.

“Lovibond PTV 2000 (16)” means “Continuous Measurement of Drinking Water Turbidity Using a Lovibond PTV 2000 660-nm LED Turbidimeter”, Revision 1.0 (December 20, 2016). Referenced in Section 611.531.

“Lovibond TB 3500 (21)” means “Measurement of Drinking Water Turbidity of a Captured Sample Using a Lovibond White Light LED Portable Turbidimeter”, Revision 1.0 (2021). Referenced in Section 611.531.

“Lovibond TB 5000 (21)” means “Measurement of Drinking Water Turbidity of a Captured Sample Using a Lovibond 660-nm LED Portable Turbidimeter”, Revision 1.0 (2021). Referenced in Section 611.531.

“Lovibond PTV 6000 (16)” means “Continuous Measurement of Drinking Water Turbidity Using a Lovibond PTV 6000 Laser Turbidimeter”, Revision 1.0 (December 20, 2016). Referenced in Section 611.531.

“Lovibond TB 6000 (21)” means “Measurement of Drinking Water Turbidity of a Captured Sample Using a Lovibond Portable Laser Turbidimeter”, Revision 1.0 (2021). Referenced in Section 611.531.

Maine Methods. Available from Maine Health and Environmental Testing Laboratory, 221 State Street, Augusta, ME 04333 (207-287-2727).

“ME355.01 (09)” means “Determination of Cyanide in Drinking Water by GC/MS Headspace Analysis”, Revision 1 (May 26, 2009). Referenced in Section 611.611. Also available from NEMI and USEPA, OGWDW (under “Inorganic Contaminants and Other Inorganic Constituents (PDF)”).

“ME 531 (19)” means “Measurement of N-Methylcarbamoyloximes and N-Methylcarbamates in Drinking Water by LC-MS/MS”, version 1.0 (September 2019). Referenced in Section 611.645.

“Method 537.1”, Version 2.0: Determination of Selected Per- and Polyfluorinated Alkyl Substances in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS), EPA/600/R-20/006, March 2020

Mitchell Methods. Available from Leck Mitchell, PhD, PE, 656 Independence Valley Dr., Grand Junction, CO 81507 (920-244-8661); , NEMI (except for Mitchell M5331 (16)); and USEPA, OGWDW (under “Surface Water Treatment Rule (PDF)”).

“Mitchell M5271 (09)” means Mitchell Method M5271, “Determination of Turbidity by Laser Nephelometry”, Revision 1.1 (March 5, 2009). Referenced in Section 611.531.

“Mitchell M5331 (09)” means Mitchell Method M5331, “Determination of Turbidity by Laser Nephelometry”, Revision 1.1 (March 2009). Referenced in Section 611.531.

“Mitchell M5331 (16)” means Mitchell Method M5331, “Determination of Turbidity by Laser Nephelometry”, Revision 1.2 (February 2016). Referenced in Section 611.531.

“Modified Colitag™ (09)” means “Modified Colitag™ Test Method for Simultaneous Detection of E. coli and other Total Coliforms in Water”, (ATP D05-0035) (August 28, 2009). Available from CPI International, Inc., 5580 Skylane Blvd., Santa Rosa, CA 95403 (800-878-7654; www.cpiinternational.com); NEMI; and USEPA, OGWDW (under “Ground Water Rule (PDF)” and “Revised Total Coliforms Rules (PDF)”). Referenced in Sections 611.802 and 611.1052.

“Modified Colitag™ (20)” means “Modified Colitag™ Test Method for Simultaneous Detection of Total Coliforms and E. coli in Water”, Version 2.0, (June 2020). Available from Neogen Corporation, 620 Leshner Place, Lansing, MI 48912. Referenced in Sections 611.802 and 611.1052.

“NBS Handbook 69 (63)” means “Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and in Water for Occupational Exposure” (August 1963), U.S. Department of Commerce, National Bureau of Standards. Available from U.S. Nuclear Regulatory Commission, One White Flint North, 115 Rockville Pike,

Rockville, MD 20852-2738;
<https://www.nrc.gov/docs/ML2020/ML20206L091.pdf>
or Oak Ridge Associated Universities (ORAU), 100 ORAU Way, Oak Ridge, TN 37830 (865-576-3146); <https://www.ornl.gov/health-physics-museum/files/library/nbs/nbs-69.pdf>. Referenced in Sections 611.101 and 611.330.

BOARD NOTE: The 1963 version of National Bureau of Standards Handbook 69 modifies the 1959 publication of the National Committee on Radiation Protection, NCRP Report No. 22, of the same title. The version available on the NCRP website is the 1959 document.

“NECi Nitrate Reductase (06)” means “Method for Nitrate Reductase Nitrate-Nitrogen Analysis of Drinking Water”, Version 1.0, Revision 2.0 (February 1, 2016). Available from Superior Enzymes Inc., 334 Hecla Street, Lake Linden, Michigan 49945 (906-296-1115). Also available from USEPA, OGWDW (under “Inorganic Contaminants and Other Inorganic Constituents (PDF)”). Referenced in Section 611.611.

“New Jersey Radium (90)” means “Determination of Ra-228 in Drinking Water” (August 1990), New Jersey Department of Environmental Protection, Division of Environmental Quality, Bureau of Radiation and Inorganic Analytical Services. Available from publisher, 9 Ewing Street, Trenton, NJ 08625. Referenced in Section 611.720.

“New York Radium (82)” means “Determination of 226Ra and 228Ra, Ra-02” (January 1980, revised June 1982), Radiological Sciences Institute, Center for Laboratories and Research, New York State Department of Health. Available from publisher, Empire State Plaza, Albany, NY 12201. Referenced in Section 611.720.

“OIA-1677 (04)” means “Method OIA-1677 DW, Available Cyanide by Flow Injection, Ligand Exchange, and Amperometry” (January 2004), document number EPA 821/R-04/001. Referenced in Section 611.611. Available from ; USEPA, NSCEP (search “821R04001”); and USEPA, OGWDW (under “Inorganic Contaminants and Other Inorganic Constituents (PDF)”).

“Orion AQ4500 (09)” means “Determination of Turbidity by LED Nephelometry”, Revision 5 (March 12, 2009). Available from Thermo-Fisher Scientific, 168 Third Ave, Waltham, MA 02451 (800-556-2323 or www.thermofisher.com); NEMI; and USEPA, OGWDW (under “Surface Water Treatment Rule (PDF)”). Referenced in Section 611.531.

Palintest Methods. Available from Palintest, Ltd., 600 Corporate Circle, Suite F, Golden, CO 80401 (720-221-6878).

“Palintest 1001 (99)” means “Method 1001: Lead in Drinking Water by Differential Pulse Anodic Stripping Voltammetry”, August 1999, referenced in Section 611.611.

BOARD NOTE: Also available from USEPA, OGWDW (under “Inorganic Contaminants and Other Inorganic Constituents (PDF)”).

“Palintest 1001 (20)” means “Method 1001: Lead in Drinking Water by Differential Pulse Anodic Stripping Voltammetry”, May 2020, Revision 1.1, referenced in Section 611.611.

BOARD NOTE: Also available from USEPA, OGWDW (under “Inorganic Contaminants and Other Inorganic Constituents (PDF)”).

“Palintest ChlordioX Plus (13)” means “Chlorine Dioxide and Chlorite in Drinking Water by Amperometry using Disposable Sensors”, November 2013, referenced in Sections 611.381 and 611.531.

BOARD NOTE: Also available from USEPA, OGWDW (under “Disinfection Byproduct Rules (PDF)”).

“Palintest ChlordioX Plus (20)” means “Chlorine Dioxide and Chlorite in Drinking Water by Amperometry using Disposable Sensors”, Version 1.1 (February 2020), referenced in Sections 611.381 and 611.531.

“Palintest ChloroSense (09)” means “Measurement of Free and Total Chlorine in Drinking Water by Palintest ChloroSense”, September 2009, referenced in Sections 611.381 and 611.531.

BOARD NOTE: Also available from NEMI and USEPA, OGWDW (under “Disinfection Byproduct Rules (PDF)”).

“Palintest ChloroSense (20)” means “Free and Total Chlorine in Drinking Water by Amperometry using disposable sensors”, Revision 1.1 (February 2020), referenced in Sections 611.381 and 611.531.

“QuikChem 10-204-00-1-X (00)” means “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). Available from Lachat Instruments, 6645 W. Mill Rd., Milwaukee, WI 53218 (414-358-4200) and USEPA, OGWDW (under “Inorganic Contaminants and Other Inorganic Constituents (PDF)”). Referenced in Section 611.611.

“RAPID'E. coli (20)” means “Simultaneous Detection of Total Coliform Bacteria and Escherichia coli Using RAPID'E. coli 2 (REC2) in Drinking Water” (May 2020). Available from Bio-Rad Laboratories, 2000 Nobel Drive, Hercules, California 94547. Referenced in Sections 611.802 and 611.1052.

“Readycult® (07)” means “Readycult Coliforms 100 Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia coli in Finished Waters”, Version 1.1 (January 2007). Available from EMD Millipore (division of Merck KGaA, Darmstadt, Germany), 290 Concord Road, Billerica, MA 01821 (800-645-5476 or 781-533-6000) and USEPA, OGWDW (under “Ground Water Rule (PDF)” and “Revised Total Coliforms Rules (PDF)”). Referenced in Sections 611.802 and 611.1052.

“SimPlate (00)” means “IDEXX SimPlate™ HPC Test Method for Heterotrophs in Water” (November 29, 2000). Available from IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, Maine 04092 (800-548-6733). Referenced in Section 611.531.

SM Methods. Approved as the version in the indicated editions of “Standard Methods for the Examination of Water and Wastewater”. Available from the American Public Health Association, 800 I Street NW, Washington, DC 20005, 202-777-2742; American Water Works Association, 6666 West Quincy Ave., Denver, CO 80235, 303-794-7711, Water Environment Federation, 601 Wythe Street, Alexandria, VA 22314, 800-666-0206, www.wef.org; or Standard Methods Online, 800-633-4931, www.standardmethods.org.

BOARD NOTE: The Board did not separately list versions of methods from Standard Methods Online also appearing in a printed edition. Using a method in the approved version as available from Standard Methods Online is acceptable.

“SM 302 (71)” means Method 302, “Gross Alpha and Gross Beta Radioactivity in Water (Total, Suspended, and Dissolved)”, only the version in the 13th edition. Referenced in Section 611.720.

“SM 303 (71)” means Method 303, “Total Radioactive Strontium and Strontium 90 in Water”, only the version in the 13th edition. Referenced in Section 611.720.

“SM 304 (71)” means Method 304, “Radium in Water by Precipitation”, only the version in the 13th edition. Referenced in Section 611.720.

“SM 305 (71)” means Method 305, “Radium 226 by Radon in Water (Soluble, Suspended, and Total)”, only the version in the 13th edition. Referenced in Section 611.720.

“SM 306 (71)” means Method 306, “Tritium in Water”, in “Standard Methods for the Examination of Water and Wastewater”, only the version in the 13th edition. Referenced in Section 611.720.

“SM 2130 B (88)” means Method 2130 B, “Turbidity”, “Nephelometric Method”, only the version in the 18th edition. Referenced in Section 611.531.

“SM 2130 B (94)” means Method 2130 B, “Turbidity”, “Nephelometric Method”, only the version in the 19th and 20th editions. Referenced in Section 611.531.

“SM 2130 B (01)” means Method 2130 B, “Turbidity”, “Nephelometric Method”, only the version in the 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.531.

“SM 2320 B (91)” means Method 2320 B, “Alkalinity”, “Titration Method”, only the version in the 18th and 19th editions. Referenced in Section 611.611.

“SM 2320 B (97)” means Method 2320 B, “Alkalinity”, “Titration Method”, only the version in the 20th, 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.611.

“SM 2510 B (91)” means Method 2510 B, “Conductivity”, “Laboratory Method”, only the version in the 18th and 19th editions. Referenced in Section 611.611.

“SM 2510 B (97)” means Method 2510 B, “Conductivity”, “Laboratory Method”, only the version in the 20th, 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.611.

“SM 2550 (88)” means Method 2550, “Temperature, Laboratory and Field Methods”, only the version in the 18th edition. Referenced in Section 611.611.

“SM 2550 (93)” means Method 2550, “Temperature, Laboratory and Field Methods”, only the version in the 19th and 20th editions. Referenced in Section 611.611.

“SM 2550 (00)” means Method 2550, “Temperature, Laboratory and Field Methods”, only the version in the 21st edition. Referenced in Section 611.611.

“SM 2550 (10)” means Method 2550, “Temperature, Laboratory and Field Methods”, only the version in the 22nd, 23rd, and 24th editions. Referenced in Section 611.611.

“SM 3111 B (89)” means Method 3111 B, “Metals by Flame Atomic Absorption Spectrometry”, “Direct Air-Acetylene Flame Method”, only the version in the 18th edition. Referenced in Sections 611.611 and 611.612.

“SM 3111 B (93)” means Method 3111 B, “Metals by Flame Atomic Absorption Spectrometry”, “Direct Air-Acetylene Flame Method”, only the version in the 19th edition. Referenced in Sections 611.611 and 611.612.

“SM 3111 B (99)” means Method 3111 B, “Metals by Flame Atomic Absorption Spectrometry”, “Direct Air-Acetylene Flame Method” only the versions in the 21st, 22nd, 23rd, and 24th editions. Referenced in Sections 611.611 and 611.612.

“SM 3111 D (89)” means Method 3111 D, “Metals by Flame Atomic Absorption Spectrometry”, “Direct Nitrous Oxide-Acetylene Flame Method”, only the version in the 19th edition. Referenced in Section 611.611.

“SM 3111 D (93)” means Method 3111 D, “Metals by Flame Atomic Absorption Spectrometry”, “Direct Nitrous Oxide-Acetylene Flame Method”, only the version in the 19th edition. Referenced in Section 611.611.

“SM 3111 D (99)” means Method 3111 D, “Metals by Flame Atomic Absorption Spectrometry”, “Direct Nitrous Oxide-Acetylene Flame Method”, only the version in the 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.611.

“SM 3112 B (88)” means Method 3112 B, “Metals by Cold-Vapor Atomic Absorption Spectrometry”, “Cold-Vapor Atomic Absorption Spectrometric Method”, only the version in the 18th

edition. Referenced in Section 611.611.

“SM 3112 B (93)” means Method 3112 B, “Metals by Cold-Vapor Atomic Absorption Spectrometry”, “Cold-Vapor Atomic Absorption Spectrometric Method”, only the version in the 19th edition. Referenced in Section 611.611.

“SM 3112 B (99)” means Method 3112 B, “Metals by Cold-Vapor Atomic Absorption Spectrometry”, “Cold-Vapor Atomic Absorption Spectrometric Method”, only the version in the 21st edition. Referenced in Section 611.611.

“SM 3112 B (09)” means Method 3112 B, “Metals by Cold-Vapor Atomic Absorption Spectrometry”, “Cold-Vapor Atomic Absorption Spectrometric Method”, only the version in the 22nd, 23rd, and 24th editions. Referenced in Section 611.611.

“SM 3113 B (89)” means Method 3113 B, “Metals by Electrothermal Atomic Absorption Spectrometry”, “Electrothermal Atomic Absorption Spectrometric Method”, only the version in the 18th edition. Referenced in Sections 611.611 and 611.612.

“SM 3113 B (93)” means Method 3113 B, “Metals by Electrothermal Atomic Absorption Spectrometry”, “Electrothermal Atomic Absorption Spectrometric Method”, only the version in the 19th edition. (The same version appears in the 20th edition but USEPA does not approve that edition.) Referenced in Sections 611.611 and 611.612.

“SM 3113 B (99)” means Method 3113 B, “Metals by Electrothermal Atomic Absorption Spectrometry”, “Electrothermal Atomic Absorption Spectrometric Method”, only the version in the 21st edition. Referenced in Sections 611.611 and 611.612.

“SM 3113 B (04)” means Method 3113 B, “Metals by Electrothermal Atomic Absorption Spectrometry”, “Electrothermal Atomic Absorption Spectrometric Method”, only the version from Standard Methods Online as Method 3113 B-04. Referenced in Sections 611.611 and 611.612.

“SM 3113 B (10)” means Method 3113 B, “Metals by Electrothermal Atomic Absorption Spectrometry”, “Electrothermal Atomic Absorption Spectrometric Method”, only the version in the 22nd, 23rd, and 24th editions. Referenced in Sections 611.611 and 611.612.

“SM 3114 B (89)” means Method 3114 B, “Metals by Hydride Generation/Atomic Absorption Spectrometry”, “Manual Hydride Generation/Atomic Absorption Spectrometric Method”, only the version in the 18th edition. Referenced in Section 611.611.

“SM 3114 B (93)” means Method 3114 B, “Metals by Hydride Generation/Atomic Absorption Spectrometry”, “Manual Hydride Generation/Atomic Absorption Spectrometric Method”, only the version in the 19th edition. Referenced in Section 611.611.

“SM 3114 B (97)” means Method 3114 B, “Metals by Hydride Generation/Atomic Absorption Spectrometry”, “Manual Hydride Generation/Atomic Absorption Spectrometric Method”, only the version in the 21st edition. (The same version appears in the 20th edition, but USEPA does not approve that edition.) Referenced in Section 611.611.

“SM 3114 B (09)” means Method 3114 B, “Metals by Hydride Generation/Atomic Absorption Spectrometry”, “Manual Hydride Generation/Atomic Absorption Spectrometric Method”, only the version in the 22nd, 23rd, and 24th editions. Referenced in Section 611.611.

“SM 3120 B (89)” means Method 3120 B, “Metals by Plasma Emission Spectroscopy”, “Inductively Coupled Plasma (ICP) Method”, only the version in the 18th edition. Referenced in Sections 611.611 and 611.612.

“SM 3120 B (93)” means Method 3120 B, “Metals by Plasma Emission Spectroscopy”, “Inductively Coupled Plasma (ICP) Method”, only the version in the 19th and 20th editions. Referenced in Sections 611.611 and 611.612.

“SM 3120 B (99)” means Method 3120 B, “Metals by Plasma Emission Spectroscopy”, “Inductively Coupled Plasma (ICP) Method”, only the version in the 21st, 22nd, 23rd, and 24th editions. Referenced in Sections 611.611 and 611.612.

“SM 3125 (97)” means Method 3125, “Metals by Inductively Coupled Plasma/Mass Spectrometry”, only the version in the 20th and 21st editions. Referenced in Section 611.720.

“SM 3500-Ca B (97)” means Method 3500-Ca B, “Calcium”, “EDTA Titrimetric Method”, only the version in the 20th, 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.611.

“SM 3500-Ca D (91)” means Method 3500-Ca D, “Calcium”, “EDTA Titrimetric Method”, only the version in the 18th and 19th editions. Referenced in Section 611.611.

“SM 3500-Mg B (97)” means Method 3500-Mg B, “Magnesium”, “Calculation Method”, only the version in the 20th, 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.611.

“SM 3500-Mg E (90)” means Method 3500-Mg E, “Magnesium”, “Calculation Method”, only the version in the 18th edition. Referenced in Section 611.611.

“SM 3500-Mg E (91)” means Method 3500-Mg E, “Magnesium”, “Calculation Method”, only the version in the 19th edition. Referenced in Section 611.611.

“SM 4110 B (90)” means Method 4110 B, “Determination of Anions by Ion Chromatography”, “Ion Chromatography with Chemical Suppression of Eluent Conductivity”, only the version in the 18th edition. Referenced in Section 611.611.

“SM 4110 B (91)” means Method 4110 B, “Determination of Anions by Ion Chromatography”, “Ion Chromatography with Chemical Suppression of Eluent Conductivity”, only the version in the 19th edition. Referenced in Section 611.611.

“SM 4110 B (97)” means Method 4110 B, “Determination of Anions by Ion Chromatography”, “Ion Chromatography with Chemical Suppression of Eluent Conductivity”, only the version in the 20th edition. Referenced in Section 611.611.

“SM 4110 B (00)” means Method 4110 B, “Determination of Anions by Ion Chromatography”, “Ion Chromatography with Chemical Suppression of Eluent Conductivity”, only the version in the 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.611.

“SM 4500-Cl D (89)” means Method 4500-Cl D, “Chlorine (Residual)”, “Amperometric Titration Method”, only the version in the 18th edition. Referenced in Section 611.531.

“SM 4500-Cl D (93)” means Method 4500-Cl D, “Chlorine (Residual)”, “Amperometric Titration Method”, only the version in the 19th and 20th editions. Referenced in Sections 611.381 and 611.531.

“SM 4500-Cl D (00)” means Method 4500-Cl D, “Chlorine (Residual)”, “Amperometric Titration Method”, only the version in the 21st, 22nd, 23rd, and 24th editions. Referenced in Sections 611.381 and 611.531.

“SM 4500-Cl E (89)” means Method 4500-Cl E, “Chlorine (Residual)”, “Low-Level Amperometric Titration Method”, only the version in the 18th edition. Referenced in Section 611.531.

“SM 4500-Cl E (93)” means Method 4500-Cl E, “Chlorine (Residual)”, “Low-Level Amperometric Titration Method”, only the version in the 19th and 20th editions. Referenced in Sections 611.381 and 611.531.

“SM 4500-Cl E (00)” means Method 4500-Cl E, “Chlorine (Residual)”, “Low-Level Amperometric Titration Method”, only the version in the 21st, 22nd, 23rd, and 24th editions. Referenced in Sections 611.381 and 611.531.

“SM 4500-Cl F (89)” means Method 4500-Cl F, “Chlorine (Residual)”, “DPD Ferrous Titrimetric Method”, only the version in the 18th edition. Referenced in Section 611.531.

“SM 4500-Cl F (93)” means Method 4500-Cl F, “Chlorine (Residual)”, “DPD Ferrous Titrimetric Method”, only the version in the 19th and 20th editions. Referenced in Sections 611.381 and 611.531.

“SM 4500-Cl F (00)” means Method 4500-Cl F, “Chlorine (Residual)”, “DPD Ferrous Titrimetric Method”, only the version in the 21st, 22nd, 23rd, and 24th editions. Referenced in Sections 611.381 and 611.531.

“SM 4500-Cl G (89)” means Method 4500-Cl G, “Chlorine (Residual)”, “DPD Colorimetric Method”, only the version in the 18th edition. Referenced in Section 611.531.

“SM 4500-Cl G (93)” means Method 4500-Cl G, “Chlorine (Residual)”, “DPD Colorimetric Method”, only the version in the 19th and 20th editions. Referenced in Sections 611.381 and

611.531.

“SM 4500-Cl G (00)” means Method 4500-Cl G, “Chlorine (Residual)”, “DPD Colorimetric Method”, only the version in the 21st, 22nd, 23rd, and 24th editions. Referenced in Sections 611.381 and 611.531.

“SM 4500-Cl H (89)” means Method 4500-Cl H, “Chlorine (Residual)”, “Syringaldazine (FACTS) Method”, only the version in the 18th edition. Referenced in Section 611.531.

“SM 4500-Cl H (93)” means Method 4500-Cl H, “Chlorine (Residual)”, “Syringaldazine (FACTS) Method”, only the version in the 19th and 20th editions. Referenced in Sections 611.381 and 611.531.

“SM 4500-Cl H (00)” means Method 4500-Cl H, “Chlorine (Residual)”, “Syringaldazine (FACTS) Method”, only the version in the 21st, 22nd, 23rd, and 24th editions. Referenced in Sections 611.381 and 611.531.

“SM 4500-Cl I (89)” means Method 4500-Cl I, “Chlorine (Residual)”, “Iodometric Electrode Method”, only the version in the 18th edition. Referenced in Section 611.531.

“SM 4500-Cl I (93)” means Method 4500-Cl I, “Chlorine (Residual)”, “Iodometric Electrode Method”, only the version in the 19th and 20th editions. Referenced in Sections 611.381 and 611.531.

“SM 4500-Cl I (00)” means Method 4500-Cl I, “Chlorine (Residual)”, “Iodometric Electrode Method”, only the version in the 21st, 22nd, 23rd, and 24th editions. Referenced in Sections 611.381 and 611.531.

“SM 4500-ClO₂ C (88)” means Method 4500-ClO₂ C, “Chlorine Dioxide”, “Amperometric Method I”, only the version in the 18th edition. Referenced in Sections 611.381 and 611.531.

“SM 4500-ClO₂ C (93)” means Method 4500-ClO₂ C, “Chlorine Dioxide”, “Amperometric Method I”, only the version in the 19th and 20th editions. Referenced in Section 611.531.

“SM 4500-ClO₂ C (00)” means Method 4500-ClO₂ C, “Chlorine Dioxide”, “Amperometric Method I”, only the version in the 21st,

22nd, 23rd, and 24th editions. Referenced in Section 611.531.

“SM 4500-ClO₂ D (88)” means Method 4500-ClO₂ D, “Chlorine Dioxide”, “DPD Method”, only the version in the 18th edition. Referenced in Section 611.531.

“SM 4500-ClO₂ D (93)” means Method 4500-ClO₂ D, “Chlorine Dioxide”, “DPD Method”, only the version in the 19th and 20th editions. Referenced in Sections 611.381 and 611.531.

~~“SM 4500-ClO₂ D (00)” means Method 4500-ClO₂ D, “Chlorine Dioxide”, “DPD Method”, only the version in the 21st edition. Referenced in Section 611.381.~~

“SM 4500-ClO₂ E (88)” means Method 4500-ClO₂ E, “Chlorine Dioxide”, “Amperometric Method II (Proposed)”, only the version in the 18th edition. Referenced in Section 611.531.

“SM 4500-ClO₂ E (93)” means Method 4500-ClO₂ E, “Chlorine Dioxide”, “Amperometric Method II”, only the version in the 19th and 20th editions. Referenced in Sections 611.381 and 611.531.

“SM 4500-ClO₂ E (00)” means Method 4500-ClO₂ E, “Chlorine Dioxide”, “Amperometric Method II”, only the version in the 21st, 22nd, 23rd, and 24th editions. Referenced in Sections 611.381 and 611.531.

“SM 4500-CN⁻ C (90)” means Method 4500-CN⁻ C, “Cyanide”, “Total Cyanide after Distillation”, only the version in the 18th and 19th editions. Referenced in Section 611.611.

“SM 4500-CN⁻ C (99)” means Method 4500-CN⁻ C, “Cyanide”, “Total Cyanide after Distillation”, only the version in the 20th, 21st and 22nd editions. Referenced in Section 611.611.

“SM 4500-CN⁻ C (16)” means Method 4500-CN⁻ C, “Cyanide”, “Total Cyanide after Distillation”, only the version in the 23rd and 24th editions. Referenced in Section 611.611.

“SM 4500-CN⁻ E (90)” means Method 4500-CN⁻ E, “Cyanide”, “Colorimetric Method”, only the version in the 18th and 19th editions. Referenced in Section 611.611.

“SM 4500-CN⁻ E (97)” means Method 4500-CN⁻ E, “Cyanide”,

“Colorimetric Method”, only the version in the 20th edition. Referenced in Section 611.611.

“SM 4500-CN⁻ E (99)” means Method 4500-CN⁻ E, “Cyanide”, “Colorimetric Method”, only the version in the 21st, 22nd, and 23rd editions. Referenced in Section 611.611.

“SM 4500-CN⁻ E (16)” means Method 4500-CN⁻ E, “Cyanide”, “Colorimetric Method”, only the version in the 23rd and 24th editions. Referenced in Section 611.611.

“SM 4500-CN⁻ F (90)” means Method 4500-CN⁻ F, “Cyanide”, “Cyanide-Selective Electrode Method”, only the version in the 18th and 19th editions. Referenced in Section 611.611.

“SM 4500-CN⁻ F (97)” means Method 4500-CN⁻ F, “Cyanide”, “Cyanide-Selective Electrode Method”, only the version in the 20th edition. Referenced in Section 611.611.

“SM 4500-CN⁻ F (99)” means Method 4500-CN⁻ F, “Cyanide”, “Cyanide-Selective Electrode Method”, only the version in the 21st and 22nd editions. Referenced in Section 611.611.

“SM 4500-CN⁻ F (16)” means Method 4500-CN⁻ F, “Cyanide”, “Cyanide-Ion Selective Electrode Method”, only the version in the 23rd and 24th edition. Referenced in Section 611.611.

“SM 4500-CN⁻ G (90)” means Method 4500-CN⁻ G, “Cyanide”, “Cyanides Amenable to Chlorination after Distillation”, only the version in the 18th and 19th editions. Referenced in Section 611.611.

“SM 4500-CN⁻ G (97)” means Method 4500-CN⁻ G, “Cyanide”, “Cyanides Amenable to Chlorination after Distillation”, only the version in the 20th edition. Referenced in Section 611.611.

“SM 4500-CN⁻ G (99)” means Method 4500-CN⁻ G, “Cyanide”, “Cyanides Amenable to Chlorination after Distillation”, only the version in the 21st and 22nd editions. Referenced in Section 611.611.

“SM 4500-CN⁻ G (16)” means Method 4500-CN⁻ G, “Cyanide”, “Cyanides Amenable to Chlorination after Distillation”, only the version in the 23rd and 24th edition. Referenced in Section 611.611.

“SM 4500-F⁻ B (88)” means Method 4500-F⁻ B, “Fluoride”, “Preliminary Distillation Step”, only the version in the 18th edition. Referenced in Section 611.611.

“SM 4500-F⁻ B (94)” means Method 4500-F⁻ B, “Fluoride”, “Preliminary Distillation Step”, only the version in the 19th edition. Referenced in Section 611.611.

“SM 4500-F⁻ B (97)” means Method 4500-F⁻ B, “Fluoride”, “Preliminary Distillation Step”, only the version in the 20th, 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.611.

“SM 4500-F⁻ C (88)” means Method 4500-F⁻ C, “Fluoride”, “Ion-Selective Electrode Method”, only the version in the 18th edition. Referenced in Section 611.611.

“SM 4500-F⁻ C (94)” means Method 4500-F⁻ C, “Fluoride”, “Ion-Selective Electrode Method”, only the version in the 19th edition. Referenced in Section 611.611.

“SM 4500-F⁻ C (97)” means Method 4500-F⁻ C, “Fluoride”, “Ion-Selective Electrode Method”, only the version in the 20th, 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.611.

“SM 4500-F⁻ D (88)” means Method 4500-F⁻ D, “Fluoride”, “SPADNS Method”, only the version in the 18th edition. Referenced in Section 611.611.

“SM 4500-F⁻ D (94)” means Method 4500-F⁻ D, “Fluoride”, “SPADNS Method”, only the version in the 19th edition. Referenced in Section 611.611.

“SM 4500-F⁻ D (97)” means Method 4500-F⁻ D, “Fluoride”, “SPADNS Method”, only the version in the 20th, 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.611.

“SM 4500-F⁻ E (88)” means Method 4500-F⁻ E, “Fluoride”, “Complexone Method”, only the version in the 18th edition. Referenced in Section 611.611.

“SM 4500-F⁻ E (94)” means Method 4500-F⁻ E, “Fluoride”, “Complexone Method”, only the version in the 19th edition. Referenced in Section 611.611.

“SM 4500-F⁻ E (97)” means Method 4500-F⁻ E, “Fluoride”, “Complexone Method”, only the version in the 20th, 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.611.

“SM 4500-H⁺ B (90)” means Method 4500-H⁺ B, “pH Value”, “Electrometric Method”, only the version in the 18th and 19th editions. Referenced in Section 611.611.

“SM 4500-H⁺ B (96)” means Method 4500-H⁺ B, “pH Value”, “Electrometric Method”, only the version in the 20th edition. Referenced in Section 611.611.

“SM 4500-H⁺ B (00)” means Method 4500-H⁺ B, “pH Value”, “Electrometric Method”, only the version in the 21st, 22nd, and 23rd editions. Referenced in Section 611.611.

SM 4500-H⁺ B (21)” means Method 4500-H⁺ B, “pH Value”, “Electrometric Method”, only the version in the 24th edition. Referenced in Section 611.611.

“SM 4500-NO₃⁻ D (88)” means Method 4500-NO₃⁻ D, “Nitrogen (Nitrate)”, “Nitrate Electrode Method”, only the version in the 18th edition. Referenced in Section 611.611.

“SM 4500-NO₃⁻ D (93)” means Method 4500-NO₃⁻ D, “Nitrogen (Nitrate)”, “Nitrate Electrode Method”, only the version in the 19th edition. Referenced in Section 611.611.

“SM 4500-NO₃⁻ D (97)” means Method 4500-NO₃⁻ D, “Nitrogen (Nitrate)”, “Nitrate Electrode Method”, only the version in the 20th edition. Referenced in Section 611.611.

“SM 4500-NO₃⁻ D (00)” means Method 4500-NO₃⁻ D, “Nitrogen (Nitrate)”, “Nitrate Electrode Method”, only the version in the 21st and 22nd editions. Referenced in Section 611.611.

“SM 4500-NO₃⁻ D (16)” means Method 4500-NO₃⁻ D, “Nitrogen (Nitrate)”, “Nitrate Electrode Method”, only the version in the 23rd and 24th editions. Referenced in Section 611.611.

“SM 4500-NO₃⁻ E (88)” means Method 4500-NO₃⁻ E, “Nitrogen (Nitrate)”, “Cadmium Reduction Method”, only the version in the 18th edition. Referenced in Section 611.611.

“SM 4500-NO₃⁻ E (93)” means Method 4500-NO₃⁻ E, “Nitrogen

(Nitrate)”, “Cadmium Reduction Method”, only the version in the 19th edition. Referenced in Section 611.611.

“SM 4500-NO₃⁻ E (97)” means Method 4500-NO₃⁻ E, “Nitrogen (Nitrate)”, “Cadmium Reduction Method”, only the version in the 20th edition. Referenced in Section 611.611.

“SM 4500-NO₃⁻ E (00)” means Method 4500-NO₃⁻ E, “Nitrogen (Nitrate)”, “Cadmium Reduction Method”, only the version in the 21st and 22nd editions. Referenced in Section 611.611.

“SM 4500-NO₃⁻ E (16)” means Method 4500-NO₃⁻ E, “Nitrogen (Nitrate)”, “Cadmium Reduction Method”, only the version in the 23rd and 24th editions. Referenced in Section 611.611.

“SM 4500-NO₃⁻ F (88)” means Method 4500-NO₃⁻ F, “Nitrogen (Nitrate)”, “Automated Cadmium Reduction Method”, only the version in the 18th edition. Referenced in Section 611.611.

“SM 4500-NO₃⁻ F (93)” means Method 4500-NO₃⁻ F, “Nitrogen (Nitrate)”, “Automated Cadmium Reduction Method”, only the version in the 19th edition. Referenced in Section 611.611.

“SM 4500-NO₃⁻ F (97)” means Method 4500-NO₃⁻ F, “Nitrogen (Nitrate)”, “Automated Cadmium Reduction Method”, only the version in the 20th edition. Referenced in Section 611.611.

“SM 4500-NO₃⁻ F (00)” means Method 4500-NO₃⁻ F, “Nitrogen (Nitrate)”, “Automated Cadmium Reduction Method”, only the version in the 21st and 22nd editions. Referenced in Section 611.611.

“SM 4500-NO₃⁻ F (16)” means Method 4500-NO₃⁻ F, “Nitrogen (Nitrate)”, “Automated Cadmium Reduction Method”, only the version in the 23rd and 24th editions. Referenced in Section 611.611.

“SM 4500-NO₂⁻ B (88)” means Method 4500-NO₂⁻ B, “Nitrogen (Nitrite)”, “Colorimetric Method”, only the version in the 18th edition. Referenced in Section 611.611.

“SM 4500-NO₂⁻ B (93)” means Method 4500-NO₂⁻ B, “Nitrogen (Nitrite)”, “Colorimetric Method”, only the version in the 19th and 20th editions. Referenced in Section 611.611.

“SM 4500-NO₂⁻ B (00)” means Method 4500-NO₂⁻ B, “Nitrogen (Nitrite)”, “Colorimetric Method”, only the version in the 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.611.

“SM 4500-O₃ B (88)” means Method 4500-O₃ B, “Ozone (Residual) (Proposed)”, “Indigo Colorimetric Method”, only the version in the 18th edition. Referenced in Section 611.531.

“SM 4500-O₃ B (93)” means Method 4500-O₃ B, “Ozone (Residual)”, “Indigo Colorimetric Method”, only the version in the 19th edition. Referenced in Section 611.531.

“SM 4500-O₃ B (97)” means Method 4500-O₃ B, “Ozone (Residual)”, “Indigo Colorimetric Method”, only the version in the 20th, 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.531.

“SM 4500-P E (88)” means Method 4500-P E, “Phosphorus”, “Ascorbic Acid Method”, only the version in the 18th edition. Referenced in Section 611.611.

“SM 4500-P E (93)” means Method 4500-P E, “Phosphorus”, “Ascorbic Acid Method”, only the version in the 19th edition. Referenced in Section 611.611.

“SM 4500-P E (97)” means Method 4500-P E, “Phosphorus”, “Ascorbic Acid Method”, only the version in the 20th edition. Referenced in Section 611.611.

“SM 4500-P E (99)” means Method 4500-P E, “Phosphorus”, “Ascorbic Acid Method”, only the version in the 21st and 22nd editions. Referenced in Section 611.611.

“SM 4500-P E (05)” means Method 4500-P E, “Phosphorus”, “Ascorbic Acid Method”, only the version in the 23rd and 24th editions. Referenced in Section 611.611.

“SM 4500-P F (88)” means Method 4500-P F, “Phosphorus”, “Automated Ascorbic Acid Reduction Method”, only the version in the 18th edition. Referenced in Section 611.611.

“SM 4500-P F (93)” means Method 4500-P F, “Phosphorus”, “Automated Ascorbic Acid Reduction Method”, only the version in the 19th edition. Referenced in Section 611.611.

“SM 4500-P F (97)” means Method 4500-P F, “Phosphorus”, “Automated Ascorbic Acid Reduction Method”, only the version in the 20th edition. Referenced in Section 611.611.

“SM 4500-P F (99)” means Method 4500-P F, “Phosphorus”, “Automated Ascorbic Acid Reduction Method”, only the version in the 21st and 22nd editions. Referenced in Section 611.611.

“SM 4500-P F (05)” means Method 4500-P F, “Phosphorus”, “Automated Ascorbic Acid Reduction Method”, only the version in the 23rd and 24th editions. Referenced in Section 611.611.

“SM 4500-Si D (88)” means Method 4500-Si D, “Silica”, “Molybdosilicate Method”, only the version in the 18th edition. Referenced in Section 611.611.

“SM 4500-Si D (93)” means Method 4500-Si D, “Silica”, “Molybdosilicate Method”, only the version in the 19th edition. Referenced in Section 611.611.

“SM 4500-Si E (88)” means Method 4500-Si E, “Silica”, “Molybdosilicate Method”, only the version in the 18th edition. Referenced in Section 611.611.

“SM 4500-Si E (93)” means Method 4500-Si E, “Silica”, “Molybdosilicate Method”, only the version in the 19th edition. Referenced in Section 611.611.

“SM 4500-Si F (88)” means Method 4500-Si F, “Silica”, “Molybdosilicate Method”, only the version in the 18th edition. Referenced in Section 611.611.

“SM 4500-Si F (93)” means Method 4500-Si F, “Silica”, “Molybdosilicate Method”, only the version in the 19th edition. Referenced in Section 611.611.

“SM 4500-SiO₂ C (97)” means Method 4500-SiO₂ C, “Silica”, “Molybdosilicate Method”, only the version in the 20th, 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.611.

“SM 4500-SiO₂ D (97)” means Method 4500-SiO₂ D, “Silica”, “Heteropoly Blue Method”, only the version in the 20th, 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.611.

“SM 4500-SiO₂ E (97)” means Method 4500-SiO₂ E, “Silica”, “Automated Method for Molybdate-Reactive Silica”, only the version in the 20th, 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.611.

“SM 5310 B (92)” means Method 5310 B, “Total Organic Carbon (TOC)”, “Combustion-Infrared Method”, only the version in the supplement to the 19th edition. Referenced in Section 611.381.

“SM 5310 B (96)” means Method 5310 B, “Total Organic Carbon (TOC)”, “High-Temperature Combustion Method”, only the version in the 20th edition. Referenced in Section 611.381.

“SM 5310 B (00)” means Method 5310 B, “Total Organic Carbon (TOC)”, “High-Temperature Combustion Method”, only the version in the 21st and 22nd editions. Referenced in Section 611.381.

“SM 5310 B (14)” means Method 5310 B, “Total Organic Carbon (TOC)”, “High-Temperature Combustion Method”, only the version in the 23rd edition. Referenced in Section 611.381.

“SM 5310 B (22)” means Method 5310 B, “Total Organic Carbon (TOC)”, “High-Temperature Combustion Method”, only the version in the 24th edition. Referenced in Section 611.381. “SM 5310 C (92)” means Method 5310 C, “Total Organic Carbon (TOC)”, “Persulfate-Ultraviolet Oxidation Method”, only the version in the supplement to the 19th edition. Referenced in Section 611.381.

“SM 5310 C (96)” means Method 5310 C, “Total Organic Carbon (TOC)”, “Persulfate-Ultraviolet or Heated-Persulfate Oxidation Method”, only the version in the 20th edition. Referenced in Section 611.381.

“SM 5310 C (00)” means Method 5310 C, “Total Organic Carbon (TOC)”, “Persulfate-Ultraviolet or Heated-Persulfate Oxidation Method”, only the version in the 21st and 22nd editions. Referenced in Section 611.381.

“SM 5310 C (14)” means Method 5310 C, “Total Organic Carbon (TOC)”, “Persulfate-Ultraviolet or Heated-Persulfate Oxidation Method”, only the version in the 23rd and 24th editions. Referenced in Section 611.381.

“SM 5310 D (92)” means Method 5310 D, “Total Organic Carbon (TOC)”, “Wet-Oxidation Method”, only the version in the supplement to the 19th edition. Referenced in Section 611.381.

“SM 5310 D (96)” means Method 5310 D, “Total Organic Carbon (TOC)”, “Wet-Oxidation Method”, only the version in the 20th edition. Referenced in Section 611.381.

“SM 5310 D (00)” means Method 5310 D, “Total Organic Carbon (TOC)”, “Wet-Oxidation Method”, only the version in the 21st and 22nd editions. Referenced in Section 611.381. “SM 5910 B (94)” means Method 5910 B, “UV-Absorbing Organic Constituents”, “Ultraviolet Absorption Method”, only the version in the 19th and 20th editions. Referenced in Section 611.381.

“SM 5910 B (00)” means Method 5910 B, “UV-Absorbing Organic Constituents”, “Ultraviolet Absorption Method”, only the version in the 21st edition. Referenced in Section 611.381.

“SM 5910 B (11)” means Method 5910 B, “UV-Absorbing Organic Constituents”, “Ultraviolet Absorption Method”, only the version in the 22nd edition. Referenced in Section 611.381.

“SM 5910 B (13)” means Method 5910 B, “UV-Absorbing Organic Constituents”, “Ultraviolet Absorption Method”, only the version in the 23rd and 24th editions. Referenced in Section 611.381.

“SM 6251 B (94)” means Method 6251 B, “Disinfection By-Products: Haloacetic Acids and Trichlorophenol”, “Micro Liquid-Liquid Extraction Gas Chromatographic Method”, only the version in the 19th, 20th, and 21st editions. Referenced in Section 611.381.

“SM 6251 B (07)” means Method 6251 B, “Disinfection By-Products: Haloacetic Acids and Trichlorophenol”, “Micro Liquid-Liquid Extraction Gas Chromatographic Method”, only the version in the 22nd, 23rd, and 24th editions. Referenced in Section 611.381.

“SM 6610 (92)” means Method 6610, “Carbamate Pesticides (Proposed)”, only the version in the supplement to the 18th edition and the 19th edition. Referenced in Section 611.645.

“SM 6610 (96)” means Method 6610, “Carbamate Pesticides”, only the version in the 20th edition. Referenced in Section 611.645.

“SM 6610 B (99)” means Method 6610, “Carbamate Pesticides”, “High-Performance Liquid Chromatographic Method”, only the version in the 21st edition. Referenced in Section 611.645.

“SM 6610 B (04)” means Method 6610, “Carbamate Pesticides”, “High-Performance Liquid Chromatographic Method”, only the version in 22nd, 23rd, and 24th editions. Referenced in Section 611.645.

“SM 6640 B (01)” means Method 6640 B, “Acidic Herbicide Compounds”, “Micro Liquid-Liquid Extraction Gas Chromatographic Method”, only the version in 21st edition. Referenced in Section 611.645.

“SM 6640 B (06)” means Method 6640 B, “Acidic Herbicide Compounds”, “Micro Liquid-Liquid Extraction Gas Chromatographic Method”, only the version in 22nd, 23rd, and 24th editions. Referenced in Section 611.645.

“SM 6651 B (91)” means Method 6651 B, “Glyphosate Herbicide (Proposed)”, “Liquid Chromatographic Post-Column Fluorescence Method”, only the version in 18th edition, or “Glyphosate Herbicide”, “Liquid Chromatographic Post-Column Fluorescence Method”, in 19th edition. Referenced in Section 611.645.

“SM 6651 B (96)” means Method 6651 B, “Glyphosate Herbicide”, “Liquid Chromatographic Post-Column Fluorescence Method”, only the version in 20th edition. Referenced in Section 611.645.

“SM 6651 B (00)” means Method 6651 B, “Glyphosate Herbicide”, “Liquid Chromatographic Post-Column Fluorescence Method”, only the version in 21st edition. Referenced in Section 611.645.

“SM 6651 B (05)” means Method 6651 B, “Glyphosate Herbicide”, “Liquid Chromatographic Post-Column Fluorescence Method”, only the version in 22nd, 23rd, and 24th editions. Referenced in Section 611.645.

“SM 7110 B (85)” means Method 7110 B, “Gross Alpha and Beta Radioactivity (Total, Suspended, and Dissolved)”, “Counting Method”, only the version in 17th edition. Referenced in Section 611.720.

“SM 7110 B (91)” means Method 7110 B, “Gross Alpha and Beta Radioactivity (Total, Suspended, and Dissolved)”, “Evaporation Method for Gross Alpha-Beta”, only the version in 18th and 19th editions. Referenced in Section 611.720.

“SM 7110 B (96)” means Method 7110 B, “Gross Alpha and Beta Radioactivity (Total, Suspended, and Dissolved)”, “Evaporation Method for Gross Alpha-Beta”, only the version in 20th edition. Referenced in Section 611.720.

“SM 7110 B (00)” means Method 7110 B, “Gross Alpha and Beta Radioactivity (Total, Suspended, and Dissolved)”, “Evaporation Method for Gross Alpha-Beta”, only the version in 21st, 22nd, and 23rd editions. Referenced in Section 611.720.

“SM 7110 B (21)” means Method 7110 B, “Gross Alpha and Beta Radioactivity (Total, Suspended, and Dissolved)”, “Evaporation Method for Gross Alpha-Beta”, only the version in the 24th edition. Referenced in Section 611.720.

“SM 7110 C (91)” means Method 7110 C, “Gross Alpha and Beta Radioactivity (Total, Suspended, and Dissolved)”, “Coprecipitation Method for Gross Alpha Radioactivity in Drinking Water (Proposed)”, only the version in 18th and 19th editions. Referenced in Section 611.720.

“SM 7110 C (96)” means Method 7110 C, “Gross Alpha and Beta Radioactivity (Total, Suspended, and Dissolved)”, “Coprecipitation Method for Gross Alpha Radioactivity in Drinking Water”, only the version in 20th edition. Referenced in Section 611.720.

“SM 7110 C (00)” means Method 7110 C, “Gross Alpha and Beta Radioactivity (Total, Suspended, and Dissolved)”, “Coprecipitation Method for Gross Alpha Radioactivity in Drinking Water”, only the version in 21st, 22nd, and 23rd editions. Referenced in Section 611.720.

“SM 7110 C (21)” means Method 7110 C, “Gross Alpha and Beta Radioactivity (Total, Suspended, and Dissolved)”, “Evaporation Method for Gross Alpha-Beta”, only the version in the 24th edition. Referenced in Section 611.720. “SM 7110 D (17)” means Method 7110 D, “Gross Alpha and Beta Radioactivity (Total, Suspended, and Dissolved)”, “Liquid Scintillation Spectroscopic Method for

Gross Alpha-Beta Radioactivity in Drinking Water”, only the version from Standard Methods Online as Method 7110 D-17. Referenced in Section 611.720.

“SM 7110 D (21)” means Method 7110 D, “Gross Alpha and Beta Radioactivity (Total, Suspended, and Dissolved)”, “Liquid Scintillation Spectroscopic Method for Gross Alpha-Beta Radioactivity in Drinking Water”, only the version in the 24th edition. Referenced in Section 611.720.

“SM 7120 (94)” means Method 7120, “Gamma-Emitting Radionuclides”, only the version in the 19th edition. Referenced in Section 611.720.

“SM 7120 (97)” means Method 7120, “Gamma-Emitting Radionuclides”, only the version in the 20th, 21st, 22nd, and 23rd editions. Referenced in Section 611.720.

“SM 7120 (21)” means Method 7120, “Gamma-Emitting Radionuclides”, only the version in the 24th edition. Referenced in Section 611.720.

“SM 7500-Cs B (88)” means Method 7500-Cs B, “Radioactive Cesium”, “Precipitation Method”, only the version in the 17th and 18th editions. Referenced in Section 611.720.

“SM 7500-Cs B (93)” means Method 7500-Cs B, “Radioactive Cesium”, “Precipitation Method”, only the version in the 19th and 20th editions. Referenced in Section 611.720.

“SM 7500-Cs B (00)” means Method 7500-Cs B, “Radioactive Cesium”, “Precipitation Method”, only the version in the 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.720.

“SM 7500-I B (88)” means Method 7500-I B, “Radioactive Iodine”, “Precipitation Method”, only the version in the 17th and 18th editions. Referenced in Section 611.720.

“SM 7500-I B (93)” means Method 7500-I B, “Radioactive Iodine”, “Precipitation Method”, only the version in the 19th and 20th editions. Referenced in Section 611.720.

“SM 7500-I B (00)” means Method 7500-I B, “Radioactive Iodine”, “Precipitation Method”, only the version in the 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.720.

“SM 7500-I C (88)” means Method 7500-I C, “Radioactive Iodine”, “Ion-Exchange Method”, only the version in the 17th and 18th editions. Referenced in Section 611.720.

“SM 7500-I C (93)” means Method 7500-I C, “Radioactive Iodine”, “Ion-Exchange Method”, only the version in the 19th and 20th editions. Referenced in Section 611.720.

“SM 7500-I C (00)” means Method 7500-I C, “Radioactive Iodine”, “Ion-Exchange Method”, only the version in the 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.720.

“SM 7500-I D (88)” means Method 7500-I D, “Radioactive Iodine”, “Distillation Method”, only the version in the 17th and 18th editions. Referenced in Section 611.720.

“SM 7500-I D (93)” means Method 7500-I D, “Radioactive Iodine”, “Distillation Method”, only the version in the 19th and 20th editions. Referenced in Section 611.720.

“SM 7500-I D (00)” means Method 7500-I D, “Radioactive Iodine”, “Distillation Method”, only the version in the 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.720.

“SM 7500-Ra B (88)” means Method 7500-Ra B, “Radium”, “Precipitation Method”, only the version in the 17th and 18th editions. Referenced in Section 611.720.

“SM 7500-Ra B (93)” means Method 7500-Ra B, “Radium”, “Precipitation Method”, only the version in the 19th and 20th editions. Referenced in Section 611.720.

“SM 7500-Ra B (01)” means Method 7500-Ra B, “Radium”, “Precipitation Method”, only the version in the 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.720.

“SM 7500-Ra C (88)” means Method 7500-Ra C, “Radium”, “Emanation Method”, only the version in the 17th and 18th editions. Referenced in Section 611.720.

“SM 7500-Ra C (93)” means Method 7500-Ra C, “Radium”, “Emanation Method”, only the version in the 19th and 20th editions. Referenced in Section 611.720.

“SM 7500-Ra C (01)” means Method 7500-Ra C, “Radium”, “Emanation Method”, only the version in the 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.720.

“SM 7500-Ra D (88)” means Method 7500-Ra D, “Radium”, “Sequential Precipitation Method”, only the version in the 17th and 18th editions. Referenced in Section 611.720.

“SM 7500-Ra D (93)” means Method 7500-Ra D, “Radium”, “Sequential Precipitation Method”, only the version in the 19th and 20th editions. Referenced in Section 611.720.

“SM 7500-Ra D (01)” means Method 7500-Ra D, “Radium”, “Sequential Precipitation Method”, only the version in the 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.720.

“SM 7500-Ra E (07)” means Method 7500-Ra E, “Radium”, “Gamma Spectrometry Method”, only the version in the 22nd, 23rd and 24th editions. Referenced in Section 611.720.

“SM 7500-Sr B (88)” means Method 7500-Sr B, “Total Radioactive Strontium and Strontium 90”, “Precipitation Method”, only the version in the 17th and 18th editions. Referenced in Section 611.720.

“SM 7500-Sr B (93)” means Method 7500-Sr B, “Total Radioactive Strontium and Strontium 90”, “Precipitation Method”, only the version in the 19th and 20th editions. Referenced in Section 611.720.

“SM 7500-Sr B (01)” means Method 7500-Sr B, “Total Radioactive Strontium and Strontium 90”, “Precipitation Method”, only the version in the 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.720.

“SM 7500-³H B (88)” means Method 7500-³H B, “Tritium”, “Liquid Scintillation Spectrometric Method”, only the version in the 17th and 18th editions. Referenced in Section 611.720.

“SM 7500-³H B (93)” means Method 7500-³H B, “Tritium”, “Liquid Scintillation Spectrometric Method”, only the version in the 19th and 20th editions. Referenced in Section 611.720.

“SM 7500-³H B (00)” means Method 7500-³H B, “Tritium”, “Liquid Scintillation Spectrometric Method”, only the version in the 21st, 22nd, and 23rd editions. Referenced in Section 611.720.

“SM 7500-³H B (22)” means Method 7500-³H B, “Tritium”, “Liquid Scintillation Spectrometric Method”, only the version in the 24th edition. Referenced in Section 611.720.

“SM 7500-U B (88)” means Method 7500-U B, “Uranium”, “Radiochemical Method (Proposed)”, only the version in the 17th edition. Referenced in Section 611.720.

“SM 7500-U B (91)” means only Method 7500-U B, “Uranium”, “Radiochemical Method (Proposed)”, the version in the 18th edition, and “Uranium”, “Radiochemical Method”, the version in the 19th edition. Referenced in Section 611.720.

“SM 7500-U B (96)” means Method 7500-U B, “Uranium”, “Radiochemical Method”, only the version in the 20th edition. Referenced in Section 611.720.

“SM 7500-U B (00)” means Method 7500-U B, “Uranium”, “Radiochemical Method”, only the version in the 21st, 22nd, 23rd, and 24th editions. Referenced in Section 611.720.

“SM 7500-U C (88)” means Method 7500-U C, “Uranium”, “Fluorometric Method (Proposed)”, only the version in the 17th edition. Referenced in Section 611.720.

“SM 7500-U C (91)” means Method 7500-U C, “Uranium”, “Isotopic Method (Proposed)”, only the version in the 18th and 19th editions. Referenced in Section 611.720.

“SM 7500-U C (96)” means Method 7500-U C, “Uranium”, “Isotopic Method”, only the version in the 20th edition. Referenced in Section 611.720.

“SM 7500-U C (00)” means Method 7500-U C, “Uranium”, “Isotopic Method”, only the version in the 21st, 22nd, and 23rd editions. Referenced in Section 611.720.

“SM 9060 A (97)” means Method 9060 A, “Samples”, “Collection”, only the version in the 20th and 21st editions. Referenced in Section 611.1052.

“SM 9215 B (88)” means Method 9215 B, “Heterotrophic Plate Count”, “Pour Plate Method”, only the version in the 18th edition. Referenced in Section 611.531.

“SM 9215 B (94)” means Method 9215 B, “Heterotrophic Plate Count”, “Pour Plate Method”, only the version in the 19th and 20th editions. Referenced in Section 611.531.

“SM 9215 B (00)” means Method 9215 B, “Heterotrophic Plate Count”, “Pour Plate Method”, only the version in the 21st edition. Referenced in Section 611.531.

“SM 9215 B (04)” means Method 9215 B, “Heterotrophic Plate Count”, “Pour Plate Method”, only the version in the 22nd edition. Referenced in Section 611.531.

“SM 9215 B (16)” means Method 9215 B, “Heterotrophic Plate Count”, “Pour Plate Method”, only the version in the 23rd edition. Referenced in Section 611.531.

~~“SM 9215 B (22)” means Method 9215 B, “Heterotrophic Plate Count”, “Pour Plate Method”, only the version in the 24th edition. Referenced in Section 611.531.~~

“SM 9221 A (93)” means Method 9221 A, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Introduction”, only the version in the 18th edition. Referenced in Section 611.531.

“SM 9221 A (94)” means Method 9221 A, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Introduction”, only the version in the 19th and 20th editions. Referenced in Section 611.531.

“SM 9221 A (99)” means Method 9221 A, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Introduction”, only the version in the 21st edition. Referenced in Section 611.531.

“SM 9221 A (06)” means Method 9221 A, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Introduction”, only the version in the 22nd edition. Referenced in Section 611.531.

“SM 9221 A (14)” means Method 9221 A, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Introduction”, only the version in the 23rd and 24th editions. Referenced in Section 611.531.

“SM 9221 B (93)” means Method 9221 B, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Standard Total Coliform Fermentation Technique”, only the version in the 18th edition. Referenced in Section 611.531.

“SM 9221 B (94)” means Method 9221 B, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Standard Total Coliform Fermentation Technique”, only the version in the 19th and 20th editions. Referenced in Sections 611.531 and 611.1052.

“SM 9221 B (99)” means Method 9221 B, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Standard Total Coliform Fermentation Technique”, only the version in the 21st edition. Referenced in Sections 611.531 and 611.1052.

“SM 9221 B (06)” means Method 9221 B, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Standard Total Coliform Fermentation Technique”, only the version in the 22nd edition. Referenced in Sections 611.531 and 611.1052.

“SM 9221 B (14)” means Method 9221 B, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Standard Total Coliform Fermentation Technique”, only the version in the 23rd and 24th editions. Referenced in Sections 611.531 and 611.1052.

“SM 9221 C (93)” means Method 9221 C, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Estimation of Bacterial Density”, only the version in the 18th edition. Referenced in Section 611.531.

“SM 9221 C (94)” means Method 9221 C, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Estimation of Bacterial Density”, only the version in the 19th and 20th editions. Referenced in Section 611.531.

“SM 9221 C (99)” means Method 9221 C, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Estimation of Bacterial Density”, only the version in the 21st edition. Referenced in Section 611.531.

“SM 9221 C (06)” means Method 9221 C, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Estimation of Bacterial Density”, only the version in the 22nd edition. Referenced in Section 611.531.

“SM 9221 C (14)” means Method 9221 C, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Estimation of Bacterial Density”, only the version in the 23rd and 24th editions. Referenced in Section 611.531.

“SM 9221 D (94)” means Method 9221 D, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Presence-Absence (P-A) Coliform”, only the version in the 20th edition. Referenced in Section 611.1052.

“SM 9221 D (99)” means Method 9221 D, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Presence-Absence (P-A) Coliform”, only the version in the 21st edition. Referenced in Section 611.1052.

“SM 9221 D (14)” means Method 9221 D, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Presence-Absence (P-A) Coliform”, only the version in the 23rd and 24th editions. Referenced in Section 611.1052.

“SM 9221 E (93)” means Method 9221 E, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Fecal Coliform Procedure”, only the version in the 18th edition. Referenced in Section 611.531.

“SM 9221 E (94)” means Method 9221 E, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Fecal Coliform Procedure”, only the version in the 19th and 20th editions. Referenced in Section 611.531.

“SM 9221 E (99)” means Method 9221 E, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Fecal Coliform Procedure”, only the version in the 21st edition. Referenced in Section 611.531.

“SM 9221 E (06)” means Method 9221 E, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Fecal Coliform Procedure”, only the version in the 22nd edition. Referenced in Section 611.531.

“SM 9221 E (14)” means Method 9221 E, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Thermotolerant (Fecal) Coliform Procedure”, only the version in the 23rd and 24th editions. Referenced in Section 611.531.

“SM 9221 F (94)” means Method 9221 F, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Escherichia Coli Procedure (Proposed)”, only the version in the 20th edition. Referenced in Sections 611.802 and 611.1052.

“SM 9221 F (06)” means Method 9221 F, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Escherichia Coli Procedure Using Fluorogenic Substrate”, only the version in the 22nd edition. Referenced in Sections 611.802 and 611.1052.

“SM 9221 F (14)” means Method 9221 F, “Multiple-Tube Fermentation Technique for Members of the Coliform Group”, “Escherichia Coli Procedure Using Fluorogenic Substrate”, only the version in the 23rd and 24th editions. Referenced in Sections 611.802 and 611.1052.

“SM 9222 A (91)” means Method 9222 A, “Membrane Filter Technique for Members of the Coliform Group”, “Introduction”, only the version in the 18th edition. Referenced in Section 611.531.

“SM 9222 A (94)” means Method 9222 A, “Membrane Filter Technique for Members of the Coliform Group”, “Introduction”, only the version in the 19th edition. Referenced in Section 611.531.

“SM 9222 A (97)” means Method 9222 A, “Membrane Filter Technique for Members of the Coliform Group”, “Introduction”, only the version in the 20th and 21st editions. Referenced in Section 611.531.

~~“SM 9222 A (06)” means Method 9222 A, “Membrane Filter Technique for Members of the Coliform Group”, “Introduction”, only the version in the 22nd edition. Referenced in Section~~

~~611.531.~~

“SM 9222 A (15)” means Method 9222 A, “Membrane Filter Technique for Members of the Coliform Group”, “Introduction”, only the version in the 23rd edition. Referenced in Section 611.531.

“SM 9222 A (22)” means Method 9222 A, “Membrane Filter Technique for Members of the Coliform Group”, “Introduction”, only the version in the 24th edition. Referenced in Section 611.531.

“SM 9222 B (91)” means Method 9222 B, “Membrane Filter Technique for Members of the Coliform Group”, “Standard Total Coliform Membrane Filter Procedure”, only the version in the 18th edition. Referenced in Section 611.531.

“SM 9222 B (94)” means Method 9222 B, “Membrane Filter Technique for Members of the Coliform Group”, “Standard Total Coliform Membrane Filter Procedure”, only the version in the 19th edition. Referenced in Section 611.531.

“SM 9222 B (97)” means Method 9222 B, “Membrane Filter Technique for Members of the Coliform Group”, “Standard Total Coliform Membrane Filter Procedure”, only the version in the 20th and 21st editions. Referenced in Sections 611.531 and 611.1052.

“SM 9222 B (15)” means Method 9222 B, “Membrane Filter Technique for Members of the Coliform Group”, “Standard Total Coliform Membrane Filter Procedure using Endo Media”, only the version in the 23rd edition. Referenced in Sections 611.531 and 611.1052.

“SM 9222 B (22)” means Method 9222 B, “Membrane Filter Technique for Members of the Coliform Group”, “Standard Total Coliform Membrane Filter Procedure using Endo Media”, only the version in the 24th edition. Referenced in Section 611.531.

“SM 9222 C (91)” means Method 9222 C, “Membrane Filter Technique for Members of the Coliform Group”, “Delayed-Incubation Total Coliform Procedure”, only the version in the 18th edition. Referenced in Section 611.531.

“SM 9222 C (94)” means Method 9222 C, “Membrane Filter Technique for Members of the Coliform Group”, “Delayed-

Incubation Total Coliform Procedure”, only the version in the 19th edition. Referenced in Section 611.531.

“SM 9222 C (97)” means Method 9222 C, “Membrane Filter Technique for Members of the Coliform Group”, “Delayed-Incubation Total Coliform Procedure”, only the version in the 20th and 21st editions. Referenced in Sections 611.531 and 611.1052.

“SM 9222 C (15)” means Method 9222 C, “Membrane Filter Technique for Members of the Coliform Group”, “Delayed-Incubation Total Coliform Procedure”, only the version in the 23rd edition. Referenced in Sections 611.531 and 611.1052.

“SM 9222 C (22)” means Method 9222 C, “Membrane Filter Technique for Members of the Coliform Group”, “Delayed-Incubation Total Coliform Procedure”, only the version in the 24th edition. Referenced in Section 611.531 and 611.1052.

“SM 9222 D (91)” means Method 9222 D, “Membrane Filter Technique for Members of the Coliform Group”, “Fecal Coliform Membrane Filter Procedure”, only the version in the 18th edition. Referenced in Section 611.531.

“SM 9222 D (94)” means Method 9222 D, “Membrane Filter Technique for Members of the Coliform Group”, “Fecal Coliform Membrane Filter Procedure”, only the version in the 19th edition. Referenced in Section 611.531.

“SM 9222 D (97)” means Method 9222 D, “Membrane Filter Technique for Members of the Coliform Group”, “Fecal Coliform Membrane Filter Procedure”, only the version in the 20th and 21st editions. Referenced in Sections 611.531 and 611.1004.

“SM 9222 D (06)” means Method 9222 D, “Membrane Filter Technique for Members of the Coliform Group”, “Thermotolerant (Fecal) Coliform Membrane Filter Procedure”, only the version in the 22nd edition. Referenced in Section 611.531.

“SM 9222 D (15)” means Method 9222 D, “Membrane Filter Technique for Members of the Coliform Group”, “Thermotolerant (Fecal) Coliform Membrane Filter Procedure”, only the version in the 23rd edition. Referenced in Section 611.531.

“SM 9222 D (22)” means Method 9222 B, “Membrane Filter Technique for Members of the Coliform Group”, “Thermotolerant

(Fecal) Coliform Membrane Filter Procedure” only the version in the 24th edition. Referenced in Section 611.531.

“SM 9222 G (97)” means Method 9222 G, “Membrane Filter Technique for Members of the Coliform Group”, “MF Partition Procedure”, only the version in the 20th and 21st editions. Referenced in Sections 611.802, 611.1004, and 611.1052.

“SM 9222 H (15)” means Method 9222 H, “Membrane Filter Technique for Members of the Coliform Group”, “Partitioning E. coli from MF Total Coliform and E. coli using EC-MUG Broth”, only the version in the 23rd edition. Referenced in Section 611.1052.

“SM 9222 H (22)” means Method 9222 H, “Membrane Filter Technique for Members of the Coliform Group”, “Partitioning E. coli from MF Total Coliform and E. coli using EC-MUG Broth”, only the version in the 24th edition. Referenced in Section 611.1052.

“SM 9222 I (15)” means Method 9222 I, “Membrane Filter Technique for Members of the Coliform Group”, “Partitioning E. coli from MF Total Coliform and E. coli using NA-MUG Agar”, only the version in the 23rd edition. Referenced in Sections 611.802 and 611.1052.

“SM 9222 I (22)” means Method 9222 I, “Membrane Filter Technique for Members of the Coliform Group”, “Partitioning E. coli from MF Total Coliform and E. coli using NA-MUG Agar”, only the version in the 24th edition. Referenced in Section 611.802 and 611.1052.

“SM 9222 J (15)” means Method 9222 J, “Membrane Filter Technique for Members of the Coliform Group”, “Simultaneous Detection of Total Coliform and E. coli by Dual-Chromogen Membrane Filter Procedure”, only the version in the 23rd edition. Referenced in Sections 611.802 and 611.1052.

“SM 9222 J (22)” means Method 9222 J, “Membrane Filter Technique for Members of the Coliform Group”, “Simultaneous Detection of Total Coliform and E. coli by Dual-Chromogen Membrane Filter Procedure”, only the version in the 24th edition. Referenced in Section 611.802 and 611.1052.

“SM 9223 (92)” means Method 9223, “Chromogenic Substrate

Coliform Test (Proposed)” (also referred to as the variations “Colilert®” and “Colisure™” depending on the medium used), only the version in the 18th edition. Referenced in Section 611.531.

“SM 9223 (94)” means Method 9223, “Chromogenic Substrate Coliform” (also referred to as the variations “Colilert®” and “Colisure™” depending on the medium used), only the version in the 19th edition. Referenced in Section 611.531.

“SM 9223 (97)” means Method 9223, “Enzyme Substrate Coliform” (also referred to as the variations “Colilert®” and “Colisure™” depending on the medium used), only the version in the 20th and 21st editions. Referenced in Sections 611.531.

“SM 9223 B (92)” means Method 9223 B, “Chromogenic Substrate Coliform Test (Proposed)”, “Chromogenic Substrate” (also referred to as the variations “Colilert®”, “Colisure™”, and “Colilert-18®” depending on the medium used), only the version in the 18th edition. Referenced in Section 611.1004.

“SM 9223 B (94)” means Method 9223 B, “Chromogenic Substrate Coliform”, “Chromogenic Substrate” (also referred to as the variations “Colilert®” and “Colisure™” depending on the medium used), only the version in the 19th edition. Referenced in Section 611.1004.

“SM 9223 B (97)” means Method 9223 B, “Enzyme Substrate Coliform”, “Chromogenic Substrate” (also referred to as the variations “Colilert®” and “Colisure™” depending on the medium used), only the version in the 20th and 21st editions. Referenced in Sections 611.802 and 611.1004.

“SM 9223 B (04)” means Method 9223 B, “Enzyme Substrate Coliform”, “Enzyme Substrate” (also referred to as the variations “Colilert®” and “Colisure™” depending on the medium used), only the version in the 22nd edition. Referenced in Sections 611.531, 611.802, and 611.1004.

“SM 9223 B (16)” means Method 9223 B, “Enzyme Substrate Coliform”, “Enzyme Substrate” (also referred to as the variations “Colilert®” and “Colisure™” depending on the medium used), only the version in the 23rd and 24th editions. Referenced in Sections 611.531, 611.802, and 611.1052.

“SM 9230 B (93)” means Method 9230 B, “Fecal Streptococcus and Enterococcus Groups”, “Multiple-Tube Techniques”, only the version in the 20th ~~edition and 21st editions~~. Referenced in Section 611.802.

“SM 9230 B (04)” means Method 9230 B, “Fecal Streptococcus and Enterococcus Groups”, “Multiple-Tube Techniques”, only the version from Standard Methods Online as Method 9230 B-04. Referenced in Section 611.802.

“SM 9230 B (13)” means Method 9230 B, “Fecal Streptococcus and Enterococcus Groups”, “Multiple-Tube Techniques”, only the version in the 23rd edition. Referenced in Section 611.802.

“SM 9230 B (22)” means Method 9230 B, “Fecal Streptococcus and Enterococcus Groups”, “Multiple-Tube Techniques”, only the version in the 24th edition. Referenced in Section 611.802. “SM 9230 C (93)” means Method 9230 C, “Fecal Streptococcus and Enterococcus Groups”, “Membrane Filter Techniques”, only the version in the 20th edition. Referenced in Section 611.802.

“SM 9230 C (13)” means Method 9230 C, “Fecal Enterococcus/Streptococcus Groups”, “Membrane Filter Techniques”, only the version in the 23rd edition. Referenced in Section 611.802.

“SM 9230 C (22)” means Method 9230 C, “Fecal Streptococcus and Enterococcus Groups”, “Membrane Filter Techniques”, only the version in the 24th edition. Referenced in Section 611.802.

“SM 9230 D (13)” means Method 9230 D, “Fecal Enterococcus/Streptococcus Groups”, “Fluorogenic Substrate Enterococcus”, only the version in the 23rd edition. Referenced in Section 611.802.

“SM 9230 D (22)” means Method 9230 D, “Fecal Streptococcus and Enterococcus Groups”, “Fluorogenic Substrate Enterococcus”, only the version in the 24th edition. Referenced in Section 611.802.

BOARD NOTE: The publication dates of the several “Standard Methods for the Examination of Water and Wastewater” editions containing approved methods:

13th edition, 1971

17th edition, 1989
18th edition, 1992
Supplement to 18th edition, 1994
19th edition, 1995
Supplement to 19th edition, 1996
20th edition, 1998
21st edition, 2005
22nd edition, 2012
23rd edition, 2017
24th edition, 2023

“Syngenta AG-625 (01)” means “Method AG-625: Atrazine in Drinking Water by Immunoassay” (February 2001), Syngenta Crop Protection, Inc. Available from publisher, 410 Swing Road, Post Office Box 18300, Greensboro, NC 27419 (336-632–6000). Referenced in Section 611.645.

“Systea Easy (1-Reagent) (09)” means “Nitrate by Discrete Analysis: Systea Easy (1-Reagent) Nitrate Method (Colorimetric, Automated, 1 Reagent)” (February 4, 2009). Available from Systea Scientific LLC, 900 Jorie Blvd., Suite 35, Oak Brook, IL 60523 (630-645-0600); NEMI; and USEPA, OGWDW (under “Inorganic Contaminants and Other Inorganic Constituents (PDF)”). Referenced in Section 611.611.
Technicon Methods. Available from Bran + Luebbe, 1025 Busch Parkway, Buffalo Grove, IL 60089.

“Technicon #129-71W (72)” means “Fluoride in Water and Wastewater” (December 1972), Industrial Method #129-71W. Referenced in Section 611.611. See 40 CFR 141.23(k)(1), footnote 11.

“Technicon #380-75WE (76)” means “Fluoride in Water and Wastewater” (February 1976), #380-75WE. See 40 CFR 141.23(k)(1), footnote 11, referenced in Section 611.611.

Tecta Methods. Available from IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, Maine 04092 (800-548-6733; <https://www.idexx.com/en/water/other-products-services/tecta-water-microbiology-system/> and USEPA, OGWDW (under “Ground Water Rule (PDF)” and “Revised Total Coliforms Rules (PDF)”).

“Tecta (14)” means “TECTA™ EC/TC medium and the TECTA™ Instrument: a Presence/Absence Method for Simultaneous Detection of Total Coliforms and Escherichia coli (E.coli) in Drinking Water”, Version 1.0 (May 22, 2014). Referenced in Sections 611.802 and 611.1052.

“Tecta (17)” means “TECTA™ EC/TC medium and the TECTA™ Instrument: a Presence/Absence Method for Simultaneous Detection of Total Coliforms and Escherichia coli (E.coli) in Drinking Water”, Version 2.0 (March 20, 2017). Referenced in Sections 611.802 and 611.1052.

“Thermo-Fisher 557.1 (17)” means “Thermofisher Method 557.1: Determination of Haloacetic Acids in Drinking Water using Two-Dimensional Ion Chromatography with Suppressed Conductivity Detection”, Version 1.0 (January 2017). Available from Thermo-Fisher Scientific, 490 Lakeside Dr, Sunnyvale, CA 94085 (800-556-2323; www.thermofisher.com) and USEPA, OGWDW (under “Disinfection Byproduct Rules (PDF)”). Referenced in Section 611.611.

“Thermo-Fisher Discrete Analyzer (16)” means “Application Note: Drinking Water Orthophosphate Method for Thermo Scientific Gallery Discrete Analyzer”, Revision 5 (February 18, 2016). Available from Thermo-Fisher Scientific, Ratastie 2, 01620 Vantaa, Finland and USEPA, OGWDW (under “Inorganic Contaminants and Other Inorganic Constituents (PDF)”). Referenced in Section 611.611.

USEPA Methods

Numbered Methods

“USEPA H-02 (84)” means Method H-02, “Radiochemical Determination of Tritium in Water—Dioxane Method”, in USEPA Radiochemistry Procedures (84). Referenced in Section 611.720.

BOARD NOTE: Also available from USEPA, OGWDW (under “Radionuclides (PDF)”).

“USEPA Ra-03 (84)” means Method Ra-03, “Radiochemical Determination of Radium-226 in Water Samples”, in USEPA Radiochemistry Procedures (84). Referenced in Section 611.720.

BOARD NOTE: Also available from USEPA, OGWDW (under “Radionuclides (PDF)”).

“USEPA Ra-04 (84)” means Method Ra-04, “Radiochemical Determination of Radium-226—De-emanation Procedure”, in USEPA Radiochemistry Procedures (84). Referenced in Section 611.720.

BOARD NOTE: Also available from USEPA, OGWDW (under “Radionuclides (PDF)”).

“USEPA Ra-05 (84)” means Method Ra-05, “Radiochemical Determination of Radium-228 in Water Samples”, in USEPA Radiochemistry Procedures (84). Referenced in Section 611.720.

BOARD NOTE: Also available from USEPA, OGWDW (under “Radionuclides (PDF)”).

“USEPA Sr-04 (84)” means Method Sr-04, “Radiochemical Determination of Radiostrontium in Water, Sea Water and Other Aqueous Media”, in USEPA Radiochemistry Procedures (84). Referenced in Section 611.720.

BOARD NOTE: Also available from USEPA, OGWDW (under “Radionuclides (PDF)”).

“USEPA 00-01 (84)” means Method 00-01, “Radiochemical Determination of Gross Alpha and Gross Beta Activity in Water”, in USEPA Radiochemistry Procedures (84). Referenced in Section 611.720.

BOARD NOTE: Also available from USEPA, OGWDW (under “Radionuclides (PDF)”).

“USEPA 00-02 (84)” means Method 00-02, “Radiochemical Determination of Gross Alpha Activity in Drinking Water by Coprecipitation”, in USEPA Radiochemistry Procedures (84). Referenced in Section 611.720.

BOARD NOTE: Also available from USEPA, OGWDW (under “Radionuclides (PDF)”).

“USEPA 00-07 (84)” means Method 00-07, “Radiochemical Determination of Thorium and Uranium in Water”, in USEPA Radiochemistry Procedures (84). Referenced in Section 611.720.

BOARD NOTE: Also available from USEPA, OGWDW (under “Radionuclides (PDF)”).

“USEPA 100.1 (83)” means “Method 100.1: Analytical Method for Determination of Asbestos in Water” (September 1983), USEPA, Environmental Research Laboratory, document number EPA 600/4-83-043. Available from NEMI; NTRL (document number PB83-

260471) and USEPA, NSCEP (search for “600483043”). Referenced in Section 611.611.

“USEPA 100.2 (94)” means “Method 100.2: Determination of Asbestos Structures over 10-mm in Length in Drinking Water” (June 1994), USEPA, Environmental Monitoring Systems Laboratory, document number EPA 600/R-94-134. Available from NEMI; NTRL (document number PB94-201902); USEPA, NSCEP (search for “600R94134”); and USEPA, OGWDW (under “Inorganic Contaminants and Other Inorganic Constituents (PDF)”). Referenced in Section 611.611.

“USEPA 127 (21)” means “Method 127: Determination of Monochloramine Concentration in Drinking Water”, document number EPA 815-B-21-004, (January 2021). Available from USEPA, NSCEP (search for “815B21004”). Referenced in Section 611.531.
BOARD NOTE: Also individually available from NEMI.

“USEPA 150.1 (71)” means “pH: Method 150.1 (Electrometric)” (1971), in USEPA Inorganic Methods (83). Referenced in Section 611.611.
BOARD NOTE: Also individually available from NEMI.

“USEPA 150.2 (82)” means “pH, Continuous Monitoring (Electrometric)—Method 150.2” (December 1982), in USEPA Inorganic Methods (83). Referenced in Section 611.611.
BOARD NOTE: Also individually available from NEMI.

“USEPA 150.3 (17)” means “Method 150.3: Determination of pH in Drinking Water”, Version 1.0 (February 2017), USEPA, Office of Ground Water and Drinking Water, document number EPA 815/B-17/001. Available from USEPA, NSCEP (search for “815B17001”) and USEPA, OGWDW (under “Disinfection Byproduct Rules (PDF)” and “Inorganic Contaminants and Other Inorganic Constituents (PDF)”). Referenced in Section 611.611.

“USEPA 180.1 (93)” means “Method 180.1: Determination of Turbidity by Nephelometry”, Revision 2.0 (August 1993), in USEPA Environmental Inorganic Methods (93). Referenced in Section 611.531.

BOARD NOTE: Also individually available from NEMI.

“USEPA 200.5 (03)” means “Method 200.5: Determination of Trace Elements in Drinking Water by Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry”, Revision 4.2 (October 2003), USEPA, National Exposure Research Laboratory, document number EPA 600/R-06/115. Available from NEMI; USEPA, NSCEP (search for “600R06115”); and USEPA, OGWDW (under “Disinfection Byproduct Rules (PDF),” “Inorganic Contaminants and Other Inorganic Constituents (PDF),” and “Secondary Contaminants (PDF)”). Referenced in Sections 611.611 and 611.612.

“USEPA 200.7 (94)” means “Method 200.7: Determination of Metals and Trace Elements in Water and Wastes by Inductively Coupled Plasma-Atomic Emission Spectrometry”, Revision 4.4 (May 1994), in USEPA Environmental Metals Methods (94). Referenced in Sections 611.600, 611.611, and 611.612.

BOARD NOTE: Also individually available from NEMI.

“USEPA 200.8 (94)” means “Method 200.8: Determination of Trace Elements in Water and Wastes by Inductively Coupled Plasma-Atomic Emission Spectrometry”, Revision 5.3 (May 1994), in USEPA Environmental Metals Methods (94). Referenced in Sections 611.600, 611.611, 611.612, and 611.720.

BOARD NOTE: Also individually available from NEMI.

“USEPA 200.9 (94)” means “Method 200.9: Determination of Metals and Trace Elements in Water by Ultrasonic Nebulization Inductively Coupled Plasma-Atomic Emission Spectrometry”, Revision 2.2 (May 1994), in USEPA Environmental Metals Methods (94). Referenced in Sections 611.600, 611.611, and 611.612.

BOARD NOTE: Also individually available from NEMI.

“USEPA 245.1 (91)” means “Method 245.1: Determination of Mercury in Water by Cold Vapor Atomic Absorption Spectrometry”, Revision 2.3 (April 1991), in USEPA Environmental Metals Methods (94). Referenced in Section 611.611.

BOARD NOTE: Also individually available from NEMI.

“USEPA 245.2 (74)” means “Mercury: Method 245.2 (Automated Cold Vapor Technique)” (1974), in USEPA Inorganic Methods (83). Referenced in Section 611.611.
BOARD NOTE: Also individually available from NEMI.

“USEPA 300.0 (93)” means “Method 300.0: Determination of Inorganic Anions by Ion Chromatography”, Revision 2.1 (August 1993), in USEPA Environmental Inorganic Methods (93). Referenced in Sections 611.381 and 611.611.
BOARD NOTE: Also individually available from NEMI.

“USEPA 300.1 (97)” means “Method 300.1: Determination of Inorganic Anions in Drinking Water by Ion Chromatography”, Revision 1.0 (September 1997), in USEPA Organic and Inorganic Methods (00). Referenced in Sections 611.381 and 611.611.
BOARD NOTE: Also individually available from NEMI.

“USEPA 302.0 (09)” means “Method 302.0: Determination of Bromate in Drinking Water Using Two-Dimensional Ion Chromatography with Suppressed Conductivity Detection” (September 2009), USEPA, Office of Water, document number EPA 815/B-09/014. Available from NEMI; USEPA, NSCEP (search “815B09014”); and USEPA, OGWDW (under “Disinfection Byproduct Rules (PDF)”). Referenced in Sections 611.381 and 611.382.

“USEPA 317.0 (01)” means “Method 317.0: Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography with the Addition of a Postcolumn Reagent for Trace Bromate Analysis”, Revision 2.0 (July 2001), USEPA, Office of Ground Water and Drinking Water, Technical Support Center, document number EPA 815/B-01/001. Available from NEMI; USEPA, NSCEP (search “815B01001”); and USEPA, OGWDW (under “Disinfection Byproduct Rules (PDF)”). Referenced in Sections 611.381 and 611.382.

“USEPA 321.8 (97)” means “Method 321.8: Determination of Bromate in Drinking Waters by Ion Chromatography Inductively Coupled Plasma/Mass Spectrometry”, Revision 1.0 (December 1997), in USEPA

Organic and Inorganic Methods (00). Referenced in Sections 611.381 and 611.382.

BOARD NOTE: Also individually available from NEMI.

“USEPA 326.0 (02)” means “Method 326.0: 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”, Revision 1.0 (June 2002), USEPA, Office of Ground Water and Drinking Water, Technical Support Center, document number EPA 815/R-03/007. Available from NEMI; NTRL (document number PB2003-107402); USEPA, NSCEP (search “815R03007”); and USEPA, OGWDW (under “Disinfection Byproduct Rules (PDF)”). Referenced in Sections 611.381 and 611.382.

“USEPA 327.0 (05)” means “Method 327.0: Determination of Chlorine Dioxide and Chlorite Ion in Drinking Water Using Lissamine Green B and Horseradish Peroxidase with Detection by Visible Spectrophotometry”, Revision 1.1 (May 2005), USEPA, Office of Ground Water and Drinking Water, Technical Support Center, document number EPA 815/R-05/008. Available from NEMI; USEPA, NSCEP (search “815R05008”); and USEPA, OGWDW (under “Disinfection Byproduct Rules (PDF)”). Referenced in Sections 611.381 and 611.531.

“USEPA 334.0 (09)” means “Method 334.0: Determination of Residual in Drinking Water Using an On-line Chlorine Analyzer”, Version 1.0 (September 2009), USEPA, Office of Ground Water and Drinking Water, Technical Support Center, document number EPA 815/B-09/013. Available from NEMI; USEPA, NSCEP (search “815B09013”); and USEPA, OGWDW (under “Disinfection Byproduct Rules (PDF)”). Referenced in Sections 611.381 and 611.531.

“USEPA 335.4 (93)” means “Method 335.4: Determination of Total Cyanide by Semi-Automated Colorimetry”, Revision 1.0 (August 1993), in USEPA Environmental Inorganic Methods (93). Referenced in Section 611.611.

BOARD NOTE: Also individually available from NEMI.

“USEPA 353.2 (93)” means “Method 353.2: Determination of Inorganic Anions by Ion Chromatography”, Revision 2.0 (August 1993), in USEPA Environmental Inorganic Methods (93). Referenced in Section 611.611.

BOARD NOTE: Also individually available from NEMI.

“USEPA 365.1 (93)” means “Method 365.1: Determination of Phosphorus by Automated Colorimetry”, Revision 2.0 (August 1993), in USEPA Environmental Inorganic Methods (93). Referenced in Section 611.611.
BOARD NOTE: Also individually available from NEMI and USEPA, OGWDW (under “Inorganic Contaminants and Other Inorganic Constituents (PDF)”).

“USEPA 415.3 (05)” means “Method 415.3: Determination of Total Organic Carbon and Specific UV Absorbance at 254 nm in Source Water and Drinking Water”, Revision 1.1 (February 2005), USEPA, National Exposure Research Laboratory, document number EPA 600/R05-055. Available from USEPA, NSCEP (search “600R05055”) and USEPA, OGWDW (under “Disinfection Byproduct Rules (PDF)”). Referenced in Section 611.381.

“USEPA 415.3 (09)” means “Method 415.3, “Determination of Total Organic Carbon and Specific UV Absorbance at 254 nm in Source Water and Drinking Water”, Revision 1.2 (September 2009), USEPA, National Exposure Research Laboratory, document number EPA 600/R09-122. Referenced in Section 611.381. Available from NEMI; USEPA, NSCEP (search “600R09122”); and USEPA, OGWDW (under “Disinfection Byproduct Rules (PDF)”).

“USEPA 502.2 (95)” means “Method 502.2: Volatile Organic Compounds in Water by Purge and Trap Capillary Column Gas Chromatography with Photoionization and Electrolytic Conductivity Detectors in Series”, Revision 2.1 (1995), in USEPA Organic Methods—Supplement III (95). Referenced in Sections 611.381 and 611.645.
BOARD NOTE: Also individually available from NEMI.

“USEPA 504.1 (95)” means “Method 504.1: 1,2-Dibromomethane (EDB), 1,2-Dibromo-3-Chloropropane

(DBCP), and 1,2,3-Trichloropropane (123TCP) in Water by Microextraction and Gas Chromatography”, Revision 1.1 (1995), in USEPA Organic Methods—Supplement III (95). Referenced in Section 611.645.

BOARD NOTE: Also individually available from NEMI.

“USEPA 505 (95)” means “Method 505: Analysis of Organohalide Pesticides and Commercial Polychlorinated Biphenyl (PCB) Products in Water by Microextraction and Gas Chromatography”, Revision 2.1 (1995), in USEPA Organic Methods—Supplement III (95). Referenced in Sections 611.645 and 611.648.

BOARD NOTE: Also individually available from NEMI.

“USEPA 506 (95)” means “Method 506: Determination of Phthalate and Adipate Esters in Drinking Water by Liquid-Liquid Extraction or Liquid-Solid Extraction and Gas Chromatography with Photoionization Detection”, Revision 1.1 (1995), in USEPA Organic Methods—Supplement III (95). Referenced in Section 611.645.

BOARD NOTE: Also individually available from NEMI.

“USEPA 507 (95)” means “Method 507: Determination of Nitrogen- and Phosphorus-Containing Pesticides in Water by Gas Chromatography with a Nitrogen-Phosphorus Detector”, Revision 2.1 (1995), in USEPA Organic Methods—Supplement III (95). Referenced in Sections 611.645 and 611.648.

BOARD NOTE: Also individually available from NEMI.

“USEPA 508 (95)” means “Method 508: Determination of Chlorinated Pesticides in Water by Gas Chromatography with an Electron Capture Detector”, Revision 3.1 (1995), in USEPA Organic Methods—Supplement III (95). Referenced in Sections 611.645 and 611.648.

BOARD NOTE: Also individually available from NEMI.

“USEPA 508A (89)” means “Method 508A: Screening for Polychlorinated Biphenyls by Perchlorination and Gas Chromatography”, Revision 1.0 (1989), in USEPA Organic Methods (91). Referenced in Sections 611.645 and 611.646.

BOARD NOTE: Also individually available from NEMI.

“USEPA 508.1 (95)” means “Method 508.1: Determination of Chlorinated Pesticides, Herbicides, and Organohalides by Liquid-Solid Extraction and Electron Capture Gas Chromatography”, Revision 2.0 (1995), in USEPA Organic Methods—Supplement III (95). Referenced in Sections 611.645 and 611.648.
BOARD NOTE: Also individually available from NEMI.

“USEPA 515.1 (89)” means “Method 515.1: Determination of Chlorinated Acids in Drinking Water by Gas Chromatography with an Electron Capture Detector”, Revision 4.1 (1989), in USEPA Organic Methods (91). Referenced in Section 611.645.

“USEPA 515.2 (95)” means “Method 515.2: Determination of Chlorinated Acids in Water Using Liquid-Solid Extraction and Gas Chromatography with an Electron Capture Detector”, Revision 1.1 (1995), in USEPA Organic Methods—Supplement III (95). Referenced in Section 611.645.
BOARD NOTE: Also individually available from NEMI.

“USEPA 515.3 (96)” means “Method 515.3: Determination of Chlorinated Acids in Drinking Water by Liquid-Liquid Extraction, Derivatization and Gas Chromatography with Electron Capture Detection”, Revision 1.0 (July 1996), in USEPA Organic and Inorganic Methods (00). Referenced in Section 611.645.
BOARD NOTE: Also individually available from NEMI.

“USEPA 515.4 (00)” means “Method 515.4: Determination of Chlorinated Acids in Drinking Water by Liquid-Liquid Microextraction, Derivatization and Fast Gas Chromatography with Electron Capture Detection” Revision 1.0 (April 2000), USEPA, Office of Ground Water and Drinking Water, Technical Support Center, document number EPA 815/B-00/001. Available from NEMI; USEPA, NSCEP (search “815B00001”); and USEPA, OGWDW (under “Organic Contaminants (PDF)”). Referenced in Section 611.645.

“USEPA 523 (11)” means “Method 523: Determination of Triazine Pesticides and Other Degradates in Drinking Water by Gas Chromatography/Mass Spectrometry (GC/MS)”, Version 1.0 (February 2011), USEPA, Office of

Ground Water and Drinking Water, Standards and Risk Management Division, Technical Support Center, document number EPA 815/R-11-002. Available from USEPA, NSCEP (search “815R11002”); and USEPA, OGWDW (under “Organic Contaminants (PDF)”). referenced in Section 611.645.

“USEPA 524.2 (95)” means “Method 524.2: Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/Mass Spectrometry”, Revision 4.1 (1995), in USEPA Organic Methods—Supplement III (95). Referenced in Section 611.645. BOARD NOTE: Also individually available from NEMI.

“USEPA 524.3 (09)” means “Method 524.3: Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/Spectrometry”, Revision 1.0 (June 2009), USEPA, Office of Ground Water and Drinking Water, Standards and Risk Management Division, Technical Support Center, document number EPA 815/B-09/009. Available from NEMI; USEPA, NSCEP (search for “815B09009”); and USEPA, OGWDW (under “Disinfection Byproduct Rules (PDF)” and “Organic Contaminants (PDF)”). Referenced in Sections 611.381 and 611.645.

“USEPA 524.4 (13)” means “Method 524.4, “Measurement of Purgeable Organic Compounds in Water by Gas Chromatography/Spectrometry Using Nitrogen Purge Gas” (May 2013), USEPA, Office of Ground Water and Drinking Water, Standards and Risk Management Division, Technical Support Center, document number EPA 815/R-13/002. Available from USEPA, NSCEP (search for “815R13002”); and USEPA, OGWDW (under “Disinfection Byproduct Rules (PDF)” and “Organic Contaminants (PDF)”). Referenced in Sections 611.381 and 611.645.

“USEPA 525.2 (95)” means “Method 525.2: Determination of Organic Compounds in Drinking by Liquid-Liquid Extraction and Capillary Column Gas Chromatography/Mass Spectrometry”, Revision 2.0 (1995), in USEPA Organic Methods—Supplement III (95). Referenced in Section 611.645. BOARD NOTE: Also individually available from NEMI.

“USEPA 525.3 (12)” means “Method 525.3: Determination of Total Semivolatile Organic Chemicals in Drinking Water by Solid Phase Extraction and Capillary Column Gas Chromatography/Mass Spectrometry (GC/MS)”, Version 1.0 (February 2012), USEPA, National Exposure Research Laboratory, document number EPA 600/R-12/010. Available from USEPA, NSCEP (search “600R12010”) and USEPA, OGWDW (under “Organic Contaminants (PDF)”). Referenced in Section 611.645.

“USEPA 531.1 (95)” means “Method 531.1: Measurement of N-Methylcarbamoyloximes and N-Methylcarbamates in Water by Direct Aqueous Injection HPLC with Post Column Derivatization”, Revision 3.1 (1995), in USEPA Organic Methods—Supplement III (95). Referenced in Section 611.645.

BOARD NOTE: Also individually available from NEMI.

“USEPA 531.2 (01)” means “Method 531.2: Measurement of N-Methylcarbamoyloximes and N-Methylcarbamates in Water by Direct Aqueous Injection HPLC with Postcolumn Derivatization”, Revision 1.0 (September 2001), USEPA, Office of Ground Water and Drinking Water, Standards and Risk Management Division, Technical Support Center, document number EPA 815/B-01/002. Available from NEMI; USEPA, NSCEP (search “815B01002”); and USEPA, OGWDW (under “Organic Contaminants (PDF)”). Referenced in Section 611.645. See also and

“USEPA Method 533” means “Method 533”: Determination of Per- and Polyfluoroalkyl Substances in Drinking Water by Isotope Dilution Anion Exchange Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry, 815-B-19-020, November 2019

“USEPA 536 (07)” means “Method 536: Determination of Triazine Pesticides and Other Degradates in Drinking Water by Liquid Chromatography Electrospray Ionization Tandem Mass Spectrometry (LC/ESI-MS/MS)”, Version 1.0 (October 2007), USEPA Office of Ground Water and Drinking Water, Technical Support Center, document number EPA 815/B-07/002. Available from USEPA, NSCEP (search “815B07002”) and USEPA, OGWDW (under “Organic Contaminants (PDF)”). Referenced in

Section 611.645.

“USEPA 547 (90)” means “Method 547: Determination of Glyphosate in Drinking Water by Direct-Aqueous-Injection HPLC, Post-Column Derivatization, and Fluorescence Detection” (July 1990), in USEPA Organic Methods—Supplement I (90). Referenced in Section 611.645.

“USEPA 548.1 (92)” means “Method 548.1: Determination of Endothall in Drinking Water by Ion-Exchange Extraction, Acidic Methanol Methylation and Gas Chromatography/Mass Spectrometry”, Revision 1.0 (August 1992), in USEPA Organic Methods—Supplement II (92). Referenced in Section 611.645.

BOARD NOTE: Also individually available from NEMI.

“USEPA 549.2 (97)” means “Method 549.2: Determination of Diquat and Paraquat in Drinking Water by Liquid-Solid Extraction and High Performance Liquid Chromatography with Ultraviolet Detection”, Revision 1.0 (June 1997), USEPA, Office of Research and Development, National Exposure Research Laboratory. Available from NEMI. Referenced in Section 611.645.

“USEPA 550 (90)” means “Method 550: Determination of Polycyclic Aromatic Hydrocarbons in Drinking Water by Liquid-Liquid Extraction and HPLC with Coupled Ultraviolet and Fluorescence Detection” (July 1990), in USEPA Organic Methods—Supplement I (90). Referenced in Section 611.645.

BOARD NOTE: Also individually available from NEMI.

“USEPA 550.1 (90)” means “Method 550.1: Determination of Polycyclic Aromatic Hydrocarbons in Drinking Water by Liquid-Solid Extraction and HPLC with Coupled Ultraviolet and Fluorescence Detection” (July 1990), in USEPA Organic Methods—Supplement I (90). Referenced in Section 611.645.

BOARD NOTE: Also individually available from NEMI.

“USEPA 551.1 (95)” means “Method 551.1: Measurement of N-Methylcarbamoyloximes and N-Methylcarbamates in Water by Direct Aqueous Injection HPLC with Post Column Derivatization”, Revision 1.0 (1995), in USEPA

Organic Methods—Supplement III (95). Referenced in Section 611.645.

“USEPA 552.1 (92)” means “Method 552.1: Determination of Haloacetic Acids and Dalapon in Drinking Water by Ion-Exchange Liquid-Solid Extraction and Gas Chromatography with an Electron Capture Detector”, Revision 1.0 (August 1992), in USEPA Organic Methods—Supplement II (92). Referenced in Sections 611.381 and 611.645.

BOARD NOTE: Also individually available from NEMI.

“USEPA 552.2 (95)” means “Method 552.2: Determination of Haloacetic Acids and Dalapon in Drinking Water by Liquid-Liquid Extraction, Derivatization and Gas Chromatography with Electron Capture Detection”, Revision 1.0 (1995), in USEPA Organic Methods—Supplement III (95). Referenced in Sections 611.381 and 611.645.

BOARD NOTE: Also individually available from NEMI.

“USEPA 552.3 (03)” means “Method 552.3: Determination of Haloacetic Acids and Dalapon in Drinking Water by Liquid-Liquid Microextraction, Derivatization, and Gas Chromatography with Electron Capture Detection”, Revision 1.0 (July 2003), USEPA, Office of Ground Water and Drinking Water, Technical Support Center, document number EPA 815/B-03/002. Available from NEMI; USEPA, NSCEP (search “815B03002”); and USEPA, OGWDW (under “Disinfection Byproduct Rules (PDF)”). Referenced in Sections 611.381 and 611.645.

“USEPA 555 (92)” means “Method 555: Determination of Chlorinated Acids in Water by High Performance Liquid Chromatography with a Photodiode Array Ultraviolet Detector”, Revision 1.0 (August 1992), in USEPA Organic Methods—Supplement II (92). Referenced in Section 611.645.

BOARD NOTE: Also individually available from NEMI.

“USEPA 557 (09)” means “Method 557: Determination of Haloacetic Acids, Bromate, and Dalapon in Drinking Water by Ion Chromatography Electrospray Ionization Tandem Mass Spectrometry (IC-ESI-MS/MS)”, Version 1.0

(September 2009), USEPA, Office of Ground Water and Drinking Water, Technical Support Center, document number EPA 815/B-09/012. Available from NEMI; USEPA, NSCEP (search “815B09012”); and USEPA, OGWDW (under “Disinfection Byproduct Rules (PDF)”). Referenced in Sections 611.381, 611.382, and 611.645.

“USEPA 900.0 (80)” means “Gross Alpha and Gross Beta Radioactivity in Drinking Water—Method 900.0” (1980), in USEPA Radioactivity Methods (80). Referenced in Section 611.720.

BOARD NOTE: Also individually available from NEMI and USEPA, OGWDW (under “Radionuclides (PDF)”).

“USEPA 900.0 (18)” means Method 900.0, Revision 1.0 “Gross Alpha and Gross Beta Radioactivity in Drinking Water” (February 2018), USEPA, Office of Water, document number EPA 815/B-18/002. Also available from USEPA, NSCEP (search “815B18002”) and USEPA, OGWDW (under “Radionuclides (PDF)”).

“USEPA 901.0 (80)” means “Radioactive Cesium in Drinking Water—Method 901.0” (1980), in USEPA Radioactivity Methods (80). Referenced in Section 611.720.

BOARD NOTE: Also individually available from NEMI and USEPA, OGWDW (under “Radionuclides (PDF)”).

“USEPA 901.1 (80)” means “Gamma Emitting Radionuclides in Drinking Water—Method 901.1” (1980), in USEPA Radioactivity Methods (80). Referenced in Section 611.720.

BOARD NOTE: Also individually available from NEMI and USEPA, OGWDW (under “Radionuclides (PDF)”).

“USEPA 902.0 (80)” means “Radioactive Iodine in Drinking Water—Method 902.0” (1980), in USEPA Radioactivity Methods (80). Referenced in Section 611.720.

“USEPA 903.0 (80)” means “Alpha-Emitting Radium Isotopes in Drinking Water—Method 903.0” (1980), in USEPA Radioactivity Methods (80). Referenced in Section 611.720.

BOARD NOTE: Also individually available from NEMI and USEPA, OGWDW (under “Radionuclides (PDF)”).

“USEPA 903.0 (21)” means “Method 903.0, Revision 1.0: Alpha-Emitting Radium Isotopes in Drinking Water”, doc. no. EPA 815-B-21-002 (January 2021). Available from USEPA, NSCEP (nepis.epa.gov; search: “815B21002”). Referenced in Section 611.720.

“USEPA 903.1 (80)” means “Radium-226 in Drinking Water Radon Emanation Technique—Method 903.1” (1980), in USEPA Radioactivity Methods (80). Referenced in Section 611.720.

BOARD NOTE: Also individually available from NEMI and USEPA, OGWDW (under “Radionuclides (PDF)”).

“USEPA 903.1 (21)” means “Method 903.1, Revision 1.0: Radium-226 in Drinking Water Radon Emanation Technique”, doc. no. EPA 815-B-21-003 (January 2021). Available from USEPA, NSCEP (nepis.epa.gov; search: “815B21003”). Referenced in Section 611.720.

“USEPA 904.0 (80)” means “Radium-228 in Drinking Water—Method 904.0” (1980), in USEPA Radioactivity Methods (80). Referenced in Section 611.720.

BOARD NOTE: Also individually available from NEMI and USEPA, OGWDW (under “Radionuclides (PDF)”).

“USEPA 904.0 (22)” means “Radium-228 in Drinking Water—Method 904.0”, Revision 1.0 (2022), in USEPA Radioactivity Methods (80). Referenced in Section 611.720.

“USEPA 905.0 (80)” means “Radioactive Strontium in Drinking Water—Method 905.0” (1980), in USEPA Radioactivity Methods (80). Referenced in Section 611.720.

BOARD NOTE: Also individually available from NEMI and USEPA, OGWDW (under “Radionuclides (PDF)”).

“USEPA 906.0 (80)” means “Tritium in Drinking Water—Method 906.0” (1980), in USEPA Radioactivity Methods (80). Referenced in Section 611.720.

BOARD NOTE: Also individually available from NEMI and USEPA, OGWDW (under “Radionuclides (PDF)”).

“USEPA 908.0 (80)” means “Uranium in Drinking Water—Radiochemical Method—Method 908.0” (1980), in USEPA Radioactivity Methods (80). Referenced in Section 611.720.

BOARD NOTE: Also individually available from NEMI.

“USEPA 908.1 (80)” means “Uranium in Drinking Water—Fluorometric Method—Method 908.1” (1980), in USEPA Radioactivity Methods (80). Referenced in Section 611.720.

BOARD NOTE: Also individually available from NEMI and USEPA, OGWDW (under “Radionuclides (PDF)”).

“USEPA 1600 (02)” means “Method 1600: Enterococci in Water by Membrane Filtration Using membrane-Enterococcus Indoxyl- β -D-Glucoside Agar (mEI)” (September 2002), USEPA, Office of Water, document number EPA 821/R-02/022. Available from NEMI; USEPA, NSCEP (search “821R02022”); and USEPA, OGWDW (under “Ground Water Rule (PDF)”).

Referenced in Section 611.802.

BOARD NOTE: SM 9230 C (93) and SM 9230 (13), “Fecal Streptococcus and Enterococcus Groups, Membrane Filter Techniques”, are USEPA-approved variations of this method.

“USEPA 1601 (01)” means “Method 1601: Male-specific (F+) and Somatic Coliphage in Water by Two-step Enrichment Procedure” (April 2001), USEPA, Office of Water, document number EPA 821/R-01/030. Available from NEMI and USEPA, NSCEP (search “821R01030”); and USEPA, OGWDW (under “Ground Water Rule (PDF)”). Referenced in Section 611.802.

“USEPA 1602 (01)” means “Method 1602: Male-specific (F+) and Somatic Coliphage in Water by Single Agar Layer (SAL) Procedure” (April 2001), USEPA, Office of Water, document number EPA 821/R-01/029. Available from NEMI and USEPA, NSCEP (search “821R01029”); and USEPA, OGWDW (under “Ground Water Rule (PDF)”). Referenced in Section 611.802.

“USEPA 1604 (02)” means “Method 1604: Total Coliforms and Escherichia coli in Water by Membrane

Filtration Using a Simultaneous Detection Technique (MI Medium)” (September 2002), USEPA, Office of Water, document number EPA 821/R-02/024. Available from NEMI and USEPA, NSCEP (search “821R02024”); and USEPA, OGWDW (under “Ground Water Rule (PDF)”, “Revised Total Coliforms Rule (PDF)”, and “Surface Water Treatment Rule (PDF)”). Referenced in Sections 611.802 and 611.1052.

“USEPA 1613 (94)” means “Method 1613: Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution HRGC/HRMS”, Revision B (October 1994), USEPA, Office of Water, Engineering and Analysis Division, document number EPA 821/B-94/005. Available from NEMI; NTRL (document number PB95-104774); USEPA, NSCEP (search “821B94005”); and USEPA, OGWDW (under “Organic Contaminants (PDF)”). Referenced in Section 611.645.

“USEPA 1622 (01)” means “Method 1622: Cryptosporidium in Water by Filtration/IMS/FA” (April 2001), USEPA, Office of Water, document number EPA 821/R-01/026. Available from NEMI; and USEPA, NSCEP (search “821R01026”). Referenced in Section 611.1007.

“USEPA 1622 (05)” means “Method 1622: Cryptosporidium in Water by Filtration/IMS/FA” (December 2005), USEPA, Office of Ground Water and Drinking Water, document number EPA 815/R-05/001. Available from USEPA, NSCEP (search “815R05001”) and USEPA, OGWDW (under “Long Term 2 Enhanced Surface Water Treatment Rule (PDF)”). Referenced in Sections 611.1004 and 611.1007.

“USEPA 1623 (99)” means “Method 1623: Cryptosporidium and Giardia in Water by Filtration/IMS/FA” (April 1999), USEPA, Office of Ground Water and Drinking Water, document number EPA 821/R-99/006. Available from USEPA, NSCEP (search “821R99006”). Referenced in Section 611.1007.

“USEPA 1623 (01)” means “Method 1623: Cryptosporidium and Giardia in Water by Filtration/IMS/FA” (April 2001), USEPA, Office of

Ground Water and Drinking Water, document number EPA 821/R-01/025. Available from NEMI and USEPA, NSCEP (search “821R01025”). Referenced in Section 611.1007.

“USEPA 1623 (05)” means “Method 1623: Cryptosporidium and Giardia in Water by Filtration/IMS/FA” (December 2005), USEPA, Office of Ground Water and Drinking Water, document number EPA 815/R-05/002. Available from USEPA, NSCEP (search “815R05002”) and USEPA, OGWDW (under “Long Term 2 Enhanced Surface Water Treatment Rule (PDF)”). Referenced in Sections 611.1004 and 611.1007.

“USEPA 1623.1 (12)” means “Method 1623.1, “Method 1623.1: Cryptosporidium and Giardia in Water by Filtration/IMS/FA” (January 2012), USEPA, Office of Ground Water and Drinking Water, document number EPA 816/R-12/001. Available from USEPA, NSCEP (search “816R12001”) and USEPA, OGWDW (under “Long Term 2 Enhanced Surface Water Treatment Rule (PDF)”). Referenced in Section 611.1004.

USEPA Documents Containing Multiple Numbered Methods

“USEPA Environmental Inorganic Methods (93)” means “Methods for the Determination of Inorganic Substances in Environmental Samples” (August 1993), USEPA, Environmental Monitoring Systems Laboratory, document number EPA 600/R-93-100 (for USEPA 180.1 (93), USEPA 300.0 (93), USEPA 335.4 (93), USEPA 353.2 (93), and USEPA 365.1 (93) only). Available from NTRL (document number PB94-121811) and USEPA, NSCEP (search “600R93100”).

“USEPA Environmental Metals Methods (94)” means “Methods for the Determination of Metals in Environmental Samples—Supplement I”, May 1994, USEPA, Environmental Monitoring Systems Laboratory, document number EPA 600/R-94-111 (for USEPA 200.7 (94), USEPA 200.8 (94), USEPA 200.9 (94), and USEPA 245.1 (94) only). Referenced in Sections 611.600, 611.611, 611.612, and 611.720. Available from NTRL (document number PB84-125472) and USEPA, NSCEP (search “600R94111”).

“USEPA Inorganic Methods (83)” means “Methods for Chemical Analysis of Water and Wastes”(March 1983), USEPA, Office of Research and Development, document number EPA 600/4-79-020 (USEPA 150.1 (71), USEPA 150.2 (82), and USEPA 245.2 (74) only). Available from NTRL (document number PB84-128677) and USEPA, NSCEP (search “600479020”). Referenced in Section 611.611.

“USEPA Organic and Inorganic Methods (00)” means “Methods for the Determination of Organic and Inorganic Compounds in Drinking Water, Volume 1” (August 2000), USEPA, Office of Water and Office of Research and Development, document number EPA 815/R-00/014 (Methods 300.1 (97), USEPA 321.8 (97), and USEPA 515.3 (96) only). Available from NTRL (document number PB2000-106981) and USEPA, NSCEP (search “815R00014”).

“USEPA Organic Methods (91)” means “Methods for the Determination of Organic Compounds in Drinking Water”, (December 1988 (revised July 1991)), USEPA, Office of Research and Development, document number EPA 600/4-88/039 (USEPA 508A (89) and USEPA 515.1 (89) only). Available from NTRL (document number PB91-231480) and USEPA, NSCEP (search “600488039”) and USEPA, OGWDW.

“USEPA Organic Methods—Supplement I (90)” means “Methods for the Determination of Organic Compounds in Drinking Water—Supplement I” (July 1990), USEPA, Environmental Monitoring Systems Laboratory, document number EPA 600/4-90/020 (USEPA 547 (90), USEPA 550 (90) and USEPA 550.1 (90) only). Available from NTRL (document number PB91-146027) and USEPA, NSCEP (search “600490020”).

“USEPA Organic Methods—Supplement II (92)” means “Methods for the Determination of Organic Compounds in Drinking Water—Supplement II” (August 1992), USEPA, Office of Research and Development, document number EPA 600/R-92/129 (USEPA 548.1 (92), USEPA 552.1 (92), and USEPA 555 (92) only). Available from NTRL (document number PB92-207703) and USEPA, NSCEP (search “600R92129”).

“USEPA Organic Methods—Supplement III (95)” means “Methods for the Determination of Organic Compounds in Drinking Water—Supplement III” (August 1995), USEPA, Office of Research and Development, document number EPA 600/R-95/131 (USEPA 502.2 (95), USEPA 504.1 (95), USEPA 505 (95), USEPA 506 (95), USEPA 507 (95), USEPA 508 (95), USEPA 508.1 (95), USEPA 515.2 (95), USEPA 524.2 (95), USEPA 525.2 (95), USEPA 531.1 (95), USEPA 551.1 (95), and USEPA 552.2 (95) only). Available from NTRL (document number PB95-261616) and USEPA, NSCEP (search “600R95131”).

“USEPA Radioactivity Methods (80)” means “Prescribed Procedures for Measurement of Radioactivity in Drinking Water” (August 1980), USEPA, Office of Research and Development, Environmental Monitoring and Support Laboratory, document number EPA 600/4-80/032 (USEPA 900.0 (80), USEPA 901.0 (80), USEPA 901.1 (80), USEPA 902.0 (80), USEPA 903.0 (80), USEPA 903.1 (80), USEPA 904.0 (80), USEPA 905.0 (80), USEPA 906.0 (80), USEPA 908.0 (80), and USEPA 908.1 (80) only.). Available from NTRL (document number PB80-224744); USEPA, NSCEP (search “821480032”); and USEPA, OGWDW (under “Radionuclides (PDF)”).

“USEPA Radiochemistry Procedures (84)” means “Radiochemistry Procedures Manual” (June 1984), USEPA, Eastern Environmental Radiation Facility, document number EPA 520/5-84-006 (USEPA 00-01 (84), USEPA 00-02 (84), USEPA 00-07 (84), USEPA H-02 (84), USEPA Ra-03 (84), USEPA Ra-04 (84), USEPA Ra-05 (84), USEPA Sr-04 (84) only). Available from NTRL (document number PB84215581); USEPA, NSCEP (search “520584006”); and USEPA, OGWDW.

Unnumbered Methods

“USEPA ARP (73)” means “Procedures for Radiochemical Analysis of Nuclear Reactor Aqueous Solutions” (May 1973), USEPA, Office of Research and Monitoring, National Environmental Research Center, document number EPA-R4-73-014. Available from NTRL (document number PB222154) and USEPA, NSCEP (search “R473014”). Referenced in Section 611.720.

“USEPA IRM (76)” means “Interim Radiochemical Methodology for Drinking Water” (March 1976), USEPA, Office of Research and Development, Environmental Monitoring and Support Laboratory, document number EPA 600/4-75-008 (revised) (pages 1 through 37 only). Available from NTRL (document number PB253258); USEPA, NSCEP (search “600475008A”); and USEPA, OGWDW (under “Radionuclides (PDF)”). Referenced in Section 611.720.

“USEPA IRM (76), pages 1-3” means pages 1 through 3, “Gross Alpha and Beta Radioactivity in Drinking Water”, in USEPA IRM (76). Referenced in Section 611.720.

“USEPA IRM (76), pages 4-5” means pages 4 through 5, “Radioactive Cesium in Drinking Water”, in USEPA IRM (76). Referenced in Section 611.720.

“USEPA IRM (76), pages 6-8” means pages 6 through 8, “Radioactive Iodine in Drinking Water: Precipitation Method”, in USEPA IRM (76). Referenced in Section 611.720.

“USEPA IRM (76), pages 9-12” means pages 9 through 12, “Radioactive Iodine in Drinking Water: Distillation Method”, in USEPA IRM (76). Referenced in Section 611.720.

“USEPA IRM (76), pages 13-15” means pages 13 through 15, “Alpha-Emitting Radium Isotopes in Drinking Water: Precipitation Method”, in USEPA IRM (76). Referenced in Section 611.720.

“USEPA IRM (76), pages 16-23” means pages 16 through 23, “Radium-226 in Drinking Water: Radon Emanation Technique”, in USEPA IRM (76). Referenced in Section 611.720.

“USEPA IRM (76), pages 24-28” means pages 24 through 28, “Radium-228 in Drinking Water: Sequential Method Radium-228/Radium-226”, in USEPA IRM (76). Referenced in Section 611.720.

“USEPA IRM (76), pages 29-33” means pages 29 through 33, “Radioactive Strontium in Drinking Water”, in USEPA IRM (76). Referenced in Section 611.720.

“USEPA IRM (76), pages 34-37” means pages 34 through 37, “Tritium in Drinking Water”, in USEPA IRM (76). Referenced in Section 611.720.

“USEPA RCA (79)” means “Radiochemical Analytical Procedures for Analysis of Environmental Samples” (March 1979), USEPA, Environmental Monitoring and Support Laboratory, document number EMSL-LV-0539-17 (pages 1 through 5, 19 through 48, 65 through 73, and 87 through 95 only). Available from NTRL (document number EMSLLV053917); USEPA, NSCEP (search “EMSLLV053917”) and USEPA, OGWDW (under “Radionuclides (PDF)”). Referenced in Section 611.720.

“USEPA RCA (79), pages 1-5” means pages 1 through 5, “Determination of Gross Alpha and Beta in Water”, in USEPA RCA (79). Referenced in Section 611.720.

“USEPA RCA (79), pages 19-32” means pages 19 through 32, “Determination of Radium-226 and Radium-228 in Water, Soil, Air, and Biological Tissue”, in USEPA RCA (79). Referenced in Section 611.720.

“USEPA RCA (79), pages 33-48” means pages 33 through 48, “Isotopic Determination of Plutonium, Uranium, and Thorium in Water, Soil, Air, and Biological Tissue”, in USEPA RCA (79). Referenced in Section 611.720.

“USEPA RCA (79), pages 65-73” means pages 65 through 73, “Determination of Strontium-89 and Strontium-90 in Water, Soil, Air, and Biological Tissue”, in USEPA RCA (79). Referenced in Section 611.720.

“USEPA RCA (79), pages 87-91” means pages 87 through 91, “Determination of Tritium in Water,

Soil, Air, and Biological Tissue (Direct Method)”, in USEPA RCA (79). Referenced in Section 611.720.

“USEPA RCA (79), pages 92-95” means pages 92 through 95, “Isotopic Analysis by Gamma Ray Spectra Using Lithium-Drifted Germanium Detectors”, in USEPA RCA (79). Referenced in Section 611.720.

“USEPA Technical Notes (94)” means “Technical Notes on Drinking Water Methods” (October 1994), document number EPA 600/R-94-173, USEPA, Office of Research and Development. Available from NTRL (document number PB95-104766); and USEPA, NSCEP (search “600R94173”). Referenced in Sections 611.531, 611.611, and 611.645.

Sources of USEPA Methods

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

NTRL. National Technical Reports Library, U.S. Department of Commerce, 5301 Shawnee Road, Alexandria, VA 22312 (703-605-6000 or 800-553-6847, <https://ntrl.ntis.gov/NTRL/>).

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/> using the search term indicated for the individual method).

USEPA, OGWDW. United States Environmental Protection Agency, Office of Ground Water and Drinking Water (methods cited as available are directly available through a link in the indicated list on www.epa.gov/dwanalyticalmethods/approved-drinking-water-analytical-methods).

USGS Methods. All documents available from United States Geological Survey, Federal Center, Box 25286, Denver, CO 80225-0425.

“USGS I-1030-85” means “Alkalinity, electrometric titration, I-1030-85”, in “Techniques of Water-Resource Investigation of the United States Geological Survey”, 3rd ed. (1989), Book 5, Chapter A1, “Methods for Determination of Inorganic Substances in Water and Fluvial Sediments”. Available at pubs.usgs.gov/twri/twri5-a1/pdf/TWRI_5-A1.pdf. Referenced in Section 611.611.

“USGS I-1601-85” means “Phosphorus, orthophosphate, colorimetric, phosphomolybdate, I-1601-85”, in “Techniques of Water-Resource Investigation of the United States Geological Survey”, 3rd ed. (1989), Book 5, Chapter A1, “Methods for Determination of Inorganic Substances in Water and Fluvial Sediments”. Available at pubs.usgs.gov/twri/twri5-a1/pdf/TWRI_5-A1.pdf. Referenced in Section 611.611.

“USGS I-1700-85” means “Silica, colorimetric, molybdate blue, I-1700-85”, in “Techniques of Water-Resource Investigation of the United States Geological Survey”, 3rd ed. (1989), Book 5, Chapter A1, “Methods for Determination of Inorganic Substances in Water and Fluvial Sediments”. Available at pubs.usgs.gov/twri/twri5-a1/pdf/TWRI_5-A1.pdf. Referenced in Section 611.611.

“USGS I-2598-85” means “Phosphorus, orthophosphate, colorimetric, phosphomolybdate, automated-discrete, I-2598-85”, in “Techniques of Water-Resource Investigation of the United States Geological Survey”, 3rd ed. (1989), Book 5, Chapter A1, “Methods for Determination of Inorganic Substances in Water and Fluvial Sediments”. Available at pubs.usgs.gov/twri/twri5-a1/pdf/TWRI_5-A1.pdf. Referenced in Section 611.611.

“USGS I-2601-90” means “Phosphorus, orthophosphate, colorimetry, phosphomolybdate, automated segment-flow, I-2601-90”, in “Methods for Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of Inorganic and Organic Constituents in Water and Fluvial Sediments”, U.S. Geological Survey, Open File Report 93-125 (1993). Available at pubs.usgs.gov/publication/ofr93125 and https://www.nemi.gov/methods/method_summary/8907/. Referenced in Section 611.611.

“USGS I-2700-85” means “Silica, colorimetric, molybdate blue, automated-segmented flow, I-2700-85”, in “Techniques of Water-Resource Investigation of the United States Geological Survey”, 3rd ed. (1989), Book 5, Chapter A1, “Methods for Determination of Inorganic Substances in Water and Fluvial Sediments”.

Available at pubs.usgs.gov/twri/twri5-a1/pdf/TWRI_5-A1.pdf.
Referenced in Section 611.611.

“USGS I-3300-85” means “Cyanide, colorimetric, pyridine-pyrazolone, I-3300-85”, in “Techniques of Water-Resource Investigation of the United States Geological Survey”, 3rd ed. (1989), Book 5, Chapter A1, “Methods for Determination of Inorganic Substances in Water and Fluvial Sediments”. Available at pubs.usgs.gov/twri/twri5-a1/pdf/TWRI_5-A1.pdf. Referenced in Section 611.611.

“USGS R-1110-76” means “Cesium-137 and cesium-134, dissolved. Inorganic ion-exchange method—gamma counting, R-1110-76”, in “Techniques of Water-Resource Investigation of the Water Resources Investigations of the United States Geological Survey”, Book 5, Chapter A-5, “Methods for Determination of Radioactive Substances in Water and Fluvial Sediments” (1977). Available at pubs.usgs.gov/twri/twri5a5/pdf/TWRI_5-A5.pdf. Referenced in Section 611.720.

“USGS R-1111-76” means “Radiocesium, dissolved, as cesium-137. Inorganic ion-exchange method—beta counting, R-1111-76”, in “Techniques of Water-Resource Investigation of the Water Resources Investigations of the United States Geological Survey”, Book 5, Chapter A-5, “Methods for Determination of Radioactive Substances in Water and Fluvial Sediments” (1977). Available at pubs.usgs.gov/twri/twri5a5/pdf/TWRI_5-A5.pdf. Referenced in Section 611.720.

“USGS R-1120-76” means “Gross alpha and beta radioactivity, dissolved and suspended, R-1120-76”, in “Techniques of Water-Resource Investigation of the Water Resources Investigations of the United States Geological Survey”, Book 5, Chapter A-5, “Methods for Determination of Radioactive Substances in Water and Fluvial Sediments” (1977). Available at pubs.usgs.gov/twri/twri5a5/pdf/TWRI_5-A5.pdf. Referenced in Section 611.720.

“USGS R-1140-76” means “Radium, dissolved, as radium-226. Precipitation method, R-1140-76”, in “Techniques of Water-Resource Investigation of the Water Resources Investigations of the United States Geological Survey”, Book 5, Chapter A-5, “Methods for Determination of Radioactive Substances in Water and Fluvial Sediments” (1977). Available at

pubs.usgs.gov/twri/twri5a5/pdf/TWRI_5-A5.pdf. Referenced in Section 611.720.

“USGS R-1141-76” means “Radium-226, dissolved. Radon emanation method, R-1141-76”, in “Techniques of Water-Resource Investigation of the Water Resources Investigations of the United States Geological Survey”, Book 5, Chapter A-5, “Methods for Determination of Radioactive Substances in Water and Fluvial Sediments” (1977). Available at pubs.usgs.gov/twri/twri5a5/pdf/TWRI_5-A5.pdf. Referenced in Section 611.720.

“USGS R-1142-76” means “Radium-228, dissolved. Determination by separation and counting of actinium-228, R-1142-76”, in “Techniques of Water-Resource Investigation of the Water Resources Investigations of the United States Geological Survey”, Book 5, Chapter A-5, “Methods for Determination of Radioactive Substances in Water and Fluvial Sediments” (1977). Available at pubs.usgs.gov/twri/twri5a5/pdf/TWRI_5-A5.pdf. Referenced in Section 611.720.

“USGS R-1160-76” means “Strontium-90, dissolved. Chemical separation and precipitation method, R-1160-76”, in “Techniques of Water-Resource Investigation of the Water Resources Investigations of the United States Geological Survey”, Book 5, Chapter A-5, “Methods for Determination of Radioactive Substances in Water and Fluvial Sediments” (1977). Available at pubs.usgs.gov/twri/twri5a5/pdf/TWRI_5-A5.pdf. Referenced in Section 611.720.

“USGS R-1171-76” means “Tritium. Liquid scintillation, Denver lab method—gamma counting, R-1171-76”, in “Techniques of Water-Resource Investigation of the Water Resources Investigations of the United States Geological Survey”, Book 5, Chapter A-5, “Methods for Determination of Radioactive Substances in Water and Fluvial Sediments” (1977). Available at pubs.usgs.gov/twri/twri5a5/pdf/TWRI_5-A5.pdf. Referenced in Section 611.720.

“USGS R-1180-76” means “Uranium, dissolved. Fluorometric method—direct, R-1180-76”, in “Techniques of Water-Resource Investigation of the Water Resources Investigations of the United States Geological Survey”, Book 5, Chapter A-5, “Methods for Determination of Radioactive Substances in Water and Fluvial Sediments” (1977). Available at

pubs.usgs.gov/twri/twri5a5/pdf/TWRI_5-A5.pdf. Referenced in Section 611.720.

“USGS R-1181-76” means “Uranium, dissolved. Fluorometric method—extraction procedure, R-1181-76”, in “Techniques of Water-Resource Investigation of the Water Resources Investigations of the United States Geological Survey”, Book 5, Chapter A-5, “Methods for Determination of Radioactive Substances in Water and Fluvial Sediments” (1977). Available at pubs.usgs.gov/twri/twri5a5/pdf/TWRI_5-A5.pdf. Referenced in Section 611.720.

“USGS R-1182-76” means “Uranium, dissolved, isotopic ratios. Alpha spectrometry—chemical separation, R-1182-76”, in “Techniques of Water-Resource Investigation of the Water Resources Investigations of the United States Geological Survey”, Book 5, Chapter A-5, “Methods for Determination of Radioactive Substances in Water and Fluvial Sediments” (1977). Available at pubs.usgs.gov/twri/twri5a5/pdf/TWRI_5-A5.pdf. Referenced in Section 611.720.

“Waters B-1011 (87)” means “Waters Test Method for Determination of Nitrite/Nitrate in Water Using Single Column Ion Chromatography”, Method B-1011 (August 1987). Available from Waters Corporation, Technical Services Division, 34 Maple St., Milford, MA 01757 (800-252-4752 or 508-478-2000, www.waters.com) and USEPA, OGWDW (under “Inorganic Contaminants and Other Inorganic Constituents (PDF)”). Referenced in Section 611.611.

“Yokogawa Method 820 means Yokogawa 820 “Measurement of Turbidity in Drinking Water by Right Angle Scattered Light Turbidity Analyzer”, Yokogawa 820 Revision 1.0 (November 2022). Available from Yokogawa Electric Corporation, Nakamachi, Musashino-shi, Tokyo, Japan 180-8750.

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

19 CFR 101.1 (2024) (Definitions), referenced in Section 611.126.

40 CFR 3.3 (2024) (What Definitions Are Applicable to This Part?), referenced in Section 611.105.

40 CFR 3.10 (2024) (What Are the Requirements for Electronic Reporting to EPA?), referenced in Section 611.105.

40 CFR 3.2000 (2024) (What Are the Requirements Authorized State, Tribe, and Local Programs' Reporting Systems Must Meet?), referenced in Section 611.105.

40 CFR 136.3(a) (2024), referenced in Section 611.1004.

Appendix B to 40 CFR 136 (2024), referenced in Sections 611.359, 611.609, and 611.646.

40 CFR 141.21(f)(6)(i) and (f)(6)(ii) (2021), referenced in Section 611.802.

40 CFR 142.20(b)(1) (2021), referenced in Section 611.112.

Subpart G of 40 CFR 142 (2021), referenced in Section 611.113.

c) This Part incorporates no later amendments or editions.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 611.130 Special Requirements for Certain Variances and Adjusted Standards

a) Relief from the Fluoride MCL

- 1) When granting any variance or adjusted standard to a CWS supplier from the maximum contaminant level for fluoride in Section 611.301(b), the Board will require the supplier to apply the BAT identified in subsection (a)(4) as a condition to the relief, unless the supplier demonstrates through comprehensive engineering assessments that applying BAT is not technically appropriate and technically feasible for that supplier.
- 2) If the Board does not require the supplier to apply BAT, the Board will require specific conditions for relief from the fluoride MCL:
 - A) The supplier must continue investigating certain methods as alternative means of significantly reducing the fluoride level on a definite schedule:
 - i) Modifying lime softening;
 - ii) Alum coagulation;
 - iii) Electrodialysis;
 - iv) Anion exchange resins;

- v) Well-field management;
 - vi) Using alternative sources of raw water; and
 - vii) Regionalization; and
 - B) The supplier must report results of its investigations to the Agency.
- 3) The Agency must petition the Board to reconsider or modify a variance or adjusted standard under Subpart I of 35 Ill. Adm. Code 101 if the Agency determines that an alternative method the supplier identified under subsection (a)(2) is technically feasible and would result in a significant reduction in fluoride.
 - 4) Two processes are BAT for fluoride:
 - A) Activated alumina absorption centrally applied; and
 - B) Reverse osmosis centrally applied.

BOARD NOTE: This subsection derives (a) from 40 CFR 142.61.

- b) Relief from an IOC, VOC, or SOC MCL
 - 1) A CWS or NTNCWS must first apply the appropriate BAT for the contaminant before the Board may grant any variance or adjusted standard from the maximum contaminant levels for any VOC or SOC in Section 611.311(a) or (c) or any IOC in Section 611.301, unless the supplier demonstrates through comprehensive engineering assessments that applying BAT would achieve only a minimal and insignificant reduction in the contaminant level. The Agency may issue a schedule of compliance that requires the supplier to examine other treatment methods as a condition of the variance.

BOARD NOTE: USEPA lists BAT for each SOC and VOC at 40 CFR 142.62(a) and (b) for the purposes of variances and exemptions (adjusted standards). That list is identical to the lists at 40 CFR 141.61(b) and (c) ~~(d)~~, which corresponds with Section 611.311(b).

- 2) The Board may require any of certain conditions in any relief from an MCL in Section 611.301 or 611.311:
 - A) The supplier must continue investigating alternative means for complying on a definite schedule; and

- B) The supplier must report results of its investigation to the Agency.
- 3) The Agency must petition the Board to reconsider or modify a variance or adjusted standard, under Subpart I of 35 Ill. Adm. Code 101 if the Agency determines that an alternative method the supplier identified under subsection (b)(2) is technically feasible.

BOARD NOTE: This subsection (b) derives from 40 CFR 142.62(a) through (e).

- c) **Conditions Requiring Use of Bottled Water, a Point-of-Use Treatment Device, or a Point-of-Entry Treatment Device.** When granting any variance or adjusted standard from the MCLs for organic and inorganic chemicals or an adjusted standard from the treatment technique for lead and copper, the Board may impose certain conditions requiring the use of bottled water, a point-of-entry treatment device, or a point-of-use treatment device to avoid an unreasonable risk to human health, limited as subsections (d) and (e) provide.
- 1) **Relief from an MCL.** When granting a variance or adjusted standard from an MCL in Section 611.301 or 611.311, the Board may impose a condition requiring a supplier to use bottled water, a point-of-entry treatment device, a point-of-use treatment device, or other means to avoid an unreasonable risk to human health.
- 2) **Relief from Corrosion Control Treatment.** When granting an adjusted standard from the corrosion control treatment requirements for lead and copper under Sections 611.351 and 611.352, the Board may impose a condition requiring a supplier to use bottled water, a point-of-use treatment device, or other means but not a point-of-entry treatment device to avoid an unreasonable risk to human health.
- 3) **Relief from Source Water Treatment or Replacing Service Lines.** When granting an exemption from the source water treatment and lead service line replacement requirements under Section 611.353 or 611.354, the Board may impose a condition requiring a supplier to use a point-of-entry treatment device to avoid an unreasonable risk to human health.

BOARD NOTE: This subsection (c) derives from 40 CFR 142.62(f).

- d) **Using Bottled Water.** A supplier proposing to use or using bottled water as a condition for receiving a variance or an adjusted standard from requirements in Section 611.301 or 611.311 or an adjusted standard from requirements in Sections 611.351 through 611.354 must comply with either subsections (d)(1), (d)(2), (d)(3), and (d)(6) or (d)(4), (d)(5), and (d)(6).

- 1) The supplier must develop a monitoring program for Board approval providing reasonable assurances that the bottled water meets all MCLs in Sections 611.301 and 611.311, and the supplier must describe this program in its petition. The description must demonstrate how the supplier will comply with this subsection (d).
- 2) The supplier must monitor representative samples of the bottled water for all contaminants under Sections 611.301 and 611.311 during the first three-month period that it supplies the bottled water to the public, then annually after that.
- 3) The supplier must annually provide the results of its monitoring to the Agency.
- 4) The supplier must receive a certification from the bottled water company:
 - A) That the supplier provides bottled water from an approved source of bottled water, as Section 611.101 defines;
 - B) That the approved source of bottled water monitors as 21 CFR 129.80(g)(1) through (g)(3) require; and
 - C) That the bottled water does not exceed any MCLs or quality limits in 21 CFR 110, 129, and 165.110.
- 5) The supplier must provide the certification subsection (d)(4) requires to the Agency during the first quarter after it begins supplying bottled water then annually after that.
- 6) The supplier must provide sufficient quantities of bottled water to every affected person the supplier serves via door-to-door bottled water delivery.

BOARD NOTE: This subsection (d) derives from 40 CFR 142.62(g).

- e) Using a Point-of-Entry Treatment Device. Before the Board grants any PWS a variance or adjusted standard from an NPDWR, including a condition requiring use of a point-of-entry treatment device, the supplier must demonstrate certain facts to the Board:
 - 1) That the supplier will operate and maintain the device;
 - 2) That the device protects human health equivalent to central treatment;
 - 3) That the supplier will maintain the microbiological safety of the water at all times;

- 4) That the supplier has standards for performance, conducted a rigorous engineering design review, and field tested the device;
- 5) That operating and maintaining the device will account for any potential for increased concentrations of heterotrophic bacteria resulting from using activated carbon by backwashing, post-contactor disinfection, and heterotrophic plate count monitoring;
- 6) That buildings connected to the supplier's distribution system have sufficient devices properly installed, maintained, and monitored to ensure protecting all consumers; and
- 7) That using the device will not cause increased corrosion of lead- and copper-bearing materials between the device and tap that could increase contaminant levels at the tap.

BOARD NOTE: This subsection (e) derives from 40 CFR 142.62(h).

- f) Relief from the Maximum Contaminant Levels for Radionuclides
 - 1) Relief from the Maximum Contaminant Levels for Combined Radium-226 and Radium-228, Uranium, Gross Alpha Particle Activity (Excluding Radon and Uranium), and Beta Particle and Photon Radioactivity
 - A) For relief equivalent to a federal section 1415 variance or section 1416 exemption, Section 611.330(g) lists what USEPA identifies as BAT, treatment techniques, or other means for complying with the MCLs for the radionuclides in Section 611.330(b), (c), (d), and (e).
 - B) For relief equivalent to a federal section 1415 variance or section 1416 exemption for a small system, defined here as one serving 10,000 persons or fewer, Section 611.330(h) lists what USEPA identifies as BAT, treatment techniques, or other means available for complying with the MCLs for the radionuclides listed in Section 611.330(b), (c), (d), and (e), in addition to the technologies in Section 611.330(g) for issuing relief equivalent to a federal section 1415 small system variance or a section 1416 exemption.
 - 2) As a condition for relief equivalent to a federal 1415 variance or section 1416 exemption, the Board will require a CWS supplier to install and use any treatment technology in Section 611.330(g) (or 611.330(h) for a small system serving 10,000 persons or fewer, except as subsection (f)(3) provides otherwise. If the supplier cannot meet the MCL after installing

the treatment technology, the supplier is eligible for relief.

- 3) If a CWS supplier demonstrates by comprehensive engineering assessments, which may include pilot plant studies, that the treatment technologies identified in this Section would only achieve a de minimis reduction in the contaminant level, the Board may issue a schedule of compliance requiring the system to examine other treatment technologies as a condition of obtaining relief equivalent to a federal section 1415 variance or section 1416 exemption.
- 4) If the Agency determines that a treatment technology identified under subsection (f)(3) is technically feasible, the Agency may request that the Board require the supplier to install and use that treatment technology on a compliance schedule under Section 36 of the Act. The Agency must base its determination on the supplier's studies and other relevant information.
- 5) To avoid unreasonable risk to human health, the Board may require a CWS supplier to use bottled water, point-of-use devices, point-of-entry devices, or other means as a condition of relief equivalent to a federal section 1415 variance or a section 1416 exemption from requirements in Section 611.330.
- 6) A CWS supplier using bottled water as a condition to relief equivalent to a federal section 1415 variance or a section 1416 exemption from the requirements of Section 611.330 must comply with subsection (d)(6) and either subsections (d)(1) through (d)(3) or (d)(4) and (d)(5).
- 7) A CWS supplier using point-of-use or point-of-entry devices as a condition to relief equivalent to a federal section 1415 variance or a section 1416 exemption from the radionuclides NPDWRs must meet the conditions in subsections (e)(1) through (e)(6).

BOARD NOTE: This subsection (f) derives from 40 CFR 142.65.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

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

Section 611.311 MCLs for Organic Chemical Contaminants

- a) Maximum Contaminant Levels for Volatile Organic Chemical Contaminants.
The MCLs for VOCs apply to CWS suppliers and NTNCWS suppliers:

CAS No.	Contaminant	MCL (mg/ L)
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71-43-2	Benzene	0.005
56-23-5	Carbon tetrachloride	0.005
95-50-1	o-Dichlorobenzene	0.6
106-46-7	p-Dichlorobenzene	0.075
107-06-2	1,2-Dichloroethane	0.005
75-35-4	1,1-Dichloroethylene	0.007
156-59-2	cis-1,2-Dichloroethylene	0.07
156-60-5	trans-1,2-Dichloroethylene	0.1
75-09-2	Dichloromethane (methylene chloride)	0.005
78-87-5	1,2-Dichloropropane	0.005
100-41-4	Ethylbenzene	0.7
108-90-7	Monochlorobenzene	0.1
100-42-5	Styrene	0.1
127-18-4	Tetrachloroethylene	0.005
108-88-3	Toluene	1
120-82-1	1,2,4-Trichlorobenzene	0.07
71-55-6	1,1,1-Trichloroethane	0.2
79-00-5	1,1,2-Trichloroethane	0.005
79-01-6	Trichloroethylene	0.005
75-01-4	Vinyl chloride	0.002
1330-20-7	Xylenes (total)	10

- b) USEPA, under section 1412 of SDWA identifies in this subsection (b) granular activated carbon (GAC), packed tower aeration (PTA), or oxidation (OX) as BAT, treatment technique, or other means available for achieving compliance with the MCLs for VOCs, and SOCs in subsections (a) and (c) except for per-and polyfluoroalkyl substances (PFAS), as indicated:

CAS No.	Contaminant	BAT
15972-60-8	Alachlor	GAC
116-06-3	Aldicarb*	GAC
1646-87-4	Aldicarb sulfone*	GAC
1646-87-3	Aldicarb sulfoxide*	GAC
1912-24-9	Atrazine	GAC
71-43-2	Benzene	GAC, PTA
50-32-8	Benzo(a)pyrene	GAC
1563-66-2	Carbofuran	GAC
56-23-5	Carbon tetrachloride	GAC, PTA
57-74-9	Chlordane	GAC
94-75-7	2,4-D	GAC
75-99-0	Dalapon	GAC
96-12-8	Dibromochloropropane	GAC, PTA
95-50-1	o-Dichlorobenzene	GAC, PTA
106-46-7	p-Dichlorobenzene	GAC, PTA
107-06-2	1,2-Dichloroethane	GAC, PTA

156-59-2	cis-1,2-Dichloroethylene	GAC, PTA
156-60-5	trans-1,2-Dichloroethylene	GAC, PTA
75-35-4	1,1-Dichloroethylene	GAC, PTA
75-09-2	Dichloromethane	PTA
78-87-5	1,2-Dichloropropane	GAC, PTA
103-23-1	Di(2-ethylhexyl)adipate	GAC, PTA
117-81-7	Di(2-ethylhexyl)phthalate	GAC
88-85-7	Dinoseb	GAC
85-00-7	Diquat	GAC
145-73-3	Endothall	GAC
72-20-8	Endrin	GAC
106-93-4	Ethylene dibromide (EDB)	GAC, PTA
100-41-4	Ethylbenzene	GAC, PTA
1071-53-6	Glyphosate	OX
76-44-8	Heptachlor	GAC
1024-57-3	Heptachlor epoxide	GAC
118-74-1	Hexachlorobenzene	GAC
77-47-3	Hexachlorocyclopentadiene	GAC, PTA
58-89-9	Lindane	GAC
72-43-5	Methoxychlor	GAC
108-90-7	Monochlorobenzene	GAC, PTA
23135-22-0	Oxamyl	GAC
87-86-5	Pentachlorophenol	GAC
1918-02-1	Picloram	GAC
1336-36-3	Polychlorinated biphenyls (PCB)	GAC
122-34-9	Simazine	GAC
100-42-5	Styrene	GAC, PTA
1746-01-6	2,3,7,8-TCDD	GAC
127-18-4	Tetrachloroethylene	GAC, PTA
108-88-3	Toluene	GAC, PTA
8001-35-2	Toxaphene	GAC
120-82-1	1,2,4-trichlorobenzene	GAC, PTA
71-55-6	1,1,1-Trichloroethane	GAC, PTA
79-00-5	1,1,2-trichloroethane	GAC, PTA
79-01-6	Trichloroethylene	GAC, PTA
93-72-1	2,4,5-TP	GAC
75-01-4	Vinyl chloride	PTA
1330-20-7	Xylene	GAC, PTA

* See the Board note at the end of this Section.

- c) The following maximum contaminant levels (MCLs) in Tables 1 and 2 to subsection (c) for synthetic organic contaminants apply to CWS and NTNCWS suppliers; Table 2 also contains health-based water concentrations (HBWCs) for

selected per-and poly-fluoroalkyl substances (PFAS) used in calculating the Hazard Index.

- 1) MCLs for SOCs (except for PFAS) apply to CWS and NTNCWS suppliers:

CAS Number	Contaminant	MCL (mg/ L)
15972-60-8	Alachlor	0.002
116-06-3	Aldicarb*	0.003
1646-87-4	Aldicarb sulfone*	0.002
1646-87-3	Aldicarb sulfoxide*	0.004
1912-24-9	Atrazine	0.003
50-32-8	Benzo(a)pyrene	0.0002
1563-66-2	Carbofuran	0.04
57-74-9	Chlordane	0.002
94-75-7	2,4-D	0.07
75-99-0	Dalapon	0.2
96-12-8	Dibromochloropropane	0.0002
103-23-1	Di(2-ethylhexyl)adipate	0.4
117-81-7	Di(2-ethylhexyl)phthalate	0.006
88-85-7	Dinoseb	0.007
85-00-7	Diquat	0.02
145-73-3	Endothall	0.1
72-20-8	Endrin	0.002
106-93-4	Ethylene dibromide	0.00005
1071-53-6	Glyphosate	0.7
76-44-8	Heptachlor	0.0004
1024-57-3	Heptachlor epoxide	0.0002
118-74-1	Hexachlorobenzene	0.001
77-47-4	Hexachlorocyclopentadiene	0.05
58-89-9	Lindane	0.0002
72-43-5	Methoxychlor	0.04
23135-22-0	Oxamyl (Vydate)	0.2
87-86-5	Pentachlorophenol	0.001
1918-02-1	Picloram	0.5
1336-36-3	Polychlorinated biphenyls (PCBs)	0.0005
122-34-9	Simazine	0.004
1746-01-6	2,3,7,8-TCDD (Dioxin)	0.00000003
8001-35-2	Toxaphene	0.003
93-72-1	2,4,5-TP	0.05

* See the Board note at the end of this Section.

- 2) MCLs and HBWCs for PFAS apply to CWS and NTNCWS suppliers:

CAS Number	Contaminant	MCL (mg/ L)	HBWC (mg/l)
Not applicable	Hazard Index PFAS (HFPO-DA, PFBS, PFHxS, and PFNA)	1 (unitless) ¹	Not applicable
122499-17-6	HFPO-DA	0.00001	0.00001
45187-15-3	PFBS	No Individual MCL	0.002
108427-53-8	PFHxS	0.00001	0.00001
72007-68-2	PFNA	0.00001	0.00001
45285-51-6	PFOA	0.0000040	Not applicable
45298-90-6	PFOS	0.0000040	Not applicable

¹ The PFAS Mixture Hazard Index (HI) is the sum of component hazard quotients (HQs), which are calculated by dividing the measured component PFAS concentration in water by the relevant health-based water concentration when expressed in the same units (shown in ng/l for simplification). The HBWC for PFHxS is 10 ng/l; the HBWC for HFPO-DA is 10 ng/l; the HBWC for PFNA is 10 ng/l; and the HBWC for PFBS is 2000 ng/l. A PFAS Mixture Hazard Index greater than 1 (unitless) indicates an exceedance of the health protective level and indicates potential human health risk from the PFAS mixture in drinking water.

$$\text{Hazard Index} = ([\text{HFPO-DA}_{\text{water}} \text{ ng/l}]/[10 \text{ ng/l}]) + ([\text{PFBS}_{\text{water}} \text{ ng/l}]/[2000 \text{ ng/l}]) + ([\text{PFNA}_{\text{water}} \text{ ng/l}]/[10 \text{ ng/l}]) + ([\text{PFHxS}_{\text{water}} \text{ ng/l}]/[10 \text{ ng/l}])$$

HBWC = health-based water concentration

HQ = hazard quotient

ng/l = nanograms per liter

PFAS_{water} = the concentration of a specific PFAS in water

- d) USEPA, under section [1415\(a\)\(1\)\(A\) of SDWA](#) ~~1412 of SDWA~~ identifies in Table 1 to subsection (d) the BAT, treatment technique, or other means available for achieving compliance with the maximum contaminant levels for all regulated PFAS identified in subsection (c).

Table 1 to Subsection (d) BAT for PFAS Listed in Subsection (c)(2)

CAS No.	Contaminant	BAT
Not Applicable	Hazard Index PFAS	GAC, HPAE, RO, NF
122499-17-6	HFPO-DA	GAC, HPAE, RO, NF
108427-53-8	PHFxS	GAC, HPAE, RO, NF
72007-68-2	PFNA	GAC, HPAE, RO, NF

45285-51-6
45298-90-6

PFOA
PFOS

GAC, HPAE, RO, NF
GAC, HPAE, RO, NF

Abbreviations (BAT)

GAC	Granular Activated Carbon
HPAE	Anion Exchange
NF	Nanofiltration
PTA	Packed Tower Aeration
RO	Reverse Osmosis

- e) USEPA, under section [1415\(a\)\(1\)\(A\) of SDWA](#)~~1412 of SDWA~~, identifies in Table 1 to subsection (e) the affordable technology, treatment technique, or other means available to suppliers serving 10,000 persons or fewer for achieving compliance with the MCLs for all regulated PFAS identified in subsection (c)(2)

Section 611.311(e) List of SSCTs for PFAS.

Small System Compliance Technologies ¹	Affordable for Listed Small System Categories ²
Anion Exchange	All size categories.
GAC	All size categories.
Reverse Osmosis, ³ Nanofiltration ³	3,301-10,000.

¹ Section 1412(b)(4)(E)(ii) of SDWA specifies that small system compliance technologies (SSCTs) must be affordable and technically feasible for small systems.

²SDWA specifies three categories of small systems: (i) those serving 25 or more, but fewer than 501, (ii) those serving more than 500, but fewer than 3,301, and (iii) those serving more than 3,300, but fewer than 10,001.

³Technology rejects a large volume of water and may not be appropriate for areas where water quantity may be an issue.

BOARD NOTE: This Section derives from 40 CFR 141.61. More stringent state MCLs for 2,4-D, heptachlor, and heptachlor epoxide appear at Section 611.310. In 40 CFR 141.6(g), USEPA postponed the effectiveness of the MCLs for aldicarb, aldicarb sulfone, and aldicarb sulfoxide until it took further action on those MCLs. See 40 CFR 141.6(g) and 57 Fed. Reg. 22178 (May 27, 1992). USEPA later stated that it anticipated taking no action until 2005 on a federal national primary drinking water regulation (NPDWR) applicable to the aldicarbs. 68

Fed. Reg. 31108 (May 27, 2003). In 2005, USEPA indicated no projected date for final action on the aldicarbs. *See* 70 Fed. Reg. 27501, 671 (May 16, 2005). An entry for the aldicarbs last appeared in USEPA's Spring 2007 semiannual regulatory agenda, indicating no projected dates for further action. *See* 72 Fed. Reg. 23156, 97 (Apr. 30, 2007); *see also* 72 Fed. Reg. 70118, 23 (Dec. 10, 2007) (the first USEPA regulatory agenda that included no entry for the aldicarbs). As of early 2022, USEPA did not include the aldicarbs among the NPDWRs on its webpage. USEPA, Ground Water and Drinking Water, National Primary Drinking Water Regulations (www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations; accessed February 16, 2022). While the Board must maintain entries for aldicarb, aldicarb sulfoxide, and aldicarb sulfone to maintain consistency with the literal text of the federal rules (*see* Sections 7.2 and 17.5 of the Act; 42 U.S.C. 300g-2; 40 CFR 142.10), the Board intends that no aldicarb requirements apply in Illinois until after USEPA adopts such requirements, and the Board removes this statement.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

SUBPART G: LEAD AND COPPER

Section 611.351 Applicability of Corrosion Control

- a) Corrosion control treatment. All suppliers are required to install, optimize, or re-optimize optimal corrosion control treatment (OCCT) in compliance with this section. This section provides when a supplier must complete the corrosion control treatment steps in subsection (d) or (e) based on size, whether the supplier's system has corrosion control treatment, and whether the supplier exceeded the lead practical quantitation limit, lead action level, and/or copper action level.
 - 1) Large Suppliers (serving >50,000 people)
 - A) A large supplier with corrosion control treatment that exceeds either the lead action level or copper action level must complete the re-optimized OCCT steps specified in subsection (d) unless the supplier:
 - i) Has re-optimized OCCT once under subsection (d) after the compliance date in Section 611.350(a)(3);
 - ii) Is meeting optimal water quality parameters designated by the Agency; and
 - iii) Is continuing to operate and maintain corrosion control treatment in compliance with Section 611.352(g).

- B) The Agency may require a large supplier that does not have to re-optimize under subsections (a)(1)(A)(i) through (iii) to re-optimize under Section 611.352(h).
- C) A large supplier must meet the requirements under subsection (d) if it exceeds the lead action level at the end of a tap sampling period after completing service line replacement in compliance with Section 611.354(d) and there are no lead, galvanized requiring replacement, or lead status unknown service lines remaining in the supplier's inventory.
- D) Large suppliers with corrosion control treatment with 90th percentile results as calculated in compliance with Section 611.350(c)(3) that exceed the lead practical quantitation limit of 0.005 mg/L but do not exceed the lead action level or copper action level may be required by the Agency to complete the re-optimized OCCT steps in subsection(d).
- E) Large suppliers without corrosion control treatment with 90th percentile results calculated in compliance with Section 611.350(c)(3) that exceed either the lead practical quantitation limit of 0.005 mg/L or the copper action level must complete steps to study and install OCCT, as specified in subsection (e).

2) Medium Suppliers (serving >10,000 and ≤50,000 people)

- A) Medium Suppliers with corrosion control treatment that exceed either the lead action level or the copper action level must complete the re-optimized OCCT steps specified in subsection (d) unless the supplier:
 - i) Has re-optimized OCCT once under subsection (d) after the compliance date in Section 611.350(a)(3);
 - ii) Is meeting optimal water quality parameters designated by the Agency; and
 - iii) Is continuing to operate and maintain corrosion control treatment in compliance with Section 611.352(g).
- B) The Agency may require a medium supplier that does not have to re-optimize under subsections(a)(2)(A)(i) through (iii) to re-optimize under Section 611.352(h).

- C) After completing service line replacement in compliance with Section 611.354(d) and there are no lead, galvanized requiring replacement, or lead status unknown service lines remaining in the inventory, if at the end of a subsequent tap sampling period, the supplier exceeds the lead action level, a medium supplier with corrosion control treatment must meet the requirements under subsection (d).
 - D) Medium suppliers with corrosion control treatment that do not exceed either the lead action level or the copper action level and do not have optimal water quality parameters designated by the Agency must complete the steps specified in subsection (d) starting with step 6 under subsection (d)(6) unless the supplier is deemed optimized under subsection (b)(3).
 - E) Medium suppliers without corrosion control treatment that exceed either the lead or copper action level must complete the OCCT steps specified in subsection (e).
- 3) Small suppliers (serving $\leq 10,000$ people) and NTNCWS suppliers.
- A) Small and NTNCWS suppliers with corrosion control treatment that exceed either the lead action level or copper action level, must complete the re-optimized OCCT steps specified in subsection (d) unless the supplier:
 - i) Has re-optimized OCCT once under subsection (d) after the compliance date in Section 611.350(a)(3);
 - ii) Is meeting optimal water quality parameters designated by the Agency; and
 - iii) Is continuing to operate and maintain corrosion control treatment as required in 611.352(g).
 - B) The Agency may require a small supplier that does not have to re-optimize under subsection(a)(3)(A)(i) through (iii) to re-optimize under Section 611.352(h).
 - C) After completing service line replacement in compliance with 611.354(d) and there are no lead, galvanized requiring replacement, or lead status unknown service lines remaining in the inventory, if at the end of a subsequent tap sampling period, the supplier exceeds the lead action level, a small supplier with

corrosion control treatment must meet the requirements in subsection (d).

- D) Small and NTNCWS suppliers without corrosion control treatment that exceed either the lead action level or copper action level must complete the corrosion control treatment steps specified in subsection (e).
- b) Suppliers deemed to have optimized corrosion control. A supplier without corrosion control treatment is deemed to have OCCT as defined in Section 611.350(b) if the supplier's system meets the requirements of either subsection (b)(1) or (3). A supplier with corrosion control treatment is deemed to have OCCT as defined in Section 611.350(b) or re-optimized OCCT if the supplier meets the requirements of either subsection (b)(1) and (4) or (b)(3) and (4). Suppliers must submit documentation of meeting applicable requirements to the Agency in compliance with Section 611.360(c)(1) by the deadline for submitting tap sampling results under Section 611.360(a)(2).
- 1) A medium supplier without corrosion control treatment or a small supplier is deemed to have OCCT if the supplier does not exceed the lead action level and copper action level during two consecutive six-month tap monitoring periods and then remains at or below the lead action level and copper action level in all tap sampling periods conducted in compliance with Section 611.356.
 - A) A small supplier with corrosion control treatment is not eligible to be deemed to have OCCT under this subsection (b)(1) where the Agency has set optimal water quality parameters (OWQPs) under subsection (d) or (e).
 - B) If a medium supplier without corrosion control treatment or a small supplier deemed to have OCCT under this subsection (b)(1) exceeds the lead action level or copper action level, the supplier must follow the requirements in subsection (a).
 - 2) This subsection (b)(2) corresponds with 40 CFR 141.81(b)(2), which USEPA marked "Reserved". This statement maintains structural consistency with USEPA's rule.
 - 3) A supplier is deemed to have optimized or re-optimized corrosion control treatment if it submits tap sampling results in compliance with Section 611.356 demonstrating that the 90th percentile lead level is less than or equal to the lead PQL of 0.005 mg/ L for two consecutive six-month tap monitoring periods, it does not exceed the copper action level for two

consecutive six-month tap monitoring periods, and it does not have OWQPs designated by the Agency under subsection (d) or (e).

- A) A supplier with 90th percentile tap sampling results that later exceeds the lead practical quantitation limit of 0.005 mg/L or copper action level during any tap sampling period is not eligible to be deemed to have optimized OCCT in compliance with this subsection (b)(3) until the supplier completes the treatment steps specified in subsection (d) or (e).
 - B) A supplier deemed to have OCCT in compliance with this subsection (b)(3) 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 611.356(d)(1) and collecting samples at times and locations specified in 611.356(d)(2)(C).
- 4) A supplier with corrosion control treatment deemed to have OCCT under this subsection (b) must continue to operate and maintain the corrosion control treatment and also meet any additional requirements that the Agency determines are appropriate to ensure OCCT is maintained.
- c) This subsection (c) corresponds with 40 CFR 141.81(c), which USEPA marked “Reserved”. This statement maintains structural consistency with USEPA’s rule.
- d) Treatment steps and deadlines for suppliers re-optimizing OCCT. Suppliers with corrosion control treatment required to re-optimize OCCT under subsection (a) must complete the following steps (described in Sections 611.352, 611.356, and 611.357) by the indicated time periods. Suppliers must conduct tap sampling for lead and copper in compliance with the requirements of Section 611.356 while they complete the corrosion control steps in this section.
- 1) Step 1: Initiate mandatory pipe rig/loop or CCT study or treatment recommendation.
 - A) Large or medium suppliers with lead service lines that exceed the lead action level must harvest lead service lines from its distribution system and construct flowthrough pipe rigs/loops and operate the rigs/loops with finished water within one year after the tap sampling period in which they exceed the lead action level. These suppliers must proceed to Step 3 under subsection (d)(3) and conduct the corrosion control studies for re-optimization under subsection (d)(3)(A) using the pipe rigs/loops.

- B) Large suppliers without lead service lines that exceed the lead action level or copper action level must conduct the corrosion control studies for re-optimization under subsection (d)(3)(B) (step 3).
- C) A supplier other than those covered in subsection (d)(1)(A) or (B) must recommend re-optimized optimal corrosion control treatment (Section 611.352(a)) within six months after the end of the tap sampling period in which the supplier exceeded the lead action level or copper action level.
- D) Suppliers may make an existing corrosion control treatment modification recommendation to the Agency within six months after the end of the tap sampling period in which the supplier exceeded the lead action level. The Agency must evaluate a supplier's past corrosion control treatment study results prior to approving an existing treatment modification. When the Agency approves existing treatment modifications, the Agency must specify re-optimized OCCT within 12 months after the end of the tap sampling period in which the supplier exceeded the lead action level. The supplier must complete modifications to corrosion control treatment to have re-optimized OCCT installed within six months of the Agency specifying re-optimized OCCT. These suppliers must proceed to step 6 in subsection (d)(6) and conduct follow-up monitoring.

2) Step 2: Agency requires CCT study or Agency designates re-optimized OCCT. Within one year after the end of the tap sampling period in which a medium supplier without lead service lines or a small supplier exceeded the lead action level or copper action level, the Agency may require the supplier to perform corrosion control studies for re-optimization (Section 611.352 (c)(2)). If the Agency does not require the supplier to perform such studies, the Agency must specify re-optimized optimal corrosion control treatment (Section 611.352(d) within the timeframes in subsections (d)(2)(A) and (d)(2)(B). The Agency must provide its determination to the supplier in writing:

- A) For a medium supplier, within one year after the end of the tap sampling period during which the supplier exceeded the lead action level or copper action level.
- B) For a small supplier, within 18 months after the end of the tap sampling period in which the supplier exceeded the lead action level or copper action level.

- 3) Step 3: Study duration.
 - A) Any supplier with lead service lines that exceeds the lead action level in subsection (d)(1)(A) must complete the pipe rig/loop corrosion control treatment studies and recommend re-optimized OCCT within 30 months after the end of the tap sampling period in which the supplier exceeded the lead action level.
 - B) If the supplier is required to perform corrosion control studies under subsection (d)(1)(B) or (d)(2), the supplier must complete the studies (Section 611.352(c) and recommend re-optimized OCCT within 18 months after the end of the tap sampling period in which the supplier exceeded the lead or copper action level or after the Agency requires the supplier to conduct the studies.
- 4) Step 4: Agency designation of re-optimized OCCT based on CCT study results. The Agency must designate re-optimized OCCT (Section 611.352(d)) within six months after the supplier completes subsection (d)(3)(A) or (B) (step 3).
- 5) Step 5: Re-optimized OCCT installation deadlines. Suppliers must install re-optimized OCCT (611.352(e)) within one year after the Agency completes subsection (d)(4) (Step 4) or the Agency completes subsection (d)(2)(A) or (B) (Step 2)
- 6) Step 6: Follow-up monitoring. Suppliers must complete standard monitoring for at least two consecutive tap monitoring periods under Section 611.356(c)(2)(C)(iv) and water quality parameter monitoring under Section 611.357(b)(3) after completing subsection (d)(5) (step 5). The first tap monitoring period for standard monitoring must begin on January 1 or July 1, whichever is sooner, after completing subsection (d)(5) (step 5).
- 7) Step 7: Agency sets optimal water quality parameters (OWQPs) The Agency must review the supplier's re-optimized OCCT and designate OWQPs (611.352(f)) within six months after completing subsection (d)(6) (Step 6).
- 8) Step 8: Suppliers meet OWQPs to demonstrate compliance. Suppliers must comply with the Agency-designated OWQPs (Section 611.352(g)) and conduct tap sampling under Section 611.356(c)(2)(C)(v) and water quality parameter monitoring under Section 611.357.(b)(4).
- e) Treatment steps and deadlines for suppliers without corrosion control treatment. Except as provided in subsection (b) suppliers without corrosion control treatment

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. Suppliers must conduct tap sampling for lead and copper in compliance with the requirements of Section 611.356 while completing the corrosion control steps in this section.

- 1) Step 1: Initiate mandatory pipe rig/loop or CCT study or treatment recommendation.
 - A) A medium or large supplier with lead service lines that exceeds the lead action level must harvest lead pipes from the distribution system and construct flowthrough pipe rigs/loops and operate the rigs/loops with finished water within one year after the end of the tap sampling period during which the supplier exceeded the lead action level. These suppliers must proceed to step 3 in subsection (e)(3) and conduct the corrosion control studies for optimization under subsection (e)(3)(A) using the pipe rigs/loops. B) Large water suppliers under subsection (a)(1)(E) must conduct the corrosion control studies for optimization under subsection (e)(3) (step 3).
 - C) A supplier other than those covered in subsection (e)(1)(A) or (B) must recommend optimal corrosion control treatment (OCCT) (Section 611.352(a)) within six months after the end of the tap sampling period during which the supplier exceeded either the lead action level or copper action level.
- 2) Step 2: Agency requires CCT study or designates OCCT. Within one year after the end of the tap sampling period in which the supplier exceeded the lead or copper action level, the Agency may require the supplier to perform corrosion control studies (Section 611.352(b)(1)) if those studies are not otherwise required by this subpart. The Agency must notify the supplier in writing when a corrosion control study is required. If the Agency does not require the supplier to perform corrosion control studies, the Agency must specify OCCT (Section 611.352(d)) within the timeframes established in subsections (e)(2)(A) and (e)(2)(B). The Agency must provide its determination to the supplier in writing:
 - A) For a medium supplier, within 18 months after the end of the tap sampling period in which such supplier exceeds the lead action level or copper action level; or
 - B) For a small supplier, within 24 months after the end of the tap sampling period in which the supplier exceeds the lead action level or copper action level.

- 3) Step 3: Study duration.
 - A) Large and medium suppliers with lead service lines that exceed the lead action level must complete the corrosion control treatment studies and recommend OCCT within 30 months after the end of the tap sampling period in which they exceeded the lead action level.
 - B) If a supplier is required to perform corrosion control studies under subsection (e)(1)(B) or (e)(2), the supplier must complete the studies (Section 611.352(c)) and recommend OCCT within 18 months after the end of the tap sampling period in which the supplier exceeded the lead or copper action level or the Agency notifies the supplier in writing,, that such studies must be conducted.
- 4) Step 4: Agency designation of OCCT based on CCT study results. The Agency must designate OCCT (Section 611.352(d)) within six months after the supplier completes subsection (e)(3)(A) or (B) (Step 3).
- 5) Step 5: OCCT Installation deadlines. Suppliers must install OCCT (Section 611.352(e)) within 24 months after the Agency designates OCCT under subsection (e)(2) or (e)(4) (Step 2 or Step 4).
- 6) Step 6: Follow-up monitoring. Suppliers must complete standard monitoring for at least two consecutive tap monitoring periods under Section 611.356(c)(2)(C)(iv) and water quality parameter monitoring under Section 611.357(b)(3) after completing subsection (e)(5) (step 5). The first tap monitoring period for standard monitoring must begin on January 1 or July 1, whichever is sooner, after completing subsection (e)(5) (step 5).
- 7) Step 7: The Agency sets optimal water quality parameters (OWQPs). The Agency must review the supplier's installation of treatment and designate OWQPs. (Section 611.352(f)) within six months after completing subsection (e)(6)(Step 6).
- 8) Step 8: Suppliers meet OWQPs to demonstrate compliance. Suppliers must comply with the Agency-designated OWQPs (Section 611.352(g)) and conduct tap sampling under Section 611.356(c)(2)(C)(v) and water quality parameter monitoring under Section 611.357(b)(4).
- f) Suppliers with lead or galvanized requiring replacement service lines that can complete full service line replacement in five years or less.

- 1) A supplier with one or more lead or galvanized requiring replacement service lines is not required to complete the steps under subsection (d) or (e) if the supplier meets all the following requirements:
 - A) Deadline to complete mandatory service line replacement.
 - i) A supplier must complete the service line replacement requirements under Section 611.354(d) in five years or less from the date of the end of the tap sampling period in which the supplier first exceeds the lead action level; or
 - ii) A large supplier without corrosion control treatment must complete the service line replacement requirements under Section 611.354.(d) in five years or less from the date of the end of the tap sampling period in which the supplier's 90th percentile results first exceed the lead practical quantitation limit; and
 - iii) For a supplier with less than five years remaining to complete mandatory service line replacement in compliance with Section 611.354(d), the supplier must complete the service line replacement requirements under subsection (f)(1)(A) by that deadline
 - B) At a minimum, a supplier must replace the total number of lead and/or galvanized requiring replacement service lines each year, as identified in that supplier's inventory on the date of the end of the tap sampling period in which the supplier first exceeds the lead action level or in which the supplier's 90th percentile first exceeds the lead practical quantitation limit, whichever applies, at an annual rate equally divided by the total number of years for service line replacement provided in subsection (f)(1)(A). For purposes of calculating the annual rate, the supplier must replace all lead and galvanized requiring replacement service lines within the least number of years feasible not to exceed five years from the date of the end of the tap sampling period in which the supplier first exceeds the lead action level or in which the supplier's 90th percentile first exceeds the lead practical quantitation limit, whichever applies. If the Agency determines a replacement deadline less than five years is feasible for a supplier, the supplier must replace service lines by that deadline and establish an annual replacement rate based on that number of years until that deadline.

- C) By the end of the five-year-or-less period in subsection (f)(1)(A), the supplier must have replaced all lead and galvanized requiring replacement service lines calculated in compliance with Section 611.354(d)(6) (i.e., no lead, galvanized requiring replacement or lead status unknown service lines remain in the inventory), and identified the material of all lead status unknown service lines, completed the inventory validation requirements in compliance with Section 611.354(b)(5), and replaced all unknowns found to be lead or galvanized requiring replacement service lines.
 - D) Except as provided in this section, all other requirements in Section 611.354(d) apply.
- 2) Throughout the five-year-or-less period in subsection(f)(1)(A), suppliers with corrosion control treatment must continue to operate and maintain corrosion control treatment in addition to completing the mandatory service line replacement requirements under this section.
- 3) A supplier that does not replace lead and/or galvanized requiring replacement service lines calculated in compliance with Section 611.354(d)(6) at the minimum annual rate provided in subsection (f)(1)(B) in any one year of the five-year-or-less period in subsection (f)(1)(A) or complete the service line replacement requirements under Section 611.354(d) in compliance with subsection (f)(1)(C), must meet the requirements in subsection (d) or (e), as applicable, starting immediately after the supplier fails to meet the annual removal requirement in subsection (f)(1)(B).
- 4) At the end of each year of the five-year-or-less period, the supplier must submit written documentation to the Agency about the number of lead and galvanized requiring replacement service lines removed that year and whether the minimum annual replacement rate in subsection (f)(1)(B) was met. If a supplier reports or the Agency determines that the supplier did not meet its minimum annual replacement rate that year, the supplier is no longer eligible to defer the requirements under subsection (d) or (e) and must meet those requirements, as applicable.
- 5) After completing service line replacement in compliance with the requirements in subsection (f), a supplier must meet the requirements under subsection (d) or (e), as applicable, if at the end of a subsequent tap sampling period, the supplier either exceeds the lead action level or the lead practical quantitation limit, whichever is applicable.
- g) Completing corrosion control steps for small and medium suppliers without corrosion control treatment.

- 1) Any small or medium supplier without corrosion control treatment required to complete the steps in subsection (e) that does not exceed the lead action level and copper action level during two consecutive six-month tap monitoring periods under Section 611.356 prior to the start of step 3 in subsection (e)(3) or before or concurrent with the end of step 4 in subsection (e)(4) may stop completing the steps and is not required to complete subsection (e)(3) or (5) (step 3 or step 5), respectively, except that medium suppliers without corrosion control treatment and with lead service lines must complete a corrosion control treatment study under subsection (e)(3)(A). A 90th percentile level at or below the lead action level or copper action level based on less than the required minimum number of samples under Section 611.356 cannot be used to meet the requirements of this subsection (g)(1). Eligible suppliers can only use the exception in subsection (g)(1) once.
 - 2) Any supplier that starts step 5 in compliance with subsection (e)(5) must complete the remaining steps (*i.e.*, steps 6 through 8) in subsection (e)(6) through (8) and is not permitted to stop the steps.
 - 3) Any small or medium supplier without corrosion control treatment under subsection (g)(1) that stopped the steps in subsection (e) and subsequently exceeds either the lead action level or copper action level must complete the corrosion control treatment steps in subsection (e) beginning with the first treatment step that was not completed.
 - 4) The Agency may require a supplier to repeat treatment steps previously completed by the supplier when the Agency determines it is necessary to implement the treatment requirements of this subsection. The Agency must notify the supplier in writing of such a determination and explain the basis for its decision.
- h) Notification requirements for upcoming long-term change in treatment or source. At a time specified by the Agency, or if no specific time is designated, as early as possible but no later than six months prior to the addition of a new source or any long-term change in water treatment, a supplier must submit written documentation describing the addition of a new source or long-term change in treatment to the Agency. Suppliers may not implement the addition of a new source or long-term treatment change without Agency approval. The Agency must review and approve the addition of a new source or long-term change in water treatment before it can be implemented by the supplier. The Agency may require any such supplier to take action before or after the addition of a new source or long-term treatment change to ensure that the supplier operates and maintains optimal corrosion control treatment, such as additional water quality parameter monitoring, additional lead or copper tap sampling, and re-evaluating corrosion control treatment. Examples of long-term treatment changes include but are not limited to the addition of a new treatment process or modification of

an existing treatment process. Examples of modifications include switching secondary disinfectants, switching coagulants (*e.g.*, alum to ferric chloride), and switching corrosion inhibitor products (*e.g.*, orthophosphate to blended phosphate). Long-term treatment changes can also include dose changes to existing chemicals if the system is planning long-term changes to its finished water pH or residual inhibitor concentration. Long-term treatment changes would not include chemical dose fluctuations associated with daily raw water quality changes where a new source has not been added.

BOARD NOTE: This Section derives from 40 CFR 141.81.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 611.352 Corrosion Control Treatment

Description of corrosion control treatment requirements. This section provides the requirements for suppliers and the Agency designating optimal corrosion control treatment (OCCT) for a supplier that is optimizing or re-optimizing OCCT. All suppliers must complete the corrosion control treatment requirements in this Section as applicable under Section 611.351.

- a) Supplier recommendation regarding corrosion control treatment.
 - 1) Any supplier without corrosion control treatment that is required to recommend a treatment option in compliance with Section 611.351(e)(1)(C) must, based on the results of lead and copper tap sampling and water quality parameter monitoring, recommend designating one or more of the corrosion control treatments in subsection(c)(1) to the Agency as the optimal corrosion control treatment for that supplier. The Agency may require the supplier to conduct additional water quality parameter monitoring to assist the Agency in reviewing the supplier's recommendation.
 - 2) Any supplier with corrosion control treatment that exceeds the lead action level that is required to recommend a treatment option to the Agency in compliance with Section 611.351(d)(1)(C) must recommend designating one or more of the corrosion control treatments listed in subsection (c)(2) as the optimal corrosion control treatment for that supplier.
 - 3) The Agency may waive the requirement for a supplier to recommend OCCT if the Agency requires the supplier, in writing, to complete a corrosion control study within three months after the end of the tap sampling period in which the lead or copper action level exceedance occurred. These suppliers must proceed directly to subsection (c) and complete a corrosion control study.

- b) Agency-decision to require studies to identify initial OCCT under Section 611.351.(e)(2) and re-optimized OCCT under Section 611.351(d)(2).
 - 1) The Agency may require any small or medium supplier without corrosion control treatment that exceeds either the lead action level or copper action level to perform corrosion control treatment studies under subsection (c)(1) to identify OCCT for the supplier's system.
 - 2) The Agency may require any small or medium supplier with corrosion control treatment exceeding either the lead or copper action level to perform corrosion control treatment studies under subsection (c)(2) to identify re-optimized OCCT for its system (i.e., OCCT after a re-optimization evaluation).
- c) Performing corrosion control studies.
 - 1) Suppliers without corrosion control treatment required to conduct corrosion control studies under subsection 611.351(e) must evaluate the effectiveness of each of the following treatments, and if appropriate, combinations of the following treatments to identify OCCT for the system:
 - A) Alkalinity and pH adjustment;
 - B) The addition of an orthophosphate- or silicate-based corrosion inhibitor at a concentration sufficient to maintain an effective corrosion inhibitor residual concentration in all test samples;
 - C) The addition of an orthophosphate-based corrosion inhibitor at a concentration sufficient to maintain an orthophosphate residual concentration of 1 mg/ L (as PO₄) in all test samples; and
 - D) The addition of an orthophosphate-based corrosion inhibitor at a concentration sufficient to maintain an orthophosphate residual concentration of 3 mg/ L (as PO₄) in all test samples.
 - 2) Suppliers with corrosion control treatment required to conduct corrosion control studies under Section 611.351(d) must evaluate the effectiveness of the following treatments, and if appropriate, combinations of the following treatments, to identify re-optimized OCCT for the system:
 - A) Alkalinity and/or pH adjustment or re-adjustment;
 - B) The addition of an orthophosphate- or a silicate-based corrosion inhibitor at a concentration sufficient to maintain an effective

corrosion inhibitor residual concentration in all test samples if no such inhibitor is currently utilized;

C) The addition of an orthophosphate-based corrosion inhibitor at a concentration sufficient to maintain an orthophosphate residual concentration of 1 mg/ L (PO_4) in all test samples unless the current inhibitor process already meets this residual; and

D) The addition of an orthophosphate-based corrosion inhibitor at a concentration sufficient to maintain an orthophosphate residual concentration of 3 mg/L (as PO_4) in all test samples unless the current inhibitor process already meets this residual.

3) Suppliers must evaluate each of the corrosion control treatments in subsection (c)(1) or (2) individually or, if appropriate, in combinations, using pipe rig/loop tests, metal coupon tests, partial-system tests, and/or analyses based on documented analogous treatments with similar size systems that have a similar water chemistry, and similar distribution system configurations. Large and medium suppliers with lead service lines and other systems as required by the Agency, that exceed the lead action level must conduct pipe rig/loop studies using harvested lead service lines from their distribution systems to assess the effectiveness of corrosion control treatment options on the existing pipe scale. Metal coupon tests can be used as a screen to reduce the number of options evaluated in the pipe rig/loop studies to the current water quality and at least two additional treatment options.

4) Suppliers must measure the following water quality parameters in any tests conducted under subsection (c)(3) both before and after evaluating the corrosion control treatments listed in subsections (c)(1) or (c)(2):

A Lead;

B) Copper;

C) pH;

D) Alkalinity;

E) Orthophosphate as PO_4 (when an orthophosphate-based inhibitor is used);

F) Silicate (when a silicate-based inhibitor is used); and

- G) Any additional parameters necessary to evaluate the effectiveness of a corrosion control treatment as determined by the Agency.
 - 5) Suppliers must identify all chemical or physical constraints that limit or prohibit the use of a particular corrosion control treatment and document those constraints by providing either of the following:
 - A) Data and documentation showing a particular corrosion control treatment has adversely affected other drinking water treatment processes when used by another supplier with comparable water quality characteristics. Suppliers using metal coupon tests to screen and/or pipe rig/loop studies to evaluate treatment options cannot exclude treatment strategies from the studies based on the constraints identified in subsection (c)(5)(A).
 - B) Data and documentation demonstrating the supplier previously attempted to evaluate a particular corrosion control treatment and found the treatment was ineffective or adversely affects other drinking water quality treatment processes. Suppliers using metal coupon tests to screen and/or pipe rig/loop studies to evaluate treatment options cannot exclude treatment strategies from the studies based on the constraints identified in subsection (c)(5)(B), unless the treatment was found to be ineffective in a previous pipe rig/loop study.
 - 6) Suppliers must evaluate the effect of the chemicals used for corrosion control treatment on other drinking water quality treatment processes. Suppliers using metal coupon tests to screen and/or pipe rig/loop/ studies to evaluate treatment options cannot exclude any of the required treatment strategies specified in subsection (c)(1) or (c)(2) from the studies based on the effects identified in this Section.
 - 7) Based on the data and analysis for each treatment option evaluated under this subsection (c), suppliers must recommend to the Agency, in writing, the treatment option that the corrosion control studies indicate constitutes OCCT for its system as defined in Section 611.350(b). Suppliers must provide the Agency with a rationale for the OCCT recommendation, and all supporting documentation specified in subsections (c)(1) or (c)(2) and subsections (c)(3) through (c)(7).
- d) Agency designation of OCCT and re-optimized OCCT
- 1) Designation of OCCT or re-optimized OCCT. Based on available information, including, where applicable, studies conducted under subsection (c)(1) or (c)(2) and/or a supplier's recommended corrosion

control treatment option, the Agency must either approve the supplier-recommended corrosion control treatment option or designate alternative corrosion control treatment(s) from among those listed in subsection (c)(1) or (c)(2), as applicable. The Agency must notify the supplier, in writing, of its designation of OCCT or re-optimized OCCT and explain the basis for this determination.

- A) When designating OCCT, the Agency must consider the effects that additional corrosion control treatment has on water quality parameters and other drinking water quality treatment processes.
 - B) If the Agency requests additional information to aid its review, the supplier must provide that information.
- 2) This subsection (d)(2) corresponds with 40 CFR 141.82(d)(2), which USEPA marked “Reserved”. This statement maintains structural consistency with USEPA’s rule.
- e) Installing OCCT and Re-Optimizing OCCT. Each supplier must install and operate the OCCT or re-optimized OCCT designated by the Agency under subsection (d) throughout its distribution system.
- f) Agency review of treatment and designation of optimal water quality parameters for OCCT and re-optimized OCCT. The Agency must evaluate the results of all lead and copper tap and water quality parameter sampling submitted by the supplier and determine whether the supplier has installed and operated the OCCT designated by the Agency in subsection(d). Upon reviewing the supplier’s tap and water quality parameter sampling results, both before and after the supplier installs OCCT, or re-optimized OCCT, the Agency must designate each of the following:
 - 1) A minimum value or a range of values for pH measured at each entry point to the distribution system.
 - 2) A minimum pH value measured in all distribution system samples. This value must be equal to or greater than 7.0, unless the Agency determines that meeting a pH level of 7.0 is not technologically feasible or is not necessary for OCCT.
 - 3) If a corrosion inhibitor is used, a minimum concentration or a range of concentrations for orthophosphate (as PO₄) or silicate measured at each entry point to the distribution system.
 - 4) If a corrosion inhibitor is used, a minimum orthophosphate (as PO₄) or silicate concentration measured in all tap samples that the Agency

determines is necessary to form a passivating film on the interior walls of the pipes of the distribution system. When orthophosphate is used, for OCCT designations for suppliers previously without corrosion control treatment, the orthophosphate concentration must be equal to or greater than 0.5 mg/L (as PO₄) and for OCCT designations for suppliers previously with corrosion control treatment, the orthophosphate concentration must be equal to or greater than 1.0 mg/L, unless the Agency determines that meeting the applicable minimum orthophosphate residual is not technologically feasible or is not necessary for OCCT.

- 5) If alkalinity is adjusted as part of OCCT, a minimum concentration or a range of concentrations for alkalinity, measured at each entry point to the distribution system and in all tap samples.
 - 6) The values for the applicable water quality parameters in subsections (f)(1) through (f)(5) must be the values the Agency determines reflect OCCT or re-optimized OCCT for the supplier's water system. The Agency may designate values for additional water quality parameters the Agency determines reflect OCCT or re-optimized OCCT for the supplier's water system. The Agency must notify the supplier, in writing, of these determinations and explain the basis for its decisions.
- g) Continued operation and monitoring for OCCT and re-optimized OCCT. All suppliers, including those optimizing or re-optimizing OCCT, must continue to operate and maintain OCCT, including maintaining water quality parameters at or above the minimum values or within the ranges designated by the Agency under subsection (f), in compliance with this subsection (g) for all water quality parameter samples collected under Section 611.357(b)(4) through (d). The requirements of this subsection (g) apply to all suppliers, including suppliers with consecutive systems that distribute water that has been treated to control corrosion by another supplier, and any supplier system with corrosion control treatment, OCCT, or re-optimized OCCT that is not required to monitor water quality parameters under Section 611.357.
- 1) The supplier must determine whether it complies with this subsection (g) every six months, as specified in Section 611.357(b)(4). A supplier is out of compliance with this subsection (g) for a six-month period if it has excursions for any Agency-specified parameter on more than nine days, cumulatively, during the period. An excursion occurs whenever the daily value for one or more of the water quality parameters measured at a sampling location is below the minimum value or outside the range designated by the Agency. Daily values are calculated as set out in subsection (g)(2). The Agency has discretion to not include results of obvious sampling errors from this calculation. The supplier must record sampling errors even when not included in calculations.

2) Water quality parameter daily value.

- A) On days when the supplier collects more than one measurement for a water quality parameter at a sampling location, the daily value must be the average of all results collected at that sampling location during the same day, regardless of whether they are collected through continuous monitoring, grab sampling, or a combination of both. If USEPA approves an alternate formula under 40 CFR 142.16(1)(ii) in the State's application for a program revision submitted under 40 CFR 142.12, the approved formula must be used to aggregate multiple measurements at a sampling point for the water quality parameters in lieu of the formula in this subsection(g)(2).

~~BOARD NOTE: Corresponding 40 CFR 141.82(g)(2)(i) further provides as follows: If USEPA approves an alternative formula under 40 CFR 142.16(d)(1)(ii) in the State's application for a program revision submitted under 40 CFR 142.12, the approved formula must be used to aggregate multiple measurements at a sampling point for the water quality parameters in lieu of the formula in this subsection(g)(2).~~

- B) On days when the supplier collects only one measurement for a water quality parameter at a sampling location, the daily value must be the result of that measurement.
- C) On days when the supplier collects no measurement for a water quality parameter at a sampling location, the daily value must be the daily value calculated on the most recent day on which the supplier measured the water quality parameter at the sampling location.
- h) Modification of Agency treatment determination for OCCT and re-optimized OCCT. Upon its own initiative or in response to a request by a supplier or other interested party, the Agency may modify its determination of OCCT under subsection (d), or the optimal water quality parameters under subsection (f). A request for modification by a supplier or other interested party must be in writing, explaining why the modification is appropriate, and providing supporting documentation. The Agency may require a supplier to conduct a CCT study to support modification of the determination of OCCT or re-optimized OCCT. The Agency may modify its determination where it concludes that such a change is necessary to ensure that the supplier continues to optimize corrosion control treatment. A revised designation must be made in writing, set forth the new treatment requirements and/or optimal water quality parameters, explain the basis for the Agency's determination, and provide an implementation schedule for

completing the treatment modifications for re-optimized corrosion control treatment.

- i) Treatment decisions by USEPA in lieu of the Agency on OCCT and re-optimized OCCT. Under the procedures in 40 CFR 142.19, USEPA may review OCCT determinations made by the Agency under subsections (d), (f), or (h) and issue federal corrosion control treatment determinations consistent with the requirements of 40 CFR 141.82(d), (f), or (h) where USEPA finds that:
 - 1) The Agency failed to issue a treatment determination by the applicable deadlines in Section 611.351 (corresponding with 40 CFR 141.81);
 - 2) The Agency abused its discretion; or
 - 3) The technical aspects of the Agency's determination would be indefensible in a federal enforcement action taken against a supplier.
- j) Distribution system and site assessment for tap sampling sites with lead results that exceed 0.010 mg/L. The supplier must conduct the following steps when the lead results from an individual tap sample site sampled under Section 611.356 exceed 0.010 mg/L and the site is included in the site sample plan under Section 611.356(a)(1):
 - 1) Step 1: Corrosion control treatment assessment. Within five days of receiving the tap sampling results, the supplier must sample at a water quality parameter site in compliance with subsection (j)(1)(B) that is on the same-size water main, in the same pressure zone and located within a half mile radius of the site with the lead result that exceeds 0.010 mg/L. Suppliers without corrosion control treatment are not required to collect these samples.
 - A) The supplier must measure the following water quality parameters:
 - i) pH;
 - ii) Alkalinity;
 - iii) Orthophosphate (as PO₄), when an inhibitor containing an orthophosphate compound is used; and
 - iv) Silica, when an inhibitor containing a silicate compound is used.
 - B) The supplier must measure at the following locations:

- i) Suppliers with an existing water quality parameter site that meets the requirements in this subsection (j)(1) can conduct this sampling at that site.
 - ii) All suppliers required to meet optimal water quality parameters but do not have an existing water quality parameter site that meets the requirements in this subsection (j)(1) must add new sites to the minimum number of sites described in Section 611.357(b)(1)(A). Sites must be added until a supplier has twice the minimum number of sites listed in Section 611.357(b)(1)(A). When a supplier exceeds twice the number of sites, the Agency has discretion to determine if these additional newer sites can better assess the effectiveness of the corrosion control treatment and whether to remove existing sites during sanitary survey evaluation of OCCT.
- 2) Step 2: Site assessment. Within 30 days of receiving the tap sampling results, suppliers must collect and analyze a follow-up sample for lead at any tap sample site that exceeds 0.010 mg/L. The supplier may use ~~different~~these follow-up sample volumes or different sample collection procedures to assess the source of elevated lead levels. Samples the supplier collected under this Section must be submitted to the Agency but cannot be included in the 90th percentile calculation for compliance monitoring under Section 611.356. If the supplier is unable to collect a follow-up sample at a site, the supplier must provide documentation to the Agency, as specified in Section 611.360(g)(2), explaining why it was unable to collect a follow-up sample.
- 3) Step 3: Evaluate results and system treatment recommendation. Suppliers must evaluate the results of the sampling conducted under subsections (j)(1) and (j)(2) to determine if either localized or centralized adjustment of OCCT or other distribution system actions are necessary and submit the recommendation to the Agency within six months after the end of the tap sampling period in which the site(s) exceeded 0.010 mg/L. Corrosion control treatment modification may not be necessary to address every exceedance of 0.010 mg/L. Other distribution system actions may include flushing to reduce water age. Suppliers must note the cause of the elevated lead level, if known from the site assessment, in their recommendation to the Agency as site-specific issues can be an important factor in why the supplier does not recommend any adjustment of corrosion control treatment or other distribution system actions. Suppliers in the process of optimizing or re-optimizing OCCT under subsections (a) through (f) do not need to submit a treatment recommendation for distribution system and site assessment.

- 4) Step 4: Agency approval of treatment recommendation. The Agency must approve the supplier's treatment recommendation or specify a different approach within six months of completing Step 3, as described in subsection (j)(3) and notify the supplier in writing.
- 5) Step 5: Modifications to OCCT. If the Agency-approved treatment recommendation requires the supplier to adjust the OCCT process, the supplier must complete modifications to its corrosion control treatment within 12 months of receiving notification from the Agency, as described in subsection (j)(4). Suppliers without corrosion control treatment required to install OCCT must follow the schedule in Section 611.351(e).
- 6) Step 6: Follow-up sampling. Suppliers adjusting OCCT must complete follow-up sampling in compliance with Sections 611.356(c)(2)(C)(iv) and 611.357(b)(3) within 12 months after completing Step 5, as described in subsection (j)(5) and submit sampling results to the Agency in compliance with Sections 611.356 and 611.357.
- 7) Step 7: Agency OWQP designation. For suppliers adjusting OCCT, the Agency must review the supplier's modification of corrosion control treatment and designate optimal water quality parameters in compliance with subsection (f) within six months of receiving the sampling result described in subsection (j)(6).
- 8) Step 8: Operate in compliance. For a supplier adjusting OCCT, the supplier must comply with the Agency-designated optimal water quality parameters in compliance with subsection (g) and continue to conduct tap sampling in compliance with Sections 611.356(c)(2)(C)(v) and 611.357(b)(4).

BOARD NOTE: This Section derives from 40 CFR 141.82.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 611.353 Source Water Treatment

A supplier must complete source water monitoring and treatment requirements (under subsection (b) and Sections 611.356 and 611.358) before specific deadlines.

- a) Deadlines for Completing Source Water Treatment Steps
 - 1) Step 1: A supplier exceeding the lead or copper action level must complete lead and copper source water monitoring (under Section 611.358(b)) and recommend treatment to the Agency (under subsection

(b)(1)) within 180 days after the end of the ~~tap~~ monitoring period during which the supplier exceeded the action level.

- 2) Step 2: The Agency must issue a SEP determining source water treatment (under subsection (b)(2)) within six months after the supplier submits monitoring results under step 1.
- 3) Step 3: If the Agency requires installing source water treatment, the supplier must install that treatment (under subsection (b)(3)) within 24 months after the Agency completes step 2.
- 4) Step 4: The supplier must complete follow-up tap water monitoring (Section 611.356(c)(2)(C)(vi)) and source water monitoring (Section 611.358(c)) within 36 months after completion of step 2 as described in subsection (a)(2).
- 5) Step 5: The Agency must issue a SEP reviewing the supplier's installation and operation of source water treatment and specify MPCs for lead and copper (under subsection (b)(4)) within six months after the supplier completes step 4.
- 6) Step 6: The supplier must comply with the Agency-specified lead and copper MPCs (under subsection (b)(4)) and continue source water monitoring (under Section 611.358(d)).

b) Source Water Treatment Requirements

- 1) System Treatment Recommendation. Any supplier exceeding the lead or copper action level must recommend to the Agency in writing one of the source water treatments in subsection (b)(2). A supplier may recommend installing no treatment based on a demonstration that source water treatment is not necessary to minimize lead and copper levels at users' taps.
- 2) Agency Determination Regarding Source Water Treatment
 - A) The Agency must evaluate the results of all source water samples the supplier submitted to determine whether source water treatment is necessary to minimize lead or copper levels in water the supplier delivers to users' taps.
 - B) If the Agency determines treatment is necessary, the Agency must issue a SEP requiring the supplier to install and operate either the source water treatment the supplier recommended (if any) or another from among specific source water treatment techniques:

- i) ion exchange;
 - ii) reverse osmosis;
 - iii) lime softening; or
 - iv) coagulation/filtration.
 - C) The Agency may require the supplier to submit, by a certain date, any additional information as the Agency determines is necessary to aid its review.
 - D) The Agency must notify the supplier in writing of its determination, stating the basis for its decision.
- 3) Installing Source Water Treatment. A supplier must properly install and operate the source water treatment the Agency approves under subsection (b)(2).
- 4) Agency Reviewing Source Water Treatment and Specifying Maximum Permissible Source Water Levels (MPCs)
- A) The Agency must review the source water samples the supplier took both before and after the supplier installs source water treatment and determine whether the supplier properly installs and operates the approved source water treatment.
 - B) Based on its review, the Agency must issue a SEP approving the lead and copper MPCs for finished water entering the supplier's distribution system. The MPC levels must reflect the contaminant removal capability of the treatment when properly operated and maintained.
 - C) The SEP issued under subsection (b)(4)(B) must include the Agency's explanation of the basis for its decision under subsection (b)(4)(B).
- 5) Continued Operation and Maintenance. A supplier must maintain lead and copper levels below the MPCs the Agency approved at every sampling point the supplier monitors under Section 611.358. The supplier does not comply with this subsection (b) if the level of lead or copper at any sampling point is greater than the MPC the Agency approved under subsection (b)(4)(B).

6) Modifying Agency Treatment Decisions

- A) On its own initiative, or in response to a request by the supplier or other interested party, the Agency may issue a SEP modifying its determination of the source water treatment under subsection (b)(2) or the lead and copper MPCs under subsection (b)(4).
- B) A supplier must make a request to modify in writing, explaining the propriety of the modification, and providing supporting documentation.
- C) The Agency may issue a SEP modifying its determination if it concludes that the change is necessary to ensure that the supplier continues minimizing lead and copper concentrations in source water.
- D) A revised determination under subsection (b)(6)(C) and (b)(6)(E) must state the new treatment requirements, explain the basis for the Agency's decision, and provide a schedule for completing the treatment modifications.
- E) Any interested person may submit information to the Agency in writing bearing on whether the Agency should exercise its discretion and issue a SEP modifying its determination under subsection (b)(2). An Agency determination not to act on information an interested person submits is appealable under non-permitting procedures and not an Agency determination for the purposes of Sections 39 and 40 of the Act.

7) USEPA Treatment Decisions. Under 40 CFR 142.19, USEPA reserves the prerogative to review Agency treatment determinations under subsections (b)(2), (b)(4), or (b)(6) and issue federal treatment determinations consistent with 40 CFR 141.83(b)(2), (b)(4), and (b)(6) if USEPA finds that certain conditions exist:

- A) the Agency fails to issue a treatment determination by the applicable deadline in subsection (a);
- B) the Agency abuses its discretion in a substantial number of instances or in instances affecting a substantial population; or
- C) the technical aspects of the Agency's determination would be indefensible in a federal enforcement action taken against the supplier.

BOARD NOTE: This Section derives from 40 CFR 141.83.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 611.355 Public Education and Supplemental Monitoring and Mitigation

A supplier that exceeds the lead action level based on tap water samples collected in compliance with Section 611.356 must distribute the public education materials contained in subsection (a) in compliance with the delivery requirements in subsection (b). Suppliers that exceed the lead action level must offer to sample the tap water of any person served by the water system who request it in compliance with subsection (c). Suppliers must offer to sample for lead in the tap water of any person served by a lead, galvanized requiring replacement, or lead status unknown service line who requests it in compliance with subsection (c). All suppliers must deliver a consumer notice of lead tap water monitoring results and copper tap water monitoring results to persons served by the supplier at sites that are sampled, as specified in subsection (d). A supplier with lead, galvanized requiring replacement, or lead status unknown service lines must deliver public education materials to persons with a lead, galvanized requiring replacement, or lead status unknown service line as specified in subsections (e) and (f). All CWSs that do not meet the minimum replacement rate for mandatory service line replacement as required under Section 611.354(d) must conduct outreach activities as specified in subsection (h). All CWSs must conduct annual outreach to local and State health agencies as outlined in subsection (i). Suppliers with multiple lead action level exceedances, as specified in subsection (j)(1), must conduct public outreach and make filters certified to reduce lead available as specified in subsection (j)(2) through (j)(6). For suppliers serving a large proportion of consumers with limited English proficiency, as determined by the Agency, all public education materials required under this section must comply with the language requirements in subsection (b)(1).

- a) Content of written public education materials.
 - 1) Community water systems and non-transient non community water systems. Suppliers must include the following elements in written materials (e.g., printed or digital brochures and pamphlets) in the same order as listed in subsections (a)(1)(A) through (a)(1)(G). In addition, language in subsections (a)(1)(A), (a)(1)(B), and (a)(1)(G) must be included in the materials, exactly as written, except for the text in brackets for which the supplier must include supplier-specific information. The Agency may approve changes to the content requirements if the Agency determines the changes are more protective of human health. Any additional information presented by a supplier must be consistent with the information in subsections (a)(1)(A), through (a)(1)(G), and be in plain language that the general public can understand. Suppliers must submit a copy of all written public education materials to the Agency prior to delivery. The Agency may require the supplier to obtain approval of the content of written public education materials prior to delivery.

- 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 people and young children. Please read this information closely to see what you can do to reduce lead in your drinking water.
- B) **Health effects of lead.** There is no safe level of lead in drinking water. Exposure to lead in drinking water can cause serious health effects in all age groups, especially pregnant people, infants (both formula-fed and breastfed), and young children. Some of the health effects to infants and children include decreases in IQ and attention span. Lead exposure can also result in new or worsened learning and behavior problems. The children of persons who are exposed to lead before or during pregnancy may be at increased risk of these harmful health effects. Adults have increased risks of heart disease, high blood pressure, kidney or nervous system problems. Contact your health care provider for more information about your risks.
- 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/building plumbing materials, service lines, and connectors that may contain lead and include information about the definition of lead free as provided in Safe Drinking Water Act section 1417 of 1986 and as subsequently revised in 2011. Explain that lead levels may vary and therefore lead exposure is possible even when tap sampling results do not detect lead at one point in time.
 - iii) Discuss other important sources of lead exposure in addition to drinking water (e.g., paint).

BOARD NOTE: The supplier must use text providing the information this subsection (a)(1)(C) describes.

- D) **Consumer steps to reduce lead exposure.** Discuss the steps the consumer can take to reduce exposure to lead in drinking water.
- i) Explain that using a filter certified by an American National Standards Institute accredited certifier to reduce

lead is effective in reducing lead exposures. If the supplier makes filters available in compliance with subsection (j)(2), also include information on how the consumer can obtain a filter. .

- ii) Encourage running the water to flush out the lead. Explain that lead levels increase over time as water sits in lead-containing plumbing materials and regular water usage in the building can reduce lead levels in drinking water. Advise consumers served by lead and galvanized requiring replacement service lines that they may need to flush the water for longer periods
- iii) Explain concerns with using hot water from the tap and specifically caution against the use of hot water for preparing baby formula
- iv) Explain that boiling water does not reduce lead levels.
- v) Encourage regular cleaning of faucet aerators.
- vi) Discuss other steps consumers can take to reduce exposure to lead in drinking water, especially for pregnant persons, infants, and young children, such as using alternative sources of water.
- vii) Suggest that parents have their child's blood tested for lead. Provide contact information for the Agency and/or local health department.
- viii) Tell consumers how to get their water tested, including information in compliance with subsection (c).

BOARD NOTE: The supplier must use text providing the information this (a)(1)(D) describes.

- E) Levels of lead in drinking water. 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/buildings in this area.

BOARD NOTE: The supplier must use text providing the information this (a)(1)(E) describes.

F) Information on lead, galvanized requiring replacement, and unknown service lines. For suppliers with lead, galvanized requiring replacement, or lead status unknown service lines in the supplier's inventory in compliance with Section 611.384(a) and (b), public education materials must meet the requirements of subsection (a)(1)(F)(i) through (vii). For suppliers with lead connectors or connectors of unknown material in the supplier's inventory in compliance with Section 611.384(a) and (b), public education materials must meet the requirements of subsection (a)(1)(F)(iii):

- i) Discuss opportunities to replace lead and galvanized requiring replacement service lines;
- ii) Discuss opportunities to have the material of a lead status unknown service line identified;
- iii) Include information on how to obtain a copy of the service line inventory or view the inventory on the internet if the supplier is required to make the inventory available online so the consumer can find out if they are served by a lead, galvanized requiring replacement, or lead status unknown service line, or known lead connector or connector of unknown material;
- iv) Include information on how to obtain a copy of the service line replacement plan or view the plan on the internet if the supplier is required to make the service line replacement plan available online;
- v) Include information about opportunities to replace lead and galvanized requiring replacement service lines. Where the supplier intends for customer payment for a portion of the replacement where it is required or authorized by State or local law or a water tariff agreement, the notice must include information about programs that provide financing solutions to assist property owners with replacement of their portion of a lead or galvanized requiring replacement service line;
- vi) Include a statement that the supplier is required to replace its portion of a lead or galvanized requiring replacement service line when the property owner notifies the supplier that they are replacing their portion of the lead or galvanized requiring replacement service line; and

- vii) Include a statement that provides instructions for the customer or consumer to notify the supplier if they disagree with the service line material categorization in the inventory.
- G) More information about lead. For more information, contact [INSERT NAME OF SUPPLIER] at [INSERT THE SUPPLIER'S NUMBER or EMAIL ADDRESS] (IF APPLICABLE), or visit our Web site at [INSERT THE SUPPLIER'S WEBSITE HERE]. For more information on reducing lead exposure around your home/building and the health effects of lead, visit USEPA's Website at <https://www.epa.gov/lead> or contact your health care provider.
- 2) This subsection (a)(2) corresponds with 40 CFR 141.85(a)(2), which USEPA marked "[reserved]". This statement maintains structural consistency with USEPA's rule.

BOARD NOTE: At corresponding 40 CFR 141.85(a)(1), USEPA allowed the State to require prior approval of written public information materials. Rather than require prior Agency approval, the Board chooses to allow the Agency to raise any deficiencies that it may perceive using its existing procedure for review of public education materials. The Agency outlines its standard practice for review of public information materials: The Agency provides a comprehensive public education packet to the supplier together with the notice that the supplier exceeds 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. When the Agency perceives minor defects, it will request correction in future distributions of the public education materials. When the Agency perceives major defects in the materials, it will request a redistribution of corrected public education materials the supplier already distributed.

- b) Timing, format, and delivery method of public education materials.
 - 1) For suppliers serving a large proportion of consumers with limited English proficiency, as determined by the Agency, all public education materials required under this section must contain information in the appropriate language(s) regarding the importance of the materials and either contain information on where such consumers may obtain a translated copy of the

public education materials, or assistance in the appropriate language(s) or the materials must be in the appropriate language(s).

- 2) Each time a CWS supplier exceeds the lead action level based on tap water samples collected in compliance with Section 611.356, the supplier must conduct the public education tasks under this subsection (b)(2) within 60 days after the end of the tap sampling period in which the exceedance occurred: For CWS suppliers that are on standard monitoring, the end of the tap sampling period is June 30 or December 31. For CWS suppliers that are required to conduct monitoring annually or less frequently, the end of the tap sampling period is September 30 of the calendar year in which the sampling occurs, or, if the Agency has established an alternate four-month tap sampling period, the last day of that period.
 - A) The CWS supplier must deliver written materials complying with subsection (a) to each customer receiving a bill and to other service connections to which water is delivered by the CWS supplier. In the case of multi-family dwellings, the CWS supplier must deliver the written materials to each unit or post the information at a conspicuous location.
 - B) Methods of delivery for a CWS supplier.
 - i) The CWS supplier must contact consumers who are most at risk by delivering education materials complying with subsection (a) to local public health agencies, even if those agencies are not located within the supplier's service area, along with an informational notice encouraging 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, email or in person. If local public health agencies provide a specific list of additional community-based organizations serving populations at greatest risk from lead exposure (e.g. pregnant people, children), including organizations outside the service area of the supplier, then the supplier must deliver education materials that comply with subsection (a) to all organizations on the provided lists.
 - ii) The CWS supplier must contact consumers who are most at risk by delivering materials complying with subsection (a) to the following organizations listed in subsections (b)(2)(H)(i) through (b)(2)(H)(vii) that are located within the supplier's service area, along with an informational

notice encouraging distribution to all the organization's potentially affected customers or CWS supplier's users.

BOARD NOTE: The Board moved the text of 40 CFR 141.85(b)(2)(ii)(B)(1) through (b)(2)(ii)(B)(7) to appear as subsections (b)(2)(H)(i) through (b)(2)(H)(vii) to comport with allowed indent levels.

- C) No less often than quarterly, the CWS supplier must provide information with each water bill as long as the system exceeds the action level for lead. The message on the water bill must include the verbatim text of the paragraph below, except replacing the text in brackets with supplier-specific information

[INSERT NAME OF SUPPLIER] found elevated levels of lead in drinking water in some homes/buildings. Lead can cause serious health problems. For more information please contact [INSERT NAME OF SUPPLIER] [or visit (INSERT SUPPLIER'S WEBSITE 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 supplier cannot place the information on water bills.

- D) The CWS supplier must post material complying with subsection (a) on the supplier's Website if the CWS supplier serves a population greater than 50,000. The supplier must retain material on the website for as long as the supplier exceeds the action level.
- E) The CWS supplier must submit a press release to media outlets including newspaper, television, and radio stations. The submitted press release must state the supplier found elevated levels of lead in drinking water in some homes/buildings and meet the content requirements of subsection (a).
- F) The CWS supplier must implement at least three activities from one or more of the categories listed in subsections (b)(2)(F)(i) through (b)(2)(F)(x) below. The supplier must consult with the Agency to determine the educational content and selection of these activities.
- 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) Contact organizations representing plumbers and contractors to provide information about lead in drinking water, sources of lead, and the importance of using lead free plumbing materials.
- x) Other Agency approved methods.

G) This subsection (b)(2)(G) corresponds with 40 CFR 141.85(b)(2)(vii), which USEPA marked “[reserved]”. This statement maintains structural consistency with USEPA’s rule .

H) Organizations That the CWS Supplier Must Contact When Required to Do So under Subsection (b)(2)(B)(ii)

- i) Schools, childcare facilities, and 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.
- vii) Obstetricians-gynecologists and midwives.

BOARD NOTE: This subsection (b)(2)(H) derives from 40 CFR 141.85(b)(2)(ii)(B)(1) through (b)(2)(ii)(B)(7), moved here to comport with allowed indent levels.

- 3) A CWS supplier that exceeds the lead action level must repeat the activities in subsection (b)(2), until the supplier's system is at or below the lead action level based on tap water samples collected in compliance with Section 611.356. These repeated activities must be completed within 60 days of the end of each tap sampling period. A calculated 90th percentile level at or below the lead action level based on fewer than the minimum number of required samples under Section 611.356 cannot be used to meet the requirements of this subsection (b)(3).
- 4) Within 60 days after the end of each tap sampling period in which a lead action level exceedance occurs, a NTNCWS supplier must deliver the public education materials specified in subsection (a).
 - 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 until the system is at or below the lead action level based on tap water samples collected in compliance with Section 611.356; and the supplier must deliver the public education materials by certain means.
 - B) The NTNCWS supplier must distribute informational pamphlets and/or brochures on lead in drinking water to each person served by the NTNCWS supplier. The Agency may allow the supplier to use electronic transmission in lieu of or combined with printed materials as long as the electronic transmission achieves the same coverage.
 - C) For a NTNCWS suppliers on standard monitoring, the end of the tap sampling period is June 30 or December 31. For suppliers that must monitor annually or less frequently, the end of the tap sampling period is September 30 of the calendar year in which the sampling occurs, or if the Agency has established an alternate tap sampling period, the last day of that period.
- 5) A NTNCWS supplier must repeat the tasks in subsection (b)(4) until the supplier's system is at or below the lead action level based on tap water samples collected in compliance with Section 611.356. These repeated activities must be completed within 60 days of the end of each tap sampling period. A calculated 90th percentile level at or below the lead action level based on fewer than the minimum number of required samples

under Section 611.356 cannot be used to meet the requirements of this provision.

- 6) A supplier may discontinue delivery of public education materials if the supplier's system is at or below the lead action level during the most recent six-month tap sampling period conducted under Section 611.356. Such a supplier must recommence public education in compliance with this Section if the supplier subsequently exceeds the lead action level during any tap sampling period.
- 7) A supplier may request an extension from the Agency, in writing, to complete the activities in subsection (b)(2)(B) through (F) for CWS suppliers or subsections (b)(4)(A) and (B) for NTNCWS suppliers as follows:
 - A) The extension must be approved in writing by the Agency before the 60 day deadline; and
 - B) The Agency may only grant the extension on a case-by-case basis if the supplier has demonstrated that it is not feasible to complete the activities in subsections (b)(2)(B) through (F) for CWS suppliers or subsections (b)(4)(A) and (B) for NTNCWS suppliers; and
 - C) The activities in subsections (b)(2) or (4) must be completed no later than six months after the end of the tap sampling period in which the exceedance occurred.
- 8) A CWS supplier meeting the criteria of subsections (b)(8)(A) and (b)(8)(B) may apply to the Agency, in writing (unless the Agency has waived the requirement for prior Agency approval), to perform the tasks listed in subsections (b)(4) and (b)(5) in lieu of the tasks in subsections (b)(2) and (b)(3) if:
 - 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 supplier provides water as part of the cost of services provided and does not separately charge for water consumption.
- 9) A CWS supplier serving 3,300 or fewer persons may limit certain aspects of their public education programs as follows:

- A) With respect to the requirements of subsection (b)(2)(B), a supplier serving 3,300 or fewer persons may limit the distribution of the public education materials required under subsection (b)(2)(B) to facilities and organizations served by the supplier that are most likely to be visited regularly by pregnant people and children.
 - B) With respect to the requirements of subsection (b)(2)(E), the Agency may waive this requirement for suppliers serving 3,300 or fewer persons as long as the supplier distributes notices to every household served by the system.
 - C) With respect to the requirements of subsection (b)(2)(F), a supplier serving 3,300 or fewer persons must implement at least one of the activities listed in subsection (b)(2)(F).
- c) Supplemental monitoring and notification of results.
- 1) A supplier that exceeds the lead action level based on tap samples collected in compliance with Section 611.356 must offer to sample for lead in the tap water of any person served by the supplier who requests it. At sites served by a lead, galvanized requiring replacement, or lead status unknown service line, the samples must capture both water in contact with premise plumbing and water in contact with the service line (*e.g.*, first- and fifth-liter samples).
 - 2) Suppliers must offer to sample for lead in the tap water of any person served by a lead, galvanized requiring replacement, or lead status unknown service line who requests it, regardless of whether the supplier's water system exceeds the lead action level. The samples must capture both water in contact with premise plumbing and water in contact with the service line (*e.g.*, first- and fifth-liter samples).
 - 3) All suppliers must provide a consumer notice of the individual tap results from supplemental tap water monitoring carried out under the requirements of this subsection (c) to the persons served by the supplier at the specific sampling site from which the sample was taken (*e.g.*, the occupants of the building where the tap was sampled). Suppliers must provide the consumer notice in compliance with the requirements of subsections (d)(2) through (d)(4).
- d) Notification of results.
- 1) Notice requirement. All suppliers must provide a consumer notice of the individual tap results from any lead and copper tap water monitoring under Section 611.356 to the persons served by the supplier at the specific

sampling site from which the sample was taken(e.g., the occupants of the building where the supplier sampled the tap).

- 2) Timing of Notice. The supplier must provide the consumer notice as soon as practicable but no later than three business days after the supplier learns of the tap monitoring results. Notification by mail must be postmarked within three business days of the supplier learning the tap monitoring results.
- 3) Content of notice.
 - A) The consumer notice for lead must include the results of lead tap water monitoring for the tap that was tested, an explanation of the health effects of lead that meets the requirements of subsection (a)(1)(B), information on possible sources of lead in drinking water that meets the requirements of subsection (a)(1)(C)(ii), a list of steps consumers can take to reduce exposure to lead in drinking water that meets the requirements of subsection (a)(1)(D), and contact information for the supplier. 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).
 - B) The consumer notice for copper must include the results of copper tap water monitoring for the tap that was tested, an explanation of the health effects of copper as provided in 611.APPENDIX H, a list of steps consumers can take to reduce exposure to copper in drinking water, and contact information for the supplier. The notice must also provide the maximum contaminant level goal and the action level for copper and the definitions for these two terms from Section 611.883(c).
- 4) Delivery of Notice. Suppliers must provide consumer notice to persons served at the tap that was sampled. The notice must be provided electronically (*e.g.*, email or text message), by phone call or voice message, hand delivery, by mail, or another method approved by the Agency. For example, upon approval by the Agency, a NTNCWS supplier can post the results in a conspicuous area, such as on a bulletin board, in the facility to allow users to review the information. Suppliers that choose to deliver the notice to consumers by phone call or voice message must follow up with a written notice to consumers hand delivered or postmarked within 30 days of the supplier learning of the tap monitoring results. The notices of lead and copper tap sampling results may be combined in one notice.
- e) Notification of service line that is known to or may potentially contain lead.

- 1) Notification requirements. All suppliers with lead, galvanized requiring replacement, or lead status unknown service lines in their inventory under Section 611.354(a) and 611.354(b) must provide notification of a service line that is known to or may potentially contain lead to customers and all persons served by the supplier at the service connection with a lead, galvanized requiring replacement, or lead status unknown service line.
- 2) Timing of notification. A supplier must provide notification no later than 30 days after completing the baseline inventory required under Section 611.354(a)(2) and repeat the notice no later than 30 days after the deadline for each annual update to the service line inventory under Section 611.360(e)(4) requires until the supplier's entire service connection is no longer a lead, galvanized requiring replacement, or lead status unknown service line. For notice to new customers, suppliers must provide the notice at the time-of-service initiation.
- 3) Notice content.
 - A) Persons served by a supplier with confirmed lead service line or galvanized requiring replacement service line. The notice must include:
 - i) A statement that the person's service line is lead or galvanized requiring replacement as applicable.
 - ii) An explanation of the health effects of lead that meets the requirements of subsection (a)(1)(B).
 - iii) Steps persons at the service connection can take to reduce exposure to lead in drinking water that meet the requirements of subsection (a)(1)(D).
 - iv) A statement that the consumer can request to have their tap water sampled in compliance with subsection (c).
 - v) Include information on how to obtain a copy of the service line replacement plan or view the plan on the internet if the system is required to make the service line replacement plan available online.
 - vi) Information about opportunities to replace lead and galvanized requiring replacement service lines. Where the supplier intends for customer payment for a portion of the replacement where it is required or authorized by the

Agency or local law or a water tariff agreement, the notice must include information about programs that provide financing solutions to assist property owners with replacement of their portion of a lead or galvanized requiring replacement service line.

- vii) A statement that the supplier is required to replace its portion of a lead or galvanized requiring replacement service line when the property owner notifies the supplier that they are replacing their portion of the lead or galvanized requiring replacement service line.
- viii) A statement that provides instructions for the customer to notify the supplier if they disagree with the service line material categorization in the inventory.

B) Persons served by a lead status unknown service line. The notice must include a statement that the person's service line material is unknown but may be lead, the information in subsections (e)(3)(A)(ii) through (v), and information about opportunities to verify the material of the service line.

4) Delivery. The supplier must provide notice to customers and persons the supplier serves at the service connection with a lead, galvanized requiring replacement, or lead status unknown service line, by mail or using another method approved by the Agency.

f) Notification due to a disturbance to a service line that is known to or may potentially contain lead.

- 1) Suppliers that cause a disturbance to a lead, galvanized requiring replacement, or lead status unknown service line must provide customers and the persons served by the supplier at the service connection with information about the potential for elevated lead levels in drinking water as a result of the disturbance. Actions taken by a supplier that cause a disturbance include actions that result in a shut off or bypass of water to an individual service line or a group of service lines (e.g., operating a valve on a service line or meter setter, or reconnecting a service line to the main) or other actions that cause a disturbance to a service line or group of service lines, such as undergoing physical action or vibration, that could result in pipe scale dislodging and associated release of particulate lead. The provided information must include:

- A) Public education materials that meet the content requirements in subsections (a)(1)(B) through (D) and (F) and contact information for the supplier; and
 - B) Instructions for a flushing procedure to remove particulate lead.
- 2) If the disturbance of a lead, galvanized requiring replacement, or lead status unknown service line results from the supplier's replacement of an inline water meter, a water meter setter, or connector or from the replacement of a water main where the service line pipe is physically cut, the supplier must provide the persons served by the supplier at the service connection with the information in subsections (f)(1)(A) and (B) and a pitcher filter or point-of-use device certified by an American National Standards Institute accredited certifier to reduce lead, instructions to use the filter, and six months of filter replacement cartridges.
- 3) Notice.
 - A) Persons at the service connection. The supplier must comply with the requirements in this subsection (f) for persons served by the supplier's water system at the service connection before any service line that has been shut off or bypassed is returned to service. Where there was a disturbance, but service was not shut off or bypassed, the supplier must comply with the requirements in this subsection (f) as soon as possible, but not to exceed 24 hours following the disturbance.
 - B) Customers. The supplier must comply with subsection (f)(1) for customers associated with the service connection who are not persons served by the suppliers at the service connection (*e.g.*, a customer who is a property owner and renting their property) no later than 30 days following the disturbance.
- 4) A supplier that conducts a partial or full replacement of a lead or galvanized requiring replacement service line must follow procedures in compliance with Section 611.354(h). Partial or full replacement of a lead or galvanized requiring replacement service line is not considered a "disturbance" for purposes of this subsection (f).
- g) This subsection (g) corresponds with 40 CFR 141.85(g), which USEPA marked "[reserved]". This statement maintains structural consistency with USEPA's rule.
- h) Outreach activities to encourage participation in full service line replacement.

- 1) CWS suppliers that do not meet the service line replacement rate calculated across a cumulative period as required under 611.354(d)(5) must conduct at least one outreach activity listed in subsection (h)(2) to discuss their mandatory service line replacement program and opportunities for replacement and to distribute public education materials that meet the content requirements in subsection (a) except subsections (a)(1)(A) and (E). The supplier must conduct the activity in the year following the program year for which the supplier does not meet their cumulative average replacement rate and annually thereafter until the supplier meets the cumulative average replacement rate or until there are no lead, galvanized requiring replacement, or lead status unknown service lines remaining in the inventory, whichever occurs first.
- 2) For CWS suppliers serving more than 3,300 persons, the outreach activity must be one of the activities identified in subsections (h)(2)(A) through (D) or the supplier must conduct two activities listed in subsections (h)(2)(E) through (H). For CWS suppliers serving 3,300 persons or fewer, the outreach activity must be one of the activities identified in subsections (h)(2)(A) through (H).
 - A) Conduct a public meeting.
 - B) Participate in a community event to provide information about its service line replacement program.
 - C) Contact customers by phone call or voice message, text message, email, or door hanger.
 - D) Use another method approved by the Agency to discuss the service line replacement program and opportunities for lead and galvanized requiring replacement service line replacement.
 - E) Send certified mail to customers and all persons served by the supplier at the service connection with a lead or galvanized requiring replacement service line to inform them about the supplier's service line replacement program and opportunities for replacement of the service line.
 - F) Conduct a social media campaign.
 - G) Conduct outreach via the media including newspaper, television, or radio.
 - H) Visit targeted customers (*e.g.*, customers in areas with lower service line replacement participation rates) to discuss the service

line replacement program and opportunities for replacement of the service line.

- i) Public education to local and state health agencies.
 - 1) Supplier distribution system and site assessment results. All CWS suppliers must inform the Department of Public Health and local health agencies about its Distribution System and Site Assessment activities conducted in compliance with Section 611.352(j), including the location of the tap sample sites that exceeded 0.010 mg/L, the results of the initial tap samples, the results of the follow-up tap samples, the results of water quality parameter monitoring, and any distribution system management actions or corrosion control treatment adjustments the supplier made.
 - 2) Timing and Content. A CWS supplier must annually send Distribution System and Site Assessment information and copies of the public education materials the supplier provided under subsections (a) and (h) for actions conducted in the previous calendar year no later than July 1 of the following year.
 - 3) Delivery. The CWS suppliers must send the public education materials and Distribution System and Site Assessment information to the Department of Public Health and local health agencies by mail, email, or by any other method approved by the Agency.
- j) Additional requirements for suppliers with multiple lead action level exceedances.
 - 1) A supplier that exceeds the lead action level at least three times in a rolling five-year period, based on tap water samples collected in compliance with Section 611.356 must conduct the activities in this section. The first rolling five-year period begins on the compliance date in Section 611.350(a)(3). If a supplier exceeds the lead action level at least three times within a five-year period, the supplier must conduct these actions upon the third action level exceedance even if the rolling five-year period has not elapsed.
 - 2) No later than 60 days after the tap sampling period in which a supplier meets the criteria of subsection (j)(1), a supplier must make available to all consumers pitcher filters or point-of-use devices certified by an American National Standards Institute accredited certifier to reduce lead, six months of replacement cartridges, and instructions to use. A supplier must continue to make replacement cartridges available until the supplier may discontinue actions in compliance with subsection (j)(6).

- 3) No later than 60 days after a supplier exceeds the lead action level for the second time in a rolling five-year period, the supplier must submit a filter plan to the Agency. The Agency must review and approve the filter plan within 60 days. If the supplier subsequently meets the criteria of subsection (j)(1) again, the supplier is not required to re-submit the filter plan, unless the supplier has made updates to the plan or otherwise requested by the Agency. The plan must include:
 - A) A description of which methods the supplier will use to make filters and replacement cartridges available in compliance with subsection (j)(2) (*e.g.*, operating distribution facilities, delivering filters when requested by the consumer); and
 - B) A description of how the supplier will address any barriers to consumers obtaining filters.
- 4) A supplier that meets the criteria of subsection (j)(1) must conduct a community outreach activity to discuss the multiple lead action level exceedances, steps the supplier is taking to reduce lead in drinking water, measures consumers can take to reduce their risk consistent with the content requirements of subsection (a)(1)(D), and how to obtain a filter certified to reduce lead as required in subsection (j)(2). This activity is in addition to the public education activities required under subsection (b)(2) for CWS suppliers, and under subsection (b)(4) for NTNCWS suppliers, that exceed the lead action level. The supplier must conduct at least one activity from subsections (j)(4)(A) through (E) within six months of the start of the tap sampling period after the most recent lead action level exceedance. The supplier must conduct at least one of the activities in subsections (j)(4)(A) through (E) every six months until the supplier no longer meets the criteria of subsection (j)(1).
 - A) Conduct a public meeting.
 - B) Participate in a community event where the supplier can make information about ongoing lead exceedances available to the public.
 - C) Contact customers by phone call or voice message, text message, email, or door hanger.
 - D) Conduct a social media campaign
 - E) Use another method approved by the Agency.

- 5) A supplier that is already conducting an outreach activity listed in subsection (j)(4) in order to meet the requirements of subsection (h) may conduct one activity that meets the requirements of subsections (j)(4) and (h), unless otherwise directed by the Agency.
- 6) A supplier may discontinue the requirements of this subsection (j) when the supplier no longer has at least three lead action level exceedances in a rolling five-year period, based on tap water samples collected in compliance with Section 611.356. A calculated 90th percentile level at or below the lead action level based on fewer than the minimum number of required samples under Section 611.356 cannot be used to meet the requirements of this subsection (j)(6). The Agency has the discretion to allow a supplier to discontinue the requirements of this subsection (j) earlier if the supplier has taken actions to reduce lead levels (e.g., re-optimized optimal corrosion control treatment or completed the service line replacement program) and the supplier is at or below the lead action level for two consecutive tap monitoring periods.

BOARD NOTE: This Section derives from 40 CFR 141.85.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 611.356 Tap Water Monitoring for Lead and Copper

All suppliers must sample for lead and copper at taps used to provide water for human consumption in compliance with the requirements of this section.

- a) Sampling site location
 - 1) By the start of the first tap monitoring period in which sampling for lead and copper is required under subsections (c) and (d), each supplier must identify potential tap sampling sites and submit a site sample plan to the Agency as required in Section 611.360(a)(1)(A). The Agency may require modifications to submitted site sample plans. Each supplier must identify a pool of tap sampling sites that will allow the supplier to collect the number of lead and copper tap samples required in subsections (c)(1) and (d)(1).
 - A) To select sampling sites, a supplier must use information regarding the material of service lines and connectors, including lead, copper, and galvanized iron or steel, required to be collected under Section 611.354.

- B) Suppliers must identify locations in the site sample plan by selecting from sites in the highest tier, unless the site has been found to be unavailable, in compliance with subsection (a)(4).
 - C) Sampling sites cannot include sites with installed point-of-entry (POE) treatment devices or taps with point-of-use devices designed to remove inorganic contaminants, except in supplier's water systems using these devices at all service connections for primary drinking water taps to meet other primary and secondary drinking water standards under Section 611.363(c)(1).
- 2) A supplier that has fewer than five sites with drinking water taps that can be used for human consumption meeting the sample site criteria of this subsection (a) to reach the required number of sample sites listed in subsections (c)(1) and (d)(1), must collect at least one sample from each tap and collect additional samples from those taps on different days during the tap sampling period to meet the required number of sites. Alternatively, the Agency may allow these suppliers to collect a number of samples fewer than the number of sites specified in subsections (c)(1) and (d)(1), provided that 100 percent of all taps that can be used for human consumption are sampled. The Agency must approve this reduction of the minimum number of samples in writing based on a request from the supplier or onsite verification by the Agency.
 - 3) A supplier serving sites with premise plumbing made of lead and/or that are served by a lead service line must collect all samples for monitoring under this section from sites with premise plumbing made of lead and/or served by a lead service line. A supplier that cannot identify enough sampling sites with premise plumbing made of lead and/or served by lead service lines to meet the minimum number of sites required in subsections (c)(1) and (d)(1) must still collect samples from every available site, in compliance with subsection (a)(4), containing premise plumbing made of lead and/or served by a lead service line and collect the remaining samples in compliance with the tiering requirements under subsection (a)(4).
 - 4) Sampling sites must be selected from the highest tier available (Tier 1 is the highest tier and Tier 5 is the lowest tier). Sites are available unless a customer refuses to participate in sampling, or a supplier has made at least two outreach attempts at a site and has not received a response. The number of customer refusals and non-responses for compliance sampling during each tap sampling period must be submitted to the Agency in compliance with the requirements at 611.360(a)(2)(H). Suppliers may continue conducting outreach at sites considered unavailable and may subsequently add such sites to the site sample plan for any reason, such as receiving a service initiation request from a new property owner or

occupant or receiving a new consumer request for sampling. A supplier without a large enough number of sites from a higher tier to meet the number of sites required in subsections (c)(1) and (d)(1) may sample sites from the next highest tier. For suppliers where Tier 2 sites comprise at least 20 percent of the residential structures served by the CWS supplier, Tier 2 sites may be sampled even when Tier 1 sites are available.

- A) Tier 1 sampling sites are single-family structures with premise plumbing made of lead and/or served by a lead service line.
- B) Tier 2 sampling sites are buildings, including multiple-family residences, with premise plumbing made of lead and/or served by a lead service line.
- C) Tier 3 sampling sites are sites that are served by a lead connector. Tier 3 sites are also sites served by a galvanized service line or containing galvanized premise plumbing identified as ever having been downstream of a lead service line. Tier 3 for CWSs only includes single-family structures.
- D) Tier 4 sampling sites are sites that contain copper premise plumbing with lead solder installed before the effective date of the Agency's applicable lead ban. Tier 4 for CWSs only includes single-family structures.
- E) Tier 5 sampling sites are sites that are representative of sites throughout the supplier's distribution system. For purpose of this subsection (a), 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 supplier.

b) Sample-collection protocol.

- 1) Except for samples the supplier collects under subsections(b)(1)(C) and (D), all tap samples collected for analysis of lead and copper must be one liter in volume and have stood motionless in the plumbing system and/or service line of each sampling site for at least six hours. Bottles used to collect samples for analysis must be wide-mouth, one-liter sample bottles, as defined in Section 611.350 (b). Samples from residential housing must be collected from an interior kitchen or bathroom sink cold-water tap. Samples from a nonresidential building must be collected at an interior cold-water tap from which water is typically drawn for human consumption. Samples may be collected by the supplier, or the supplier may allow members of the public to collect samples after providing instructions for collecting samples in compliance with this subsection

(b)(1). Sample collection instructions cannot direct the sample collector to remove or clean the aerator or flush taps prior to the start of the minimum six-hour stagnation period. To protect members of the public from injury due to handling nitric acid, samples may be acidified up to 14 days after the sample is collected. After acidification to resolubilize the metals, the sample must stand in the original container for a period of time, as specified by the approved EPA method in § 40 C.F.R. 141.23 selected for sample analysis. If a supplier allows members of the public to sample, the supplier cannot challenge the accuracy of the sampling results based on alleged sample collection errors.

- A) The first-liter sample must be analyzed for lead and copper at sample sites where both contaminants are required to be monitored. At sample sites where only lead is required to be monitored, the first-liter sample may be analyzed for only lead.
- B) For sites served by a lead service line, which fall under Tier 1 and Tier 2, an additional fifth-liter sample must be collected at the same time as the first-liter sample and must be analyzed for lead. To collect a first-liter-and-fifth-liter-paired sample, suppliers must collect tap water in five consecutively numbered, wide-mouth, one-liter sample bottles after the water has stood motionless in the plumbing of each sampling site, including the lead service line, for at least six hours without flushing the tap prior to sample collection. Suppliers must collect samples starting with the first sample bottle and then fill each subsequently numbered bottle in consecutive order until the final bottle is filled, with the water running constantly while the samples are being collected. In this sequence, the first-liter sample is the first sample collected and the fifth-liter sample is the final sample collected.
- C) Agency-approved samples collected under subsection (b)(3) may include samples with stagnation periods less than six hours, but must meet all the other sample collection criteria in this subsection (b)(1), including being one-liter in volume using a wide-mouth bottle and collected at an interior tap from which water is typically drawn for human consumption.
- D) Suppliers may use different sample volumes and/or different sample collection procedures when they collect follow-up samples for Distribution System and Site Assessment under Section 611.352(j)(2) and consumer-requested samples under Section 611.355(c) to assess the source of lead. Consumer-requested samples must be collected in compliance with Section 611.355(c).

Suppliers must submit these sample results to the Agency in compliance with Section 611.360 (a)(2)(A) and (g).

- 2) Suppliers must sample at sites listed in the site sample plan. Additionally, suppliers must prioritize sampling at the same sites that were sampled in the previous tap sampling period. If such a site no longer qualifies under the tiering criteria or if, for reasons beyond the control of the supplier, the supplier cannot gain access to a sampling site in order to collect a tap sample, the supplier must collect the tap sample from another site in its site sample plan that meets the original tiering criteria, where such a site exists. Suppliers must report any change in sites from the previous tap sampling period and include an explanation of why sampling sites have changed, as required in Section 611.360(a)(2)(E). If changes are needed to the site sample plan, suppliers must submit their updated site sample plan, as required under Section 611.360(a)(1)(A), before the start of the next tap sampling period conducted by the supplier.
 - 3) A NTNCWS supplier, or a CWS supplier that meets the criteria of Section 611.355(b)(8) that does not have enough sites with taps from which first-liter samples or first-liter-and-fifth-liter-paired samples meeting the six-hour minimum stagnation time can be collected, as provided in subsection (b)(1), may apply to the Agency in writing to request approval to substitute first-liter or first-liter-and-fifth-liter-paired samples that do not meet the six-hour minimum stagnation time. Such suppliers must collect as many first-liter or first-liter-and-fifth-liter-paired samples from interior taps used for human consumption as possible towards meeting the minimum number of sites required in subsections (c)(1) and (d)(1). For the remaining samples to meet the minimum number required, suppliers must identify sampling times and locations that would likely result in the longest standing times. The Agency has the discretion to waive the requirement for prior Agency approval of sites not meeting the six-hour stagnation time either through State regulation or written notification to the supplier.
- c) Standard monitoring. Standard monitoring consists of six-month tap monitoring periods that begin on January 1 and July 1.
- 1) Standard monitoring sites. During a standard tap monitoring period, a supplier must collect at least one sample from the number of sites in the following table 1 to this subsection (c)(1). Standard monitoring sites must be selected in compliance with the sampling tiers identified in subsection (a).

Table 1 to Subsection (c)(1)

System size (number of people served)	Standard number of sites for lead and copper sampling
>100,000	100
10,001 to 100,000	60
3,301 to 10,000	40
501 to 3,300	20
101 to 500	10
≤100	5

- 2) Criteria for standard monitoring. The following suppliers must conduct standard monitoring for at least two consecutive tap monitoring periods beginning January 1 or July 1, whichever is sooner, following the tap sampling period in which the criterion is met. Suppliers may then reduce monitoring in compliance with subsection (d).
 - A) All suppliers with lead or galvanized requiring replacement service lines in their inventories as of November 1, 2027, including those deemed optimized under Section 611.351(b)(3) must conduct standard monitoring in the first six-month tap monitoring period following November 1, 2027, unless the supplier has, before or by that date, met all the following criteria:
 - i) The supplier conducts compliance monitoring of sites that meet the correct priority tiering targeting sites served by lead and galvanized requiring replacement service lines in compliance with subsection (a)(4);
 - ii) The supplier collects samples in compliance with all sample collection requirements in subsections (b)(1) and (3); and
 - iii) The supplier collects either first-liter samples or first-liter-and-fifth-liter- paired samples in compliance with subsection (b)(1).
 - B) Any supplier whose most recent 90th percentile lead and/or copper results as of November 1, 2027, exceeds the lead and/or copper action level must conduct standard monitoring in the first six-month tap monitoring period following November 1, 2027.
 - C) Suppliers meeting any of the following criteria:
 - i) Any supplier that exceeds a lead or copper action level.

- ii) Any supplier that fails to operate at or above the minimum value or within the range of values for the optimal water quality parameters designated by the Agency under Section 611.352(f) for more than nine days in any tap monitoring period as specified in Section 611.357.
 - iii) Any supplier that becomes a large water system without corrosion control treatment or any large water system without corrosion control treatment whose lead 90th percentile exceeds the lead practical quantitation limit of 0.005 mg/L.
 - iv) Any supplier that installs OCCT or re-optimizes OCCT as a result of exceeding the lead or copper action level, or any supplier that adjusts OCCT following a Distribution System and Site Assessment. Suppliers conducting standard monitoring under this criterion must continue standard monitoring until the Agency designates new optimal water quality parameters, at which point suppliers must comply with subsection (c)(2)(C)(v).
 - v) Any supplier the Agency has designated new values for optimal water quality parameters under Section 611.352.
 - vi) Any supplier that installs source water treatment pursuant to Section 611.353(a)(3).
 - vii) Any supplier that has notified the Agency in writing in compliance with Section 611.360(a)(4) of an upcoming addition of a new source or long-term change in treatment, unless the Agency determines that the addition of the new source or long-term change in treatment is not significant and, therefore, does not warrant more frequent monitoring.
 - viii) Any supplier without lead or galvanized requiring replacement service lines in its inventory that notifies the Agency under Section 611.360(e)(4)(B) of any subsequently discovered lead or galvanized requiring replacement service lines in its distribution system, unless the supplier replaces all the discovered service lines before the start of the next tap monitoring period.
- d) Reduced monitoring based on 90th percentile levels. Reduced monitoring refers to an annual or triennial tap monitoring period. Each annual or triennial tap

monitoring period includes one tap sampling period. The reduced monitoring frequency is based on the 90th percentile value for the water system.

- 1) Reduced monitoring sites. During a reduced tap monitoring period, a supplier must collect at least one sample from the number of sites specified in table 1 to this subsection (d)(1), unless otherwise specified. Reduced monitoring sites must be selected in compliance with the sampling tiers identified in subsection (a). Lead and copper sampling results collected from point-of-use sites under Section 611.363(c)(1) cannot be used to meet the criteria for reduced monitoring under this section. The Agency may specify the locations of sample sites when a supplier is conducting reduced monitoring.

Table 1 to Subsection (d)(1)	
System size (number of people served)	Reduced minimum number of sites for lead and copper sampling
>100,000	50
10,001 to 100,000	30
3,301 to 10,000	20
501 to 3,300	10
101 to 500	5
≤100	5

- 2) Criteria for reduced monitoring. Suppliers are eligible for reduced monitoring if they meet all the requirements of this section, including collecting at least the minimum number of samples required, for at least two consecutive tap monitoring periods. The Agency may require an eligible supplier to conduct more frequent monitoring.
 - A) Annual monitoring for any supplier size. Any supplier that does not exceed the lead and copper action levels and, for suppliers with Agency-designated OWQPs, also maintains the range of optimal water quality parameters designated by the Agency in compliance with Section 611.352(f) for two consecutive six-month tap monitoring periods may reduce the monitoring frequency to annual monitoring. Suppliers with an annual tap monitoring period must sample at least the standard number of sampling sites for lead in subsection (c)(1) and at least the reduced number of sites for copper as specified in subsection (d)(1). Prior to conducting annual monitoring, suppliers must receive a written determination from the Agency approving annual monitoring based on the Agency's review of monitoring, treatment, and other relevant information submitted by the supplier as required by Section 611.360. For suppliers that reduce to annual monitoring, the first

annual tap monitoring period must begin no later than six months following the last tap monitoring period.

- B) Triennial monitoring for small and medium water suppliers. Any small or medium water supplier that does not exceed the lead and copper action levels and, for suppliers with Agency-designated OWQPs, also maintains the range of optimal water quality parameters designated by the Agency in compliance with Section 611.352(f), during three consecutive years of monitoring, including monitoring conducted at both standard and annual frequencies (standard monitoring completed during both six-month periods of a calendar year is considered one year of monitoring), may reduce the monitoring frequency to triennial monitoring. Suppliers on triennial monitoring must sample at least the reduced number of sites for lead and copper in compliance with subsection (d)(1). Prior to conducting triennial monitoring, suppliers must receive a written determination from the Agency approving triennial monitoring based on the Agency's review of monitoring, treatment, and other relevant information submitted by the supplier as required by Section 611.360. For suppliers that reduce to triennial monitoring, the first triennial tap monitoring period must immediately follow the last annual monitoring period, and the first triennial sampling period must begin no later than three calendar years after the last calendar year in which the supplier sampled.
- C) Triennial monitoring for any supplier size. Any supplier that demonstrates for two consecutive tap monitoring periods that its 90th percentile lead level, calculated under Section 611.350(c)(3), is less than or equal to 0.005 mg/L, the 90th percentile copper level, calculated under Section 611.350(c)(3), is less than or equal to 0.65 mg/L and, for suppliers with Agency-designated OWQPs, also maintains the range of optimal water quality parameters designated by the Agency in compliance with Section 611.352(f), may reduce the monitoring frequency to triennial monitoring. Suppliers on triennial monitoring must sample at least the reduced number of sites for lead and copper in compliance with subsection (d)(1). Prior to conducting triennial monitoring, suppliers must receive a written determination from the Agency approving triennial monitoring based on the Agency's review of monitoring, treatment, and other relevant information submitted by the supplier as required by Section 611.360. For suppliers that reduce to triennial monitoring, the first triennial tap monitoring period must immediately follow the last monitoring period, and the first triennial tap sampling period must begin no later than three

calendar years after the last calendar year in which the supplier sampled.

- 3) Tap sampling period under reduced monitoring. The tap sampling period for suppliers on reduced monitoring must occur within the months of June, July, August, or September, unless the Agency has approved a different tap sampling period in compliance with subsection (d)(3)(A). Only suppliers on reduced monitoring can monitor during a tap sampling period that is shorter than the tap monitoring period.
 - A) The Agency may approve a different tap sampling period for suppliers collecting samples on reduced monitoring. An alternative tap sampling period approved by the Agency must be a continuous period of time no longer than four consecutive months, must occur entirely within one calendar year, 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 normal operation for the supplier.
 - B) Suppliers that receive Agency-approval for an alternate tap sampling period under subsection (d)(3)(A) and have been sampling in the months of June through September must complete their next tap sampling period no later than 21 months, if on annual monitoring, or no later than 45 months, if on triennial monitoring, following the end of the previous tap sampling period.
 - C) Suppliers with waivers granted under subsection (g) that have been collecting samples during the months of June through September and receive Agency approval to alter their sampling period as per subsection (d)(3)(A) must collect their next round of samples before the end of the next nine-year period.
- e) Inclusion of lead and copper tap samples for calculation of the 90th percentile. Suppliers and the Agency must consider the results of any sampling conducted in addition to the minimum number of samples required in subsections (c) or (d), as applicable, in making any determinations (i.e., calculating the 90th percentile lead or copper level in compliance with Section 611.350(c)(3)) under this subpart if the samples meet the requirements of subsections (a) and (b). Consumer-requested sampling conducted in compliance with Section 611.355(c) must be considered if the sample meets the requirements of subsections (a) and (b). If multiple samples from the same site, taken during the same tap sampling period, meet the requirements of this section for consideration of the 90th percentile

calculation, only the highest value from each site can be considered, except for suppliers under section (a)(2).

- 1) Suppliers sampling at one or more Tier 1 and/or Tier 2 sites in a tap sampling period that are unable to collect the minimum number of samples required in subsection (c) or (d) from Tier 1 or 2 sites must consider the lead and copper values from the next highest tier available in compliance with subsection (a). If a supplier has sufficient samples after including the samples from the next highest available tier to meet the minimum number of samples required in subsection (c) or (d), the supplier may not consider additional samples from other available lower tiers. Suppliers (or the Agency) must calculate the 90th percentile lead and copper values in compliance with Section 611.350(c)(3)(C) using a total number of samples equal to the minimum number of samples required in subsection (c) or (d). Suppliers must submit all additional sampling results to the Agency that were not used in the 90th percentile calculation.
 - 2) Suppliers (or the Agency when the Agency is calculating the 90th percentile) cannot include samples collected as part of Distribution System and Site Assessment under Section 611.352(j)(2) in the 90th percentile calculation.
 - 3) Suppliers (or the Agency when the Agency is calculating the 90th percentile) cannot include follow-up samples collected as a result of monitoring after service line replacement under Section 611.354(h) in the 90th percentile calculation.
- f) Invalidation of lead and copper tap samples used in calculating the 90th percentile concentration. A sample the Agency invalidates under this subsection (f) does not count towards determining lead or copper 90th percentile concentrations under Section 611.350(c)(3) or towards meeting the minimum monitoring requirements of subsection (c) or (d). The supplier must report the results of all samples to the Agency and all supporting documentation for samples the supplier believes should be invalidated.
- 1) The Agency may invalidate a lead or copper tap water sample if at least one of the following conditions is met:
 - A) The laboratory establishes that improper sample analysis caused erroneous results.
 - B) The Agency determines that a sample collected for compliance purposes under this section, that is not an additional sample collected under subsection (e) was taken from a site that did not

meet the site selection criteria under subsection (a), such as when sites of higher tier were still available.

- C) The Agency determines the sample was collected in a manner that did not meet the sample collection protocol under subsection (b)(1).
 - D) The sample container was damaged in transit.
 - E) There is a substantial reason to believe that the sample was subject to tampering.
- 2) To invalidate a sample under subsection (f)(1), the Agency must document in writing both the decision and the rationale for the decision. 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.
- 3) The 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)(1) or (d)(1). Any such replacement samples must be taken as soon as possible, but no later than 20 days after the date the Agency notifies the supplier of an invalidated sample or by the end of the tap sampling period, whichever occurs later. Replacement samples taken after the end of the applicable tap sampling period can only be used to meet the monitoring requirements of the applicable tap monitoring period in subsection (c) or (d) and not a subsequent tap monitoring period. The replacement samples must be taken at the same locations as the invalidated samples, except when the sample is invalidated due to an error in meeting the site selection criteria under subsection (a), or a supplier cannot gain access for sampling. The replacement samples must then be taken at locations that meet the site selection criteria other than those locations already used for sampling during the tap monitoring period.
- g) Monitoring waivers for suppliers serving 3,300 or fewer persons. Any supplier serving 3,300 or fewer persons complying with the criteria in this subsection (g) may apply, in writing, to the Agency to reduce the frequency of monitoring for lead and/or copper to once every nine years. The supplier must meet the materials criteria specified in subsection (g)(1) and all of the monitoring criteria specified in subsection (g)(2). Suppliers meeting only the criteria for lead may apply for a lead waiver, suppliers meeting only the criteria for copper may apply for a copper waiver, and suppliers meeting the criteria for both lead and copper may apply for a full waiver.

- 1) **Materials criteria.** The supplier must demonstrate that its distribution system, 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 and/or copper-containing materials, as those terms are defined in this subsection (g)(1) as follows:

- A) **Lead.** To qualify for a lead waiver, the supplier must certify and provide supporting documentation to the Agency demonstrating that its system including distribution system and all premise plumbing is free of all lead-containing materials as follows:
 - i) The system has no plastic pipes or service lines containing lead plasticizers; and
 - ii) The system is free of lead service lines, galvanized requiring replacement service lines, lead connectors, lead pipes, lead soldered pipe joints, and leaded brass- or bronze-alloy fittings and fixtures, unless such fittings and fixtures comply with Section 611.126(b).

BOARD NOTE: Corresponding 40 CFR 141.86(g)(1)(i)(B) specifies “any standard established under 42 U.S.C. 300g-6(e) (SDWA section 1417(e))”. Congress changed the lead standards for fittings and fixtures in the Reduction of Lead in Drinking Water Act, P.L. 111-380, section 2(a)(2) and (b), 124 Stat. 4131 (Jan. 4, 2011). The Board incorporated the statutory changes into this Section by referencing Section 611.126(b).

- B) **Copper.** To qualify for a copper waiver , the supplier must certify and provide supporting documentation to the Agency demonstrating that the system contains no copper service lines or premise plumbing.

- 2) **Monitoring criteria.** 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)(1) and demonstrate to the Agency that the 90th percentile concentrations for any and all rounds of monitoring conducted since the system became free of all lead-containing ~~and/or~~ copper-containing materials, as appropriate, meet the following criteria:

- A) Lead levels. To qualify for a lead waiver, the supplier must demonstrate that its 90th percentile lead concentration does not exceed 0.005 mg/ L.
 - B) Copper levels. To qualify for a copper waiver, the supplier must demonstrate that its 90th percentile copper concentration does not exceed 0.65 mg/ L.
- 3) Agency approval of waiver application. The Agency must notify the supplier of its waiver determination in writing stating the basis of its decision and any condition(s) of an approved waiver. As a condition of a waiver, the Agency may require the supplier to perform specific activities (e.g., limited monitoring, periodic outreach to customers to remind them to avoid installing materials that might void the waiver) to avoid lead or copper concentrations of concern in tap water. The supplier must continue monitoring for lead and copper at the tap as required by subsections(c) and (d), as appropriate, until the supplier receives written notification from the Agency that a waiver has been approved.
- 4) Monitoring frequency for suppliers with waivers.
 - A) A supplier with a full waiver must conduct tap monitoring for lead and copper in compliance with subsection (d) at least once every nine years. A supplier with a full waiver must provide the Agency with the materials certification specified in subsection (g)(1) for both lead and copper when submitting their tap sampling results to the Agency. The supplier must collect samples every nine years no later than the ninth calendar year.
 - B) A supplier with a lead or copper waiver must conduct tap monitoring for only the waived contaminant in compliance with subsection(d) at least once every nine years. A system with a lead waiver or copper waiver must provide the Agency with the materials certification specified in subsection (g)(1) for only the waived contaminant when submitting their tap sampling results to the Agency. Also, a supplier must continue to monitor for the non-waived contaminant in compliance with the requirements of subsections(c) and (d) as appropriate.
 - C) A supplier with a waiver must notify the Agency in writing in compliance with Section 611.360(a)(4) about any addition of a new source water or long-term change in treatment, as described in that section. The Agency may 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, etc.) if the Agency determines that any modifications are necessary to address system treatment or source water changes at the supplier's system.

- D) If a supplier with a waiver becomes aware that its system 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 the change.
- 5) Discontinuation of eligibility. A supplier with a waiver where any of the following conditions occur is not allowed to continue monitoring under its waiver:
- A) A supplier with a full waiver or a lead waiver no longer satisfies the materials criteria of subsection (g)(1)(A) or has a 90th percentile lead concentration 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) or has a 90th percentile copper concentration greater than 0.65 mg/ L.
 - C) The Agency 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 waiver is revoked may reapply for a waiver when it meets the appropriate materials criteria and monitoring criteria of subsections (g)(1) and (2). A supplier whose waiver is revoked by the Agency is subject to the following corrosion control treatment and lead and copper tap water monitoring requirements:
- A) If the supplier exceeds the lead and/or copper action level, the supplier must implement or re-optimize OCCT in compliance with the deadlines specified in Section 611.351 and any other applicable requirements of this Subpart G.
 - B) If the supplier is at or below both the lead and copper action levels, 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(d)(1).
- 7) Pre-existing waivers. Waivers approved by the Agency in writing prior to the compliance date specified in 611.350(a)(3) are still in effect if the supplier has demonstrated that it is both free of lead-containing and

copper-containing materials, as required by subsection (g)(1) and that the supplier's 90th percentile lead levels and 90th percentile copper levels meet the criteria of subsection (g)(2), and the supplier does not meet the waiver ineligibility criteria of subsection (g)(5).

- h) Publicly accessible tap monitoring results used in the 90th percentile calculation. Unless done by the Agency, all suppliers must make the tap monitoring results, including data used in the 90th percentile calculation under Section 611.350(c)(3), publicly accessible within 60 days of the end of the tap sampling period. Under this subsection (h), suppliers are not required to make the addresses of tap sampling sites publicly accessible.
 - 1) Large suppliers must make the tap monitoring results and associated data publicly accessible in a digital format.
 - 2) Small and medium suppliers must make the tap monitoring results and associated data publicly accessible in either a print or digital format.
 - 3) Suppliers must certify to the Agency, in writing, compliance with this subsection (h) in compliance with Section 611.360(a)(2)(C) and must retain monitoring data in compliance with the recordkeeping requirements under Section 611.361.

BOARD NOTE: This Section derives from 40 CFR 141.86.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 611.358 Monitoring for Lead and Copper in Source Water

- a) Sampling Location, Collection Methods, and Number of Samples
 - 1) A supplier failing to meet the lead or copper action level on the basis of tap samples under Section 611.356 must collect lead and copper source water samples under specific requirements for sample location, number of samples, and collection methods:
 - A) A groundwater supplier must take a minimum of one sample at every entry point to the distribution system after the supplier applies any treatment or in the distribution system at a point representing each source after treatment (a "sampling point"). The supplier must take one sample at the same sampling point unless conditions make another sampling point more closely represent a source or treatment plant.

- B) A surface water supplier must take a minimum of one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a sampling point which is representative of each source after treatment. The supplier must take each sample at the same sampling point unless conditions make another sampling point more closely represent a source or treatment plant.

BOARD NOTE: For this subsection (a)(1)(B), a system using a combination of surface water and groundwater sources is a surface water system.

- C) If a supplier draws water from more than one source and combines the sources before distribution, the supplier must sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water represents all sources being used).
- D) The Agency may issue a SEP reducing the total number of samples a supplier must have analyzed~~analyze~~ by allowing the use of compositing. Certified laboratory personnel must composite the samples. A composite sample may include a maximum of five samples. However, if the lead concentration in the composite sample is greater than or equal to 0.001 mg/ L or the copper concentration is greater than or equal to 0.160 mg/ L, the supplier must do either of two things:
- i) The supplier must take and analyze a follow-up sample within 14 days at each sampling point included in the composite sample; or
 - ii) If duplicate samples or sufficient volumes of the original samples are available from each sampling point the certified laboratory used in the composite sample, the supplier may use those instead of resampling.

2) SEP Requiring an Additional Sample

- A) Upon determining that sampling indicates exceedance of the lead or copper MPC under Section 611.353(b)(4), the Agency must issue a SEP requiring the supplier to collect one additional sample as soon as possible after the initial sample at the same sampling point but before two weeks after the supplier took the initial sample.

- B) If a supplier takes an Agency-required confirmation sample for lead or copper, the supplier must average the results obtained from the initial sample with those from the confirmation sample to determine whether it complies with the Agency-specified lead and copper MPCs.
 - i) For averaging, consider any analytical result below the MDL as zero.
 - ii) Consider any value above the MDL but below the PQL either as the measured value or one-half the PQL.
- b) Monitoring Frequency after System Exceeds Tap Water Action Level. A supplier exceeding the lead or copper action level in tap for the first time or for the first time after adding a new source or installing source water treatment under Section 611.353(b)(2) must collect one source water sample from each entry point to its distribution system no later than six months after the end of the tap sampling period during which the supplier exceeds the lead or copper action level. For annual or less frequent tap monitoring period, the end of the tap sampling period is September 30 of the calendar year during which the sampling occurs or the last day of any alternative tap sampling period the Agency establishes in a SEP. If the Agency determines under Section 611.353(b)(2) that source water treatment is not necessary, the Agency may issue a SEP waiving source water monitoring for the supplier subsequently exceeding the lead or copper action level at the tap under subsections (b)(1)(A) through (b)(1)(C).
 - 1) The Agency may issue a SEP waiving source water monitoring for the supplier exceeding the lead or copper action level at the tap under specific conditions:
 - A) The supplier already conducted source water monitoring after previously exceeding the lead or copper action level;
 - B) The Agency issued a SEP determining that source water treatment is not necessary; and
 - C) The supplier has not added any new water sources.
 - 2) This subsection (b)(2) corresponds with 40 CFR 141.88(b)(2), which USEPA marked “[reserved]”. This statement maintains structural consistency with USEPA’s rule.
- c) Monitoring Frequency after Installing Source Water Treatment or Adding a New Source

- 1) A supplier installing source water treatment under Section 611.353(a)(3) must collect one source water sample from each entry point to its distribution system during each of two consecutive six-month source water monitoring periods on or before 36 months after completing step 2, as Section 611.353(a)(4) specifies.
 - 2) A supplier adding a new source must collect one source water sample from each entry point to its distribution system during each six-month source water monitoring period until the supplier demonstrates that the supplier has maintained finished drinking water entering the distribution system below the MPCs for lead and copper the Agency specifies under Section 611.353(b)(4), or the Agency issues a SEP determining that the supplier does not need source water treatment.
- d) Monitoring Frequency after the Agency Specifies the Lead and Copper MPCs
- 1) A supplier must monitor at the frequency subsections (d)(1) and (d)(2) specify if the Agency specifies the MPCs under Section 611.353(b)(4).
 - A) GWS Suppliers
 - i) A GWS supplier sampling under subsection (d)(1) must collect samples once during the three-year compliance period (as Section 611.101 defines the term) during which the Agency makes its determination under Section 611.353(b)(4) .
 - ii) A GWS supplier sampling under subsection (d)(1) must sample once during each subsequent compliance period.
 - iii) A supplier must triennially collect samples every third calendar year.
 - B) A SWS or mixed system supplier must collect samples once during each calendar year, the first annual source water monitoring period to begin during the year in which the Agency makes its determination under Section 611.353(b)(4) .
 - 2) A supplier needs not sample source water for lead or copper if the supplier meets the action level for the specific contaminant in all tap water samples during the entire source water monitoring period under subsection (d)(1)(A) or (d)(1)(B).
- e) Reduced Monitoring Frequency

- 1) A GWS supplier may reduce its source water monitoring frequency for lead and copper to once during each nine-year compliance cycle (as Section 611.101 defines the term) if the supplier collects the samples every ninth calendar year, and only if the supplier meets certain criteria:
 - A) The supplier demonstrates that finished drinking water entering the distribution system remains below the MPCs for lead and copper the Agency specifies under Section 611.353(b)(4) during at least three consecutive monitoring periods under subsection (d)(1).
 - B) This subsection (e)(1)(B) corresponds with 40 CFR 141.88(e)(1)(ii), which USEPA marked “[reserved]”. This statement maintains structural consistency with USEPA’s rule.
- 2) A SWS or mixed system supplier may reduce its monitoring frequency subsection (d)(1) requires to once during each nine-year compliance cycle (as Section 611.101 defines the term) if the supplier collects the samples every ninth calendar year, and only if the supplier meets certain criteria:
 - A) The supplier demonstrates that finished drinking water entering its distribution system remains below the MPCs for lead and copper the Agency specifies under Section 611.353(b)(4) for at least three consecutive years.
 - B) This subsection (e)(2)(B) corresponds with 40 CFR 141.88(e)(2)(ii), which USEPA marked “[reserved]”. This statement maintains structural consistency with USEPA’s rule.
- 3) A supplier using a new source of water must not reduce its monitoring for lead or copper until after the supplier demonstrates, by samples it collected from the new source during three consecutive source water monitoring periods under subsection (d)(1), that lead ~~and~~ copper levels are below the MPC the Agency specifies under Section 611.353(a)(5).

BOARD NOTE: This Section derives from 40 CFR 141.88.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 611.360 Reporting

A supplier must report the following information to the Agency in compliance with this Section.

- a) Reporting requirements for tap monitoring for lead and copper and for distribution system and entry point monitoring for water quality parameters.

- 1) By the start of a supplier's first lead and copper tap monitoring period in Section 611.356(c) and 611.356(d), suppliers must submit the following to the Agency:
 - A) A site sample plan, including a list of tap sample site locations for lead and copper sampling identified from the inventory in Section 611.354(a), and a list of tap sampling sites and entry point to the distribution system sites for water quality parameter monitoring selected under Section 611.357(a)(1) and 611.357(a)(2). Changes to the site sample plan require suppliers to submit an updated site sample plan to the Agency before the start of the next tap sampling period conducted by the supplier. The Agency may require modifications to the site sample plan as necessary.
 - i) Suppliers with lead, galvanized requiring replacement, and/or lead status unknown service lines in the service line inventory conducted under Section 611.354(a) and (b) must evaluate the tap sampling locations for lead and copper used in their sampling pool prior to the start of each tap sampling period, beginning with the compliance date specified in 611.350(a)(3). Evaluations that result in changes to the site sample plan require suppliers to submit an updated site sample plan to the Agency prior to each tap sampling period conducted by the supplier.
 - ii) A supplier that cannot identify enough sampling sites with premise plumbing made of lead and/or served by lead service lines to meet the minimum number of sample sites required in Section 611.356(c)(1) or (d)(1), as required under Section 611.356(a)(3), must submit documentation, including documentation of applicable customer refusals for sampling, in support of the conclusion that there are an insufficient number of available sites with premise plumbing made of lead and/or served by lead service lines, prior to the next tap sampling period.
 - B) A copy of the sample collection instructions provided to individuals who are sampling, which meets the requirements of Section 611.356(b). If supplier seeks to modify its sample collection instructions specified in this subsection (a)(1)(B), it must submit the updated version of the instructions to the Agency for review prior to the next tap sampling period.
- 2) Notwithstanding the requirements of § 40 C.F.R. 141.31(a), a supplier must report the information specified in subsections (a)(2)(A) through (G),

for all lead and copper tap samples specified in Section 611.356 and for all water quality parameter distribution system and entry point samples specified in Section 611.357, within the first 10 days following the end of each applicable sampling period specified in Sections 611.356 and 611.357, unless the Agency specified an earlier reporting requirement. For tap sampling periods with a duration less than six months, the end of the sampling period is the last date samples can be collected as specified in Section 611.356.

- A) The results of all tap samples for lead and copper collected during the tap sampling period, including results for both first- and fifth-liter samples collected at lead service line sites, the location of each site, and the site selection criteria under Section 611.356(a)(3) and (a)(4) used as the basis for which the site was selected for the supplier's sampling pool;
- B) Documentation for each tap water lead or copper sample for which the supplier requests invalidation under Section 611.356(f);
- C) With the exception of initial tap sampling conducted under Section 611.356(c)(2)(A), a certification the results of monitoring from the tap monitoring period before the tap monitoring period described in this subsection (a)(2) were publicly accessible, as specified in Section 611.356(h);
- D) The 90th percentile lead and copper concentrations calculated from lead and copper tap water samples collected during each tap sampling period in compliance with Section 611.350 (c)(3), unless the Agency calculates the supplier's 90th percentile lead and copper levels under subsection (h);
- E) With the exception of initial tap sampling conducted under Section 611.356(c)(2)(A), the supplier must identify any site which was not sampled during the tap monitoring period previous to the applicable tap monitoring period described in this subsection (a)(2), and include an explanation of why sampling sites have changed;
- F) The results of all tap samples for water quality parameters required to be collected under Sections 611.357(b) through 611.357(d);
- G) The results of all samples collected at the entry point(s) to the distribution system for water quality parameters as required in Section 611.357(b) through 611.357(d); and

- H) The number of sites from which the supplier requested customer participation for sampling during the tap sampling period and the customer did not respond after two attempts or refused to participate.
- 3) For a NTNCWS, or a CWS supplier meeting the criteria of Section 611.355(b)(8), that does not have enough taps and can provide first liter or first-and fifth-liter paired samples meeting the six-hour minimum stagnation time, the supplier must either:
- A) Provide written documentation identifying standing times and locations for samples that do not meet the six-hour minimum stagnation time to make up a supplier's sampling pool in order to meet the minimum number of sites to sample required in Section 611.356(b)(3) by the start of the supplier's first applicable tap monitoring period under Section 611.356(c), or if there are changes to the documentation, prior to the next tap sampling period, unless the Agency waived prior approval of sample sites not meeting the six-hour stagnation time selected by the supplier under Section 611.356(b)(3); or
 - B) If the Agency waived prior approval of sample sites not meeting the six-hour stagnation time selected by the supplier, identify, in writing, each site that did not meet the six-hour minimum stagnation time and the length of standing time for that particular substitute sample collected under Section 611.356(b)(3) and include this information with the lead and copper tap sample results required to be submitted in compliance with subsection (a)(2)(A).

BOARD NOTE: USEPA gives examples of long-term changes in treatment including adding a new treatment process or modifying an existing treatment process. USEPA gives examples of modifying treatment including switching secondary disinfectants, coagulants (*e.g.*, alum to ferric chloride), or corrosion inhibitor (*e.g.*, orthophosphate to blended phosphate). USEPA said that long-term changes can also include dose changes to existing chemicals if the supplier plans long-term changes to its finished water pH or residual inhibitor concentration. USEPA said that long-term treatment changes would not include chemical dose fluctuations associated with daily raw water quality changes where the supplier does not add a new source.

- 4) At a time specified by the Agency, or if no specific time is designated, as early as possible but no later than six months prior to the addition of a new source or any long-term change in water treatment, a supplier must submit

written documentation describing the addition of a new source or long-term change in treatment to the Agency. Suppliers may not implement the addition of a new source or long-term treatment change without Agency approval. The Agency must review and approve the addition of a new source or a long-term change in water treatment before it can be implemented by the supplier. The Agency may require any such supplier to take actions before or after the addition of a new source or long-term treatment change to ensure that the supplier will operate and maintain optimal corrosion control treatment, such as additional water quality parameter monitoring, additional lead or copper tap sampling, and re-evaluating corrosion control treatment. Examples of long-term treatment changes include but are not limited to the addition of a new treatment process or modification of an existing treatment process. Examples of modifications include switching secondary disinfectants, switching coagulants (*e.g.*, alum to ferric chloride), and switching corrosion inhibitor products (*e.g.*, orthophosphate to blended phosphate). Long-term treatment changes can also include dose changes to existing chemicals if the system is planning long-term changes to its finished water pH or residual inhibitor concentration. Long-term treatment changes would not include chemical dose fluctuations associated with daily raw water quality changes where a new source has not been added.

- 5) Any supplier serving 3,300 or fewer persons applying for a monitoring waiver under Section 611.356(g), or subject to a waiver granted under Section 356 (g)(3), must provide the following information to the Agency in writing by the specified deadline:
 - A) By the start of the supplier's first applicable tap monitoring period in Section 611.356(c) and 611.356 (d), any 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 611.356(g)(2) to the Agency.
 - B) Prior to the beginning of each tap monitoring period in which the supplier desires to maintain its monitoring waiver under Section 611.356(g)(2) or 611.356(g)(4), the supplier must provide the information required by Section 611.356(g)(4)(A) and 611.356(g)(4)(B) to the Agency.
 - C) No later than 60 days after it becomes aware that it is no longer free of lead-containing and/or copper-containing material, as appropriate, each supplier with a monitoring waiver must provide written notification to the Agency setting forth the circumstances resulting in the lead-containing and/or copper-containing materials

being discovered in the supplier's system and what corrective action, if any, the supplier plans to take to remove these materials.

- 6) Each supplier that limits water quality parameter monitoring to a subset of entry points under Section 611.357(b)(3)(B) 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) Source water monitoring reporting requirements. A supplier must report the following within the first 10 days following the end of each source water monitoring period (*i.e.*, annually, per compliance period, per compliance cycle) specified in Section 611.358.
- 1) The sampling results for all source water samples collected in compliance with Section 611.358.
 - 2) With the exception of the first round of source water sampling a supplier conducts under Section 611.358(b), a supplier must specify any site it did not sample during the previous monitoring periods, and include an explanation of why the supplier changed the sampling point.
- c) Corrosion control treatment reporting requirements. Before the applicable dates under Section 611.351, a supplier must report the following information:
- 1) For suppliers demonstrating that they have already optimized OCCT without optimized water quality parameters set by the Agency, information required in Section 611.351(b)(1) through (b)(3).
 - 2) For suppliers required to optimize corrosion control, provide its recommendation regarding OCCT under Section 611.352(a).
 - 3) For suppliers required to evaluate the effectiveness of corrosion control treatments under Section 611.352(c), information required in Section 611.352(c).
 - 4) For suppliers required to install OCCT or re-optimized OCCT designated by the Agency under Section 611.352(d), a letter, certifying that the supplier completed installing that treatment.
 - 5) For suppliers not required to complete the corrosion control treatment steps under Section 611.351(f), a letter certifying the supplier completed the mandatory service line replacement program or that the supplier met

the minimum annual replacement rate calculated under Section 611.351(f)(1)(B).

- d) Source water treatment reporting requirements. By the applicable dates in Section 611.353, ~~suppliers~~supplier must provide the following information to the Agency:
- 1) If required under Section 611.353(b)(1), the supplier must provide its recommendation regarding source water treatment;
 - 2) A supplier required to install source water treatment under Section 611.353(b)(2) must provide a copy of the Agency permit letter, which acts as certification that the supplier completed installing the Agency-approved treatment within 24 months after Agency approval.
- e) Service line inventory and replacement reporting requirements. For the purposes of this subsection (e), the first mandatory service line replacement program year is from the compliance date specified in 611.350(a)(3) to the end of the next calendar year, where every program year afterwards is on a calendar year basis. A supplier must report the following information to the Agency to demonstrate it complies with Section 611.354:
- 1) No later than October 16, 2024, the supplier must submit an initial inventory of service lines to the Agency, as Section 611.354(a)(1) requires, including the following:
 - A) The number of lead service lines in the initial inventory;
 - B) The number of galvanized requiring replacement service lines in the initial inventory;
 - C) The number of lead status unknown service lines in the initial inventory; and
 - D) Where ownership of the service line is shared, the supplier must report the information in subsections (e)(1)(A) through (C) counting each full service line only once.
 - 2) No later than the compliance date in Section 611.350(a)(3), a supplier must submit a baseline inventory of service lines and connectors to the Agency, as required in Sections 611.354(a)(2) through 611.354(a)(4), including the following:
 - A) The total number of lead service lines in the baseline inventory;

- B) The total number of galvanized requiring replacement service lines in the baseline inventory;
 - C) The total number of lead status unknown service lines in the baseline inventory;
 - D) The total number of non-lead service lines in the baseline inventory;
 - E) The total number of lead connectors in the baseline inventory;
 - F) The total number of connectors of unknown material in the baseline inventory; and
 - G) Where ownership of the service line is shared, the supplier must report the information in subsections (e)(2)(A) through (F) counting each full service line only once.
- 3) Any supplier that has inventoried one or more lead, galvanized requiring replacement, or lead status unknown service lines in its distribution system must:
- A) No later than the compliance date in Section 611.350 (a)(3), submit a service line replacement plan as specified in Section 611.354(c) to the Agency.
 - B) By January 30 after the end of the first program year, and annually by January 30 thereafter, certify to the Agency that there have been no updates to the service line replacement plan or, if there have been updates, submit an updated service line replacement plan. A supplier may provide instructions on how to access the updated plan online instead of providing the entire updated plan to the Agency.
 - C) Suppliers replacing service lines under a schedule based on the deferred deadlines criteria in Section 611.354(d)(5)(F) must meet the requirements described in Section 611.354(c)(3) for submitting information to the Agency.
- 4) The supplier must provide the Agency with an updated inventory by January 30 after the end of the first program year, and annually by January 30 thereafter. The updated inventory must conform with inventory requirements under Section 611.354(a) and (b). A supplier must provide the information regarding service line material identification and replacement as specified in Section 611.354(b)(2)(D) if providing

instructions on how to access the updated inventory online instead of providing a fixed copy of the entire updated inventory as described in Section 611.354(b) to the Agency.

- A) When the supplier demonstrates that its inventory does not contain lead, galvanized requiring replacement, and lead status unknown service lines, and known lead connectors and connectors of unknown material, it is no longer required to submit inventory updates to the Agency, except as required in subsection (e)(4)(B).
 - B) In the case that a supplier meeting the requirements of subsection (e)(4)(A) subsequently discovers any lead or galvanized requiring replacement service lines or lead connectors in its distribution system, it must notify the Agency within 60 days of discovering the service line(s) and connector(s) and prepare an updated inventory in compliance with Section 611.354(b) on a schedule established by the Agency.
- 5) By January 30 after the end of the first program year, and annually by January 30 thereafter, the supplier must certify to the Agency that it replaced any encountered lead connectors in compliance with Section 611.354(e) or that it encountered no lead connectors during the calendar year.
 - 6) By January 30 after the end of the first program year, and annually by January 30 thereafter, the supplier must certify to the Agency that it conducted the notification and mitigation requirements for any partial and full service line replacements in compliance with Section 611.354(h) or that it conducted no replacements of lead or galvanized requiring replacement service lines during the calendar year.
 - 7) The supplier must provide the following information about customer-initiated lead and galvanized requiring replacement service line replacements:
 - A) By January 30 after the end of the first program year, and annually by January 30 thereafter, the supplier must certify that it completed all customer-initiated lead and galvanized requiring replacement service line replacements in compliance with Section 611.354(f).
 - B) If the supplier cannot meet the 45-day deadline to complete a customer-initiated lead or galvanized requiring replacement service line replacement as required in Section 611.354(f), it must notify the Agency within 30 days following the replacement deadline.

- 8) By January 30 after the end of the first program year, and annually by January 30 thereafter, suppliers conducting mandatory service line replacement under Section 611.354(d) must submit the following information to the Agency.
- A) The following information from the most recent updated inventory submitted under subsection (e)(4), in compliance with table 1 to Section 611.354(d)(6)(C)(i):
 - i) The total number of lead service lines in the inventory;
 - ii) The total number of galvanized requiring replacement service lines in the inventory;
 - iii) The total number of lead status unknown service lines in the inventory;
 - iv) The total number of non-lead service lines in the inventory;
 - v) The total number of lead connectors in the inventory;
 - vi) The total number of connectors of unknown material in the inventory; and
 - vii) Where ownership of the service line is shared, the supplier must report the information in subsections (e)(8)(A)(i) through (vi) counting each full service line only once;
 - B) The total number of full lead service line replacements and full galvanized requiring replacement service line replacements that have been conducted in the preceding program year and the address associated with each replaced service line;
 - C) The total number of partial lead service line replacements and partial galvanized requiring replacement service line replacements conducted in the preceding program year and the address associated with each partially replaced service line;
 - D) The total number of lead connectors that have been replaced or removed in each preceding program year and the address associated with each replaced or removed lead connector;
 - E) The number of service lines in the replacement pool updated at the beginning of the preceding program year in compliance with Section 611.354(d)(6)(A);

- F) The total number of lead status unknown service lines determined to be non-lead in the preceding program year;
 - G) The address of each non-lead service line discovered in the preceding program year to be a lead or galvanized requiring replacement service line and the method(s) originally used to categorize the material of the service line;
 - H) The applicable deadline for completion of service line replacement and the expected date of completion of service line replacement; and
 - I) The total number of lead and galvanized requiring replacement service lines not replaced because the supplier does not have access to conduct full-service line replacement.
- 9) Suppliers validating service line inventories under Section 611.354(b)(5) must submit a list of the locations of any non-lead service lines identified to be a lead or galvanized requiring replacement service line as well as the method(s) used to categorize the service lines as a result of the assessment. The supplier must submit the specific version (including the date) of the service line inventory used to determine the number of non-lead service lines used when the number of non-lead service lines in the validation pool was determined. The supplier may not use an inventory older than the inventory update that was submitted to the Agency under Section 611.354(b)(2)(D) at the start of the year in which the validation pool was determined. The information must be submitted no later than January 30 following seven years after the compliance date in Section 611.350(a)(3) unless otherwise specified by the Agency in compliance with Section 611.354(b)(5)(D). Documentation of previous validation efforts may be submitted by the compliance date in Section 611.350(a)(3) for approval by the Agency as described in Section 611.354(b)(5)(F).
- 10) By January 30 after the end of the first program year, and annually by January 30 thereafter, the supplier must submit to the Agency documentation of the reasons for each service line not replaced due to lack of access in compliance with Section 611.354(d)(2). The supplier must also submit to the Agency documentation of each reasonable effort conducted where the supplier was not able to obtain property owner consent in compliance with Section 611.354(d)(3) where consent is required by State or local law.

- 11) This subsection (e)(11) corresponds with 40 CFR 141.90(e)(11), which USEPA marked “reserved”. This statement maintains structural consistency with the corresponding USEPA rules.
 - 12) Any supplier collecting samples following a partial or full lead or galvanized requiring replacement service line replacement required by Section 611.354(h)(1)(D) or (h)(3)(D) must report the results to the Agency within the first ten days following the month in which the supplier receives the results or as specified by the Agency. Suppliers must also report any additional information the Agency specifies in a time and manner the Agency prescribes to verify that the supplier completed all partial lead and galvanized requiring replacement service line replacement activities.
 - 13) By January 30 after the end of the first program year, and annually by January 30 thereafter, the supplier must certify to the Agency that it offered to inspect service lines that consumers who suspected the inventory incorrectly categorized their service line material within 30 days of receiving the customer notification in compliance with Section 611.354(b)(4).
- f) Public education program reporting requirements.
- 1) A supplier subject to Section 611.355 must submit a copy of all written public education materials to the Agency prior to delivery. The Agency may require the supplier to obtain approval of the content of written public education materials prior to delivery in compliance with Section 611.355(a)(1).
 - 2) A supplier subject to the public education requirements in Section 611.355 must within 10 days after the end of each period in which the supplier is required to perform public education in compliance with Section 611.355(b), send written documentation to the Agency that contains:
 - A) The public education materials delivered, and a statement certifying that the supplier delivered the public education materials meeting the content requirements in Section 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. Unless required by the Agency, a supplier that previously submitted this information need not resubmit it 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) Each supplier must send a copy of the consumer notice of tap results to the Agency and certification that the notice has been distributed consistent with the requirements of Section 611.355(d), in compliance with the following schedule:
 - A) No later than three months following the end of the tap sampling period, for tap samples used to calculate the 90th percentile value described in Section 611.356, a copy of the consumer notice provided and certification the notice has been distributed consistent with the requirements of Section 611.355(d).
 - B) Annually by January 30, for tap samples from the previous program year not included in subsection (f)(3)(A), including, but not limited to consumer-requested samples outside the tap sampling period for suppliers on reduced monitoring, a copy of the consumer notice provided and certification that the notice has been distributed consistent with the requirements of Section 611.355(d).
- 4) Annually by January 30, the supplier must certify to the Agency that it delivered annual notification and service line information materials to customers and all persons served by the supplier at the service connection with a lead, galvanized requiring replacement, or lead status unknown service line in compliance with Section 611.355(e) for the previous calendar year. The supplier must also provide an example copy of the notification and information materials for lead, galvanized requiring replacement, and lead status unknown service lines to the Agency.
- 5) This subsection (f)(5) corresponds with 40 CFR 141.90(f)(5), which USEPA marked “reserved”. This statement maintains structural consistency with the corresponding USEPA rules.
- 6) Annually by January 30, the supplier must certify to the Agency that it delivered notification to affected customers and the persons served by the supplier at the service connection and complied with the filter requirements after any disturbance of a service line known to contain or potentially containing lead in compliance with Section 611.355(f) for the previous calendar year, or that the supplier has not caused any disturbance of a service line known to contain or potentially contain lead, during the preceding year. The supplier must also submit an example copy of the notification to the Agency. Suppliers that are required to provide filters under Section 611.355(f) must also report the number of sites with

disturbances that require filters as specified under Section 611.355(f) and number of filters provided.

- 7) Annually by January 30, the supplier must certify to the Agency that it conducted an outreach activity in compliance with Section 611.355(h) when it does not meet the service line replacement rate specified in Section 611.354(d) for the previous calendar year. The supplier must also submit a copy to the Agency of the outreach materials provided.
 - 8) Annually by January 30, the supplier must certify to the Agency that it delivered the required distribution system and site assessment information and public education materials to the Agency and local health departments for the previous calendar year in compliance with Section 611.355(i).
 - 9) No later than 60 days after a supplier exceeds the lead action level for the second time in a rolling five-year period, the supplier must submit a filter plan to the Agency as specified in Section 611.355(j)(3). Thereafter, a supplier is not required to resubmit a filter plan unless requested by the Agency or if the supplier made updates to its plan.
 - 10) Every six months, specifically by January 30 and July 30, any supplier that meets the criteria of multiple lead action level exceedances in Section 611.355(j)(1) must:
 - A) Certify compliance with the filter requirements in the previous six months (the previous July through December for January 30 reports and the previous January through June for July 30 reports) in compliance with Section 611.355(j)(2) and report the number of filters provided; and
 - B) Certify the supplier completed a public outreach activity in the previous six months (the previous July through December for January 30 reports and the previous January through June for July 30 reports) in compliance with Section 611.355(j)(4) and submit a copy of the public education materials provided to consumers.
- g) Reporting additional monitoring data.
- 1) Any supplier collecting more samples than the minimum required must report the results to the Agency within the first ten days following the end of the applicable monitoring period under Sections 611.356 through 611.358 during which the samples are collected. This includes the monitoring data pertaining to distribution system and site assessment under Sections 611.352(j) and 611.356(b)(1)(D).

- 2) The supplier must certify to the Agency the number of customer refusals or non-responses for follow-up sampling under Section 611.352(j)(2) it received and documentation explaining why it was unable to collect a follow-up sample, within the first 10 days following the end of the applicable tap monitoring period in which an individual sample exceeded the action level.
- h) Reporting of 90th percentile lead and copper concentrations where the Agency calculates a supplier's 90th percentile concentrations. A water supplier is not required to report the 90th percentile lead and copper concentrations during each tap sampling period, as required by subsection (a)(2)(D) if:
- 1) The Agency previously notified the supplier that the Agency will calculate the supplier's 90th percentile lead and copper concentrations based on the lead and copper tap results the supplier submitted under subsection (h)(2)(A), and the supplier provides the results from lead and copper tap water samples no later than ten days after the end of the applicable tap sampling period; and
 - 2) The supplier provides the following information to the Agency by the date specified in subsection (h)(1):
 - A) The results of all tap samples for lead and copper, including the location of each site and the site selection criteria under Section 611.356(a)(4) used as the basis for which the supplier selected the site for its sampling pool; and
 - B) The supplier must identify sampling sites it used during the current monitoring period that it did not sample during previous tap monitoring period, and explain why the supplier changed sampling sites; and
 - 3) The Agency provides written results of the 90th percentile lead and copper calculation to the supplier within 15 days of the end of the tap sampling period.
- i) Reporting requirements for CWS supplier's public education and sampling in schools and childcare facilities.
- 1) A CWS supplier must provide a list of the schools and childcare facilities they serve, or provide certification that no schools or childcare facilities are served, to the Agency by the compliance date in Section 611.350(a)(3) in compliance with Section 611.362(b)(1). A supplier that certifies that no schools or childcare facilities are served is not required to report the

information in subsections (i)(2) and (3). Annually by January 30, beginning one year after the compliance date in Section 611.350(a)(3), the supplier must certify that there are no schools or childcare facilities served by the supplier. When the supplier becomes aware of one or more schools or childcare facilities that it serves, it must provide a list to the Agency and begin to report the information in subsections (i)(2) and (3).

- 2) A CWS supplier must report the lead analytical sampling results for schools and childcare facilities within 30 days of receipt of the results in compliance with Section 611.362(g)(1)(C).
- 3) Beginning one year after the compliance date in Section 611.350(a)(3), a CWS supplier must send a report to the Agency annually by January 30 for the previous year's activity as calculated from the compliance date in Section 611.350(a)(3). The report must include the following:
 - A) Certification that the supplier made a good faith effort to identify schools and childcare facilities in compliance with Section 611.362(b). The good faith effort may include reviewing customer records and requesting lists of schools and childcare facilities from the Agency or other licensing agency. If there are changes to the list of schools and childcare facilities that a supplier serves, an updated list must be submitted at least once every five years in compliance with Section 611.362(b)(2). If there are no changes to the list of schools or childcare facilities the supplier serves, the supplier must certify there are no changes to the list.
 - B) Certification that the supplier delivered information about health risks from lead in drinking water to the school and childcare facilities that they serve in compliance with Section 611.362(c)(1).
 - C) During the first five years after the compliance date in Section 611.350(a)(3), certification the supplier completed the notification and sampling requirements in Section 611.362(c)(2)(A) and (d)(1) for elementary schools and childcare facilities and the information in subsections (i)(3)(C)(i) through (v).
 - i) The number and names of schools and childcare facilities served by the supplier;
 - ii) The number and names of schools and childcare facilities sampled in the previous year;
 - iii) The number and names of elementary schools and childcare facilities that declined sampling;

- iv) The number and names of elementary schools and childcare facilities that did not respond to outreach attempts for sampling; and
 - v) Information pertaining to outreach attempts for sampling declined or not responded to by the elementary school or childcare facility.
 - D) During the first five years after the compliance date in Section 611.350(a)(3), certification that the supplier completed the notification and sampling requirements of Section 611.362(c)(2)(B) and (e) for secondary schools and the information in subsections (i)(3)(C)(i) and (ii).
 - E) Starting with the sixth year after the compliance date in Section 611.350(a)(3), the supplier must certify completion of the notification requirements of Section 611.362(c)(3) and sampling requirements of Section 363(d)(2) in elementary schools and childcare facilities and Section 611.362(e) for secondary schools and the information in subsections (i)(3)(C)(i) and (ii), thereafter.
 - F) Certification that sampling results were provided to schools, childcare facilities, and local and State health departments.
- j) Reporting requirements for small supplier compliance flexibility options. By the dates provided in subsections (j)(1) and (j)(2), a supplier implementing a small supplier compliance option under Section 611.363 must provide the following information to the Agency:
- 1) Small suppliers serving 3,300 or fewer and NTNCWS suppliers implementing the point-of-use device option under Section 611.363(c)(1), must report the results from tap sampling required under Section 611.363(c)(1)(D) no later than ten days after the end of the tap sampling period. If the supplier does not complete corrective action within 30 days of a POU sample exceeding 0.010 mg/L, the supplier must provide documentation to the Agency within 30 days explaining why it was unable to correct the issue. Unless waived by the Agency, the supplier must provide documentation to certify maintenance of the point-of-use devices.
 - 2) Small suppliers serving 3,300 or fewer and NTNCWS suppliers implementing the option of replacing all lead-bearing plumbing under Section 611.363(c)(2) must certify to the Agency that all lead-bearing material has been replaced on the schedule established by the Agency within one year of designating the option under Section 611.363(c)(2).

BOARD NOTE: This Section derives from 40 CFR 141.90.

(Source: Amended at 50 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 this Section specifies, each incorporated by reference in Section 611.102, or alternative methods that the Agency approved under Section 611.480 to demonstrate that it complies with this Subpart I and Subparts W and Y.
- b) Disinfection Byproducts (DBPs)
 - 1) Methods for Disinfection Byproducts (DBPs)
 - A) TTHM
 - i) By Purge and Trap, Gas Chromatography, Electrolytic Conductivity Detector, and Photoionization Detector. USEPA 502.2 (95). If TTHMs are the only analytes the laboratory measures in the sample, it needs not use a photoionization detector.
 - ii) By Purge and Trap, Gas Chromatography-Mass Spectrometer. USEPA 524.2 (95) or USEPA 524.3 (09), or USEPA 524.4 (13).
 - iii) By Liquid-Liquid Extraction, Gas Chromatography, Electron Capture Detector. USEPA 551.1 (95).
 - B) HAA5
 - i) Liquid-Liquid Extraction (Diazomethane), Gas Chromatography, Electron Capture Detector. SM 6251 B (94) or SM 6251 B (07).
 - ii) Solid Phase Extractor (Acidic Methanol), Gas Chromatography, Electron Capture Detector. USEPA 552.1 (92).
 - iii) Liquid-Liquid Extraction (Acidic Methanol), Gas

Chromatography, Electron Capture Detector. USEPA 552.2 (95) or 552.3 (03).

- iv) Ion Chromatography, Electrospray Ionization, Tandem Mass Spectrometry. USEPA 557 (09).
- v) Two-Dimensional Ion Chromatography (IC) with Suppressed Conductivity Detection. Thermo-Fisher 557.1 (17).

C) Bromate

- i) Ion Chromatography. ASTM D6581-00 or USEPA 300.1 (97).
- ii) Ion Chromatography and Post-Column Reaction. USEPA 317.0 (01) or USEPA 326.0 (02).
- iii) Inductively Coupled Plasma-Mass Spectrometer. USEPA 321.8 (97).
- iv) Two-Dimensional Ion Chromatography. USEPA 302.0 (09).
- v) Ion Chromatography, Electrospray Ionization, Tandem Mass Spectrometry. USEPA 557 (09).
- vi) Chemically Suppressed Chromatography. ASTM D6581-08 A.
- vii) Electrolytically Suppressed Chromatography. ASTM D6581-08 B.

BOARD NOTE: The supplier must use ion chromatography and post column reaction or inductively coupled plasma-mass spectrometry to monitor bromate to demonstrate eligibility for reduced monitoring under Section 611.382(b)(3)(B). For inductively coupled plasma-mass spectrometry, the supplier must preserve samples at the time of sampling with 50 mg ethylenediamine (EDA) per liter of sample, and the supplier must analyze the samples within 28 days.

D) Chlorite

- i) Amperometric Titration for Daily Monitoring Under

Section 611.382(b)(2)(A)(i). SM 4500-ClO₂ E (93) or 4500-ClO₂ E (00).

- ii) Amperometric Sensor for Daily Monitoring Under Section 611.382(b)(2)(A)(i). Palintest ChlordioX Plus (13) or Palintest ChlordioX Plus (20).
- iii) Spectrophotometry. USEPA 327.0 (05).
- iv) Ion Chromatography. USEPA 300.0 (09), USEPA 300.1 (97), USEPA 317.0 (01), USEPA 326.0 (02), or ASTM D6581-00.
- v) Chemically Suppressed Chromatography. ASTM D6581-08 A.
- vi) Electrolytically Suppressed Chromatography. ASTM D6581-08 B.

BOARD NOTE: The supplier may use amperometric titration or spectrophotometry for routine daily monitoring of chlorite at the entrance to the distribution system under Section 611.382(b)(2)(A)(i). The supplier must use ion chromatography for routine monthly chlorite monitoring and additional chlorite monitoring in the distribution system, as Section 611.382(b)(2)(A)(ii) and (b)(2)(B) require.

- 2) Only a certified laboratory in one of the categories in Section 611.490(a) may conduct analyses for DBPs under this Section except as subsection (b)(3) specifies otherwise. To receive certification to conduct analyses for the DBP contaminants in Sections 611.312 and 611.381 and Subparts W and Y, the laboratory must fulfill the specific conditions in subsections (b)(2)(A), (b)(2)(C), and (b)(2)(D).
 - A) The laboratory must analyze performance evaluation (PE) samples acceptable to the Agency at least once during each consecutive 12-month period by each method for which the laboratory seeks 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 within the acceptance limits in subsections (b)(2)(C)(i)

through (b)(2)(B)(xi), subject to subsections (b)(2)(C)(xii) and (b)(2)(C)(xiii):

- i) Chloroform (a THM): $\pm 20\%$ of true value;
- ii) Bromodichloromethane (a THM): $\pm 20\%$ of true value;
- iii) Dibromochloromethane (a THM): $\pm 20\%$ of true value;
- iv) Bromoform (a THM): $\pm 20\%$ of true value;
- v) Monochloroacetic Acid (an HAA5): $\pm 40\%$ of true value;
- vi) Dichloroacetic Acid (an HAA5): $\pm 40\%$ of true value;
- vii) Trichloroacetic Acid (an HAA5): $\pm 40\%$ of true value;
- viii) Monobromoacetic Acid (an HAA5): $\pm 40\%$ of true value;
- ix) Dibromoacetic Acid (an HAA5): $\pm 40\%$ of true value;
- x) Chlorite: $\pm 30\%$ of true value; and
- xi) Bromate: $\pm 30\%$ of true value.
- xii) The laboratory must meet all four of the individual THM acceptance limits in subsections (b)(2)(B)(i) through (b)(2)(B)(iv) to successfully pass a PE sample for TTHM.
- xiii) The laboratory must meet the acceptance limits for four out of the five HAA5 compounds in subsections (b)(2)(B)(v) through (b)(2)(B)(ix) 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) in subsections (b)(2)(D)(i) through (b)(2)(D)(xi), subject to subsections (b)(2)(D)(xii) and (b)(2)(D)(xiii), for all DBP samples it analyzes to comply with Sections 611.312 and 611.385 and Subparts W and Y:

- 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 317.0 (01), USEPA 321.8 (97), or USEPA 326.0 (02).
- xii) The calibration curve must encompass the regulatory MRL concentration. The laboratory may report data for concentrations lower than the regulatory MRL if the laboratory meets the precision and accuracy criteria by analyzing an MRL check standard at the lowest reporting limit the laboratory chooses. 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 $\pm 50\%$ of the expected value if any field sample in the batch has a concentration less than five times the regulatory MRL. The laboratory must analyze higher concentration check standards and meet tighter acceptance criteria in addition to the MRL check standard.
- 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) to calculate the TTHM or HAA5 concentrations, a zero is used for any analytical result that is less than the MRL concentration for that DBP, unless the Agency specifies otherwise.

- 3) A party must measure daily chlorite samples at the entrance to the distribution system as the Agency requires.

c) Disinfectant Residuals

- 1) A supplier must measure residual disinfectant concentrations for free chlorine, combined chlorine (chloramines), and chlorine dioxide using the methods in subsections (c)(1)(A) through (c)(1)(D), subject to subsection (c)(1)(E):

A) Free Chlorine

- i) Amperometric Titration. ASTM D1253-86, ASTM D1253-96, ASTM D1253-03, ASTM D1253-08, ASTM D1253-14, SM 4500-Cl D (93), or SM 4500-Cl D (00).
- ii) DPD Ferrous Titration. SM 4500-Cl F (93) or SM 4500-Cl F (00).
- iii) DPD Colorimetric. Hach 10260 (13), SM 4500-Cl G (93), or SM 4500-Cl G (00).
- iv) Syringaldazine (FACTS). SM 4500-Cl H (93) or SM 4500-Cl H (00).
- v) Test Strips. ITS D99-003 (03) if approved by the Agency under subsection (c)(2).
- vi) Amperometric Sensor. Palintest ChloroSense (09) or Palintest ChloroSense (20).
- vii) On-Line Chlorine Analyzer. USEPA 334.0 (09).
- viii) Indenophenol Colorimetric. Hach 10241 (15).

B) Combined Chlorine

- i) Amperometric Titration. ASTM D1253-86, ASTM D1253-96, ASTM D1253-03, ASTM D1253-08, or ASTM D1253-14, SM 4500-Cl D (93), or SM 4500-CL D (00).
- ii) DPD Ferrous Titration. SM 4500-Cl F (93) or SM 4500-Cl F (00).
- iii) DPD Colorimetric. Hach 10260 (13), SM 4500-Cl G (93),

or SM 4500-Cl G (00).

C) Total Chlorine

- i) Amperometric Titration. ASTM D1253-86, ASTM D1253-96, ASTM D1253-03, ASTM D1253-08, or ASTM D1253-14, SM 4500-Cl D (93), or SM 4500-Cl D (00).
- ii) Low-Level Amperometric Titration. SM 4500-Cl E (93) or SM 4500-Cl E (00).
- iii) DPD Ferrous Titration. SM 4500-Cl F (93) or SM 4500-Cl F (00).
- iv) DPD Colorimetric. Hach 10260 (13), SM 4500-Cl G (93), or SM 4500-Cl G (00).
- v) Iodometric Electrode. SM 4500-Cl I (93) or SM 4500-Cl I (00).
- vi) Amperometric Sensor. Palintest ChloroSense (09) or Palintest ChloroSense (20).
- vii) On-Line Chlorine Analyzer. USEPA 334.0 (09).

D) Chlorine Dioxide

- i) DPD. SM 4500-ClO₂ D (93) ~~or SM 4500-ClO₂ D (00).~~
- ii) Amperometric Method II. SM 4500-ClO₂ E (93) or SM 4500-ClO₂ E (00).
- iii) Amperometric Sensor. Palintest ChlordioX Plus (13) or Palintest ChlordioX Plus (20).
- iv) Lissamine Green Spectrophotometric. USEPA 327.0 (05).

E) USEPA approved these methods for measuring the specified disinfectant residual. The supplier may measure free chlorine or total chlorine for the chlorine MRDL and combined chlorine. The supplier may measure total chlorine for the chloramine MRDL.

2) Alternative Methods Available Only upon Specific Agency Approval

A) Test Strips. ITS Method D99-003 (03).

BOARD NOTE: USEPA added ITS Method D99-003 (03) as an approved alternative method, contingent upon specific State approval. The Agency may issue a SEP approving this method on a case-by-case basis.

- B) If the Agency approves in a SEP, a supplier may also measure residual disinfectant concentrations for chlorine, chloramines, and chlorine dioxide using DPD colorimetric test kits.
- 3) An Agency-approved party must measure residual disinfectant concentration.
- d) A supplier that must analyze parameters not included in subsections (b) and (c) must use the methods in this subsection (d). An Agency-approved party must measure certain parameters:
 - 1) Alkalinity. All methods in Section 611.611(a)(21) for alkalinity.
 - 2) Bromide. Ion Chromatography. ASTM D6581-00, USEPA 300.0 (93), USEPA 300.1 (97), USEPA 317.0 (01), or USEPA 326.0 (02).
 - 3) Total Organic Carbon (TOC), by any of the methods in subsection (d)(3)(A), subject to subsection (d)(3)(B).
 - A) Analytical Methods
 - i) High-Temperature Combustion. SM 5310 B (92), SM 5310 B (96), SM 5310 B (00), SM 5310 B (14), SM 5310 B (22), USEPA 415.3 (05), or USEPA 415.3 (09).
 - ii) Persulfate-Ultraviolet or Heated-Persulfate Oxidation. Hach 10267 (15), SM 5310 C (92), SM 5310 C (96), SM 5310 C (00), SM 5310 C (14), USEPA 415.3 (05), or USEPA 415.3 (09).
 - iii) Wet Oxidation Method. SM 5310 D (92), SM 5310 D (96), SM 5310 D (00), SM 5310 D (14), USEPA 415.3 (05), or USEPA 415.3 (09).
 - iv) Ozone Oxidation. Hach 10261 (15).
 - B) The supplier must remove inorganic carbon from the samples prior to analysis. The supplier and supplier must not filter TOC samples prior to analysis. The supplier must acidify TOC samples at the

time of sample collection to achieve pH less than or equal to 2 with minimal addition of the acid the method specifies or instrument manufacturer recommends. The supplier must analyze acidified TOC samples within 28 days.

- 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). To determine SUVA, the supplier must separately measure UV_{254} and DOC. When determining SUVA, a supplier must use the methods in subsection (d)(4)(A) for DOC and the method in subsection (d)(4)(B) for UV_{254} . The supplier must determine SUVA on water prior to the supplier adding disinfectants or oxidants. The supplier must take DOC and UV_{254} samples for a SUVA value at the same time and at the same location.
- A) Dissolved Organic Carbon (DOC). Prior to analysis, the supplier must filter DOC samples through the 0.45 μm pore-diameter filter as soon as practical after sampling, not to exceed 48 hours. After filtration, the supplier must acidify DOC samples to achieve pH less than or equal to 2 with minimal addition of the acid the method or instrument manufacturer specifies. The supplier must analyze acidified DOC samples within 28 days after sample collection. The supplier must remove inorganic carbon from the samples prior to analysis. The supplier must use water passed through the filter as the filtered blank. The supplier must analyze this filtered blank using procedures identical to those it used for analysis of the samples, and the blank must less than 0.5 mg/ L DOC.
- i) High-Temperature Combustion Method. SM 5310 B (92), SM 5310 B (96), SM 5310 B (00), SM 5310 B (14), SM 5310 B (22) USEPA 415.3 (05), or USEPA 415.3 (09).
- ii) Persulfate-Ultraviolet or Heated-Persulfate Oxidation Method. SM 5310 C (92), SM 5310 C (96), SM 5310 C (00), SM 5310 C (14), USEPA 415.3 (05), or USEPA 415.3 (09).
- iii) Wet-Oxidation Method. SM 5310 D (92), (96), SM 5310 D (00), USEPA 415.3 (05), or USEPA 415.3 (09).
- B) Ultraviolet Absorption at 254 nm (UV_{254}) by Spectrometry. SM 5910 B (94), SM 5910 B (00), 5910 B (11), 5910 B (13), USEPA 415.3 (05), or USEPA 415.3 (09). The supplier must measure UV absorption at 253.7 nm (may be rounded off to 254 nm). Prior to

analysis, the supplier must filter UV₂₅₄ samples through a 0.45 µm pore-diameter filter. The supplier must not adjust pH of UV₂₅₄ samples. The supplier must analyze samples as soon as practical after sampling, not to exceed 48 hours.

- 5) pH. All methods in Section 611.611(a)(17) for pH.
- 6) Magnesium. All methods in Section 611.611(a) for magnesium.

BOARD NOTE: This Section derives from 40 CFR 141.131 and appendix A to 40 CFR 141. The Board did not separately list approved alternative methods from Standard Methods Online that are the same version as a method appearing in a printed edition of Standard Methods. Using the Standard Methods Online copy is acceptable.

Standard Methods Online, Methods 4500-Cl D-93, 4500-Cl E-93, 4500-Cl F-93, 4500-Cl G-93, 4500-Cl H-93, and 4500-Cl I-93 appear in the 19th and 20th editions as Methods 4500-Cl D, 4500-Cl E, 4500-Cl F, 4500-Cl G, 4500-Cl H, and 4500-Cl I. These appear in this Section as SM 4500-Cl D (93), SM 4500-Cl E (93), SM 4500-Cl F (93), SM 4500-Cl G (93), SM 4500-Cl H (93), and SM 4500-Cl I (93).

Standard Methods Online, Methods 4500-Cl D-00, 4500-Cl E-00, 4500-Cl F-00, 4500-Cl G-00, 4500-Cl H-00, and 4500-Cl I-00 appear in the 21st, 22nd, and 23rd editions as Methods 4500-Cl D, 4500-Cl E, 4500-Cl F, 4500-Cl G, 4500-Cl H, and 4500-Cl I. These appear in this Section as SM 4500-Cl D (00), 4500-Cl E (00), 4500-Cl F (00), 4500-Cl G (00), 4500-Cl H (00), and 4500-Cl I (00).

Standard Methods Online, Methods 4500-ClO₂ D-93 and 4500-ClO₂ E-93 appear in the 19th and 20th editions as Methods 4500-ClO₂ D and 4500-ClO₂ E. These appear in this Section as SM 4500-ClO₂ D (93) and SM 4500-ClO₂ E (93).

Standard Methods Online, ~~Method 4500-ClO₂ D-00 and 4500-ClO₂ E-00~~ appears in the 21st, 22nd, and 23rd editions as ~~Method 4500-ClO₂ D and 4500-ClO₂ E.~~ This appears in this Section as SM 4500-ClO₂ D (00) and SM 4500-ClO₂ E (00).

Standard Methods Online, Methods 5310 B-00, 5310 C-00, and 5310 D-00 appear in the 21st and 22nd editions as Methods 5310 B, 5310 C, and 5310 D. These appear in this Section as SM 5310 B (00), SM 5310 C (00), and SM 5310 D (00).

Standard Methods Online, Method 5910 B-00 appears in the 21st edition as Method 5910 B. This appears in this Section as SM 5910 B (00).

Standard Methods Online, Method 5910 B-11 appears in the 22nd edition as Method 5910 B. This appears in this Section as SM 5910 B (11).

Standard Methods Online, Method 6251 B-94 appears in the 19th, 20th, and 21st editions as Method 6251 B. This appears in this Section as SM 6251 B (94).

Standard Methods Online, Method 6251 B-07 appears in the 22nd and 23rd editions as Method 5910 B. This appears in this Section as SM 6251 B (07).

(Source: Amended at 50 Ill. Reg. _____, effective _____)

SUBPART K: GENERAL MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.490 Certified Laboratories

- a) For the purpose of determining compliance with Subparts G, K through O, Q, S, and AZ samples will be considered only if they have been analyzed by one of the following:
 - 1) A laboratory certified under Section 4(o) of the Act;
 - 2) A laboratory certified by USEPA;
 - 3) When no laboratory has been certified under subsection (a)(1) to analyze a particular contaminant, a laboratory certified, registered, accredited, licensed, or otherwise approved by another state with primary enforcement responsibility, or an agency of the federal government, unless the Agency has, by written notice, informed the supplier that a particular laboratory or laboratories may not be used; or
 - 4) For measurements of alkalinity, ~~calcium, conductivity,~~ disinfectant residual, orthophosphate, silica, turbidity, free chlorine residual, temperature, and pH, a person under the supervision of a certified operator (35 Ill. Adm. Code 603.103).
- b) Nothing in this Part must be construed to preclude the Agency or any duly designated representative of the Agency from taking samples or from using the results from those samples to determine compliance by a supplier of water with the applicable requirements of this Part.
- c) The CWS supplier must have required analyses performed either at an Agency laboratory or a certified laboratory. The Agency may require that some or all of the required samples be submitted to its laboratories.

BOARD NOTE: Subsections (a)(1), (a)(2), (a)(4), and (b) are derived from 40 CFR 141.28. Subsections (a)(3) and (c) are additional State requirements.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

SUBPART L: MICROBIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.531 Analytical Requirements

A supplier must use the analytical methods in this Section or Agency-approved alternative methods under Section 611.480 to demonstrate compliance with only 611.Subpart B. A supplier must measure pH, temperature, turbidity, and RDCs under the supervision of a certified operator. A supplier must conduct measurements for total coliforms, fecal coliforms and HPC using a certified laboratory in one of the categories in Section 611.490(a). The supplier must perform analyses using the methods in this Section, each incorporated by reference in Section 611.102:

a) Basic Water Parameters and Microbiological Quality

- 1) The supplier must analyze for pH and temperature using one of the methods in Section 611.611; and
- 2) The supplier must analyze for total coliforms, fecal coliforms, heterotrophic bacteria, and turbidity using specific methods and analytical test procedures in USEPA Technical Notes, incorporated by reference in Section 611.102:

A) Total Coliforms

BOARD NOTE: The time from sample collection to beginning analysis for source (raw) water samples must not exceed eight hours. The supplier ~~must~~should but needs not hold samples below 10 °C during transit.

- i) Total Coliform Fermentation Technique. SM 9221 A (93), SM 9221 A (94), SM 9221 A (99), SM 9221 A (06), SM 9221 A (14), SM 9221 B (93), SM 9221 B (94), SM 9221 B (99), SM 9221 B (06), SM 9221 B (14), SM 9221 C (93), SM 9221 C (94), SM 9221 C (99), SM 9221 C (06), or SM 9221 C (14).

BOARD NOTE: The supplier may use commercially available lactose broth 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 it normally tests, and this comparison demonstrates that the false-positive rate and false-negative rate for total coliforms

is less than ten percent using lactose broth. If the supplier uses inverted tubes to detect gas production, the media should cover these tubes at least one-half to two-thirds after the supplier adds the sample. The supplier needs not run the completed phase on ten percent of all total coliform-positive confirmed tubes.

- ii) Total Coliform Membrane Filter Technique. SM 9222 A (91), SM 9222 A (94), SM 9222 A (97), ~~SM 9222 A (06)~~, SM 9222 A (15), SM 9222 A (22), SM 9222 B (91), SM 9222 B (94), SM 9222 B (97), ~~9222 B (06)~~, SM 9222 B (15), SM 9222 B (22), SM 9222 C (91), SM 9222 C (94), SM 9222 C (97), SM 9222 C (06), SM 9222 C (15), or SM 9222 C (22),.
- iii) ONPG-MUG (also known as Colilert®). SM 9223 (92), SM 9223 (94), SM 9223 (97), SM 9223 B (04), or SM 9223 B (16).

B) Fecal Coliforms

BOARD NOTE: The time from collecting the sample to beginning analysis of source (raw) water samples must not exceed eight hours. The supplier ~~must~~should but needs not hold samples below 10 °C during transit.

- i) Fecal Coliform Procedure. SM 9221 E (93), SM 9221 E (94), SM 9221 E (99), SM 9221 E (06), or SM 9221 E (14).

BOARD NOTE: A-1 broth may be held up to seven days in a tightly closed screwcap tube at 4 °C (39 °F).

BOARD NOTE: The supplier may hold A-1 broth up to seven days in a tightly closed screwcap tube at 4 °C (39 °F).

- ii) Fecal Coliform Membrane Filter Procedure. SM 9222 D (91), SM 9222 D (94), SM 9222 D (97), SM 9222 D (06), SM 9222 D (15), SM 9222 D (22).

C) Heterotrophic Bacteria

- i) Pour Plate Method. SM 9215 B (88), SM 9215 B (94), SM 9215 B (00), SM 9215 B (04), SM 9215 B (16), ~~SM 9215 B (22)~~.

BOARD NOTE: The time from collecting the sample to beginning analysis must not exceed eight hours. The supplier ~~must~~should but needs not hold samples below 10 °C during transit.

- ii) SimPlate (00).

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. SM 2130 B (88), SM 2130 B (94), SM 2130 B (01); USEPA 180.1 (93); or Hach 8195 (18).
- ii) GLI Method 2 (92).
- iii) Laser Nephelometry. Hach 10133 (00) (FilterTrak).
- iv) Laser Nephelometry (On-Line). Lovibond PTV 6000 (16), Mitchell-M5271 (09), or Mitchell-M5331 (16).
- v) Laser Nephelometry (Portable). Lovibond TB 6000 (21).
- vi) LED Nephelometry (On-Line). AMI Turbiwell (09), Lovibond PTV 1000 (16), Lovibond PTV 2000 (16), Mitchell-M5331 (09), Mitchell M5331 (16), Yokogawa 820 (22).
- vii) LED Nephelometry (Portable). Orion AQ4500 (09), Lovibond TB 3500 (21), Lovibond TB 5000 (21).
- viii) 360° Nephelometry. Hach 10258 (16) or Hach 10258 (18).

- b) A supplier must measure residual disinfectant concentrations with specific analytical methods:

1) Free Chlorine

- A) Amperometric Titration. ASTM D1253-03, ASTM D1253-08, ASTM D1253-14, SM 4500-Cl D (89), SM 4500-Cl D (93), or SM 4500-Cl D (00).

- B) DPD Ferrous Titrimetric. SM 4500-Cl F (89), SM 4500-Cl F (93), or SM 4500-Cl F (00).
- C) DPD Colimetric. Hach 10260 (13), SM 4500-Cl G (89), SM 4500-Cl G (93), or SM 4500-Cl G (00).
- D) Syringaldazine (FACTS). SM 4500-Cl H (89), SM 4500-Cl H (93), or SM 4500-Cl H (00).
- E) On-Line Chlorine Analyzer. USEPA 334.0 (09).
- F) Amperometric Sensor. Palintest ChloroSense (09) and Palintest ChloroSense (20).
- G) Indophenol Colorimetric. Hach 10241 (15).

2) Total Chlorine

- A) Amperometric Titration. ASTM D1253-03, ASTM D1253-08, ASTM D1253-14, SM 4500-Cl D (89), SM 4500-Cl D (93), or SM 4500-Cl D (00).
- B) Amperometric Titration (low level measurement). SM 4500-Cl E (89), SM 4500-Cl E (93), or SM 4500-Cl E (00).
- C) DPD Ferrous Titrimetric. SM 4500-Cl F (89), SM 4500-Cl F (93), or SM 4500-Cl F (00).
- D) DPD Colimetric. SM 4500-Cl G (89), SM 4500-Cl G (93), SM 4500-Cl G (00), or Hach 10260 (13).
- E) Iodometric Electrode. SM 4500-Cl I (89), SM 4500-Cl I (93), or SM 4500-Cl I (00).
- F) On-Line Chlorine Analyzer. USEPA 334.0 (09).
- G) Amperometric Sensor. Palintest ChloroSense (09) and Palintest ChloroSense (20).
- H) Indophenol Colorimetric. USEPA 127 (21).

3) Chlorine Dioxide

- A) Amperometric Titration. SM 4500-ClO₂ C (88), SM 4500-ClO₂ C (93), SM 4500-ClO₂ C (00), SM 4500-ClO₂ E (88), SM 4500-ClO₂

- E (93), or SM 4500-ClO₂ E (00).
- B) DPD Method. SM 4500-ClO₂ D (88) or SM 4500-ClO₂ D (93).
 - C) Spectrophotometric. USEPA 327.0 (05).
 - D) Amperometric Sensor. Palintest ChlordioX Plus (13), Palintest ChlordioX Plus (20).
- 4) Ozone. Indigo Method. SM 4500-O₃ B (88), SM 4500-O₃ B (93), or SM 4500-O₃ B (97).
- 5) Alternative Test Methods. The Agency may issue a SEP allowing a supplier to use alternative chlorine test methods:
- A) DPD Colorimetric Test Kits. A supplier may measure residual disinfectant concentrations for free chlorine and combined chlorine using ITS Method D99-003.
 - B) Continuous Monitoring for Free and Total Chlorine. A supplier may measure free and total chlorine residuals continuously by adapting a specified chlorine residual method for use with a continuous monitoring instrument if the chemistry, accuracy, and precision remain the same. A supplier must calibrate instruments it uses for continuous monitoring with a grab sample measurement at least every five days or as the Agency provides otherwise in a SEP.

BOARD NOTE: This Section derives from 40 CFR 141.74(a) and appendix A to subpart C of 40 CFR 141. The Board did not separately list approved alternative methods from Standard Methods Online that are the same version as a method appearing in a printed edition of Standard Methods. Using the Standard Methods Online copy is acceptable.

Standard Methods Online, Method 2130 B-01 appears in the 21st, 22nd, 23rd, and 24th editions as Method 2130 B. This appears in this Section as SM 2130 B (01).

Standard Methods Online, Methods 4500-Cl D-93, 4500-Cl E-93, 4500-Cl F-93, 4500-Cl G-93, 4500-Cl H-93, and 4500-Cl I-93 appear in the 19th and 20th editions as Methods 4500-Cl D, 4500-Cl E, 4500-Cl F, 4500-Cl G, 4500-Cl H, and 4500-Cl I. These appear in this Section as SM 4500-Cl D (93), SM 4500-Cl E (93), SM 4500-Cl F (93), SM 4500-Cl G (93), SM 4500-Cl H (93), and SM 4500-Cl I (93).

Standard Methods Online, Methods 4500-Cl D-00, 4500-Cl E-00, 4500-Cl F-00, 4500-Cl G-00, 4500-Cl H-00, and 4500-Cl I-00 appear in the 21st, 22nd, 23rd, and 24th editions as Methods 4500-Cl D, 4500-Cl E, 4500-Cl F, 4500-Cl G, 4500-Cl H, and 4500-Cl I. These

appear in this Section as SM 4500-Cl D (00), SM 4500-Cl E (00), SM 4500-Cl F (00), SM 4500-Cl G (00), SM 4500-Cl H (00), and SM 4500-Cl I (00).

Standard Methods Online, Methods 4500-ClO₂ C-93, 4500-ClO₂ D-93, and 4500-ClO₂ E-93 appear in the 19th and 20th editions as Methods 4500-ClO₂ C, 4500-ClO₂ D, and 4500-ClO₂ E. These appear in this Section as SM 4500-ClO₂ C (93), SM 4500-ClO₂ D (93), and SM 4500-ClO₂ E (93).

Standard Methods Online, Methods 4500-ClO₂ C-00 and 4500-ClO₂ E-00 appear in the 19th, 20th, 21st, 22nd, 23rd, and 24th editions as Methods 4500-ClO₂ C and 4500-ClO₂ E. These appear in this Section as SM 4500-ClO₂ C (00) and SM 4500-ClO₂ E (00).

Standard Methods Online, Method 4500-O₃ B-97 appears in the 20th, 21st, 22nd, 23rd, and 24th editions as Method 4500-O₃ B. This appears in this Section as SM 4500-O₃ B (97).

Standard Methods Online, Method 9215 B-00 appears in the 21st edition as Method 9215 B. This appears in this Section as SM 9215 B (00).

Standard Methods Online, Method 9215 B-04 appears in the 22nd edition as Method 9215 B. This appears in this Section as SM 9215 B (04).

Standard Methods Online, Methods 9221 A-99, 9221 B-99, and 9221 C-99 appear in the 21st edition as Methods 9221 A, 9221 B, and 9221 C. These appear in this Section as SM 9221 A (99), SM 9221 B (99), and SM 9221 C (99).

Standard Methods Online, Methods 9221 A-06, 9221 B-06, 9221 C-06, and 9221 E-06 appear in the 22nd edition as Methods 9221 A, 9221 B, 9221 C, and 9221 E. These appear in this Section as SM 9221 A (06), SM 9221 B (06), SM 9221 C (06), and SM 9221 E (06).

Standard Methods Online, Methods 9222 A-97, 9222 B-97, and 9222 C-97 appear in the 20th and 21st editions as Methods 9222 A, 9222 B, and 9222 C. These appear in this Section as SM 9222 A (97), SM 9222 B (97), and SM 9222 C (97).

Standard Methods Online, Method 9223 B-97 appears in the 20th and 21st editions as Method 9223 B. This appears in this Section as SM 9223 B (97).

Standard Methods Online, Method 9223 B-04 appears in the 22nd edition as Method 9223 B. This appears in this Section as SM 9223 B (04).

(Source: Amended at 50 Ill. Reg. _____, effective _____)

SUBPART N: INORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.611 Inorganic Analysis

Analytical methods are from documents incorporated by reference in Section 611.102. The substantive rules mostly reference these by a short name Section 611.102(a) defines. Section 611.101 defines other abbreviations.

- a) A certified laboratory must conduct analyses for contaminants in this Section using the indicated methods or an alternative method the Agency approved under Section 611.480. USEPA Technical Notes, incorporated by reference in Section 611.102, includes criteria for analyzing arsenic, barium, beryllium, cadmium, calcium, chloride, chromium, copper, lead, nickel, selenium, sodium, sulfate, and thallium with digestion or directly without digestion, and other analytical procedures.

BOARD NOTE: Because a laboratory determines MDLs it reports under USEPA 200.7 (94) and USEPA 200.9 (94) using a 2× preconcentration step during sample digestion, MDLs the laboratory determines analyzing samples by direct analysis (i.e., no sample digestion) are higher. For direct analysis of cadmium and arsenic using USEPA 200.7 (94) and arsenic using SM 3120 B (89), SM 3120 B (93), or SM 3120 B (99), it may be necessary to engage in sample preconcentration using pneumatic nebulization to achieve lower detection limits. Direct analysis of antimony, lead, and thallium using USEPA 200.9 (94); antimony and lead using SM 3113 B (89), SM 3113 B (99), or SM 3113 B (10); and lead using ASTM D3559-96 D, ASTM D3559-03 D, ASTM D3559-08 D, or ASTM D3559-15 D may require preconcentration, unless the laboratory makes multiple in-furnace depositions.

1) Alkalinity

- A) Titrimetric. ASTM D1067-92 B, ASTM D1067-02 B, ASTM D1067-06 B, ASTM D1067-11 B, ASTM D1067-16 B, SM 2320 B (91), or SM 2320 B (97).
- B) Electrometric Titration. USGS I-1030-85.

2) Antimony

- A) Inductively Coupled Plasma-Mass Spectrometry. USEPA 200.8 (94).
- B) Atomic Absorption, Hydride Technique. ASTM D3697-92, ASTM D3697-02, ASTM D3697-07, ASTM D3697-12, or ASTM D3697-17.
- C) Atomic Absorption, Platform Furnace Technique. USEPA 200.9 (94).

- D) Atomic Absorption, Furnace Technique. SM 3113 B (89), SM 3113 B (93), SM 3113 B (99), SM 3113 B (04), or SM 3113 B (10).
- E) Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry (AVICP-AES). USEPA 200.5 (03).

3) Arsenic

BOARD NOTE: If the laboratory uses ultrasonic nebulization in determining arsenic using USEPA 200.8 (94), the arsenic must be in the pentavalent state to provide uniform signal response. For direct analysis of arsenic with USEPA 200.8 (94) using ultrasonic nebulization, samples and standards must contain one mg/ L of sodium hypochlorite.

- A) Inductively Coupled Plasma-Mass Spectrometry. USEPA 200.8 (94).
- B) Atomic Absorption, Platform Furnace Technique. USEPA 200.9 (94).
- C) Atomic Absorption, Furnace Technique. ASTM D2972-97 C, ASTM D2972-03 C, ASTM D2972-08 C, ASTM D2972-15 C, SM 3113 B (89), SM 3113 B (93), 3113 B (99), 3113 B (04), or 3113 B (10).
- D) Atomic Absorption, Hydride Technique. ASTM D2972-97 B, ASTM D2972-03 B, ASTM D2972-08 B, ASTM D2972-15 B, SM 3114 B (89), SM 3114 B (93), SM 3114 B (97), or SM 3114 B (09).
- E) Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry (AVICP-AES). USEPA 200.5 (94).

4) Asbestos. Transmission Electron Microscopy. USEPA 100.1 (83) or USEPA 100.2 (94).

5) Barium

- A) Inductively Coupled Plasma. USEPA 200.7 (94), SM 3120 B (83), SM 3120 B (93), or SM 3120 B (99).
- B) Inductively Coupled Plasma-Mass Spectrometry. USEPA 200.8 (94).

- C) Atomic Absorption, Direct Aspiration Technique. SM 3111 D (89), SM 3111 D (93), or SM 3111 D (99).
- D) Atomic Absorption, Furnace Technique. SM 3113 B (89), SM 3113 B (93), SM 3113 B (99), SM 3113 B (04), and SM 3113 B (10).
- E) Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry (AVICP-AES). USEPA 200.5 (03).

6) Beryllium

- A) Inductively Coupled Plasma. USEPA 200.7 (94), SM 3120 B (83), SM 3120 B (93), or SM 3120 B (99).
- B) Inductively Coupled Plasma-Mass Spectrometry. USEPA 200.8 (94).
- C) Atomic Absorption, Platform Furnace Technique. USEPA 200.9 (94).
- D) Atomic Absorption, Furnace Technique. ASTM D3645-97 B, ASTM D3645-03 B, ASTM D3645-08 B, ASTM D3645-15 B, SM 3113 B (89), SM 3113 B (93), SM 3113 B (99), SM 3113 B (04), or SM 3113 B (10).
- E) Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry (AVICP-AES). USEPA 200.5 (03).

7) Cadmium

- A) Inductively Coupled Plasma Arc Furnace. USEPA 200.7 (94).
- B) Inductively Coupled Plasma-Mass Spectrometry. USEPA 200.8 (94).
- C) Atomic Absorption, Platform Furnace Technique. USEPA 200.9 (94).
- D) Atomic Absorption, Furnace Technique. SM 3113 B (89), SM 3113 B (93), SM 3113 B (99), SM 3113 B (04), and SM 3113 B (10).
- E) Axially Viewed Inductively Coupled Plasma-Atomic Emission

Spectrometry (AVICP-AES). USEPA 200.5 (03).

8) Calcium

- A) EDTA Titrimetric. ASTM D511-93 A, ASTM D511-03 A, ASTM D511-09 A, ASTM D511-14 A, SM 3500-Ca B (97), or 3500-Ca D (91).
- B) Atomic Absorption, Direct Aspiration. ASTM D511-93 B, ASTM D511-03 B, ASTM D511-09 B, ASTM D511-14 B, SM 3111 B (89), SM 3111 B (93), or SM 3111 B (99).
- C) Inductively Coupled Plasma. USEPA 200.7 (94), SM 3120 B (83), SM 3120 B (93), or SM 3120 B (99).
- D) Ion Chromatography. ASTM D6919-03, ASTM D6919-09, or ASTM D6919-17.
- E) Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry (AVICP-AES). USEPA 200.5 (03).

9) Chloride. Ion Chromatography. ASTM D4327-17.

10) Chromium

- A) Inductively Coupled Plasma. USEPA 200.7 (94), SM 3120 B (83), SM 3120 B (93), or SM 3120 B (99).
- B) Inductively Coupled Plasma-Mass Spectrometry. USEPA 200.8 (94).
- C) Atomic Absorption, Platform Furnace Technique. USEPA 200.9 (94).
- D) Atomic Absorption, Furnace Technique. SM 3113 B (89), SM 3113 B (93), SM 3113 B (99), SM 3113 B (04), and SM 3113 B (10).
- E) Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry (AVICP-AES). USEPA 200.5 (03).

11) Copper

- A) Atomic Absorption, Furnace Technique. ASTM D1688-95 C, ASTM D1688-02 C, ASTM D1688-07 C, ASTM D1688-12 C,

ASTM D1688-17 C, SM 3113 B (89), SM 3113 B (93), SM 3113 B (99), SM 3113 B (04), and SM 3113 B (10).

- B) Atomic Absorption, Direct Aspiration. ASTM D1688-95 A, ASTM D1688-02 A, ASTM D1688-07 A, ASTM D1688-12 A, ASTM D1688-17 A, SM 3111 B (89), SM 3111 B (93), or SM 3111 B (99).
 - C) Inductively Coupled Plasma. USEPA 200.7 (94), SM 3120 B (83), SM 3120 B (93), or SM 3120 B (99).
 - D) Inductively Coupled Plasma-Mass Spectrometry. USEPA 200.8 (94).
 - E) Atomic Absorption, Platform Furnace Technique. USEPA 200.9 (94).
 - F) Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry (AVICP-AES). USEPA 200.5 (03).
 - G) Colorimetric. Hach 8026 (15) or Hach 10272 (15).
- 12) Conductivity; Conductance. ASTM D1125-95(1999) A, ASTM D1125-14 A, SM 2510 B (91), or SM 2510 B (97).
- 13) Cyanide
- A) Manual Distillation with MgCl_2 . (ASTM D2036-98 A, ASTM D2036-06 A, SM 4500-CN⁻ C (90), SM 4500-CN⁻ C (97), SM 4500-CN⁻ C (99), or SM 4500-CN⁻ C (16)), followed by spectrophotometric, amenable (ASTM D2036-98 B, ASTM D2036-06 B, SM 4500-CN⁻ G (90), SM 4500-CN⁻ G (97), SM 4500-CN⁻ G (99), or SM 4500-CN⁻ G (16)).
 - B) Manual Distillation with MgCl_2 . Distillation (ASTM D2036-98 A or ASTM D2036-06 A or SM 4500-CN⁻ C (90), SM 4500-CN⁻ C (97), SM 4500-CN⁻ C (99), or SM 4500-CN⁻ C (16)), followed by Spectrophotometric, Manual (ASTM D2036-98 A, ASTM D2036-06 A, SM 4500-CN⁻ E (90), 4500-CN⁻ E (97), 4500-CN⁻ E (99), 4500-CN⁻ E (16), or USGS I-3300-85).
 - C) Spectrophotometric, Semiautomated. USEPA 335.4 (93).
 - D) Selective Electrode. SM 4500-CN⁻ F (90), SM 4500-CN⁻ F (97), SM 4500-CN⁻ F (99), or SM 4500-CN⁻ F (16).

- E) UV/Distillation/Spectrophotometric. Kelada 01 (01).
- F) Microdistillation/Flow Injection/Spectrophotometric. QuikChem 10-204-00-1-X (00).
- G) Ligand Exchange and Amperometry. ASTM D6888-04 or OIA-1677 DW (04).
- H) Gas Chromatography-Mass Spectrometry Headspace. ME355.01 (09).

14) Fluoride

- A) Ion Chromatography. USEPA 300.0 (93), USEPA 300.1 (97), ASTM D4327-97, ASTM D4327-03, ASTM D4327-11, ASTM D4327-17, SM 4110 B (90), SM 4110 B (91), SM 4110 B (97), or SM 4110 B (00).
- B) Manual Distillation, Colorimetric SPADNS. SM 4500-F⁻ B (88), SM 4500-F⁻ B (94), SM 4500-F⁻ B (97), SM 4500-F⁻ D (88), SM 4500-F⁻ D (94), or SM 4500-F⁻ D (97).
- C) Manual Electrode. ASTM D1179-93 B, ASTM D1179-99 B, ASTM D1179-04 B, ASTM D1179-10 B, ASTM D1179-16 B, SM 4500-F⁻ C (88), SM 4500-F⁻ C (94), or SM 4500-F⁻ C (97).
- D) Automated Electrode. Technicon #380-75WE (76).
- E) Automated Alizarin. SM 4500-F⁻ E (88), SM 4500-F⁻ E (94), SM 4500-F⁻ E (97), or Technicon #129-71W.
- F) Arsenite-Free Colorimetric SPADNS. Hach 10225 (11) (SPADNS 2). Hach 10312 (22)
- G) Capillary Ion Electrophoresis. ASTM D6508-00.
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 cited the ASTM Method D6508-00(2005). On May 2, 2012 (at 77 Fed. Reg. 26072, 26096-97; in corrections to UCMR 3), USEPA changed the entries for nitrate, nitrite, and orthophosphate to ASTM D6508-00.

15) Lead

- A) Atomic Absorption, Furnace Technique. ASTM D3559-96 D, ASTM D3559-03 D, ASTM D3559-08 D, ASTM D3559-15 D, SM 3113 B (89), SM 3113 B (93), SM 3113 B (99), SM 3113 B (04), or SM 3113 B (10).
- B) Inductively Coupled Plasma-Mass Spectrometry. USEPA 200.8 (94).
- C) Atomic Absorption, Platform Furnace Technique. USEPA 200.9 (94).
- D) Differential Pulse Anodic Stripping Voltammetry. Palintest 1001 (99). Palintest 1001 (20).
- E) Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry (AVICP-AES). USEPA 200.5 (03).

16) Magnesium

- A) Atomic Absorption. ASTM D511-93 B, ASTM D511-03 B, ASTM D511-09 B, ASTM D511-14 B, SM 3111 B (89), SM 3111 B (93), or SM 3111 B (99).
- B) Inductively Coupled Plasma. USEPA 200.7 (94), SM 3120 B (89), SM 3120 B (93), or SM 3120 B (99).
- C) Complexation Titrimetric. ASTM D511-93 A, ASTM D511-03 A, ASTM D511-09 A, ASTM D511-14 A, SM 3500-Mg B (97), SM 3500-Mg E (90), or SM 3500-Mg E (91).
- D) Ion Chromatography. ASTM D6919-03, ASTM D6919-09, or ASTM D6919-17.
- E) Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry (AVICP-AES). USEPA 200.5 (03).

17) Mercury

- A) Manual Cold Vapor Technique. ASTM D3223-97, ASTM D3223-02, ASTM D3223-12, ASTM D3223-17, SM 3112 B (88), SM 3112 B (93), SM 3112 B (99), SM 3112 B (09), or USEPA 245.1 (91).

- B) Automated Cold Vapor Technique. USEPA 245.2 (74).
- C) Inductively Coupled Plasma-Mass Spectrometry. USEPA 200.8 (94).

18) Nickel

- A) Inductively Coupled Plasma. SM 3120 B (89), SM 3120 B (93), SM 3120 B (99), or USEPA 200.7 (94).
- B) Inductively Coupled Plasma-Mass Spectrometry. USEPA 200.8 (94).
- C) Atomic Absorption, Platform Furnace Technique. USEPA 200.9 (94).
- D) Atomic Absorption, Direct Aspiration Technique. SM 3111 B (89), 3111 B (93), or 3111 B (99).
- E) Atomic Absorption, Furnace Technique. SM 3113 B (89), SM 3113 B (93), SM 3113 B (99), SM 3113 B (04), or SM 3113 B (10).
- F) Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry (AVICP-AES). USEPA 200.5 (03).

19) Nitrate

- A) Ion Chromatography. ASTM D4327-97, ASTM D4327-03, ASTM D4327-11, ASTM D4327-17, SM 4110 B (90), SM 4110 B (97), SM 4110 B (00), USEPA 300.0 (93), USEPA 300.1 (97), or Waters B-1011 (87).
- B) Automated Cadmium Reduction. ASTM D3867-90 A; SM 4500-NO₃⁻ F (88), 4500-NO₃⁻ F (93), 4500-NO₃⁻ F (97), 4500-NO₃⁻ F (00), 4500-NO₃⁻ F (16), or USEPA 353.2 (93).
- C) Ion Selective Electrode. ATI Orion Technical Bulletin 601 (94), SM 4500-NO₃⁻ D (88), SM 4500-NO₃⁻ D (93), SM 4500-NO₃⁻ D (97), SM 4500-NO₃⁻ D (00), or SM 4500-NO₃⁻ D (16).
- D) Manual Cadmium Reduction. ASTM D3867-90 B, SM 4500-NO₃⁻ E (88), SM 4500-NO₃⁻ E (93), SM 4500-NO₃⁻ E (97), SM 4500-NO₃⁻ E (00), or SM 4500-NO₃⁻ E (16).

- E) Capillary Ion Electrophoresis. ASTM D6508-00 or ASTM D6508-15.
- F) Reduction-Colorimetric. Sys tea Easy (1-Reagent) (09) or NE Ci Nitrate-Reductase (06).
- G) Direct Colorimetric. Hach 10206 (TNTplus 835/836).

20) Nitrite

- A) Ion Chromatography. ASTM D4327-97, ASTM D4327-03, ASTM D4327-11, ASTM D4327-17, SM 4110 B (90), SM 4110 B (97), SM 4110 B (00), USEPA 300.0 (93), USEPA 300.1 (97), or Waters B-1011 (87).
- B) Automated Cadmium Reduction. ASTM D3867-90 A, SM 4500-NO₃⁻ F (93), 4500-NO₃⁻ F (97), 4500-NO₃⁻ F (00), 4500-NO₃⁻ F (16), or USEPA 353.2 (93).
- C) Manual Cadmium Reduction. ASTM D3867-90 B, SM 4500-NO₃⁻ E (93), 4500-NO₃⁻ E (97), 4500-NO₃⁻ E (00), or 4500-NO₃⁻ E (16).
- D) Spectrophotometric. SM 4500-NO₂⁻ B (88), 4500-NO₂⁻ B (93), or 4500-NO₂⁻ B (00).
- E) Capillary Ion Electrophoresis. ASTM D6508-00 or ASTM D6508-15.
- F) Reduction-Colorimetric. Sys tea Easy (1-Reagent) (09) or NE Ci Nitrate-Reductase (06).

21) Orthophosphate (unfiltered, without digestion or hydrolysis)

- A) Automated Colorimetric, Ascorbic Acid. SM 4500-P F (88), SM 4500-P F (93), SM 4500-P F (97), SM 4500-P F (99), SM 4500-P F (05), Thermo-Fisher Discrete Analyzer (16), or USEPA 365.1 (93).
- B) Single-Reagent Colorimetric, Ascorbic Acid. ASTM D515-88 A, SM 4500-P E (88), 4500-P E (93), 4500-P E (97), or 4500-P E (99), or 4500-P E (05).
- C) Colorimetric, Phosphomolybdate. USGS I-1601-85.

- D) Phosphorus, Orthophosphate, Colorimetry, Phosphomolybdate, Automated-Segmented Flow. USGS I-2601-90.
 - E) Colorimetric, Phosphomolybdate, Automated Discrete. USGS I-2598-85.
 - F) Ion Chromatography. ASTM D4327-97, ASTM D4327-03, ASTM D4327-11, ASTM D4327-17, SM 4110 B (90), SM 4110 B (91), SM 4110 B (97), SM 4110 B (00), USEPA 300.0 (93), or USEPA 300.1 (97).
 - G) Capillary Ion Electrophoresis. ASTM D6508-00 or ASTM D6508-15.
- 22) pH, Electrometric. ASTM D1293-95, ASTM D1293-99, ASTM D1293-12, ASTM D1293-18, SM 4500-H⁺ B (90), SM 4500-H⁺ B (96), SM 4500-H⁺ B (00), USEPA 150.1 (71), USEPA 150.2 (82), or USEPA 150.3 (13).
- 23) Selenium
- A) Atomic Absorption, Hydride. ASTM D3859-98 A, ASTM D3859-03 A, ASTM D3859-08 A, ASTM D3859-15 A, SM 3114 B (89), SM 3114 (93), SM 3114 (97), or SM 3114 (09).
 - B) Inductively Coupled Plasma-Mass Spectrometry. USEPA 200.8 (94).
 - C) Atomic Absorption, Platform Furnace Technique. USEPA 200.9 (94).
 - D) Atomic Absorption, Furnace Technique. ASTM D3859-98 B, ASTM D3859-03 B, ASTM D3859-08 B, ASTM D3859-15 B, SM 3113 B (89), SM 3113 B (93), SM 3113 B (99), SM 3113 B (04), or SM 3113 B (10).
 - E) Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry (AVICP-AES). USEPA 200.5 (03).
- 24) Silica
- A) Colorimetric, Molybdate Blue. USGS I-1700-85.
 - B) Colorimetric, Molybdate Blue, Automated-Segmented Flow. USGS I-2700-85.

- C) Colorimetric. ASTM D859-94, ASTM D859-00, ASTM D859-05, ASTM D859-10, or ASTM D859-16.
- D) Molybdosilicate. SM 4500-Si D (88), SM 4500-Si D (93), or SM 4500-SiO₂ C (97).
- E) Heteropoly Blue. SM 4500-Si E (88), SM 4500-Si E (93), or SM 4500-SiO₂ D (97).
- F) Automated Method for Molybdate-Reactive Silica. SM 4500-Si F (88), SM 4500-Si F (93), or SM 4500-SiO₂ E (97).
- G) Inductively Coupled Plasma. SM 3120 B (89), SM 3120 B (93), SM 3120 B (99), or USEPA 200.7 (94).
- H) Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry (AVICP-AES). USEPA 200.5 (03).

25) Sodium

- A) Inductively Coupled Plasma. USEPA 200.7 (94).
- B) Atomic Absorption, Direct Aspiration. SM 3111 B (89), SM 3111 B (93), or SM 3111 B (99).
- C) Ion Chromatography. ASTM D6919-03, ASTM D6919-09, or ASTM D6919-17.
- D) Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry (AVICP-AES). USEPA 200.5 (03).

26) Sulfate. Ion Chromatography. ASTM D4327-17.

27) Temperature; Thermometric. SM 2550 (88), SM 2550 (93), SM 2550 (00), or SM 2550 (10).

28) Thallium

- A) Inductively Coupled Plasma-Mass Spectrometry. USEPA 200.8 (94).
- B) Atomic Absorption, Platform Furnace Technique. USEPA 200.9 (94).

- b) The supplier must use specific sample preservation, container, and maximum holding time procedures when collecting samples for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, nitrate, nitrite, selenium, and thallium under Sections 611.600 through 611.604:

BOARD NOTE: For cyanide determinations, the supplier must adjust samples to pH 12 with sodium hydroxide to pH 12 at the time of collection~~when collecting them~~. When a sample needs chilling, the supplier must ship and store the sample at 4° C or less. The supplier may acidify nitrate or metals samples using a concentrated acid or a dilute (50% by volume) solution of the concentrated acid. USEPA encourages acidifying samples for metals analysis and that the laboratory acidify, rather than at the time of sampling if the supplier follows the shipping time and other instructions in Section 8.3 of USEPA 200.7 (94), USEPA 200.8 (94), or USEPA 200.9 (94).

- 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) A certified laboratory in one of the categories in Section 611.490(a) must conduct analyses under this Subpart N. 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 fulfills certain conditions:

- 1) The laboratory analyzes performance evaluation (PE) samples the Agency provides under 35 Ill. Adm. Code 186 including those substances at levels not exceeding reasonably expected levels in drinking water; and
- 2) The laboratory achieves quantitative results on the analyses within specified acceptance limits:
 - A) Antimony: $\pm 30\%$ at greater than or equal to 0.006 mg/ L.
 - B) Arsenic: $\pm 30\%$ at greater than or equal to 0.003 mg/ L.
 - C) Asbestos: 2 standard deviations based on study statistics.

- D) Barium: $\pm 15\%$ at greater than or equal to 0.15 mg/ L.
- E) Beryllium: $\pm 15\%$ at greater than or equal to 0.001 mg/ L.
- F) Cadmium: $\pm 20\%$ at greater than or equal to 0.002 mg/ L.
- G) Chromium: $\pm 15\%$ at greater than or equal to 0.01 mg/ L.
- H) Cyanide: $\pm 25\%$ at greater than or equal to 0.1 mg/ L.
- I) Fluoride: $\pm 10\%$ at 1 to 10 mg/ L.
- J) Mercury: $\pm 30\%$ at greater than or equal to 0.0005 mg/ L.
- K) Nickel: $\pm 15\%$ at greater than or equal to 0.01 mg/ L.
- L) Nitrate: $\pm 10\%$ at greater than or equal to 0.4 mg/ L.
- M) Nitrite: $\pm 15\%$ at greater than or equal to 0.4 mg/ L.
- N) Selenium: $\pm 20\%$ at greater than or equal to 0.01 mg/ L.
- O) Thallium: $\pm 30\%$ at greater than or equal to 0.002 mg/ L.

BOARD NOTE: This Section derives from 40 CFR 141.23(k) and appendix A to subpart C of 40 CFR 141. The Board did not separately list approved alternative methods from Standard Methods Online that are the same version as a method appearing in a printed edition of Standard Methods. Using the Standard Methods Online copy is acceptable.

Standard Methods Online, Method 2320 B-97 appears in the 21st, 22nd, 23rd, and 24th editions as Method 2320 B. This appears in this Section as SM 2320 B (97).

Standard Methods Online, Method 2510 B-97 appears in the 20th, 21st, 22nd, 23rd, and 24th editions as Method 2510 B. This appears in this Section as SM 2510 B (97).

Standard Methods Online, Method 2550-00 appears in the 21st edition as Method 2550. This appears in this Section as SM 2550 (00).

Standard Methods Online, Method 2550-10 appears in the 22nd, 23rd, and 24th edition as Method 2550. This appears in this Section as SM 2550 (10).

Standard Methods Online, Methods 3111 B-99 and 3111 D-99 appear in the 21st, 22nd, 23rd, and 24th editions as Methods 3111 B and 3111 D. These appear in this Section as SM 3111 B (99) and SM 3111 D (99).

Standard Methods Online, Method 3112 B-09 appears in the 22nd, 23rd, and 24th editions as Method 3112 B. This appears in this Section as SM 3112 B (09).

Standard Methods Online, Method 3113 B-99 appears in the 21st edition as Method 3113 B. This appears in this Section as SM 3113 B (99).

Standard Methods Online, Method 3113 B-04 appears in the 21st edition as Method 3113 B. This appears in this Section as SM 3113 B (04). Standard Methods Online, Method 3113 B-10 appears in the 22nd, 23rd, and 24th editions as Method 3113 B. This appears in this Section as SM 3113 B (10).

Standard Methods Online, Method 3114 B-97 appears in the 21st edition as Method 3114 B. This appears in this Section as SM 3114 B (97).

Standard Methods Online, Method 3114 B-09 appears in the 22nd, 23rd, and 24th editions as Method 3114 B. This appears in this Section as SM 3114 B (09).

Standard Methods Online, Method 3120 B-99 appears in the 21st edition as Method 3120 B. This appears in this Section as SM 3120 B (99).

Standard Methods Online, Methods 3500-Ca B-97 and 3500-Ca D-97 appear in the 20th, 21st, 22nd, 23rd, and 24th editions as Methods 3500-Ca B and 3500-Ca D. These appear in this Section as SM 3500-Ca B (97) and SM 3500-Ca D (97).

Standard Methods Online, Method 3500-Mg B-97 appears in the 20th, 21st, 22nd, 23rd, and 24th editions as Method 3500-Mg B. This appears in this Section as SM 3500-Mg B (97).

Standard Methods Online, Method 4110 B-00 appears in the 21st, 22nd, 23rd, and 24th editions as Method 4110 B. This appears in this Section as SM 4110 B (00).

Standard Methods Online, Methods 4500-CN⁻ C-90, 4500-CN⁻ E-90, 4500-CN⁻ F-90, and 4500-CN⁻ G-90 appear in the 18th and 19th editions as Methods 4500-CN⁻ C, 4500-CN⁻ E, 4500-CN⁻ F, and 4500-CN⁻ G. These appear in this Section as SM 4500-CN⁻ C (90), SM 4500-CN⁻ E (90), SM 4500-CN⁻ F (90), and SM 4500-CN⁻ G (90).

Standard Methods Online, Methods 4500-CN⁻ C-99, 4500-CN⁻ E-99, 4500-CN⁻ F-99, and 4500-CN⁻ G-99 appear in the 21st and 22nd editions as Methods 4500-CN⁻ C, 4500-CN⁻ E, 4500-CN⁻ F, and 4500-CN⁻ G. These appear in this Section as SM 4500-CN⁻ C (99), SM 4500-CN⁻ E (99), SM 4500-CN⁻ F (99), and SM 4500-CN⁻ G (99).

Standard Methods Online, Methods 4500-CN⁻ C-16, 4500-CN⁻ E-16, 4500-CN⁻ F-16, and 4500-CN⁻ G-16 appear in the 23rd and 24th editions as Methods 4500-CN⁻ C, 4500-CN⁻ E, 4500-CN⁻ F, and 4500-CN⁻ G. These appear in this Section as SM 4500-CN⁻ C (16), SM 4500-CN⁻ E (16), SM 4500-CN⁻ F (16), and SM 4500-CN⁻ G (16).

Standard Methods Online, Methods 4500-F⁻ B-97, 4500-F⁻ C-97, 4500-F⁻ D-97, and 4500-F⁻ E-97 appear in the 20th, 21st, 22nd, 23rd, and 24th editions as Methods 4500-F⁻ B, 4500-F⁻ C, 4500-F⁻ D, and 4500-F⁻ E. These appear in this Section as SM 4500-F⁻ B (97), SM 4500-F⁻ C (97), SM 4500-F⁻ D (97), and SM 4500-F⁻ E (97).

Standard Methods Online, Methods 4500-NO₃⁻ D-00, 4500-NO₃⁻ E-00, and 4500-NO₃⁻ F-00 appear in the 21st, 22nd, and 23rd editions as Methods 4500-NO₃⁻ D, 4500-NO₃⁻ E, and 4500-NO₃⁻ F. These appear in this Section as SM 4500-NO₃⁻ D (00), SM 4500-NO₃⁻ E (00), and SM 4500-NO₃⁻ F (00).

Standard Methods Online, Methods 4500-NO₃⁻ D-16, 4500-NO₃⁻ E-16, and 4500-NO₃⁻ F-0 16 appear in the 23rd and 24th editions as Methods 4500-NO₃⁻ D, 4500-NO₃⁻ E, and 4500-NO₃⁻ F. These appear in this Section as SM 4500-NO₃⁻ D (16), SM 4500-NO₃⁻ E (16), and SM 4500-NO₃⁻ F (16).

Standard Methods Online, Methods 4500-NO₂⁻ B-00 appears in the 21st, 22nd, 23rd, and 24th editions as Method 4500-NO₂⁻ B. This appears in this Section as SM 4500-NO₂⁻ B (00).

Standard Methods Online, Method 4500-H⁺ B-90 appears in the 18th and 19th editions as Method 4500-H⁺ B. This appears in this Section as SM 4500-H⁺ B (90).

Standard Methods Online, Method 4500-H⁺ B-00 appears in the 21st, 22nd, 23rd, and 24th editions as Method 4500-H⁺ B. This appears in this Section as SM 4500-H⁺ B (00).

Standard Methods Online, Methods 4500-P E-99 and 4500-P F-99 appear in the 21st and 22nd editions as Methods 4500-P E and 4500-P F. These appear in this Section as SM 4500-P E (97) and SM 4500-P F (97).

Standard Methods Online, Methods 4500-P E-05 and 4500-P F-05 appear in the 23rd and 24th editions as Methods 4500-P E and 4500-P F. These appear in this Section as SM 4500-P E (05) and SM 4500-P F (05).

Standard Methods Online, Methods 4500-SiO₂ C-97, 4500-SiO₂ D-97, and 4500-SiO₂ E-97 appear in the 20th, 21st, 22nd, 23rd, and 24th editions as Methods 4500-SiO₂ C, 4500-SiO₂ D, and 4500-SiO₂ E. These appear in this Section as SM 4500-SiO₂ C (97), SM 4500-SiO₂ D (97), and SM 4500-SiO₂ E (97).

Standard Methods Online, Method 6251 B-07 appears in the 22nd, 23rd, and 24th editions as Method 6251 B. This appears in this Section as SM 6251 B (07).

(Source: Amended at 50 Ill. Reg. _____, effective _____)

SUBPART U: CONSUMER CONFIDENCE REPORTS

Section 611.881 Purpose and Applicability

- a) This Subpart U establishes the minimum requirements for the content of reports that community water systems (CWSs) must deliver to their customers. These reports must contain information on the quality of the water delivered by the systems and characterize the risks (if any) from exposure to contaminants detected in the drinking water in an accurate and understandable manner. This subpart also includes requirements for suppliers serving more than 100,000 persons to develop and annually update a plan for providing assistance to consumers with limited English proficiency.
- b) Despite the provisions of Section 611.100(d), this Subpart U only applies to CWSs.
- c) For the purpose of this Subpart U, “customers” are defined as billing units or service connections to which water is delivered by a CWS. For purposes of this subpart consumers are defined as people served by the water system, including customers and people that do not receive a bill.
- d) For the purpose of this Subpart U, “detected” means the following: at or above the detection limit levels prescribed by Section 611.600(d) for inorganic contaminants; at or above the levels prescribed by Section 611.646(g) for the contaminants listed in Section 611.646(a), ~~for~~ Phase I, II, and V VOCs; at or above the levels prescribed by Section 611.648(r) for Phase II, IIB, and V SOC_s (except for PFAS), at or above the levels prescribed by Section 611.381(b)(2)(D) for the disinfection byproducts listed in Section 611.312; at or above the levels prescribed by Section 611.720(c)(2) for radioactive contaminants; and at or above the levels prescribed by Section 611.7902(a)(5) for PFAS listed in Section 611.311(c)(2).

BOARD NOTE: Derived from 40 CFR 141.151.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 611.882 Compliance Dates

- a) Between June 24, 2024 and December 31, 2026, CWS suppliers must comply with Sections 611.881 through 611.885 (except Section 611.883(d)(4)(G)), as codified in Subpart AH. Beginning January 1, 2027, CWS suppliers must comply with Section 611.881 through 611.886 (except Section 611.883(h)(8)(A)) as codified in this subpart U. Beginning November 1, 2027, CWS suppliers must comply with Sections 611.881 through 611.886, as codified in subpart U.
- b) Each existing CWS supplier must deliver its reports in compliance with 611.885 by July 1 each year. Each report delivered by July 1 must contain data collected during the previous calendar year, or the most recent calendar year before the previous calendar year.

- c) A new CWS must deliver its first report by July 1 of the year after its first full calendar year in operation.
- d) A CWS supplier that sells water to another CWS supplier must deliver the applicable information required in Section 611.883 to the buyer supplier as follows:
 - 1) By April 1, 2027 and annually thereafter; or
 - 2) On a date mutually agreed upon by the seller and the purchaser, and specifically included in a contract between the parties; ~~or~~ and
 - 3) A CWS supplier that sells water to another CWS supplier that is required to provide reports biannually in compliance with Section 611.855(i) must provide the applicable information required in 611.855(j) by October 1, 2027, to the buyer system, and annually thereafter, or a date mutually agreed upon by the seller and the purchaser, included in a contract between the parties.

BOARD NOTE: Derived from 40 CFR 141.152.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 611.883 Content of the Reports

- a) Each CWS supplier must provide to its customers a report(s) containing the information specified in this Section 611.884, and include a summary as specified in Section 611.886.
- b) Information on the Source of the Water the Supplier Delivers
 - 1) Each report must identify the sources of the water the CWS delivers providing certain information:
 - A) The type of the water (i.e., surface water, groundwater, or groundwater under the direct influence of surface water); and
 - B) The commonly used name (if any) and location of the source body (or bodies) of water.
 - 2) If the supplier has a complete source water assessment, the report must notify consumers of the availability of this assessment, the year it was completed or most recently updated, and how to obtain it. In addition, the supplier should highlight in the report significant sources of contamination in the source water area if the supplier readily has that information. If the

supplier received the 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 the Agency provides or as the supplier writes.

c) Definitions

1) Each report must include two definitions:

- A) Maximum Contaminant Level Goal or MCLG: The level of a contaminant in drinking water below which USEPA determines no known or expected risk to health exists. 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, USEPA mandates using this definition.

- B) Maximum Contaminant Level or MCL: The highest level of a contaminant that USEPA allows in drinking water. USEPA sets MCLs as close to the MCLGs as feasible using the best available treatment technology.

- C) Contaminant: Any physical, chemical, biological, or radiological substance or matter in the water.

2) 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 in its report: "Variances, Adjusted Standards, and Site-specific Rules: State permission not to meet an MCL or a treatment technique under certain conditions."

3) A report containing data on contaminants that USEPA regulates using any of certain terms must include the applicable definitions:

- A) Treatment technique: A required process for reducing the concentration of a contaminant in drinking water.

- B) Action level: The concentration of a contaminant above which a supplier must follow treatment or other requirements.

- C) Maximum residual disinfectant level goal or MRDLG: The concentration of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of using disinfectants to control microbial contaminants.

BOARD NOTE: Although an MRDLG is not an NPDWR that the Board must include in the Illinois SDWA regulations, USEPA mandates using this definition if the report uses the term “MRDLG”.

- D) Maximum residual disinfectant level or MRDL: The highest concentration of a disinfectant USEPA allows in drinking water. There is convincing evidence that adding a disinfectant is necessary to control microbial contaminants.
 - E) Hazard Index or HI. The Hazard Index is an approach that determines the health concerns associated with mixtures of certain PFAS in finished drinking water. Low levels of multiple PFAS that individually would not likely result in adverse health effects may pose health concerns when combined in a mixture. The Hazard Index MCL represents the maximum level for mixtures of PFHxS, PFNA, HFPO-DA, and/or PFBS allowed in water delivered by a public water supplier. A Hazard Index greater than 1 requires a supplier to take action.
- 4) A report containing information about a Level 1 or Level 2 assessment under Subpart AA requires must include the applicable definition:
- 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 occurred or why monitoring found total coliform bacteria in our water system on multiple occasions.”
- 5) Suppliers must use the following definitions for the terms listed below if the terms are used in the report unless the supplier obtains written approval from the Agency to use an alternate definition:
- A) Pesticide: Generally, any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest.
 - B) Herbicide: Any chemical(s) used to control undesirable vegetation.

d) Information on Detected Contaminants

- 1) This subsection (d) specifies the information a supplier must include in each report for contaminants subject to mandatory monitoring (except *Cryptosporidium*):
 - A) Contaminants subject to an MCL, action level, MRDL, or treatment technique (regulated contaminants); and
 - B) Contaminants for which monitoring is required by USEPA under 40 CFR 141.40 (unregulated contaminants).
- 2) The data relating to these contaminants must be presented in the reports in a manner that is clear and understandable for consumers. For example, the data may be displayed in one table or in several adjacent tables. The CWS must separately display any additional monitoring results it chooses to include in its report.
- 3) The supplier must derive the data in the report from data it collected to comply with monitoring and analytical requirements during the previous calendar year or the most recent calendar year before the previous calendar year except that
 - A) Where a supplier is allowed to monitor for regulated contaminants less often than once a year, the contaminant data section 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 are from the most recent testing done in compliance with the regulations. No data older than 5 years need be included.
 - B) This subsection (d)(3)(B) corresponds with 40 CFR 141.153(d)(3)(ii), which USEPA has designated as “reserved”. This statement maintains structural correspondence with the corresponding federal regulation.
- 4) For each detected regulated contaminant (listed in Appendix A to this subpart), data section(s) must contain:
 - A) The MCL for the contaminant expressed as a number equal to or greater than 1.0 (as Appendix A provides);
 - 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 contaminant data section(s) must indicate that there is a treatment technique or specify the action level for the contaminant, and the report must include the applicable of the definitions for treatment technique or action level that subsection (c)(3) specifies;
- D) For contaminants subject to an MCL, except turbidity and E. coli, the contaminant data sections must contain the highest contaminant level the supplier used to determine compliance with the applicable NPDWR and the range of detected levels as follows:
 - i) When the supplier determines compliance with the MCL 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 the supplier determines compliance with the MCL by calculating a running annual average of all samples taken at a monitoring location: the highest average of all monitoring locations and the range of individual sample results for all monitoring locations expressed in the same units as the MCL. For TTHM and HAA5 MCLs in Section 611.312(b), 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 having results exceeding the MCL.

BOARD NOTE: If a rule allows rounding results to determine compliance with an MCL, the supplier should round before multiplying the results by the applicable factor in Appendix A.

- E) For turbidity:
 - i) Corresponding 40 CFR 141.153(d)(4)(v)(A) relates to an MCL for turbidity applicable to unfiltered systems, which do not exist in Illinois. This statement maintains structural consistency with the federal rules.
 - ii) If the supplier reports under Section ~~611.211~~611.211(b): the highest monthly value. The report must explain the reasons for measuring turbidity.

- iii) If the supplier reports under Section 611.250, 611.743, or 611.955(b): the highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits Section 611.250, 611.743, or 611.955(b) specifies for the filtration technology the supplier uses. The report must explain the reasons for measuring turbidity;
 - F) For lead and copper: the 90th percentile concentration of the most recent ~~round(s)~~^{rounds} of sampling, the number of sampling sites exceeding the action level, and the range of tap sampling results;
 - G) This subsection (d)(4)(G) corresponds with 40 CFR 141.153(d)(4)(vii), which has no operative effect after a past implementation date. This statement maintains structural consistency with the federal regulations;
 - H) This subsection (d)(4)(H) corresponds with 40 CFR 141.153(d)(4)(viii), a now-obsolete implementing provision. This statement maintains structural consistency with the federal regulations;
 - 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 that are most applicable to the CWS; and
 - J) For E. coli analytical results under Subpart AA, the total number of E. coli positive samples;
- 5) If a CWS distributes water to its customers from multiple hydraulically independent distribution systems fed by different raw water sources, the contaminant data section(s) should differentiate contaminant data for each service area, and the report must identify each separate distribution system. For example, if displayed in a table, it should contain a separate column for each service area. Alternatively, a CWS may produce separate reports tailored to include data for each service area.
- 6) The detected contaminant data section(s) 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 specific information: the length of the violation, the

potential adverse health effects, and actions the CWS took to address the violation. To describe the potential health effects, the CWS must use the relevant language from Appendix A.

- 7) For detected unregulated contaminants for which USEPA requires monitoring under 40 CFR 141.40, the reports must present the average and range at which the supplier detected the contaminant. The report must briefly explain the reasons for monitoring for unregulated contaminants such as:
 - A) Unregulated contaminant monitoring helps the Agency to determine where certain contaminants occur and whether the Agency should consider regulating those contaminants in the future.
 - B) May use an alternative educational statement in the CCR if approved by the Agency.
 - 8) For suppliers that exceeded the lead action level in Section 611.350(c), the detected contaminant data section must clearly identify the exceedance if any corrective action has been required by the USEPA or the Agency during the monitoring period covered by the report. The report must include a clear and readily understandable explanation of the exceedance, the steps consumers can take to reduce their exposure to lead in drinking water, and a description of any corrective actions the supplier has or will take to address the exceedance.
- e) Information on Cryptosporidium, radon, and other contaminants:
- 1) If the CWS monitored for Cryptosporidium, which indicates the possible presence of Cryptosporidium in the supplier's source water or finished water, the report must include:
 - A) A summary of the results of the monitoring; and
 - B) An explanation of the significance of the results.
 - 2) If the CWS monitored for radon, and the monitoring indicates the possible presence of radon in the supplier's finished water, the report must include:
 - A) The results of the monitoring; and
 - B) An explanation of the significance of the results..
 - 3) If the CWS conducted additional monitoring indicating the presence of other contaminants in the supplier's finished water, the report must include

specific information:

- A) The monitoring results; and
- B) It must explain the results' significance noting any health advisory or proposed regulation.

BOARD NOTE: To determine if results may indicate a health concern, USEPA recommends that suppliers find out if USEPA has proposed an NPDWR or issued a health advisory for that contaminant by calling the Safe Drinking Water Hotline (800-426-4791) or an alternative method identified on the website epa.gov/safewater. USEPA considers detects above a proposed MCL or health advisory level to indicate a possible health concern.

- f) Complying with an NPDWR. In addition to the information subsection (d)(6) requires, the report must note any specific violations that occurred during the period the report covers and include a clear and readily understandable explanation of the violation, any potential adverse health effects, and the steps the CWS took to correct the violation.
 - 1) Monitoring and reporting compliance data.
 - 2) Filtration and Disinfection Under Subpart B. For a CWS failing to install adequate filtration or disinfection equipment or processes or having filtration or disinfection equipment or processes fail, causing a violation, the report must include specific language to explain 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 under Subpart G. For suppliers that fail to take one or more actions under Sections 611.350 through 611.363 the report must include the applicable language from Appendix A for lead, copper, or both.
 - 4) Treatment Techniques for Acrylamide and Epichlorohydrin Under Section 611.296. For a supplier violating Section 611.296, the report must include the applicable language from Appendix A.
 - 5) A supplier failing to maintain required compliance data records.
 - 6) A supplier not complying with special monitoring requirements under Section 611.630.

- 7) A supplier violating 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 supplier operates under the terms of a variance, adjusted standard, or site-specific rule the Board issued under Section 611.111, 611.112, or 611.131, the report must contain:
 - 1) It must explain the reasons for the variance, adjusted standard, or site-specific rule;
 - 2) It must state when the Board issued the variance, adjusted standard, or site-specific rule;
 - 3) It must include 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) It must include a notice of any opportunity for public input in any review or renewal of the variance, adjusted standard, or site-specific rule.
- h) Additional Information
 - 1) The report must briefly explain about contaminants that one may reasonably expect to find in drinking water, including bottled water. This may include the language from subsections (h)(1)(A) through (h)(1)(C), or the CWS may use its own comparable language. The report also must include the language from subsection (h)(1)(D).
 - A) Both tap water and bottled water come from 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. The water can also pick up and transport substances resulting from the presence of animals or from human activity. These substances are also called contaminants.
 - B) Contaminants are any physical, chemical, biological, or radiological substance or matter in water. Contaminants that may be present in source water include:
 - 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 occur naturally in the soil or groundwater or may 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, or residential uses;
 - iv) Organic chemical contaminants, including synthetic and volatile organic chemicals, which are products and byproducts of industrial processes and petroleum production and which can also come from gas stations, urban stormwater runoff, or septic systems; and
 - v) Radioactive contaminants, which can occur naturally- or the result of oil and gas production and mining activities.
 - C) To protect public health, USEPA prescribes regulations that limit the amount of certain contaminants in tap water PWSs provide. 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) One may reasonably expect drinking water, including bottled water, to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily mean that water poses a health risk. More information about contaminants and potential health effects is available from the USEPA Safe Drinking Water Hotline (800-426-4791) or USEPA's Safe Drinking Water Information webpage (www.epa.gov/safewater).
- 2) The report must include a telephone number for the CWS's owner, operator, or designee as a source of additional information about the report. If a supplier uses a website or social media to share additional information, the USEPA recommends including information about how to access such media platforms in the report.
 - 3) In communities with a large proportion of consumers with limited English proficiency, as the Agency determines, the report must contain information in the appropriate languages regarding the importance of the report and either contain information where consumers may obtain a translated copy of the report, or assistance in the appropriate language(s) or the report must be in the appropriate language(s).

- 4) The report must inform about opportunities for public participation in decisions potentially affecting water quality.
- 5) The CWS may include any additional information it deems necessary for public education that is consistent with and does not detract from the purpose of the report.
- 6) Suppliers That Must Comply with Subpart S
 - A) Any GWS supplier that receives written notice from the Agency of a significant deficiency or notice from a laboratory of a fecal indicator-positive ground water source sample that is not invalidated by the Agency under Section 611.802(d) must inform its customers of any significant deficiency that is uncorrected at the time of the next reporting period or of any fecal indicator-positive groundwater source sample in the next report or 6-month updated in compliance with Section 611.885. The supplier must continue to inform the public annually until the Agency determines that the particular significant deficiency is corrected or the fecal contamination in the groundwater source is addressed under Section 611.803(a). Each report must include the following elements:
 - i) The nature of the particular significant deficiency or the source of the fecal contamination (if the supplier knows the source) and the date the Agency identified the significant deficiency or the dates of the fecal indicator-positive groundwater source samples;
 - ii) Whether or not the supplier has addressed the fecal contamination in the groundwater source under Section 611.803(a) and the date the supplier did so;
 - iii) For each significant deficiency or fecal contamination in the groundwater source that the supplier has not addressed under Section 611.803(a), the Agency-approved plan and schedule for correction, including interim measures, progress to date, and any interim measures the supplier completed; and
 - iv) If the supplier receives notice of a fecal indicator-positive groundwater source sample that the Agency does not invalidate under Section 611.802(d), the potential health effects using the pertinent health effects language from appendix A to this subpart.

- B) If the Agency issues a SEP directing a supplier to do so, a supplier with significant deficiencies that the supplier corrected before issuing the next report must inform its customers under subsection (h)(7)(A)(iv) of the significant deficiency, how the supplier corrected the deficiency, and the date the supplier corrected the deficiency.

7) Suppliers That Must Comply with Subpart AA

- A) Any supplier that must comply with the Level 1 assessment requirement or a Level 2 assessment requirement that is not due to an E. coli MCL violation must include in the report the text found in subsections (h)(7)(A)(i) through (h)(7)(A)(iii), as appropriate, filling in the blanks accordingly and the text found in subsection (h)(7)(A)(iv), 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) “Because we found coliforms during sampling, we were required to conduct [INSERT NUMBER OF LEVEL 1 ASSESSMENTS] assessment(s), also known as a Level 1 assessment, to identify possible sources of contamination. [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. 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) “Because we found coliforms during sampling, we were required to conduct [INSERT NUMBER OF LEVEL 2 ASSESSMENTS] detailed assessments, also known as a Level 2 assessment, to identify possible sources of contamination. [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. 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 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 that must 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), and health effects language in appendix A to this subpart, filling in the blanks accordingly and the appropriate alternative text found in subsection (h)(7)(B)(iii), if appropriate. Suppliers may use an alternative statement with equivalent information for paragraphs (h)(7)(B)(i) through (iii), if approved by the primacy agency.

i) “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), also known as level 2 assessment, to identify problems and to correct any problems that were found during these assessments.”

ii) “We were required to complete a detailed assessment of our water system, also known as 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 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 subsection (d)(4) requires, the supplier must include one or more of specific statements best describing the noncompliance:
 - i) “We had an E. coli-positive repeat sample following a total coliform-positive routine sample.”
 - ii) “We had a total coliform-positive repeat sample following an E. coli-positive routine sample.”
 - iii) “We failed to take all required repeat samples following an E. coli-positive routine sample.”
 - iv) “We failed to test for E. coli when any repeat sample tested positive for total coliform.”
 - D) If a supplier detects E. coli and has not violated the E. coli MCL, in addition to completing the table as required in subsection (d)(4), the supplier may include a statement explaining that although the supplier detected E. coli, it did not violate the E. coli MCL.
- 8) Suppliers required to comply with subpart G.
- A) The report must notify consumers that complete lead tap sampling data is available for review and must include information on how to access the data.
 - B) The report must include a statement that a service line inventory (including inventories where the publicly accessible inventory consist of a written statement that there are no lead, galvanized requiring replacement, lead status unknown service lines, known

lead connectors or connectors of unknown material) has been prepared and include instructions to access the publicly accessible service line inventory. If the service line inventory is available online, the report must include the direct link to the inventory.

- C) For suppliers with lead, galvanized requiring replacement, or lead status unknown service lines in the supplier's inventory under Section 611.354(a) and (b), the report must include information on how to obtain a copy of the service line replacement plan or a direct link to the plan if the supplier is required to make the service line replacement plan available online.
- D) The report must contain a plainly worded explanation of the corrosion control efforts the supplier is taking in compliance with subpart G, and AH, if applicable. Corrosion control efforts consist of treatment (e.g., pH adjustment, alkalinity adjustment, or corrosion inhibitor addition) and other efforts contributing to the control of the corrosivity of water, e.g., monitoring to assess the corrosivity of water. The supplier may use one of the following templates or use their own explanation that includes equivalent information.
 - i) For suppliers with Agency or USEPA-designated Optimal Corrosion Control Treatment:
Corrosion of pipes, plumbing fittings and fixtures may cause lead and copper to enter drinking water. To assess corrosion of lead and copper, [name of supplier] conducts tap sampling for lead and copper at selected sites [insert frequency at which supplier conducts tap sampling]. [Name of supplier] treats water using [identify treatment method] to control corrosion, which was designated as the optimal corrosion control treatment by [the Agency or USEPA, as applicable]. To ensure the treatment is operating effectively, [name of supplier] monitors water quality parameters set by the [Agency or USEPA, as applicable] [insert frequency at which supplier conducts water quality parameter monitoring]. If applicable add: “[Name of supplier] is currently conducting a study of corrosion control to determine if any changes to treatment methods are needed to minimize the corrosivity of the water.”
 - ii) For suppliers without Agency or USEPA designated Optimal Corrosion Control Treatment: Corrosion of pipes, plumbing fittings and fixtures may cause metals, including lead and copper, to enter drinking water. To assess

corrosion of lead and copper, [name of supplier] conducts tap sampling for lead and copper at selected sites [insert frequency at which supplier conducts tap sampling]. If applicable, add: “[Name of supplier] treats water using [identify treatment method] to control corrosion. If applicable add: “[Name of supplier] is currently conducting a study of corrosion control to determine if any changes to treatment methods are needed to minimize the corrosivity of the water.

- E) The report must include a statement that the supplier is required to sample for lead in schools and licensed childcare facilities as requested by the facility and that directs the public to contact their school or childcare facility for further information about potential sampling results.

BOARD NOTE: This Section derives from 40 CFR 141.153.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

SUBPART AG: INTERIM LEAD AND COPPER RULES

Section 611.1350 General Requirements

a) Applicability and Scope

- 1) Applicability and Complying with this Subpart AG. Subpart G, Subpart AG, and Subpart AH ~~this Subpart AG~~ constitute NPDWRs for lead and copper. Subpart G, Subpart AG, and Subpart AH ~~and this Subpart AG~~ apply to all community water systems (CWSs) and non-transient, non-community water systems (NTNCWSs).
 - A) A supplier must comply with this Subpart AG until the earlier of when the supplier complies with Subpart AG or October 16, 2024.
 - B) If the Agency issued a SEP prior to December 16, 2021, exempting a supplier under any rule in former Subpart G (now this Subpart AG), the supplier must comply with this Subpart AG until that SEP expires.
 - C) The Agency may issue a SEP requiring a supplier to comply with specified rules in Subpart G before Section 611.350(a)(1)(A) or (a)(1)(B) otherwise requires or as necessary to address issues in a notice the Agency received from USEPA under 40 CFR 142.23 or 142.30. The SEP must specify the rules in Subpart G with which

the supplier must comply and their counterparts in this Subpart AG with which the supplier needs no longer comply. The supplier must comply with the SEP-specified Subpart G rules in lieu of their counterparts in this Subpart AG.

D) Relationship Between Subpart G and Subpart AG Rules

- i) The rules in this Subpart AG are based on Subpart G as it existed on December 16, 2021, the effective date of USEPA's Lead and Copper Rule Revisions.
- ii) Each rule in this Subpart AG corresponds with a rule in Subpart G by adding the digit "1" immediately after "611." in the Section number. Removing that "1" from the Section number of a rule in this Subpart AG gives the corresponding rule in Subpart G.
- iii) Any action under a rule that was in Subpart G before December 16, 2021, satisfies the corresponding rule in this Subpart AG.

BOARD NOTE: USEPA's LCRI apply to all suppliers on October 30, 2024. However, USEPA delays requiring compliance with LCRI until November 1, 2027. when any previously granted exemption expires, or as provided otherwise by any of several specified rules for corrosion control treatment; lead service line replacement; public education, supplemental monitoring, and mitigation; monitoring; and reporting (corresponding with 35 Ill. Adm. Code 611.351, 611.354, 611.355, 611.356, or 611.360). USEPA's LCRR apply to all suppliers on December 16, 2021. However, USEPA delays requiring compliance with LCRR until October 16, 2024, when any previously granted exemption expires, or as provided otherwise by any of several specified rules for corrosion control treatment; lead service line replacement; public education, supplemental monitoring, and mitigation; monitoring; and reporting (corresponding with 35 Ill. Adm. Code ~~611.2351~~611.351, ~~611.2354~~611.354, ~~611.2355~~611.355, ~~611.2356~~611.356, or ~~611.2360~~611.360). Until a supplier must comply with the LCRR, USEPA requires the supplier to comply with subpart I of 40 CFR 141 (2020). This requires the Board to codify ~~three~~two versions of the Lead and Copper Rule: one in this Subpart AG, representing the Lead and Copper Rules prior to the LCRR (40 CFR 141 (2020)), Subpart AH representing the Lead and Copper rules prior to LCRI (40 CFR 141 (2024)), and ~~the other in~~ Subpart G, representing 40 CFR 141 incorporating the LCRI~~LCRR~~.

- 2) Scope. This Subpart AG establishes a treatment technique including corrosion control treatment, source water treatment, lead service line replacement, and public education. Lead and copper action levels the supplier measures in samples collected at consumers' taps trigger these requirements.

- b) Definitions. For this Subpart AG only, this subsection (b) defines certain terms:

“Action level” means the computed concentration of lead or copper in water under subsection (c) determining applicability of some treatment requirements under this Subpart AG. The action level for lead is 0.015 mg/L. The action level for copper is 1.3 mg/L.

“Corrosion inhibitor” means a substance that can reduce corrosivity of water toward metal plumbing materials, especially lead and copper, by forming a protective film on the interior surface of those materials.

“Effective corrosion inhibitor residual” means a concentration of corrosion inhibitor in the drinking water sufficient to form a passivating film on the interior walls of pipe.

“Exceed” or “exceedance”, relative to either the lead or the copper action level, means that the 90th percentile level of the samples the supplier collected during a six-month monitoring period is greater than the lead or copper action level.

“First-liter sample” means a one-liter sample of tap water, a supplier collects under Section 611.1356(b)(2), that stood in plumbing pipes for at least six hours and the supplier collects without flushing the tap.

“Large system” means a water system regularly serving water to more than 50,000 persons.

“Lead service line” means a service line made of lead connecting the water main to the building inlet, including any lead pigtail, gooseneck, or other fitting that is connected to such lead line.

“Maximum permissible concentration” or “MPC” means the concentration of lead or copper in finished water entering the supplier's distribution system, which the Agency designates in a SEP based on the contaminant removal ability of the treatment properly operated and maintained.

BOARD NOTE: This definition derives from 40 CFR 141.83(b)(4) (2020). (See Section 611.1353(b)(4)(B).)

“Medium-sized water system” means a water system regularly serving water to 3,301 to 50,000 persons.

“Meet” or “comply with”, relating to either the lead or the copper action level, means that the 90th percentile level of the supplier’s samples collected during a six-month monitoring period is less than or equal to the lead or copper action level.

“Monitoring period” means any of the six-month periods during which a supplier must complete a cycle of monitoring under this Subpart AG.

“Multiple-family residence” means a building that is currently used as a multiple-family residence, but not one that is also a “single-family structure”.

“90th percentile level” means the concentration of lead or copper that ten percent or fewer of all samples tap water samples under Section 611.1356 exceed during a six-month monitoring period (i.e., that contaminant concentration greater than or equal to the results obtained from 90 percent of the samples). The supplier must determine the 90th percentile levels for copper and lead under subsection (c)(3).

BOARD NOTE: This definition derives from 40 CFR 141.80(c) (2020).

“Optimal corrosion control treatment” means the corrosion control treatment minimizing the lead and copper concentrations at users’ taps while ensuring that the treatment will not violate any national primary drinking water regulations.

“Practical quantitation limit” or “PQL” means the lowest concentration of a contaminant that a well-operated laboratory can reliably analyze within specified limits of precision and accuracy during routine laboratory operating conditions. The PQL for lead is 0.005 mg/ L. The PQL for copper is 0.050 mg/ L.

BOARD NOTE: This definition derives from 40 CFR 141.89(a)(1)(ii) and (a)(1)(iv) (2020).

“Service line sample” means a one-liter sample of water under Section 611.1356(b)(3) that stood for at least six hours in a service line.

“Single-family structure” means a building constructed as a residence for a single-family that the occupant currently uses as a residence or place of business.

“Small system” means a water system regularly serving water to 3,300 or fewer persons.

BOARD NOTE: A small system for purposes of a small system variance under Section 611.131 is distinct from small-sized water system under this Subpart AG.

BOARD NOTE: This subsection (b) derives from 40 CFR 141.2 (2020).

c) Lead and Copper Action Levels

- 1) The supplier exceeds the lead action level if the 90th percentile lead level is greater than 0.015 mg/L.
- 2) The supplier exceeds the copper action level if the 90th percentile copper level is greater than 1.3 mg/L.
- 3) Suppliers must compute the 90th percentile lead and copper levels using the specified procedure:
 - A) The supplier must list the results of all lead or copper samples it took during the six-month monitoring period in ascending order, ranging from the sample with the lowest concentration to the sample with the highest concentration. The supplier must assign each sampling result an ordinal number, ascending by single integers, assigning the number 1 for the sample with the lowest contaminant level. The number the supplier assigns to the sample with the highest contaminant level must equal the total number of samples the supplier took.
 - B) To determine the 90th percentile sample, the supplier must multiply the total number of samples taken during the six-month monitoring period times 0.9.
 - C) The contaminant concentration in the sample corresponding with the ordinal number calculating under subsection (c)(3)(B) yields is the 90th percentile contaminant level.
 - D) For a supplier collecting five samples per six-month monitoring period, the 90th percentile is the average of the highest and second highest concentrations.
 - E) For a supplier the Agency allows to collect fewer than five samples under Section 611.1356(c), the result for the sample with the highest concentration is the 90th percentile value.

- d) Corrosion Control Treatment Requirements
- 1) Every supplier must install and operate optimal corrosion control treatment.
 - 2) Any supplier complying with the applicable corrosion control treatment requirements the Agency specifies under Sections 611.1351 and 611.1352 is deemed as complying with subsection (d)(1).
- e) Source Water Treatment Requirements. Any supplier whose system exceeds the lead or copper action level must implement all applicable source water treatment requirements the Agency specifies under Section 611.1353.
- f) Lead Service Line Replacement Requirements. Any supplier whose system exceeds the lead action level after implementing applicable corrosion control and source water treatment must complete the lead service line replacement under Section 611.1354.
- g) Public Education Requirements. Under Section 611.1355, the supplier must provide a consumer notice of the lead tap water monitoring results to the persons served at each tested site (tap). Any supplier exceeding the lead action level must implement the public education requirements.
- h) Monitoring and Analytical Requirements. A supplier must complete all tap water monitoring for lead and copper, monitoring for water quality parameters, and source water monitoring for lead and copper and analyze the monitoring results under this Subpart AG as Sections 611.1356, 611.1357, 611.1358, and 611.1359 require.
- i) Reporting Requirements. A supplier must report any information the treatment provisions of this Subpart AG and Section 611.1360 require to the Agency.
- j) Recordkeeping Requirements. A supplier must maintain records as Section 611.1361 requires.
- k) Violation of National Primary Drinking Water Regulations. Failing to comply with this Subpart AG, including conditions the Agency imposes in a SEP, violates the lead or copper NPDWRs.

BOARD NOTE: This Section corresponds with Section 611.1350 and derives from 40 CFR 141.80 (2020).

(Source: Amended at 50 Ill. Reg. _____, effective _____)

SUBPART AH: INTERIM LEAD AND COPPER RULE REVISIONS 2024

Section 611.2350 General Requirements

- a) Applicability and Scope
 - 1) Applicability of and Compliance with this Subpart AH. This Subpart G, Subpart AG, and Subpart AH constitute NPDWRs for lead and copper. This Subpart G, Subpart AG, and Subpart AH apply to all community water systems (CWSs) and non-transient, non-community water systems (NTNCWSs).
 - A) A supplier must comply with this Subpart AH by October 16, 2024, except as otherwise required by Section 611.2351, 611.2354, 611.2355, 611.2356, or 611.2360.
 - B) If the Agency issued a SEP before October 30, 2024, that expires on or after November 1, 2027, and the SEP exempts a supplier under any rule in former Subpart G (now redesignated Subpart AH), the supplier must comply with this Subpart AH after the SEP expires, regardless of subsection (a)(1)(A). If the SEP expires before November 1, 2027, the supplier must comply with this Subpart AH as required by subsection (a)(1)(A).
 - C) The Agency may issue a SEP requiring a supplier to comply with specified rules in this Subpart G before subsection (a)(1)(A) or (a)(1)(B) otherwise requires or as necessary to address issues in a notice the Agency received from USEPA under 40 CFR 142.23 or 142.30. The SEP must specify the rules in this Subpart G with which the supplier must comply and their counterparts in Subpart AH with which the supplier no longer needs to comply. The supplier must comply with the SEP-specified Subpart G rules in lieu of their counterparts in Subpart AH.

BOARD NOTE: This subsection (a)(1) derives from 40 CFR 141.80(a). USEPA's Lead and Copper Rules Revisions (LCRR) apply to all suppliers on December 16, 2021. However, USEPA delays complying with LCRR until October 16, 2024, when any previously granted exemption expires, or as provided otherwise by any of several specified rules for corrosion control treatment; lead service line replacement; public education, supplemental monitoring, and mitigation; monitoring; and reporting (corresponding with 35 Ill. Adm. Code 611.2351, 622.2354, 611.2355, 611.2356, or 611.2360). Until a supplier must comply with the LCRR, USEPA requires the supplier to comply with subpart I of 40 CFR 141 (2024). This requires the Board to codify three versions of the Lead and Copper Rule: one in Subpart G, representing the Lead and Copper Rules

incorporating the LCRI (40 CFR 141(2024) one in Subpart AH, representing the Lead and Copper Rules prior to the LCRI (40 CFR 141 (2024)), and one in Subpart AG, representing LCRR prior to (40 CFR 141 (2020)).

- 2) Scope. This Subpart AH establishes a treatment technique including requirements for corrosion control treatment, source water treatment, lead service line inventory, replacing lead service lines, public notice, monitoring for lead in schools and childcare facilities, and public education. Lead and copper action levels and the lead trigger level in samples collected at consumers' taps prompt these requirements. The rules in this Subpart AH requiring lead sampling in schools and childcare facilities and public education apply to all CWS.

- b) Definitions. For this Subpart G only, this subsection (b) defines certain terms:

“Action level” means the computed concentration of lead or copper in water under subsection (c) determining applicability of some treatment requirements under this Subpart AH. The action level for lead is 0.015 mg/ L, and the action level for copper is 1.3 mg/ L.

“Aerator” means the device embedded in a water faucet to enhance air flow in the water stream and prevent splashing.

“Childcare facility” means a facility providing childcare, day care, or early learning services to children under a license issued by a State or local agency.

BOARD NOTE: See, e.g., the Childcare Act of 1969 [225 ILCS 10].

“Corrosion inhibitor” means a substance that can reduce corrosivity of water toward metal plumbing materials, especially lead and copper, by forming a protective film on the interior surface of those materials.

“Effective corrosion inhibitor residual” means a concentration of corrosion inhibitor in the drinking water sufficient to form a passivating film on the interior walls of pipe.

“Elementary school” means a school classified by State and local practice as elementary and comprising any span of grades (including pre-school) through grade 8.

“Exceed” or “exceedance”, relative to either the lead or the copper action level, means that the 90th percentile concentration of the samples the supplier collected during a six-month tap monitoring period is greater than the lead or copper action level.

“Fifth-liter tap sample” means a one-liter tap water sample a supplier collects under Section 611.2356(b).

“Find-and-fix” means the requirements under this Subpart AH that water systems must perform at every tap sampling site yielding a lead result above 15 µg/ L.

“First-draw tap sample” means the first one-liter sample of tap water a supplier collects under Section 611.2356(b)(2)

“Full lead service line replacement” means replacing a lead service line (as well as galvanized service lines requiring replacement) resulting in the entire length of the service line, regardless of service line ownership, complying with Section 611.126 at the time of replacement. A full lead service line replacement includes replacing a service line having only one portion that is lead, such as a service line previously subject to a partial lead service line replacement, as long as the entire service line complies with Section 611.126 after the replacement. A full lead service line replacement requires replacing galvanized service lines downstream of a lead service line. A full lead service line replacement could leave a lead service line in place in the ground but out of service if using a new non-lead service line replaces the out-of-service lead service line.

“Galvanized requiring replacement” refers to a galvanized service line Section 611.2354(a)(4)(B) describes.

BOARD NOTE: This definition derives from 40 CFR 141.84(a)(4)(ii) for a term used in various rules.

“Galvanized service line” means iron or steel piping zinc-dipped to prevent corrosion and rusting.

“Gooseneck, pigtail, or connector” is a short section of flexible piping, typically not exceeding two feet, connecting segments of rigid service piping. Lead goosenecks, pigtails, and connectors are not part of the lead service line, but Section 611.2354(c) may require replacing them.

“Large supplier” means a supplier regularly serving water to more than 50,000 persons.

“Lead service line” means a portion of pipe made of lead connecting the water main to the building inlet. A lead service line may be owned by the water system, the property owner, or both. A galvanized service line is a lead service line if it was or is downstream of any lead service line or service line of unknown material. If the only lead piping serving a home

is a lead gooseneck, pigtail, or connector, and it is not a galvanized service line that is considered a lead service line, the service line is not a lead service line. Under Section 611.2356(a) only, a galvanized service line is not considered a lead service line.

“Lead status unknown service line” means a service line that has not been shown to comply with Section 611.126. Physically verifying the material composition of a service line (e.g., copper or plastic) is not necessary for its lead status to be identified (e.g., if records demonstrate that the service line was installed after a municipal, State, or federal lead ban).

BOARD NOTE: See the description of “lead status unknown” in Section 611.2354(a)(4)(D).

“Lead trigger level” means a particular concentration of lead in water that prompts certain activities under this Subpart AH. The trigger level for lead is a concentration of 10 µg/ L.

“Maximum permissible concentration” or “MPC” means the concentration of lead or copper in finished water entering the supplier’s distribution system, which the Agency designates in a SEP based on the contaminant removal ability of the treatment properly operated and maintained.

BOARD NOTE: This definition derives from 40 CFR 141.83(b)(4). (See Section 611.2353(b)(4)(B).)

“Meet” or “comply with”, relating to either the lead or the copper action level, means that the 90th percentile concentration of the supplier’s samples collected during a six-month tap monitoring period is less than or equal to the lead or copper action level.

“Mid-sized supplier” means a supplier regularly serving water to more than 10,000 persons up to 50,000 persons.

“Multiple-family residence” means a building in which multiple families currently reside, but not one that is also a “single-family structure”.

“90th percentile concentration” means the concentration of lead or copper the supplier computes under subsection (c)(4) using the results of tap water sampling under Section 611.2356.

BOARD NOTE: This definition derives from 40 CFR 141.80(c)(4).

“Optimal corrosion control treatment” or “OCCT” means the corrosion control treatment minimizing the lead and copper concentrations at users’ taps while ensuring that the treatment will not violate any national primary drinking water regulations.

“Partial lead service line replacement” means replacing any portion of a lead service line or galvanized requiring replacement service line leaving any length of the lead service line or galvanized requiring replacement service line in service and requiring replacement upon completion of the work. 611.354(d) allows partial lead service line replacements under limited circumstances, but these do not count towards the mandatory or goal-based lead service line replacement rate under Section 611.2354.

“Pitcher filter” means a non-plumbed water filtration device consisting of a gravity-fed water filtration cartridge and a filtered drinking water reservoir that is certified by its manufacturer, importer, or an accredited third-party certifying body as complying with the version of NSF/ANSI 53 in effect on the date of manufacture or import.

BOARD NOTE: NSF/ANSI 53 is the health-based standard for lead and several other contaminants for water filter devices, including pitcher filter-type devices. Identifying a device as certified under NSF/ANSI 53 at the time of purchase is possible. NSF maintains an on-line list of certified devices at info.nsf.org/Certified/dwtu/listings_leadreduction.asp. See the definition of “accredited third-party certifying body” in 35 Ill. Adm. Code 611.126(b) relating to NSF/ANSI 372.

“Practical quantitation limit” or “PQL” means the lowest concentration of an analyte (substance) that a well-operated laboratory can measure with a high degree of confidence that the analyte is present at or above that concentration.

BOARD NOTE: This definition derives from 40 CFR 141.89(a)(1)(ii) and (a)(1)(iv).

“Pre-stagnation flushing” means opening taps to flush standing water from plumbing before a minimum six-hour stagnation period before lead and copper tap sampling under Subpart AH.

“School” means any building or building complex associated with public, private, or charter institutions that primarily provides teaching and learning for elementary or secondary students.

“Secondary school” means a school comprising any span of grades beginning with the next grade following an elementary or middle school (usually 7, 8, or 9) and ending with or below grade 12. This definition includes both junior high schools and senior high schools.

“Single-family structure” means a building constructed as a residence for a single-family that the occupant currently uses as a residence or place of business.

“Small system supplier” or “small CWS supplier” means a CWS serving ~~3,300~~10,000 or fewer persons.

BOARD NOTE: A small CWS is a small supplier that is a CWS. This definition derives from the preamble of 40 CFR 141.93. Corresponding Section 611.2363 distinguishes a small CWS supplier from an NTNCWS supplier.

“Small supplier” means a supplier regularly serving water to 10,000 or fewer persons.

BOARD NOTE: USEPA did not revise its corresponding definition of “small water system” in 40 CFR 141.2 from 3,300 or fewer to 10,000 or fewer persons. This creates an inconsistency the Board corrected.

“Source water monitoring period” means any of the six-month periods during which a supplier must complete source water monitoring under Section 611.2358.

BOARD NOTE: The Board added this definition to avoid confusion with “tap sampling period,” “tap monitoring period”, and “water quality monitoring period”, as used under this Subpart AH, and “compliance period” and “compliance cycle”, as used elsewhere in this Part and Section 611.101 defines.

“Supplier without corrosion control treatment” means a PWS not fulfilling either of two conditions or purchasing all of its water from a supplier not fulfilling either of two conditions:

Neither the PWS nor the supplier providing its water has Agency-approved optimal corrosion control treatment; or

No other water quality adjustment in either the PWS’s or the supplier’s treatment train infrastructure includes adjusting pH or alkalinity or adding corrosion inhibitor.

“Tap monitoring period” means the period of time during which a supplier must sample taps for lead and copper analyses. The lead and copper concentrations in tap samples determine the tap monitoring period, and the frequency can range from every six months (i.e., semi-annually) to once every nine years. A supplier semi-annually sampling taps must collect samples no less frequently than every six months, while a supplier annually sampling taps must sample no less frequently than every year. A supplier triennially sampling taps must collect samples no less frequently than every three years, and a supplier sampling taps under an Agency-issued waiver must sample no less frequently than every nine years. The

start of each new tap monitoring period, with the exception of semi-annual monitoring, must begin on January 1.

BOARD NOTE: This term is equivalent to “tap sampling monitoring period” in 40 CFR 141. “Tap monitoring period” describes sampling frequency.

“Tap sampling period” means the period within a tap monitoring period when the supplier must collect samples for lead and copper analysis. For a supplier sampling at a reduced frequency, the supplier must sample taps between June and September, unless the Agency issues a SEP approving a different four-month period.

BOARD NOTE: “Tap sampling period” describes when the supplier collects samples.

“Tap sampling protocol” means the instructions a supplier gives to residents or those sampling on the supplier’s behalf to sample taps under this Subpart AH.

“Water quality monitoring period” means any of the six-month periods during which a supplier must complete a cycle of tap and entry point water quality monitoring under Section 611.2357.

BOARD NOTE: The Board added this definition. USEPA refers to these as “monitoring periods”. The Board uses “water quality monitoring period” to avoid confusion with “tap sampling period,” “tap monitoring period”, and “source water monitoring period”, as used under this Subpart AH, and “compliance period” and “compliance cycle”, as used elsewhere in this Part and Section 611.101 defines.

“Wide-mouthed bottles” means bottles one liter in volume having a mouth that is at least 55 mm wide.

BOARD NOTE: This subsection (b) derives from 40 CFR 141.2.

- c) Lead Trigger Level and Lead and Copper Action Levels. The supplier determines the lead trigger levels and lead and copper action levels based on tap water samples it collects under Section 611.2356 to calculate the 90th percentile concentration and tests using the analytical methods in 611.2359.
 - 1) The supplier exceeds the lead trigger level if the 90th percentile lead concentration as subsection (c)(4) specifies is determined to be greater than 10 µg/ L.
 - 2) The supplier exceeds the lead action level if the 90th percentile lead concentration is greater than 15 µg/ L.

- 3) The supplier exceeds the copper action level if the 90th percentile copper concentration is greater than 1.3 mg/ L.
- 4) The supplier must compute the 90th percentile lead and copper concentrations using the specified procedure:
 - A) Suppliers Not Having Sites with a Lead Service Line and Only Having Tier 3, 4, or 5 Sites Under Section 611.2356(a).
 - i) The supplier must list the results of all lead or copper samples it took during a tap sampling period in ascending order, ranging from the sample with the lowest concentration to the sample with the highest concentration. The supplier must assign each sampling result an ordinal number, ascending by single integers, assigning the number 1 for the sample with the lowest contaminant level. The number the supplier assigns to the sample with the highest contaminant level must equal the total number of samples the supplier took.
 - ii) To determine the 90th percentile sample, the supplier must multiply the total number of samples taken during the tap sampling period times 0.9.
 - iii) The contaminant concentration in the sample corresponding with the ordinal number subsection (c)(4)(A)(ii) yields is the 90th percentile concentration.
 - iv) For a supplier collecting five samples per tap sampling period, the 90th percentile concentration is the average of the highest and second highest concentrations.
 - v) For a supplier the Agency allows to collect fewer than five samples under Section 611.2356(c) or failing to collect five samples, the result for the sample with the highest concentration is the 90th percentile concentration.
 - B) Suppliers Having Enough Sites with a Lead Service Line Identified as Tier 1 or 2 Under Section 611.2356(a) to Meet the Minimum Number of Sites Section 611.2356(c) Requires
 - i) The supplier must arrange the results of all lead or copper samples it took at Tier 1 or Tier 2 sites during a tap sampling period in ascending order from the sample with the lowest concentration to the sample with the highest

concentration. The supplier must not include sample results from Tier 3, 4, or 5 sites in this calculation. The supplier must assign each sampling result a number, beginning with the number 1 for the sample with the lowest contaminant concentration and ascending by single integers through increasing concentrations. The number assigned to the sample with the highest contaminant concentration must equal the total number of samples the supplier took.

- ii) The supplier must multiply the number of Tier 1 or Tier 2 sites during the tap sampling period times 0.9.
- iii) The 90th percentile concentration is the contaminant concentration in the numbered sample corresponding with the number the calculation under subsection (c)(4)(B)(ii) yields.
- iv) For a supplier serving fewer than 100 people that collects five samples per tap sampling period, the 90th percentile concentration is the average of the highest and second highest concentration.
- v) For a supplier the Agency allows to collect fewer than five samples under Section 611.2356(c) or failing to collect five samples, the highest sample concentration is the 90th percentile concentration.

C) Suppliers Having Sites with a Lead Service Line Identified as Tier 1 or 2 Under Section 611.2356(a) but Fewer Than the Minimum Number of Sites Section 611.2356(c) Requires

- i) The supplier must combine the results of all lead or copper samples it took at Tier 1 or Tier 2 sites with a sufficient number of the highest results from Tier 3, 4, or 5 sites to complete the minimum number of sites. The supplier must arrange the combined results in ascending order from the sample with the lowest concentration to the sample with the highest concentration. The supplier must not include sample results from any remaining Tier 3, 4, and 5 sites in this calculation. The supplier must assign each sampling result a number, beginning with the number 1 for the sample with the lowest contaminant concentration and ascending by single integers through increasing concentrations. The number the supplier assigns to the sample with the highest contaminant concentration must

equal the total minimum number of sites listed in Section 611.2356(c).

- ii) The supplier must multiply the number of Tier 1 or Tier 2 sites during the tap sampling period times 0.9.
- iii) The 90th percentile concentration is the contaminant concentration in the numbered sample corresponding with the number the calculation under subsection (c)(4)(C)(ii) yields.
- iv) For a supplier serving fewer than 100 people that collects five samples per tap sampling period, the 90th percentile concentration is the average of the highest and second highest concentration.
- v) For a supplier the Agency allows to collect fewer than five samples under Section 611.2356(c) or failing to collect five samples, the highest sample concentration is the 90th percentile concentration.

d) Corrosion Control Requirements

- 1) Every supplier must install and operate corrosion control treatment under Sections 611.2351 and 611.2352 meeting the definition of optimal corrosion control treatment.
- 2) Any supplier complying with the applicable corrosion control treatment requirements the Agency specifies under Sections 611.2351 and 611.2352 is deemed as complying with subsection (d)(1).
- 3) A small CWS or NTNCWS supplier complying with the applicable small supplier compliance flexibility requirements the Agency specifies under Sections 611.2351(a)(3) and 611.2363 complies with the treatment requirement in subsection (d)(1).
- 4) A supplier must notify the Agency in writing under Section 611.2360(a)(3) of any upcoming long-term change in water treatment or plan to add a new source as Section 611.2360(a)(3) describes. The supplier must not implement a long-term change in water treatment or add a new source until after the Agency reviews and approves the action in a SEP. The SEP may require the supplier to conduct additional monitoring or take other action the Agency deems appropriate to ensure that the supplier maintains minimal levels of corrosion control in its distribution system.

e) Source Water Requirements

- 1) Any supplier exceeding the lead or copper action level must implement all applicable source water treatment requirements the Agency specifies under Section 611.2353.
- 2) A supplier planning changes in its source water or making long-term treatment changes must describe the change to the Agency in writing under Sections 611.2351(a)(3), 611.2356(d)(2)(D), and 611.2360(a)(3). The supplier must not implement the change until the Agency reviews and approves the change in a SEP.

f) Lead Service Line Replacement and Inventory. A supplier must conduct lead service line replacements as this subsection (f) requires.

- 1) Any supplier whose system exceeds the lead action level subsection (c) specifies must complete mandatory lead service line replacement. The supplier must conduct lead service line replacement under Section 611.2354(g) and must include public education under Section 611.2355(a) and (b).
- 2) A supplier exceeding the lead trigger level subsection (c) specifies must complete goal-based lead service line replacement under Section 611.2354(f) and public education under Section 611.2355(g) and (h).
- 3) All suppliers must prepare an inventory of service lines connected to their distribution systems, whether or not the supplier owns or controls the service lines, to identify lead service lines and lead status unknown service lines. The supplier must prepare the inventory under Section 611.2354(a).

g) Public Education and Notification Requirements. Under Section 611.2355(d), the supplier must provide notification of the lead tap water monitoring results to the persons served at each tested site (tap). A CWS supplier must conduct annual outreach to the Illinois Department of Public Health and local health agencies under Section 611.2355(i). The supplier must complete additional actions:

- 1) Any supplier exceeding the lead action level must implement the public education requirements under [Sections 611.2355\(a\) and \(b\)](#)~~Section 611.2355~~.
- 2) Any supplier exceeding the lead trigger level subsection (c) specifies must notify all customers with a lead service line under Section 611.2355(g).

- 3) Any supplier exceeding the lead action level subsection (c) specifies must notify the public under Subpart V.
- 4) Any supplier with lead service lines, galvanized service lines needing replacement, or lead status unknown service lines in its inventory, as Section 611.2354(a) specifies, must notify all consumers with a lead service line, galvanized service line needing replacement, or a lead status unknown service line under Section 611.2355(e).
- 5) Any supplier failing to reach its lead service line replacement rate goal, as required under Section 611.2354(f) must conduct outreach activities in accordance with Section 611.2355(h).
- h) **Monitoring and Analytical Requirements.** A supplier must complete all tap water monitoring for lead and copper, monitoring for water quality parameters, and source water monitoring for lead and copper and analyze the monitoring results under this Subpart AH as Sections 611.2356, 611.2357, 611.2358, and 611.2359 require.
- i) **Reporting Requirements.** A supplier must report any information the treatment provisions of this Subpart AH and Section 611.2360 require to the Agency.
- j) **Recordkeeping Requirements.** A supplier must maintain records as Section 611.2361 requires.
- k) **Violating National Primary Drinking Water Regulations.** Failing to comply with this Subpart AH, including conditions the Agency imposes in a SEP, violates the lead and copper NPDWR.
- l) **Testing in Schools and Childcare Facilities.** A supplier must collect samples from all schools and childcare facilities within its distribution system under Section 611.2362.

BOARD NOTE: This Section derives from 40 CFR 141.80.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 611.2351 Applicability of Corrosion Control

- a) **Corrosion Control Treatment.** This Section provides when a supplier must complete the corrosion control treatment steps in subsection (d) or (e) to optimize or re-optimize corrosion control treatment based on size, whether the supplier has corrosion control treatment, and whether the supplier exceeded the lead trigger level, lead action level, or copper action level.

1) Large Suppliers

- A) A large supplier applying corrosion control treatment that exceeds either the lead trigger level or copper action level must complete the corrosion control treatment steps subsection (d) specifies.
- B) A large supplier without corrosion control treatment with 90th percentile concentration results under Section 611.2350(c)(4) that exceeds either the lead practical quantitation limit of 0.005 mg/ L or the copper action level must complete the corrosion control treatment steps subsection (e) specifies.
- C) The Agency may issue a SEP requiring a large supplier applying corrosion control treatment with 90th percentile concentration results under Section 611.2350(c)(4) exceeding the lead practical quantitation limit but not exceeding the lead trigger level or the copper action level to complete the corrosion control treatment steps in subsection (d).

2) Mid-Sized Suppliers (serving >10,000 and ≤50,000 people)

- A) A mid-sized supplier applying corrosion control treatment that exceeds either the lead trigger level or the copper action level must complete the corrosion control treatment steps subsection (d) specifies.
- B) A mid-sized supplier without corrosion control treatment that exceeds either the lead or copper action level must complete the corrosion control treatment steps subsection (e) specifies.
- C) A mid-sized supplier without corrosion control treatment that exceeds the lead trigger level but does not exceed the lead or copper action level must complete the treatment recommendation step subsection (e)(1) specifies (Step 1). The water system must complete the remaining steps subsection (e) specifies if the supplier subsequently exceeds either the lead or copper action level.

3) Small CWS and Non-Transient, Non-Community Water System Suppliers

- A) A small CWS or NTNCWS supplier applying corrosion control treatment that exceeds the lead trigger level or the lead action level but does not exceed the copper action level must complete the corrosion control treatment steps subsection (d) specifies if the

Agency issues a SEP approving corrosion control treatment as a compliance option under Section 611.2363(a).

- B) A small CWS or NTNCWS supplier applying corrosion control treatment that exceeds the copper action level must complete the corrosion control treatment steps subsection (d) specifies.
 - C) A small CWS or NTNCWS supplier without corrosion control treatment that exceeds the lead action level must complete the corrosion control treatment steps subsection (e) specifies if the Agency issues a SEP approving corrosion control treatment as a compliance option under Section 611.2363.
 - D) A small CWS or NTNCWS supplier without corrosion control treatment that exceeds the copper action level must complete the corrosion control treatment steps subsection (e) specifies.
- b) Suppliers Deemed to Have Optimized Corrosion Control. Subsection (b)(1), (b)(2), or (b)(3) deems a supplier to have OCCT or re-optimized OCCT if the supplier satisfies one of the criteria specified in the subsection. Any system subsection (b)(1), (b)(2), or (b)(3) deems to have OCCT having corrosion control treatment in place must continue operating and maintaining that treatment and meeting any additional requirements the Agency determines are appropriate to ensure that the supplier maintains OCCT.
- 1) Small and Mid-Sized Suppliers Not Applying Corrosion Control Treatment. A small or mid-sized supplier without corrosion control treatment is deemed to have OCCT if it does not exceed the lead or copper action level during two consecutive six-month tap monitoring periods and remains at or below the lead trigger level and copper action level in all subsequent tap monitoring periods under Section 611.2356.
 - 2) Small and Mid-Sized Suppliers Applying Corrosion Control Treatment and Not Exceeding Levels. A small or mid-sized supplier applying corrosion control treatment is deemed to have OCCT if it does not exceed the lead or copper action level during two consecutive six-month tap monitoring periods under Section 611.2356 and remains at or below the lead trigger level and copper action level in all subsequent tap monitoring periods under Section 611.2356. If a small or mid-sized supplier applying corrosion control treatment exceeds the lead trigger level but does not exceed the lead or copper action level during two consecutive six-month tap monitoring periods and remains at or below the lead and copper action levels in all subsequent tap monitoring periods the supplier conducts under Section 611.2356, that supplier is deemed to have re-optimized OCCT by complying with this Section. If the Agency issued a SEP setting optimal

water quality parameters (OWQPs) under subsection (d) or (e), a supplier is not eligible to be deemed as having optimized or re-optimized OCCT under subsection (b).

- 3) Results Less Than or Equal to the Practical Quantitation Level (PQL) for Lead. Monitoring results deem a supplier to have optimized or re-optimized OCCT if the supplier submits results of tap water monitoring under Section 611.356 demonstrating that the 90th percentile lead concentration is less than or equal to the lead PQL of 0.005 mg/ L and does not exceed the copper action level for two consecutive six-month tap monitoring periods, and the Agency did not issue a SEP setting OWQPs under subsection (d) or (e). Any water system this subsection (b)(3) deems to have optimized corrosion control must continue tap water monitoring for lead and copper no less frequently than once every three calendar years using the reduced number of sites Section 611.2356(c) specifies and collecting the samples at times and locations Section 611.2356(d)(4)(E) specifies. If 90th percentile tap sample results exceeds the lead practical quantitation level (0.005 mg/L) or copper action level during any tap sampling period, the supplier is no longer eligible to be deemed to have optimized OCCT under this subsection without first completing the treatment steps specified in subsection (d) and (e).

c) Completing Corrosion Control Steps for Small and Mid-Sized Suppliers Not Applying Corrosion Control Treatment

- 1) Any small or mid-sized supplier without corrosion control treatment, otherwise required to complete the corrosion control steps in subsection (e) because it exceeded the lead or copper action level, may cease completing the steps after not exceeding either the lead or copper action levels during each of two consecutive six-month tap monitoring periods under Section 611.2363 before beginning Step 3 under subsection (e)(3) or Step 5 under subsection (e)(5). The supplier needs not begin the applicable of Step 3 or Step 5, except that a mid-sized supplier with lead service lines or a small supplier with lead service lines choosing the corrosion control option under Section 611.2363 must complete a corrosion control treatment study under subsection (e)(3)(A). A supplier initiating Step 5 may not cease the steps and must complete all remaining steps in subsections (e)(6) through (e)(8).
- 2) A supplier ceasing the steps prior to either Step 3 or Step 5 and later exceeding the lead or copper action level may not cease the steps a second time and must complete the applicable treatment steps beginning with the first treatment step that the supplier previously did not complete in its entirety.

- 3) The Agency may issue a SEP requiring a supplier to repeat treatment steps the supplier previously completed if the Agency determines that this is necessary to properly implement the treatment requirements of this Section. The Agency must explain the basis for its decision in any SEP.
 - 4) A small or mid-sized supplier exceeding the lead or copper action level must implement corrosion control treatment steps under subsection (e) (including a supplier deemed to have optimized corrosion control under subsection (b)(1))
- d) Treatment Steps and Deadlines for Suppliers Re-Optimizing OCCT. Except as subsection (b)(2) or Section 611.2363 provides otherwise, a supplier with corrosion control treatment must complete certain corrosion control treatment steps (the referenced portions of Sections 611.2352, 611.2356, and 611.2357 the steps describe) before the indicated times:
- 1) Step 1
 - A) A supplier other than one to which subsection (d)(1)(B) applies must recommend re-optimized OCCT (Section 611.2352(c)) within six months after the end of the tap sampling period during which the supplier exceeds either the lead trigger level or copper action level. The Agency may issue a SEP allowing a supplier to modify its existing corrosion control treatment without a study for a supplier exceeding the lead trigger level but not the lead or copper action level. The Agency must specify re-optimized OCCT within six months after receiving the supplier's treatment recommendation. The supplier must modify its corrosion control treatment to install re-optimized OCCT within six months after the Agency specifies re-optimized OCCT.
 - B) A supplier having lead service lines that exceeds the lead action level must harvest lead pipes from its distribution system, construct flow-through pipe loops, and operate the loops with finished water within one year after the end of the tap sampling period during which the supplier exceeds the lead action level. The supplier must proceed to Step 3 under subsection (d)(3) and conduct the corrosion control studies for re-optimizing OCCT under subsection (d)(3)(A) using the pipe loops.
 - 2) Step 2
 - A) A large supplier must conduct the corrosion control studies for re-optimizing OCCT under subsection (d)(3) (Step 3) unless the system is at or below the lead action level and the Agency issues a

SEP modifying the existing corrosion control treatment the Agency specified under subsection (d)(1)(A) (Step 1).

- B) Within 12 months after the end of the tap sampling period during which a small or mid-sized supplier applying corrosion control treatment exceeds the lead trigger level or copper action level, the Agency may issue a SEP requiring the supplier to perform corrosion control studies for re-optimizing OCCT (Section 611.2352(c)(1) or (c)(2)). If the Agency does not require the supplier to perform corrosion control studies, the Agency must issue a SEP specifying re-optimized OCCT (Section 611.2352(d)(2)) within the timeframes in subsections (d)(2)(B)(i) and (d)(2)(B)(ii).
 - i) A mid-sized supplier must perform corrosion control studies for re-optimizing OCCT within 12 months after the end of the tap sampling period during which the supplier exceeded the lead trigger level or copper action level.
 - ii) A small supplier must perform corrosion control studies for re-optimizing OCCT within 18 months after the end of the tap sampling period during which the supplier exceeded the lead trigger level or copper action level.

3) Step 3

- A) A supplier having lead service lines that exceeds the lead action level must complete the corrosion control treatment studies for re-optimizing OCCT within 30 months after the end of the tap sampling period during which the supplier exceeded the lead action level.
- B) If subsection (d)(2) (Step 2) requires the supplier to perform corrosion control studies, the supplier must complete the studies (Section 611.2352(c)(2)) within 18 months after the Agency issues a SEP requiring the supplier to conduct the studies.

4) Step 4

- A) The Agency must issue a SEP designating re-optimized OCCT (subsection ~~611.2352(d)(2)(d)(3)(A)~~) within six months after the supplier completes subsection ~~611.2352(d)(2)(d)(3)(A)~~ (Step 3).
- B) If the supplier performed corrosion control studies under subsection (d)(2) (Step 2), the Agency must issue a SEP

designating re-optimized OCCT (Section 611.2352(d)(2) or (d)(4)) within six months after the supplier completes subsection (d)(3)(B) (Step 3).

5) Step 5

A) A large supplier must complete modifying its corrosion control treatment to have installed re-optimized OCCT within 12 months after the supplier completes subsection (d)(4)(A) (Step 4).

B) A small or mid-sized supplier must install re-optimized OCCT (Section 611.2352(e)(1)) within 12 months after the supplier completes subsection (d)(4)(B) (Step 4).

6) Step 6 A supplier must complete follow-up sampling (Sections 611.2356(d)(2) and 611.2357(c)) within 12 months after the supplier completes subsection (d)(5)(A) or (d)(5)(B) (Step 5).

7) Step 7 The Agency must review the supplier's installed treatment and designate optimal water quality control parameters (Section 611.2352(f)(1)) within six months after completing subsection (d)(6) (Step 6).

8) Step 8 The supplier must operate complying with the Agency-designated optimal water quality control parameters (Section 611.2352(g)) and continue conducting tap sampling (Section 611.2356(d)(3) and monitoring water quality parameters under Section 611.2357(d)).

e) Treatment Steps and Deadlines for Suppliers Not Applying Corrosion Control Treatment. Except as subsection (b) or Section 611.2363 provides otherwise, a supplier without corrosion control treatment must complete certain corrosion control treatment steps (described in the referenced portions of Sections 611.2352, 611.2356, and 611.2357) before the indicated times.

1) Step 1

A) A supplier other than one to which subsection (e)(1)(B) or (e)(1)(C) applies must recommend OCCT (Section 611.2352(a)(1), (a)(2), (a)(3), or (a)(4)) within six months after the end of the tap sampling period during which the supplier exceeds either the lead trigger level or copper action level.

B) A supplier having lead service lines and exceeding the lead action level must harvest lead pipes from its distribution system, construct flowthrough pipe loops, and operate the loops with finished water

within one year after the end of the tap sampling period during which the supplier exceeds the lead action level. The supplier must proceed to Step 3 in subsection (e)(3) and conduct the corrosion control studies under subsection (e)(3) using the pipe loops, for optimizing OCCT under subsection (e)(3)(A).

- C) A large supplier subsection (a)(1)(B) directs to perform corrosion control treatment under this subsection (e) must conduct the corrosion control studies for optimizing OCCT under subsection (e)(3) (Step 3).

- 2) Step 2. Within 12 months after the end of the tap sampling period during which a supplier exceeds the lead or copper action level, if not otherwise required by this rule, the Agency may issue a SEP requiring the supplier to perform corrosion control studies (Section 611.2352(b)(1)). If the Agency does not require the supplier to perform corrosion control studies, the Agency must issue a SEP specifying OCCT (under Section 611.2352(d)(1)) within the applicable timeframe in subsections (e)(2)(A) and (e)(2)(B).

- A) For a mid-sized supplier, within 18 months after the end of the tap monitoring period during which the supplier exceeded the lead trigger level or copper action level; or
- B) For a small supplier, within 24 months after the end of the tap monitoring period during which the supplier exceeded the lead trigger level or copper action level.

- 3) Step 3

- A) A large supplier having or not having lead service lines that exceeds the lead action level or a small or mid-sized supplier having lead service lines that exceeds the lead action level must complete the corrosion control treatment studies for optimizing OCCT within 30 months after the end of the tap sampling period during which the supplier exceeds the lead action level.
- B) If the Agency requires a supplier to perform corrosion control studies under subsection (e)(2) (Step 2), the supplier must complete the studies (Section 611.2352(c)(1)) within 18 months after the Agency issues a SEP requiring the supplier to conduct the studies.

- 4) Step 4

- A) The Agency must issue a SEP designating re-optimized OCCT (Section 611.22352(d)(3)) within six months after the supplier completes subsection (d)(3)(A) (Step 3).
 - B) If the supplier has performed corrosion control studies under subsection (e)(2) (Step 2), the Agency must issue a SEP designating OCCT (Section 611.2352(d)(1)) within six months after subsection (e)(3) (Step 3) is complete.
 - 5) Step 5 The supplier must install OCCT (Section ~~611.2352(e)(1)~~611.2352(e)) within 24 months after the Agency designates OCCT under subsection (e)(2) or (e)(4) (Step 2 or Step 4).
 - 6) Step 6 The supplier must complete follow-up sampling under Sections 611.2356(d)(2)(A) and 611.2357(c) within 12 months after completing subsection (e)(5) (Step 5).
 - 7) Step 7 The Agency must review the supplier's installation of treatment and issue a SEP approving optimal water quality control parameters (Section 611.2352(f)(1)) within six months after the supplier completes subsection (e)(5) (Step 5).
 - 8) Step 8 The supplier must comply with the Agency-approved optimal water quality control parameters (Section 611.2352(g)(1)) and continue tap sampling (Section 611.2356(d)(3)) and monitoring water quality parameters (Section 611.2357(d)).
- f) Treatment Steps and Deadlines for Small CWS and NTNCWS Suppliers Electing Corrosion Control Treatment (CCT) As a Compliance Option under Section 611.2363 or As the Agency Requires. A small CWS or NTNCWS supplier selecting the corrosion control treatment option as small supplier compliance flexibility under Section 611.2363(a)(2) must complete two steps by the indicated times:
- 1) Step 1. A supplier must recommend the corrosion control treatment option as small supplier compliance flexibility under Section 611.2363(a)(2) within six months after the end of the tap sampling period during which the supplier exceeds either the lead trigger level or the lead action level. When recommending to the Agency, the supplier must comply with Section 611.2352(a)(1).
 - 2) Step 2. The Agency must issue a SEP approving the recommendation of corrosion control treatment option as small supplier compliance flexibility or designating an alternative option under Section 611.2363(a) within six months after the supplier recommends the option under subsection (f)(1)

(Step 1). A supplier the Agency requires to optimize or re-optimize OCCT must follow the schedules in subsection (d) or (e), beginning with Step 3 in subsection (d)(3) or (e)(3), unless the Agency specifies OCCT under the applicable of subsection (d)(2)(B) or (e)(2)(B).

BOARD NOTE: This Section derives from 40 CFR 141.81.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 611.2352 Corrosion Control Treatment

Designating Optimal Corrosion Control Treatment for Systems Optimizing or Re-Optimizing Corrosion Control Treatment. A supplier must complete the corrosion control treatment requirements in this Section as they apply to the supplier under Section 611.2351.

- a) System Recommendation Regarding Corrosion Control Treatment for Suppliers Not Having Lead Service Lines and Suppliers Having Lead Service Lines but Not Exceeding the Lead Action Level
 - 1) A supplier without corrosion control that must recommend under Section 611.2351(e) one or more of the corrosion control treatments in subsection (c)(1)(A) for the Agency to designate must base its recommendation on the results of lead and copper tap monitoring and water quality parameter monitoring.
 - A) A small CWS supplier or NTNCWS supplier exceeding the copper action level and recommending corrosion control treatment to the Agency under Section 611.2363(a) must comply with this subsection (a)(1).
 - B) The Agency may issue a SEP requiring the supplier to conduct additional water quality parameter monitoring to assist the Agency in reviewing the supplier's recommendation.
 - 2) A small CWS supplier or NTNCWS supplier subject to this subsection (a) not applying corrosion control treatment that chooses to pursue a small water system compliance flexibility option and is required to recommend an option in compliance with Section 611.2351(f) must, based on the results of lead tap sampling and water quality parameter monitoring, recommend designation of one of the options listed in Section 611.2363. A supplier not having lead service lines, exceeding the lead action level, and selecting corrosion control under Section 611.2363(a)(2) must recommend that the Agency designate one or more of the corrosion control treatments in subsection (c)(1) as OCCT for that system.

- 3) A supplier exceeding the lead action level and selecting corrosion control treatment under Section 611.2363(a)(2) must recommend that the Agency designate one or more of the corrosion control treatments in subsection (c)(1)(A) as the OCCT for its system. A small or mid-sized supplier exceeding the lead trigger level but not exceeding the lead or copper action level does not need to perform a corrosion control study under subsection (c) unless the Agency issues a SEP requiring the supplier to do so.
 - 4) A small CWS or NTNCWS supplier applying corrosion control treatment exceeding the lead action level and selecting corrosion control under Section 611.2363(a)(2) must recommend designation of one or more of the corrosion control treatments in subsection (c)(2) as OCCT for its system.
 - 5) The Agency may issue a SEP waiving subsection (a)(4)'s OCCT-recommendation requirement for a supplier if the SEP requires the supplier to complete a corrosion control study within three months after the end of the tap sampling period during which the supplier exceeded the lead action level. In that case, the supplier must proceed directly to subsection (c) and complete a corrosion control study.
- b) Agency-Required Studies to Identify Initial Optimal Corrosion Control Treatment and Re-Optimized OCCT Except for Large Suppliers and Small and Mid-Sized Suppliers Having Lead Service Lines and Exceeding the Lead Action Level. Certain suppliers must conduct corrosion control treatment studies: large suppliers exceeding the lead action level, large suppliers not applying corrosion control treatment whose 90th percentile concentration results exceed either the lead practical quantitation limit of 0.005 mg/ L or the copper action level, mid-sized water system suppliers having lead service lines and exceeding the lead action level, and small suppliers having lead service lines and exceeding the lead action level and selecting the corrosion control treatment option under Section 611.2363(a).
- 1) The Agency may issue a SEP requiring a small or mid-sized supplier without corrosion control treatment exceeding the lead or copper action level to perform corrosion control treatment studies under subsection (c)(1) to identify OCCT for the supplier's system.
 - 2) The Agency may issue a SEP requiring a small or mid-sized supplier without corrosion control treatment and exceeding the lead trigger level but not the lead or copper action level to perform corrosion control treatment studies under subsection (c)(1) to identify OCCT for its system. The supplier must install this corrosion control treatment if the supplier subsequently exceeds the lead or copper action level.

- 3) The Agency may issue a SEP requiring a small or mid-sized supplier applying corrosion control treatment exceeding either the lead trigger level or copper action level to perform corrosion control treatment studies under subsection (c)(2) to identify re-optimized OCCT for its system (i.e., after evaluating re-optimized OCCT).

c) Performing Corrosion Control Studies

- 1) A supplier without corrosion control treatment that is required to conduct corrosion control studies must complete certain actions:
 - A) A supplier without corrosion control treatment must evaluate the effectiveness of each of certain treatments and combinations of those treatments if appropriate to identify the OCCT for its system:
 - i) Adjusting alkalinity and pH;
 - ii) Adding an orthophosphate- or silicate-based corrosion inhibitor at a concentration sufficient to maintain an effective corrosion inhibitor residual concentration in all test samples.
 - iii) Adding an orthophosphate-based corrosion inhibitor at a concentration sufficient to maintain an orthophosphate residual concentration of 1 mg/ L (as PO₄) in all test samples; and
 - iv) Adding an orthophosphate-based corrosion inhibitor at a concentration sufficient to maintain an orthophosphate residual concentration of 3 mg/ L (as PO₄) in all test samples.
 - B) The supplier must evaluate each of the corrosion control treatments using pipe rig/loop tests; metal coupon tests; partial-system tests; or analyses based on documented analogous treatments in other systems of similar size, water chemistry, and distribution system configuration. A large or mid-sized supplier or a small CWS or NTNCWS supplier selecting the corrosion control treatment option under Section 611.2363 having lead service lines and exceeding the lead action level must conduct pipe rig/loop studies using harvested lead service lines from its distribution system to assess the effectiveness of corrosion control treatment options on the existing pipe scale. The supplier may use metal coupon tests as a

screen to reduce the number of options the supplier evaluates using pipe rig/loop tests to the current conditions and two options.

- C) The supplier must measure specific water quality parameters in any tests the supplier conducts under this subsection (c)(1)(C) before and after evaluating the corrosion control treatments in subsections (c)(1)(A) and (c)(1)(B):
 - i) Lead;
 - ii) Copper;
 - iii) pH;
 - iv) Alkalinity;
 - v) Orthophosphate as PO_4 (when the supplier uses an orthophosphate-based inhibitor); and
 - vi) Silicate (when the supplier uses an inhibitor containing a silicate compound).
- D) The supplier must identify all chemical or physical constraints that limit or prohibit using any particular corrosion control treatment and document those constraints:
 - i) With data and documents showing that a particular corrosion control treatment adversely affected other drinking water treatment processes when that treatment was used by another supplier with water having comparable water quality characteristics. Systems using coupon studies to screen or pipe loop/rig studies to evaluate treatment options must not exclude treatment strategies from the studies based on the constraints identified in this section.
 - ii) With data and documents demonstrating that the supplier previously evaluated a particular corrosion control treatment, finding either that the treatment is ineffective or adversely affects other drinking water quality treatment processes. Systems using coupon studies to screen or pipe loop/rig studies to evaluate treatment options must not exclude treatment strategies from the studies based on the constraints identified in this section unless the treatment was found to be ineffective in a previous pipe loop/rig study.

- E) The supplier must evaluate the effect of the evaluated corrosion control treatment chemicals on other water quality treatment processes. A supplier using coupon studies to screen or pipe loop/rig studies to evaluate treatment options must not exclude treatment strategies from the studies based on the effects the supplier identifies under this Section.
 - F) Based on an analysis of the data the supplier generated during each evaluation, the supplier must recommend in writing to the Agency the treatment option the corrosion control studies indicate constitutes OCCT for the supplier's system. The supplier must give a rationale for its recommendation together with all supporting documentation subsections (c)(2)(A) through (c)(2)(E) specify.
- 2) A supplier applying corrosion control treatment that must conduct corrosion control studies to determine re-optimized OCCT must complete specific tasks:
- A) The supplier must evaluate the efficacy of certain treatments and appropriate combinations of those treatments to identify the re-optimized OCCT for its system:
 - i) Alkalinity or pH adjustment or re-adjustment;
 - ii) Adding an orthophosphate- or silicate-based corrosion inhibitor at a concentration sufficient to maintain an effective corrosion inhibitor residual concentration in all test samples if the supplier does not already use the inhibitor;
 - iii) Adding an orthophosphate-based corrosion inhibitor at a concentration sufficient to maintain an orthophosphate residual concentration of 1 mg/ L (PO₄) in all test samples unless the current inhibitor process already meets this residual; and
 - iv) Adding an orthophosphate-based corrosion inhibitor at a concentration sufficient to maintain an orthophosphate residual concentration of 3 mg/ L (PO₄) in all test samples unless the current inhibitor process already meets this residual.

- B) The supplier must evaluate each of the corrosion control treatments using pipe rig/loop tests, metal coupon tests, partial-system tests, or analyses based on documented analogous treatments with other systems of similar size, water chemistry, and distribution system configurations. If the supplier's system has lead service lines and exceeds the lead action level, the supplier must conduct pipe rig/loop studies using harvested lead service lines from its distribution system to assess the efficacy of corrosion control treatment options on the existing pipe scale. The supplier can use metal coupon tests as a screen to reduce the number of options it evaluates using pipe rig/loops to the current conditions and two options.
- C) The supplier must measure specific water quality parameters in any tests conducted under this subsection (c)(2)(C) before and after evaluating the corrosion control treatments in subsections (c)(2)(A) and (c)(2)(B):
- i) Lead;
 - ii) Copper;
 - iii) pH;
 - iv) Alkalinity;
 - v) Orthophosphate as PO_4 (if the supplier uses an orthophosphate-based inhibitor); and
 - vi) Silicate (if the supplier uses a silicate-based inhibitor).
- D) The supplier must identify all chemical or physical constraints limiting or prohibiting using a particular corrosion control treatment and document those constraints with certain information:
- i) Data and documents showing that a particular corrosion control treatment adversely affected other drinking water treatment processes when another supplier with comparable water quality characteristics used the treatment. A supplier using coupon studies to screen or pipe loop/rig studies to evaluate treatment options must not exclude treatment strategies from the studies based on the constraints the supplier identifies under this Section; or

- ii) Data and documents demonstrating that the supplier previously evaluated a particular corrosion control treatment and found that the treatment is ineffective or adversely affects other drinking water quality treatment processes. A supplier using coupon studies to screen or pipe loop/rig studies to evaluate treatment options must not exclude treatment strategies from the studies based on the constraints the supplier identifies under this Section, unless the supplier found the treatment ineffective in a previous pipe loop/rig study.
 - E) The supplier must evaluate the effect of the chemicals it uses for corrosion control treatment on other drinking water quality treatment processes. A supplier using coupon studies to screen or pipe loop/rig studies to evaluate treatment options must not exclude treatment strategies from the studies based on the effects the supplier identifies under this Section.
 - F) Based on its analysis of the data the supplier generated during each evaluation, the supplier must recommend to the Agency in writing the treatment option that the corrosion control studies indicate constitutes OCCT for its system. The supplier must provide a rationale for its recommendation together with all supporting documentation subsections (c)(1)(A) through (c)(1)(E) specify.
- d) Agency Approval of Optimized and Re-Optimized Corrosion Control Treatment. When designating OCCT, the Agency must consider the effects of additional corrosion control treatment on water quality parameters and other water quality treatment processes. The Agency must notify the supplier of the basis for designating OCCT in any SEP it issues under this subsection (d). If the Agency requests additional information to aid its review, the supplier must provide the information.
- 1) Designating OCCT for a Supplier Without Corrosion Control Treatment. Considering available information, including applicable studies conducted under subsection (c)(1) or the supplier's recommended corrosion control treatment option, the Agency must issue a SEP designating from among the supplier-recommended corrosion control treatment option, alternative corrosion control treatments from among those in subsection (c)(1)(A), or an applicable alternative small supplier compliance flexibility option under Section 611.2363(a).
 - 2) Designation of Re-Optimized OCCT for Suppliers Applying Corrosion Control Treatment. Considering available information, including applicable studies under subsection (c)(2) or the supplier's recommended

corrosion control treatment option, the Agency must issue a SEP designating from among the supplier-recommended corrosion control treatment option, alternative corrosion control treatments from among those in subsection (c)(2)(A), or an applicable alternative small supplier compliance flexibility option under Section 611.2363(a).

- e) Installing OCCT and Re-Optimizing OCCT. A supplier must properly install and operate the OCCT throughout its distribution system that the Agency approved under subsection (d).
- f) Agency Review of Treatment and Specification of Optimal Water Quality Control Parameters for OCCT and Re-Optimized OCCT. The Agency must evaluate the results of all lead and copper tap sampling and water quality parameter sampling the supplier submits and determine whether the supplier properly installs and operates the OCCT the Agency approves under subsection (d)(1) or (d)(2).
 - 1) Upon reviewing the results of the supplier's tap water and water quality parameter monitoring, both before and after installing OCCT , the Agency must issue a SEP specifying operating parameters:
 - A) A minimum value or range of values for pH at each entry point to the distribution system.
 - B) A minimum pH value for all tap samples. This value must be equal to or greater than 7.0, unless the Agency determines that a pH 7.0 is not technologically feasible or is not necessary for the supplier to optimize corrosion control.
 - C) If the supplier uses a corrosion inhibitor, a minimum inhibitor concentration or range of concentrations for orthophosphate (as PO_4) or silicate measured at each entry point to the distribution system.
 - D) If the supplier uses a corrosion inhibitor, the supplier must maintain a minimum orthophosphate or silicate concentration measured in all tap samples that is necessary to form a passivating film on the interior walls of the pipes of the distribution system, as determined by the Agency in a SEP. If the supplier uses orthophosphate, the supplier must maintain an orthophosphate concentration equal to or greater than 0.5 mg/ L (as PO_4) for OCCT the Agency designates under subsection (d)(1) or 1.0 mg/ L for OCCT the Agency designates under subsection (d)(2), unless the Agency determines that meeting the applicable minimum orthophosphate residual is not technologically feasible or is not necessary for OCCT.

- E) If the supplier adjusts alkalinity as part of OCCT, a minimum concentration or a range of concentrations for alkalinity for each entry point to the distribution system and in all tap samples.
 - 2) The values for the applicable water quality control parameters in subsection (f)(1) must be those the Agency determines reflect OCCT for the supplier. The Agency may designate values for additional water quality control parameters determined by the Agency to reflect optimal corrosion control treatment for the supplier. The Agency must notify the supplier in writing of these determinations and explain the basis for its decisions.
 - 3) ~~The Agency must explain these determinations and give the basis for its decisions when issuing a SEP.~~
- g) Continued Operation and Monitoring for OCCT and Re-Optimized OCCT. All suppliers optimizing or re-optimizing corrosion control must continue to operate and maintain OCCT, including maintaining water quality parameter values at or above minimum values or within ranges the Agency approved under subsection (f), under this subsection (g) for all samples the supplier collects under Section 611.2357(d) through (f). This subsection (g) applies to all suppliers that Section 611.2357 does not require to monitor water quality parameters, including consecutive system suppliers distributing water that another supplier has treated applying corrosion control treatment and any suppliers applying corrosion control treatment, OCCT, or re-optimized OCCT. The supplier must determine whether it complies with this subsection (g) every six months, as Section 611.2357(d) specifies. A supplier does not comply with this subsection (g) in any six-month period during which the supplier has excursions from any Agency-specified water quality parameter on more than nine cumulative days during the six-month period. An excursion occurs whenever the daily value for one or more of the water quality parameters measured at a sampling location is below the Agency-designated minimum value or outside the Agency-designated range. The supplier calculates daily values as subsections (g)(1) through (g)(3) provide. The Agency may exclude results from this calculation that it determines are obvious sampling errors. The supplier must record sampling errors even when not included in calculations.
- 1) On days when the supplier collects more than one measurement for a water quality parameter at a sampling location, the daily value is the average of all results the supplier collected during the day, regardless of whether the supplier collected the samples through continuous monitoring, grab sampling, or a combination of both.

BOARD NOTE: Corresponding 40 CFR 141.82(g)(1) further provides as follows: If USEPA approves an alternative formula under 40 CFR 142.16(d)(1)(ii) in the State's application for a program revision submitted under 40 CFR 142.12, the approved formula is used to aggregate multiple measurements at a sampling point for the water quality parameters in lieu of the formula in this subsection (g)(1).

- 2) On days when the supplier collects only one measurement for a water quality parameter at a sampling location, the daily value is that measurement.
 - 3) On days when the supplier collects no measurement for a water quality parameter at a sampling location, the daily value is the daily value calculated on the most recent day on which the supplier measured the water quality parameter at the sampling location.
- h) Modifying Agency Treatment Decisions for OCCT and re-optimized OCCT
- 1) On its own initiative or in response to a request by the supplier, the Agency may issue a SEP modifying its determination of the OCCT under subsection (d) or of the optimal water quality control parameters under subsection (f).
 - 2) A supplier must request modification in writing, explaining the propriety of the modification and providing supporting documentation.
 - 3) The Agency may modify its determination if it determines that a change will ensure that the supplier continues optimizing corrosion control treatment. A revised determination must give the new treatment requirements or water quality parameters, explain the basis for the Agency's decision, and provide an implementation schedule for completing the treatment modifications for re-optimized OCCT.
 - 4) Any interested person may submit information to the Agency bearing on whether the Agency should exercise its discretion and issue a SEP modifying its determination under subsection (h)(1). An Agency determination not to act on information an interested person submits is not an Agency determination for the purposes of Sections 39 and 40 of the Act.
- i) USEPA Treatment Decisions on OCCT and re-optimized OCCT. Under 40 CFR 142.19, USEPA reserves the prerogative to review Agency OCCT treatment determinations under subsections (d)(1) or (d)(2), (f), or (h) and issue federal treatment determinations consistent with Section 611.2352(d)(1) or (d)(2), (f), or (h) if USEPA finds that certain conditions exist:

- 1) The Agency fails to issue a treatment determination by the applicable deadlines in Section 611.2351 (corresponding with Section 611.2351);
 - 2) The Agency abuses its discretion in a substantial number of instances or in instances affecting a substantial population; or
 - 3) The technical aspects of the Agency's determination would be indefensible in a federal enforcement action taken against the supplier.
- j) Find-and-fix Assessment for Tap Sample Sites Exceeding the Lead Action Level. The supplier must conduct specific steps when a tap sampling site exceeds the lead action level in monitoring under Section 611.2356.
- 1) Step 1: Corrosion Control Treatment Assessment. The supplier must sample at a new water quality parameter sampling site that is on the same-sized water main, in the same pressure zone, and located within a half mile of the sampling site that exceeded the action lead level within five days after receiving the sample results. A small supplier without corrosion control treatment may take up to 14 days to collect the samples. The supplier must measure certain parameters:
 - A) pH;
 - B) Alkalinity;
 - C) Orthophosphate (as PO₄), if the supplier uses an inhibitor containing an orthophosphate compound;
 - D) Silica, if the supplier uses an inhibitor containing a silicate compound; and
 - E) A supplier having an existing water quality parameter sampling site complying with this Section may sample from that site.
 - F) A supplier that must meet optimal water quality control parameters but not having an existing water quality parameter sampling site complying with this Section must add new sampling sites to the minimum number of sites Section 611.2357(g) requires. The supplier must add sites until it has twice the minimum number of sites Section 611.2357(a)(2)(A) requires. If a supplier exceeds this upper threshold for the number of sites, the Agency may issue a SEP determining that a newer site can better assess the efficacy of the corrosion control treatment and remove existing sites during sanitary survey evaluating OCCT.

- 2) Step 2: Site Assessment. A supplier must collect a follow-up sample at any tap sampling site exceeding the lead action level within 30 days after receiving the sample results. The supplier may use different sample volumes or different sample collection procedures collecting these follow-up samples to assess the source of elevated lead levels. The supplier must submit samples it collects under this Section to the Agency but must not include them in calculating the 90th percentile concentration under Section 611.2356. If the supplier cannot collect a follow-up sample at a site, the supplier must document to the Agency why it was unable to collect a follow-up sample.
- 3) Step 3: Evaluating Results and Recommending OCCT or Other Actions. Within six months after the end of the tap sampling period during which a supplier exceeds the lead action level, the supplier must evaluate the results of the monitoring conducted under subsection (j)(3)~~subsections (j)(1) and (j)(2)~~ to determine if the supplier must either locally or centrally adjust the OCCT or other distribution system actions are necessary and submit the recommendation to the Agency. Modifying corrosion control treatment might not be necessary to address every exceedance. Other distribution system actions may include flushing to reduce water residence time in the system. If known from the site assessment, the supplier must note the cause of the elevated lead level in its recommendation to the Agency because site-specific issues can be an important factor in why the supplier does not recommend any adjustment of corrosion control treatment or other distribution system actions. A supplier in the process of optimizing or re-optimizing OCCT under subsections (a) through (f) needs not recommend a find-and-fix treatment to the Agency.
- 4) Step 4: Agency Action. The Agency must issue a SEP approving the supplier's treatment recommendation or specify a different approach within six months after the supplier completes Step 3, as subsection (j)(3) describes.
- 5) Step 5: Implementing the Agency's SEP. If the Agency-issued SEP requires the water system to adjust the OCCT, the supplier must modify its corrosion control treatment within 12 months after completing Step 4, as subsection (j)(4) describes. A supplier without corrosion control treatment and needing to install OCCT must follow the schedule in Section 611.2351(e).
- 6) Step 6: Follow-up Sampling. A supplier adjusting its OCCT must complete follow-up sampling (Sections 611.2356(d)(2) and 611.2357(c)) within 12 months after completing Step 5, as subsection (j)(5) describes.

- 7) Step 7: Agency Review. For a supplier adjusting its OCCT, the Agency must review the supplier's modified corrosion control treatment, and the Agency must designate optimal water quality control parameters (Section 611.2352(f)(1)) within six months after the supplier completes Step 6, as subsection (j)(6) describes.
- 8) Step 8: Operating and Complying. A supplier adjusting its OCCT must comply with the Agency-designated optimal water quality control parameters (Section 611.2352(g)) and continue tap sampling (Sections 611.2356(d)(3) and 611.2357(d)).

BOARD NOTE: This Section derives from 40 CFR 141.82.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 611.2353 Source Water Treatment

A supplier must complete source water monitoring and treatment requirements (under subsection (b) and Sections 611.2356 and 611.2358) before specific deadlines.

- a) Deadlines for Completing Source Water Treatment Steps
 - 1) Step 1: A supplier exceeding the lead or copper action level must complete lead and copper source water monitoring (under Section 611.2358(b)) and recommend treatment to the Agency (under subsection (b)(1)) within 180 days after the end of the tap monitoring period during which the supplier exceeded the action level.
 - 2) Step 2: The Agency must issue a SEP determining source water treatment (under subsection (b)(2)) within six months after the supplier submits monitoring results under step 1.
 - 3) Step 3: If the Agency requires installing source water treatment, the supplier must install that treatment (under subsection (b)(3)) within 24 months after the Agency completes step 2.
 - 4) Step 4: The supplier must complete follow-up tap water monitoring (under Section 611.2356(d)(2)) and source water monitoring (under Section 611.2358(c)) within 36 months after completion of step 2.
 - 5) Step 5: The Agency must issue a SEP reviewing the supplier's installation and operation of source water treatment and specify MPCs for lead and copper (under subsection (b)(4)) within six months after the supplier completes step 4.

- 6) Step 6: The supplier must comply with the Agency-specified lead and copper MPCs (under subsection (b)(4)) and continue source water monitoring (under Section 611.2358(d)).

b) Source Water Treatment Requirements

- 1) System Treatment Recommendation. Any supplier exceeding the lead or copper action level must recommend to the Agency in writing one of the source water treatments in subsection (b)(2). A supplier may recommend installing no treatment based on a demonstration that source water treatment is not necessary to minimize lead and copper levels at users' taps.
- 2) Agency Determination Regarding Source Water Treatment
 - A) The Agency must evaluate the results of all source water samples the supplier submitted to determine whether source water treatment is necessary to minimize lead or copper levels in water the supplier delivers to users' taps.
 - B) If the Agency determines treatment is necessary, the Agency must issue a SEP requiring the supplier to install and operate either the source water treatment the supplier recommended (if any) or another from among specific source water treatment techniques:
 - i) ion exchange;
 - ii) reverse osmosis;
 - iii) lime softening; or
 - iv) coagulation/filtration.
 - C) The Agency may require the supplier to submit, on or before a certain date, any additional information as the Agency determines is necessary to aid its review.
 - D) The Agency must notify the supplier in writing of its determination, stating the basis for its decision.
- 3) Installing Source Water Treatment. A supplier must properly install and operate the source water treatment the Agency approves under subsection (b)(2).

- 4) Agency Reviewing Source Water Treatment and Specifying Maximum Permissible Source Water Levels (MPCs)
 - A) The Agency must review the source water samples the supplier took both before and after the supplier installs source water treatment and determine whether the supplier properly installs and operates the approved source water treatment.
 - B) Based on its review, the Agency must issue a SEP approving the lead and copper MPCs for finished water entering the supplier's distribution system. The MPC levels must reflect the contaminant removal capability of the treatment when properly operated and maintained.
 - C) The SEP issued under subsection (b)(4)(B) must include the Agency's explanation of the basis for its decision under subsection (b)(4)(B).
- 5) Continued Operation and Maintenance. A supplier must maintain lead and copper levels below the MPCs the Agency approved at every sampling point the supplier monitors under Section 611.2358. The supplier does not comply with this subsection (b) if the level of lead or copper at any sampling point is greater than the MPC the Agency approved under subsection (b)(4)(B).
- 6) Modifying Agency Treatment Decisions
 - A) On its own initiative, or in response to a request by the supplier, the Agency may issue a SEP modifying its determination of the source water treatment under subsection (b)(2) or the lead and copper MPCs under subsection (b)(4).
 - B) A supplier must make a request to modify in writing, explaining the propriety of the modification, and providing supporting documentation.
 - C) The Agency may issue a SEP modifying its determination if it concludes that the change is necessary to ensure that the supplier continues minimizing lead and copper concentrations in source water.
 - D) A revised determination under subsection (b)(6)(C) must state the new treatment requirements, explain the basis for the Agency's decision, and provide a schedule for completing the treatment modifications.

E) Any interested person may submit information to the Agency in writing bearing on whether the Agency should exercise its discretion and issue a SEP modifying its determination under subsection (b)(2). An Agency determination issued in a SEP not to act on information an interested person submits is appealable under SEP provisions and not as an Agency determination underfor the purposes of Sections 39 and 40 of the Act.

7) USEPA Treatment Decisions. Under 40 CFR 142.19, USEPA reserves the prerogative to review Agency treatment determinations under subsections (b)(2), (b)(4), or (b)(6) and issue federal treatment determinations consistent with 40 CFR 141.83(b)(2), (b)(4), and (b)(6) if USEPA finds that certain conditions exist:

- A) the Agency fails to issue a treatment determination by the applicable deadline in subsection (a);
- B) the Agency abuses its discretion in a substantial number of instances or in instances affecting a substantial population; or
- C) the technical aspects of the Agency's determination would be indefensible in a federal enforcement action taken against the supplier.

BOARD NOTE: This Section derives from 40 CFR 141.83.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 611.2354 Lead Service Line Inventory and Replacing Lead Service Lines

- a) Lead Service Line Inventory. A supplier must develop an inventory identifying the materials composition for all service lines connected to its distribution system. The inventory must meet specific requirements:
 - 1) The supplier must develop an initial inventory before October 16, 2024 and submit the inventory to the Agency as Section 611.2360(e) requires.
 - 2) The inventory must include all service lines connected to the supplier's distribution system regardless of ownership status (e.g., where the supplier shares service line ownership, the inventory would include both the supplier-owned and customer-owned portions of the service line).
 - 3) When conducting the inventory of service lines in its distribution system for the initial inventory under subsection (a)(1), the supplier must use any

information on lead and galvanized iron or steel system components the supplier identified complying with 40 CFR 141.42(d). The supplier must also review the sources of information in subsections (a)(3)(A) through (a)(3)(D) to identify service line materials for the initial inventory. The supplier may use other sources of information the Agency approves in a SEP.

- A) All construction and plumbing codes, permits, and existing records or other documents indicating the service line materials connecting structures to its distribution system.
 - B) All supplier records, including distribution system maps and drawings, historical records on each service connection, meter installation records, historical capital improvement or master plans, and standard operating procedures.
 - C) All inspections and distribution system records indicating the materials composing the service connections connecting structures to its distribution system.
 - D) Any resource, information, or method for identifying and assessing service line materials the Agency provides or requires in a SEP.
- 4) The supplier must categorize every service line and supplier-owned portion of a service line under split ownership:
- A) “Lead” for a lead service line.
 - B) “Galvanized Requiring Replacement” for a galvanized service line at any time downstream of a lead service line or currently downstream of a lead status unknown service line. If the supplier cannot demonstrate that a galvanized service line was never downstream of a lead service line, the supplier must presume a lead service line was upstream.
 - C) “Non-Lead” for a service line the supplier determines through an evidence-based record, method, or technique is not lead or galvanized requiring replacement under subsection (a)(4)(A) or (a)(4)(B). The supplier may classify the service line using its actual material of construction (e.g., “plastic” or “copper”) as an alternative to non-lead.
 - D) “Lead Status Unknown” for a service line of material the supplier does not know is lead, galvanized requiring replacement, or non-lead service line under subsection (a)(4)(A), (a)(4)(B), or (a)(4)(C),

e.g., if the supplier has no documented evidence supporting material classification. The supplier may classify the line as “unknown”, as an alternative to classifying it as lead status unknown, however, all requirements applying to lead status unknown service lines will apply to those the supplier classifies as Unknown. A supplier may provide more information regarding its lead status unknown lines, as long as the inventory clearly distinguishes unknown service lines from those for which the supplier verified the material of construction through records or inspection.

BOARD NOTE: See the definition of “lead status unknown service line” in Section 611.2350(b).

- 5) The supplier must identify and track service line materials in its inventory as the supplier encounters them in the course of its normal operations (e.g., checking service line materials when reading water meters or performing maintenance activities).
- 6) The supplier must update its inventory based on all applicable sources in subsections (a)(3) and (a)(5) and any lead service line replacements or service line material inspections the supplier conducted. The supplier may use other sources of information the Agency approves in a SEP and must use other sources of information the Agency requires in a SEP. The supplier must submit the updated inventory to the Agency as Section 611.2360(e) requires. The publicly accessible inventory must reflect inventory updates no less frequently than when the supplier must submit them to the Agency.
 - A) A supplier whose inventory contains only non-lead service lines needs not provide inventory updates to the Agency or public. If the supplier subsequently finds a lead service line within its system, the supplier must prepare an updated inventory under subsection (a) on a schedule the Agency establishes in a SEP.
 - B) This subsection (a)(6)(B) corresponds with 40 CFR 141.84(a)(6)(ii), which USEPA marked “Reserved”. This statement maintains structural consistency with USEPA’s rule.
- 7) To calculate the number of service line replacements under subsections (f) or (g), the supplier must apply the replacement rate to the sum of known lead and galvanized requiring replacement service lines when the supplier first exceeds the lead trigger level or lead action level plus the number of lead status unknown service lines in the beginning of each year of the

supplier's annual goal-based or mandatory full lead service line replacement program.

- A) A supplier must count each service line only once when calculating the required number of service lines it must replace, even if the supplier shares service line ownership, and the supplier must replace both the customer-owned and system-owned portions.
- B) The supplier must annually update the number of service lines it needs to replace by subtracting the number of lead status unknown service lines the supplier discovered are non-lead and adding the number of non-lead service lines the supplier discovered are lead or galvanized requiring replacement service lines.
- C) Verifying a lead status unknown service line as non-lead in its inventory does not count as replacing a service line.

BOARD NOTE: Using the number of lead and galvanized requiring replacement service lines at the time of first exceeding the lead trigger level applies for subsection (f). The number at the time of first exceeding the lead action level applies for subsection (g). The number of lead status unknown service lines remaining at the beginning of each year applies to both.

- 8) The supplier must keep its service line materials inventory publicly accessible.
 - A) The inventory must include a locational identifier, such as a street address, block, intersection, or landmark, for each lead or galvanized requiring replacement service line. A supplier may include a locational identifier for lead status unknown service lines or list the exact address of each service line.
 - B) A supplier serving more than 50,000 persons must make the publicly accessible inventory available online.
- 9) If a supplier has no lead, galvanized requiring replacement, or lead status unknown service lines (regardless of ownership) in its inventory, the supplier may comply with subsection (a)(8) using a written statement, in lieu of the inventory, declaring that its distribution system has no lead or galvanized requiring replacement service lines. The statement must include a general description of all applicable sources the supplier used under subsections (a)(3), (a)(5), and (a)(6) to determine these service lines are absent.

- 10) The supplier must include instructions for accessing the service line inventory (including inventories consisting only of a statement under subsection (a)(9)) in its Consumer Confidence Report under Section 611.883(d)(4)(K).
- b) Lead Service Line Replacement Plan. A supplier with one or more lead, galvanized requiring replacement, or lead status unknown service lines in its distribution system must submit a lead service line replacement plan to the Agency under Section 611.2360(e) before October 16, 2024. The lead service line replacement plan must have sufficient detail to ensure the supplier can comply with lead service line replacement requirements under this Section. The plan must include specific descriptions:
- 1) A strategy for determining the composition of lead status unknown service lines in its inventory;
 - 2) A procedure for conducting full lead service line replacement;
 - 3) A strategy for informing customers before a full or partial lead service line replacement;
 - 4) For a supplier serving more than 10,000 persons, a lead service line replacement goal rate the supplier recommends if the supplier exceeds the lead trigger level;
 - 5) A procedure for customers to flush particulate lead from service lines and premises plumbing;
 - 6) A prioritization strategy for lead service line replacement based on factors, including targeting known lead service lines, replacing lead service lines for disadvantaged consumers and populations most sensitive to the effects of lead; and
 - 7) A strategy for funding lead service line replacements considering ways to replace the customer-owned portion for those unable to pay.
- c) Operating Procedures for Replacing Lead Goosenecks, Pigtails, or Connectors
- 1) The supplier must replace any lead gooseneck, pigtail, or connector it owns when the supplier encounters it during planned or unplanned water system infrastructure work.
 - 2) The supplier must offer to replace a customer-owned lead gooseneck, pigtail, or connector; however, the supplier needs not bear the cost of replacing the customer-owned parts.

- 3) The supplier needs not replace a customer-owned lead gooseneck, pigtail, or connector if the customer objects to replacing it.
 - 4) Replacing a lead gooseneck, pigtail, or connector does not count towards goal-based or mandatory lead service line replacements under subsections (f) or (g).
 - 5) When replacing any gooseneck, pigtail, or connector attached to a lead service line, the supplier must follow the risk mitigation procedures Section 611.2355(f)(2) specifies.
- d) Conducting Lead Service Line Replacement That May Result in Partial Replacements.
- 1) A supplier planning to partially replace a lead service line (e.g., replace only the supplier-owned portion) in the course of planned infrastructure work must notify the service line's owner, or the owner's authorized agent, and any non-owner residents the service line serves at least 45 days before the replacement. The notice must explain that the supplier will replace the supplier-owned portion of the service line and offer to replace the customer-owned portion (not supplier-owned). The supplier needs not bear the cost of replacing the customer-owned portion of the lead service line.
 - A) Before returning a service line to service, the supplier must provide notice complying with Section 611.2355(a) and explaining that consumers may experience a temporary increase of lead levels in their drinking water due to the replacement, providing information about the health effects of lead, and describing actions consumers can take to minimize their exposure to lead in drinking water. If the lead service line undergoing partial replacement serves multi-family dwellings, the supplier may post the information at a conspicuous location instead of providing individual notice to each resident.
 - B) The supplier must inform consumers about service line flushing using the procedure in subsection (b)(5) requires before returning the affected service line to service.
 - C) The supplier must provide the consumer with a pitcher filter or point-of-use treatment device certified by an American National Standards Institute accredited certifier to reduce lead, six months of replacement cartridges, and use instructions before returning the affected service line to service. If the affected service line serves

more than one residence or non-residential unit (e.g., a multi-unit building), the supplier must provide a filter, six months of replacement cartridges and use instructions to every unit in the building.

- D) The supplier must offer to collect a follow up tap sample between three and six months after partially replacing a lead service line. The supplier must provide the results from the follow up sample under Section 611.2355(d).
- 2) Any supplier replacing the supplier-owned portion of a lead service line in the course of an emergency repair must notify and provide risk mitigation measures to the persons the affected service line serves as subsections (d)(1)(A) through (d)(1)(C) require before returning the line to service.
- 3) If a customer notifies a supplier that the customer plans to replace the customer's portion of the lead service line, the supplier must make a good faith effort to coordinate simultaneously replacing the supplier's portion. If simultaneously replacing the supplier- and customer-owned portions cannot be conducted, the supplier must replace the supplier-owned portion as soon as practicable but no later than 45 days after the customer replaces the customer-owned portion of the lead service line. The supplier must notify and provide risk mitigation measures as subsections (d)(1)(A) through (d)(1)(C) require. If the supplier fails to replace its portion of the lead service line within 45 days after the customer replaces the customer's portion of the lead service line, the supplier must notify the Agency under Section 611.2360(e) within 30 days after failing to meet the deadline. The supplier must complete replacing the supplier-owned portion of the service line no later than 180 days after the customer replaces the customer-owned portion.
- 4) If a supplier receives notice or otherwise learns that a customer replaced the customer-owned portion of a lead service line within the previous six months leaving the system-owned portion in place, the supplier must replace its portion within 45 days after the supplier becomes aware the customer replaced the customer-owned portion. The supplier must notify and provide risk mitigation measures as subsections (d)(1)(A) through (d)(1)(C) require within 24 hours after the supplier becomes aware of the customer replacing the customer-owned portion. If the supplier fails to replace the supplier-owned portion of the service line within 45 days after becoming aware of the customer replacing the customer-owned portion, the supplier must notify the Agency under Section 611.2360(e) within 30 days after failing to meet the deadline. The supplier must complete replacing the supplier-owned portion of the service line no later than 180 days after the customer replaces the customer-owned portion.

- 5) If a supplier receives notice or otherwise learns that a customer replaced the customer-owned portion of a lead service line more than six months in the past, the supplier needs not replace the supplier-owned portion of the lead service line under this subsection (d)(5). However, the supplier must still include the system-owned portion when calculating a lead service line replacement rate under subsection (a)(7).
- e) Conducting Full Lead Service Line Replacements. A supplier conducting a full lead service line replacement must notify the service line's owner, or the owner's authorized agent, and any non-owner residents the service line serves within 24 hours after completing the replacement. The supplier needs not bear the cost of replacing the customer-owned portion of the lead service line.
- 1) The notice must comply with Section 611.2355(a), explain that consumers may experience a temporary increase of lead levels in their drinking water due to the replacement, inform about the health effects of lead, and explain actions a consumer can take to minimize exposure to lead in drinking water. If the lead service line the supplier will replace serves a multi-family dwelling, the supplier may post the information at a conspicuous location instead of providing individual notice to all residents.
 - 2) The supplier must inform about flushing the service line using the procedure the supplier developed under subsection (b)(5) before returning the replaced service line to service.
 - 3) The supplier must provide the consumer with a pitcher filter or point-of-use treatment device certified by an American National Standards Institute accredited certifier to reduce lead, six months of replacement cartridges, and use instructions before returning the replaced service line to service. If the lead service line serves more than one residence or non-residential unit (e.g., a multi-unit building), the supplier must provide a filter and six months of replacement cartridges and use instructions to every unit in the building.
 - 4) The supplier must offer to the consumer to collect a follow up tap sample between three and six months after replacing a lead service line. The supplier must provide the results from the follow up sample to the consumer under Section 611.2355(d).
- f) Goal-Based Full Lead Service Line Replacement for Suppliers Having a 90th Percentile Lead Concentration Exceeding the Lead Trigger Level But Not the Lead Action Level. A supplier serving more than 10,000 persons having a 90th percentile lead concentration under Section 611.2356 that exceeds the lead trigger

level but not the lead action level must conduct goal-based full lead service line replacement at a rate approved in an Agency-issued SEP.

- 1) The supplier must annually calculate the number of full lead service line replacements it must conduct under subsection (a)(7).
- 2) The supplier must replace lead service lines complying with subsection (d) or (e).
- 3) Only a full lead service line replacement counts towards a supplier's annual replacement goal. A partial lead service line replacement does not count towards the goal.
- 4) The supplier must inform customers having a lead, galvanized requiring replacement, or lead status unknown service line as Section 611.2355(g) requires.
- 5) A supplier failing to meet its lead service line replacement goal must take certain actions:
 - A) Conduct public outreach activities under Section 611.2355(h) until either the supplier meets its replacement goal, or tap sampling shows the 90th percentile concentration does not exceed the lead trigger level for two continuous years of monitoring.
 - B) Resume its goal-based lead service line replacement program under this subsection (f) if its 90th percentile lead concentration anytime later exceeds the lead trigger level but not the lead action level.
- 6) The first year of a supplier's lead service line replacement program begins on the first day after the end of the tap sampling period during which the supplier exceeded the lead trigger level. If the supplier samples annually or less frequently, the end of the tap monitoring period is September 30 of the calendar year during which the sampling occurs. If the Agency issues a SEP establishing an alternative tap monitoring period, the end of the supplier's tap monitoring period is the last day of that cycle.
- g) **Mandatory Full Lead Service Line Replacement for Suppliers Whose 90th Percentile Lead Concentration Exceeds the Lead Action Level.** A supplier serving more than 10,000 persons that exceeds the lead action level in tap sampling monitoring under Section 611.2356 must replace full lead service lines on its distribution system at an annual rate of at least three percent on a two-year rolling average basis.

- 1) The supplier must calculate its average annual number of full lead service line replacements under subsection (a)(7).
- 2) The supplier must replace lead service lines under subsections (d) and (e).
- 3) Only a full lead service line replacement counts towards a supplier's mandatory annual replacement rate of at least three percent. A partial lead service line replacement does not count towards the supplier's mandatory replacement rate.
- 4) A supplier must inform its customers having a lead, galvanized requiring replacement, or lead status unknown service line as Section 611.2355(g) requires.
- 5) A CWS supplier serving 10,000 or fewer persons or a NTNCWS supplier for which the Agency issues a SEP approving or designating replacing lead service lines as a compliance option must replace lead service lines as Section 611.2363(a)(1) describes. The supplier must replace lead service lines complying with subsections (d) and (e).
- 6) A supplier may stop replacing lead service lines after cumulatively replacing the required number. Unless the Agency issues a SEP under subsection (g)(9) requiring another percentage, the required number is at least three percent of the service lines subsection (a)(7) determines times the number of years between when the supplier most recently began mandatorily replacing lead service lines and when the supplier calculates its lead 90th percentile concentration under Section 611.2360(c)(4) to be at or below the lead action level during each of four consecutive six-month tap monitoring periods. If the supplier later exceeds the lead action level, it must restart mandatorily replacing lead service lines at the same rate on a two-year rolling average basis, unless the Agency issues a SEP under subsection (g)(9) requiring an alternative replacement rate.
- 7) A supplier may also cease mandatorily replacing lead service lines if the supplier has no remaining lead status unknown service lines in its inventory, and the supplier obtains refusals or non-responses to its offer to replace the customer-owned portion of the lead service line from every customer on its distribution system still served by a lead service line or a galvanized requiring replacement service line. For this subsection (g)(7) and under Section 611.2360(e), a supplier must document customer refusals to the Agency, including any written refusals signed by the customers, any documents memorializing customers verbally refusing, and any documents memorializing no response from customers after the supplier made at least two good faith attempts to reach the customer, each attempt offering to replace the full lead service line. If the supplier's lead

90th percentile concentration later exceeds the lead action level, the supplier must offer to replace the customer-owned portion for every customer served through a full or partial lead service line or galvanized requiring replacement service line. The supplier need not bear the cost of replacing the customer-owned portion of any lead service line.

- 8) The first year of lead service line replacement begins the first day after the end of the tap sampling period during which the supplier exceeded the lead action level.
- 9) If the Agency determines a shorter schedule is feasible, the Agency must issue a SEP requiring a supplier to replace lead service lines on a shorter schedule than this Section otherwise requires, taking into account the number of lead service lines in the supplier's system. The Agency must issue this SEP within six months after the supplier must begin replacing lead service lines under subsection (g).
- h) Reporting to Demonstrate Compliance to the Agency. To demonstrate that it complies with subsections (a) through (g), a supplier must report the information Section 611.2360(e) specifies to the Agency.

BOARD NOTE: This Section derives from 40 CFR 141.84.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 611.2355 Public Education and Supplemental Monitoring and Mitigation

A supplier exceeding the lead action level based on tap water samples under Section 611.2356 must deliver the public education materials subsection (a) requires under subsection (b). A supplier exceeding the lead action level must sample the tap water of any customer requesting sampling under subsection (c). A small CWS or NTNCWS supplier electing to implement POU devices as a small supplier compliance flexibility option under Section 611.363 must provide public education materials as subsection (j) requires to inform users how to properly use POU devices. A supplier must deliver a consumer notice of lead tap water monitoring results to persons the supplier serves at each site that the supplier samples, as subsection (d) specifies. A supplier with lead, galvanized requiring replacement, or lead status unknown service lines, as defined in Section 611.2354(a)(4), must deliver public education materials to persons served through these service lines as subsections (e) through (g) specify. A CWS supplier must conduct annual outreach to the Illinois Department of Public Health and local health agencies as subsection (i) provides. A CWS supplier serving more than 10,000 persons failing to meet its annual lead service line replacement goal under Section 611.2354(f) must conduct outreach activities as subsection (h) specifies.

- 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)(G). In addition, the supplier must use the verbatim language in subsections (a)(1)(A), (a)(1)(B), and (a)(1)(F), except for replacing the text in brackets with the system-specific information. Any additional information a supplier presents must be consistent with the information in subsections (a)(1)(A), through (a)(1)(G), and the supplier must present the additional information in plain language that the general public can understand. The supplier must submit all written public education materials to the Agency prior to delivery. A supplier may change the mandatory language in subsections (a)(1)(A) and (a)(1)(B) only as the Agency approves in a SEP.

- 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.
- B) Health Effects of Lead. Exposure to lead in drinking water can cause serious health effects in all age groups. Infants and children can have decreases in IQ and attention span. Lead exposure can lead to new learning and behavior problems or exacerbate existing learning and behavior problems. The children of women who are exposed to lead before or during pregnancy can have increased risk of these adverse health effects. Adults can have increased risks of heart disease, high blood pressure, kidney or nervous system problems.
- 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 providing the information this subsection (a)(1)(C) describes.

- D) Discuss the steps the consumer can take to reduce 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 water treatment.
 - v) Suggest that parents have their child's blood tested for lead.

BOARD NOTE: The supplier must use text providing the information this (a)(1)(D) describes.

- 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 providing the information this (a)(1)(E) describes.

- 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 www.epa.gov/lead or contact your health care provider.

- G) Information on Lead Service Lines. A supplier having lead service lines must discuss opportunities to replace lead service lines and explain how a consumer may access the supplier's lead service line inventory to determine whether the consumer has a lead service line. The supplier must include information on programs providing financing solutions to assist property owners in replacing their portion of a lead service line, with a statement that the water system must replace the supplier-owned portion of a lead service line when the property owner notifies the supplier that the consumer will replace the property owners portion of the lead service line.

- 2) Community Water Systems. In addition to including the elements subsection (a)(1) specifies, a CWS supplier must include two information items:
 - A) The supplier must tell consumers how to get their water tested; and
 - B) The supplier 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), USEPA allowed the State to require prior approval of written public information materials. Rather than require prior Agency approval, the Board chooses to allow the Agency to raise any deficiencies that it may perceive using its existing procedure for review of public education materials. The Agency outlines its standard practice for review of public information materials: The Agency provides a comprehensive public education packet to the supplier together with the notice that the supplier exceeds 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. When the Agency perceives minor defects, it will request correction in future distributions of the public education materials. When the Agency perceives major defects in the materials, it will request a redistribution of corrected public education materials the supplier already distributed.

b) Delivering Public Education Materials

- 1) The public education materials of a supplier serving a large proportion of non-English-speaking consumers must contain information in the appropriate languages regarding the importance of the notice, or the materials must contain a telephone number or address where a water consumer 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 exceeding the lead action level on the basis of tap water samples under Section 611.2356 not already conducting public education tasks under this Section must complete public education tasks within 60 days after the end of the tap sampling period in which the exceedance occurred:

- A) The CWS supplier must deliver printed materials complying with subsection (a) 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 complying with subsection (a) to local public health agencies, even if those agencies are not located within the supplier's service area, along with an informational notice encouraging distribution to all of the agencies' potentially affected customers or the supplier's consumers. 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 serving the target populations, which may include organizations outside the service area of the supplier. If local health agencies provide lists, the supplier must deliver education materials that comply with subsection (a) to each of the organizations on the provided lists.
 - ii) The CWS supplier must contact customers who are most at risk by delivering materials complying with subsection (a) to the organizations 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 encouraging distribution to all the organization's potentially affected customers or supplier's users.

BOARD NOTE: The Board moved the text of 40 CFR 141.85(b)(2)(ii)(B)(I) through (b)(2)(ii)(B)(6) to appear as subsections (b)(2)(H)(i) through (b)(2)(H)(vi) to comport with allowed indent levels.

- 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 verbatim text of the paragraph below, except replacing the text in brackets with 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 complying with subsection (a) 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), the CWS supplier must implement at least three activities from one or more of the categories listed below. The supplier must consult with the Agency to determine the educational content and selection of these activities.
 - 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 Agency-approved methods.
- G) For a CWS supplier that must monitor annually or less frequently, the end of the tap sampling period is September 30 of the calendar year in which the sampling occurs, or on the last day of an alternative tap sampling period the Agency sets in a SEP.

H) Organizations That the CWS Supplier Must Contact When Required to Do So under Subsection (b)(2)(B)(ii)

- i) Schools, childcare facilities, and 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.
- vii) Obstetricians-gynecologists and midwives.

BOARD NOTE: This subsection (b)(2)(H) derives from 40 CFR 141.85(b)(2)(ii)(B)(1) through (b)(2)(ii)(B)(7), moved here to comport with allowed indent levels.

3) As long as a CWS supplier exceeds the action level, it must repeat the activities in subsection (b)(2), as subsections (b)(3)(A) through (b)(3)(D) require.

- A) The CWS supplier must repeat the tasks in subsections (b)(2)(A), (b)(2)(B), and (b)(2)(F) every 12 months.
- B) The CWS supplier must repeat tasks in subsection (b)(2)(C) with each billing cycle.
- C) The CWS supplier serving a population greater than 100,000 must post and retain material on a publicly accessible website under subsection (b)(2)(D).
- D) The CWS supplier must repeat the task in subsection (b)(2)(E) twice every 12 months on a schedule agreed by the Agency in a SEP. The Agency must, on a case-by-case basis, issue a SEP extending the time for the supplier to complete the public education tasks in subsection (b)(2) beyond the 60-day limit if the Agency determines that the supplier needs the extended time to implement the tasks; however, the Agency must issue the SEP granting any extension before the 60-day deadline expires.

- 4) Within 60 days after the end of the tap sampling period in which a NTNCWS supplier exceeds the lead action level (unless it already is repeating public education tasks under subsection (b)(5)), the supplier must deliver the public education materials subsection (a) specifies.
 - A) The supplier must deliver the public education materials by certain means:
 - i) The NTNCWS supplier must post informational posters on lead in drinking water in a public place or common area in each of the buildings the supplier serves; and
 - ii) The NTNCWS supplier must distribute informational pamphlets or brochures on lead in drinking water to each person the NTNCWS supplier serves. The Agency may issue a SEP allowing the system to use electronic transmission in lieu of or combined with printed materials as long as the electronic transmission achieves the same or better coverage.
 - B) For a NTNCWS supplier that must monitor annually or less frequently, the end of the tap sampling period is September 30 of the calendar year in which the sampling occurs, or on the last day of an alternative tap sampling period the Agency sets in a SEP.
- 5) A NTNCWS supplier must repeat the tasks in subsection (b)(4) 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, issue a SEP extending the time for the supplier to complete the public education tasks in subsection (b)(2) beyond the 60-day limit if the Agency determines that the extended time is needed for implementation purposes; however, the Agency must issue any SEP granting any extension before the 60-day deadline expires.
- 6) A supplier may stop delivering public education materials after the supplier does not exceed the lead action level during the most recent six-month tap monitoring period under Section 611.2356. The supplier must begin public education anew under this Section if the supplier subsequently exceeds the lead action level during any tap sampling period.
- 7) A CWS supplier may apply to the Agency, in writing, to use only the text in subsection (a)(1) in lieu of the text in subsections (a)(1) and (a)(2) and to perform the tasks in subsections (b)(4) and (b)(5) in lieu of the tasks in subsections (b)(2) and (b)(3) under specific circumstances:

- 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 supplier provides water as part of the cost of services provided, not separately charging for water consumption.
- 8) A CWS supplier serving 3,300 or fewer people may limit certain aspects of its public education programs:
 - A) For notice under subsection (b)(2)(F), a supplier serving 3,300 or fewer people must implement at least one of the activities in that subsection.
 - B) For notice under subsection (b)(2)(B), a supplier serving 3,300 or fewer people may limit the distribution of the public education materials to facilities and organizations that pregnant women and children are most likely to visit.
 - C) For notice under subsection (b)(2)(E), the Agency may issue a SEP waiving this requirement for a supplier serving 3,300 or fewer persons, as long as the supplier distributes notices to every household the supplier serves.
- c) Supplemental Monitoring and Notification of Results. A supplier failing to meet the lead action level in tap samples under Section 611.2356 must offer to sample the tap water of any customer requesting it. The supplier needs not pay for collecting or analyzing the sample, nor must the supplier itself collect and analyze the sample.
- 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 under Section 611.2356 to the persons the water system serves at the specific sampling site from which the supplier took the sample (e.g., the occupants of the building where the supplier sampled the tap).
 - 2) Timing of Consumer Notice. The supplier must provide the consumer notice as soon as practicable but no later than the specified timeframe:
 - A) For individual samples not exceeding 15 µg/ L of lead, no later than 30 days after the supplier learns of the tap monitoring results.

- B) For individual samples exceeding 15 µg/ L of lead, as soon as practicable but no later than three calendar days after the supplier learns of the tap monitoring results. A supplier choosing to mail the notification must post those letters so they receive postmarks within the three days.
- 3) Content of Consumer Notice. The consumer notice must include the results of lead tap water monitoring for the tap the supplier tested, an explanation of the health effects of lead, a list of steps 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 611.2883(c).
- 4) Delivery of Consumer Notice
 - A) For tap sampling lead results not exceeding 15 µg/ L, the supplier must provide the consumer notice to persons it serves at the tap the supplier sampled, by mail or by another method the Agency approves in a SEP. For example, upon Agency approval, a NTNCWS supplier could post the results on a bulletin board in the facility enabling users to review the information.
 - B) For tap sampling lead results exceeding 15 µg/ L, the supplier must provide consumer notice to persons it serves at the tap the supplier sampled; the supplier must provide this notice electronically or by phone, hand delivery, mail, or another method the Agency approves in a SEP.
- e) Notice of Known or Potential Service Line Containing Lead
 - 1) Notice requirements. A supplier having lead, galvanized requiring replacement, or lead status unknown service lines in their inventory under Section 2611.354(a) must inform all persons the supplier serves through a lead, galvanized requiring replacement, or lead status unknown service line.
 - 2) Timing of notice. A supplier must provide the initial notice within 30 days after completing the lead service line inventory Section 611.2354 requires and annually repeat the notice to each person the supplier serves until the supplier's entire service connection is no longer a lead, galvanized requiring replacement, or lead status unknown service line. For each new customer, the supplier must also provide the notice when the supplier initiates service.

3) Notice Content

- A) Persons the Supplier Serves Through a Confirmed Lead Service Line. The notice must state that the supplier serves the person through a lead service line; explain the health effects of lead in a way complying with subsection (a)(1)(B); give steps persons at the service connection can take to reduce exposure to lead in drinking water; inform about opportunities to replace lead service lines, including programs providing financing solutions to assist property owners to replace the customer-owned portion of a lead service line; and explain that the supplier must replace the supplier-owned portion of a lead service line when the property owner notifies the supplier that the owner will replace the customer-owned portion of the lead service line.
- B) Persons the Supplier Serves Through a Galvanized Requiring Replacement Service Line. The notice must state that the supplier serves the person through a galvanized requiring replacement service line, explain the health effects of lead in a way complying with subsection (a)(1)(B), give steps persons at the service connection can take to reduce exposure to lead in drinking water, and inform about opportunities to replace the service line.
- C) Persons the Supplier Serves Through a Lead Status Unknown Service Line. The notice must state that the supplier serves the person through a lead status unknown service line (a service line whose material is unknown but may be lead), explain the health effects of lead in a way complying with subsection (a)(1)(B), give steps persons at the service connection can take to reduce exposure to lead in drinking water, and inform about opportunities to verify the material of the service line.

- 4) Delivery. The supplier must provide notice to persons the supplier serves at the service connection with a lead, galvanized requiring replacement, or lead status unknown service line, by mail or using another method the Agency approves in a SEP.

f) Notice Due to Disturbing a Service Line Known to or Potentially Containing Lead

- 1) A supplier disturbing a lead, galvanized requiring replacement, or lead status unknown service line by a water shutoff or bypass to the service line, such as operating a valve on the service line or meter setter, without partially or fully replacing the lead service line must inform the persons the supplier serves through the service connection about the potential for an elevated lead concentration in their drinking water due to the supplier

disturbing the service line, including instructions for flushing to remove particulate lead. The supplier must comply with this subsection (f)(1) before returning the affected service line to service.

- 2) If a supplier disturbs a lead, galvanized requiring replacement, or lead status unknown service line while replacing an inline water meter, a water meter setter, or gooseneck, pigtail, or connector, the supplier must inform the persons the supplier serves through the service connection about the potential for an elevated lead concentration in their drinking water due to the supplier disturbing the service line, provide public education materials complying with subsection (a), a pitcher filter or point-of-use treatment device certified by an American National Standards Institute accredited certifier to reduce lead, use instructions, and six months of replacement filter cartridges. The supplier must comply with this subsection (f)(2) before returning the affected service line to service.
 - 3) A supplier partially or fully replacing a lead service line must follow applicable procedures in Section 611.2354(d)(1)(A) through (d)(1)(D) or (e)(1)(A) through (e)(1)(D).
- g) Information for Persons the Supplier Serves Through a Service Line Known to or Potentially Containing Lead When the Supplier Exceeds the Lead Trigger Level
- 1) Content. A supplier having lead service lines and exceeding the lead trigger level of 10 µg/ L must inform persons the supplier serves through a lead, galvanized requiring replacement, or lead status unknown service line about the supplier's lead service line replacement program and opportunities for replacing the customer's lead service line.
 - 2) Timing. The supplier must inform persons it serves within 30 days after the end of the tap sampling period during which the supplier exceeded the lead trigger level. The supplier must continue to annually inform the persons it serves until the results of sampling under Section 611.2356 do not exceed the lead trigger level.
 - 3) Delivery. The supplier must inform the persons it serves through a lead, galvanized requiring replacement, or lead status unknown service line by mail or another method the Agency approves in a SEP.
- h) Outreach Activities for Failing to Fulfill the Lead Service Line Replacement Goal
- 1) In the first year after a CWS supplier serving more than 10,000 persons does not fulfill its required annual lead service line replacement goal under Section 611.2354(f), the supplier must conduct one outreach activity from among those in subsections (h)(1)(A) through (h)(1)(B). The supplier

must annually conduct an outreach activity under this subsection (h)(1) until the supplier fulfills its replacement goal or until tap sampling shows that its 90th percentile lead concentration does not exceed the trigger level of 10 µg/ L for two consecutive tap monitoring periods:

- A) Send certified mail to customers the supplier serves through a lead or galvanized requiring replacement service line to inform them about the supplier's goal-based program for replacing lead service lines and opportunities for replacing the customer's service line.
 - B) Conduct a townhall meeting.
 - C) Participate in a community event providing information about the supplier's program for replacing lead service lines and distribute public education materials whose content complies with subsection (a).
 - D) Contact customers by phone, text message, email, or door hanger.
 - E) Use another method the Agency approves in a SEP to discuss the supplier's program for replacing lead service lines and opportunities for replacing the customer's lead service line.
- 2) Following the first year after the supplier exceeds the lead trigger level, a supplier still failing to fulfill its goal for replacing lead service lines must conduct one activity from subsection (h)(1) and two additional outreach activities each year from among those in subsections (h)(2)(A) through (h)(2)(D):
- A) Conduct social media campaign.
 - B) Conduct outreach via newspaper, television, or radio.
 - C) Contact organizations representing plumbers and contractors by mail providing information about lead in drinking water, including health effects, sources of lead, and the importance of using lead-free plumbing materials.
 - D) Visit targeted customers to discuss the supplier's program for replacing lead service lines and opportunities for replacing the customers' lead service lines.
- 3) The supplier may stop outreach activities when tap sampling shows that its 90th percentile lead concentration no longer exceeds the trigger level of 10 µg/ L for two consecutive tap monitoring periods or when all customers

the supplier serves through lead or galvanized requiring replacement service lines refuse to participate in replacing the customer-owned portion under the supplier's program for replacing lead service lines. Under this subsection (h)(3), a refusal includes a customer-signed statement refusing to participate in replacing the customer-owned portion of the lead service line or supplier-generated documents memorializing the customer's verbal refusal or non-response after two good faith attempts by the supplier to reach the customer.

i) Public Education to Local and State Health Agencies

- 1) Find-and-Fix Results. A CWS supplier must inform the Department of Public Health and local health agencies about its find-and-fix activities under Section 611.2352(j), including the location of the tap sample sites exceeding 15 µg/ L, the results from initial tap samples, the results from follow-up tap samples, the results from water quality parameter monitoring, and any distribution system management actions or corrosion control treatment adjustments the supplier made.
- 2) Timing and Content. A CWS supplier must annually send copies of the public education materials the supplier provided under subsections (a) and (h)(1) during a calendar year no later than July 1 of the following year.
- 3) Delivery. The CWS supplier must send the public education materials and find-and-fix information to the Department of Public Health and local health agencies by mail or by another method the Agency approves in a SEP.

j) Public Education for Small Supplier Compliance Flexibility POU Devices

- 1) Content. A small CWS or NTNCWS supplier implementing the POU device option under Section 611.2363 must provide public education materials to inform users how to properly use POU devices to maximize the units' effectiveness in reducing the lead concentration in drinking water.
- 2) Timing. The supplier must provide its public education materials when the supplier delivers the POU device.
- 3) Delivery. The supplier must provide its public education materials in person, by mail, or another method the Agency approves in a SEP, to persons at the locations where the supplier delivers the POU devices.

BOARD NOTE: This Section derives from 40 CFR 141.85.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 611.2356 Tap Water Monitoring for Lead and Copper

a) Sampling Site Location

1) Selecting a Pool of Targeted Sampling Sites

- A)** Before the applicable date for beginning monitoring under subsection (d)(1), a supplier must identify a pool of targeted sampling sites complying with this Section based on the service line inventory the supplier developed under Section 611.2354(a).
- B)** The pool of targeted sampling sites must be large enough to ensure that the supplier can collect the number of lead and copper tap samples subsection (c) requires.
- C)** The supplier may not include among its sampling sites any with installed POE treatment devices, and the tap the supplier uses at a sampling site may not have a POU device designed to remove inorganic contaminants. The exceptions are that a supplier monitoring under Section 611.2363(a)(3)(D) and a supplier using a POE or POU device for the primary drinking water tap to meet other primary and secondary drinking water standards may sample the connected tap if all service connections on the supplier's system have a POE or POU device to provide localized treatment to comply with those other drinking water standards.
- D)** A supplier monitoring under Section 611.2363(a)(3)(D) may not use lead and copper sampling results to fulfill the criteria for reduced monitoring under subsection (d)(4).

- 2)** **Materials Evaluation.** A supplier must use the information on lead, copper, and galvanized iron or steel it identified under 40 CFR 141.42(d) when conducting a materials evaluation and the information on lead service lines that Section 611.2354(a) requires the supplier to collect to identify potential lead service line sampling sites.

BOARD NOTE: Suppliers completed identifying and reporting construction materials in their distribution systems under 40 CFR 141.42(d), so the Board omitted this requirement from the Illinois rules.

- 3)** **Sampling Site Tiers.** A supplier must categorize the sampling sites within its pool according to tiers:

- A) CWS Tier 1 Sampling Sites. “CWS Tier 1 sampling sites” include single-family structures the supplier serves through a lead service line. The supplier must not use sites with lead status unknown service lines as Tier 4 sampling sites.

BOARD NOTE: This subsection (a)(3)(A) derives from segments of 40 CFR 141.86(a)(3).

- B) CWS Tier 2 Sampling Sites. “CWS Tier 2 sampling sites” include buildings, including multiple-family structures, the supplier serves through a lead service line. The supplier must not use sites with lead status unknown service lines as Tier 2 sampling sites.

BOARD NOTE: This subsection (a)(3)(B) derives from segments of 40 CFR 141.86(a)(4).

- C) CWS Tier 3 Sampling Sites. “CWS Tier 3 sampling sites” include single-family structures containing galvanized service lines the supplier identified as currently or formerly downstream of a lead service line or known to be downstream of a lead gooseneck, pigtail, or connector. The supplier must not use sites with lead status unknown service lines as Tier 3 sampling sites.

BOARD NOTE: This subsection (a)(3)(C) derives from segments of 40 CFR 141.86(a)(5).

- D) CWS Tier 4 Sampling Sites. “CWS Tier 4 sampling sites” include single-family structures or buildings containing copper pipes with lead solder installed before June 19, 1986. The supplier must not use sites with lead status unknown service lines as Tier 4 sampling sites.

BOARD NOTE: This subsection (a)(3)(D) derives from segments of 40 CFR 141.86(a)(6).

- E) CWS Tier 5 Sampling Sites. “CWS Tier 5 sampling sites” include single-family structures, including multiple-family residences, representing sites throughout the supplier’s distribution system. The supplier must not use sites with lead status unknown service lines as Tier 5 sampling sites.

BOARD NOTE: This subsection (a)(3)(E) derives from segments of 40 CFR 141.86(a)(7).

- F) NTNCWS Tier 1 Sampling Sites. “NTNCWS Tier 1 sampling sites” include sites that the supplier serves through a lead service line. The supplier must not use sites with lead status unknown service lines as Tier 1 sampling sites.

BOARD NOTE: This subsection (a)(3)(F) derives from segments of 40 CFR 141.86(a)(8).

- G) NTNCWS Tier 3 Sampling Sites. “NTNCWS Tier 3 sampling sites” include sites having galvanized lines the supplier identified as currently or formerly downstream of a lead service line or known to be downstream of a lead gooseneck, pigtail, or connector. The supplier must not use sites with lead status unknown service lines as Tier 3 sampling sites.

BOARD NOTE: This subsection (a)(3)(G) derives from segments of 40 CFR 141.86(a)(9).

- H) NTNCWS Tier 5 Sampling Sites. “NTNCWS Tier 5 sampling sites” include sites representing sites throughout the supplier’s distribution system. Under this subsection (a)(3)(H), a site representing sites throughout the distribution system has plumbing materials commonly found at the other sites the supplier serves.

BOARD NOTE: This subsection (a)(3)(H) derives from segments of 40 CFR 141.86(a)(10).

- 4) Selecting Sampling Sites. A supplier must select sampling sites for its sampling pool using specific criteria:

- A) CWS Suppliers. A CWS supplier 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 under certain circumstances:

- i) If multiple-family residences comprise at least 20 percent of the structures the supplier serves, the supplier may use CWS Tier 2 sampling sites in its Tier 1 sampling pool, if the supplier serves the sampling site through a lead service line.

BOARD NOTE: This subsection (a)(4)(A)(i) derives from a segment of 40 CFR 141.86(a)(3).

- ii) If the CWS supplier does not have a sufficient number of CWS Tier 1 sampling sites on its distribution system, the supplier may use CWS Tier 2 sampling sites the supplier serves through a lead service line in its sampling pool; or

BOARD NOTE: This subsection (a)(4)(A)(ii) derives from a segment of 40 CFR 141.86(a)(4).

- iii) If the CWS supplier does not have a sufficient 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: This subsection (a)(4)(A)(iii) derives from a segment of 40 CFR 141.86(a)(5).

- iv) If the CWS supplier does not have a sufficient number of CWS Tier 1 sampling sites, CWS Tier 2 sampling sites, and CWS Tier 3 sampling sites, the supplier must complete its sampling pool with CWS Tier 4 sampling sites.

BOARD NOTE: This subsection (a)(4)(A)(iv) derives from segments of 40 CFR 141.86(a)(6).

- v) If a CWS supplier does not have a sufficient number of CWS Tier 1, CWS Tier 2, CWS Tier 3, and CWS Tier 4 sampling sites, the CWS supplier must complete its sampling pool with CWS Tier 5 sampling sites.

BOARD NOTE: This subsection (a)(4)(A)(v) derives from a segment of 40 CFR 141.86(a)(7).

- vi) A supplier may use non-residential buildings representing sites throughout its distribution system only if there are an insufficient number of single-family or multiple-family residential Tier 5 sampling sites available.

BOARD NOTE: This subsection (a)(4)(A)(vi) derives from a segment of 40 CFR 141.86(a)(7).

B) NTNCWS Suppliers

- i) An NTNCWS supplier must select NTNCWS Tier 1 sampling sites for its sampling pool.

BOARD NOTE: This subsection (a)(4)(B)(i) derives from segments of 40 CFR 141.86(a)(8).

- ii) If the NTNCWS supplier has an insufficient number of NTNCWS Tier 1 sampling sites, the supplier must complete its sampling pool with NTNCWS Tier 3 sampling sites.

BOARD NOTE: This subsection (a)(4)(B)(ii) derives from segments of 40 CFR 141.86(a)(9).

- iii) If the NTNCWS supplier has an insufficient number of NTNCWS Tier 1 and Tier 3 sampling sites, the supplier must complete its sampling pool with Tier 5 NTNCWS sampling sites. For the purpose of this subsection (a)(4)(B)(iii), a representative site is a site where the plumbing materials are commonly found at other sites the water system serves.

BOARD NOTE: This subsection (a)(4)(B)(iii) derives from segments of 40 CFR 141.86(a)(10).

- C) Suppliers with Lead Service Lines. Any supplier whose distribution system contains lead service lines must collect all samples for monitoring under this Section from sites the supplier serves through a lead service line. A supplier that cannot identify a sufficient number of sampling sites that it serves through lead service lines must still collect samples from every site the supplier serves through a lead service line and collect the remaining samples under subsections (a)(4)(A)(iii) through (a)(4)(A)(vi) or subsections (a)(4)(B)(ii) and (a)(4)(B)(iii).

BOARD NOTE: This subsection (a)(4)(C) derives from segments of 40 CFR 141.86(a)(11).

b) Sample-Collecting Methods

- 1) All tap samples a supplier collects for lead and copper under this Subpart G, with the exception of fifth-liter tap samples the supplier collects under subsection (b)(3) and samples the supplier collects under subsections (b)(5) and (h) must be first-draw tap samples. The supplier must analyze the first-draw tap sample for lead and copper during tap sampling periods when the supplier must monitor both contaminants. In tap sampling periods during which the supplier must monitor only lead, the supplier may analyze the first-draw tap sample for lead only.

2) First-Draw Tap Samples

- A) A first-draw tap sample for lead and copper must be one liter in volume and have stood motionless at least six hours in the plumbing system of the sampling site .
- B) The supplier must use wide-mouthed bottles to collect first-draw tap samples.
- C) For residential housing, the supplier must collect first-draw tap samples from the cold-water kitchen or bathroom sink tap.
- D) For non-residential buildings, the supplier must collect first-draw tap samples one-liter in volume from a tap occupants typically use for consuming water.
- E) The Agency-approved substitute non-first-draw tap samples the supplier collects in lieu of first-draw tap samples under subsection (b)(5) must be one liter in volume from an interior tap occupants typically use for consuming water.
- F) The supplier may collect first-draw tap samples or allow residents to collect first-draw tap samples after instructing the residents in the sampling procedures this subsection (b)(2) specifies.
 - i) Sampling instructions the supplier provides to residents must not include instructions for removing the aerator and cleaning or flushing taps before the minimum six-hour stagnation period begins.
 - ii) To avoid problems of residents handling nitric acid, the supplier may acidify first-draw tap samples up to 14 days after the supplier or a resident collects the sample.
 - iii) After adding acid to resolubilize the metals, a sample must stand in its original container for the time the USEPA-approved method specifies before the laboratory analyzes the sample.
- G) If a supplier allows residents to perform sampling under subsection (b)(2)(F), the supplier may not challenge the accuracy of sampling results based on alleged errors in sample collection.

3) Service Line Samples

- A) A supplier must collect all tap samples for copper at sites it serves through a lead service line as a first-draw tap sample using the procedure in this subsection (b)(3). The supplier must collect and analyze tap samples for copper only during tap monitoring periods when the supplier must monitor copper.
- B) First-Draw and Fifth-Liter Tap Water Samples
 - i) A supplier must collect tap water samples in five consecutively numbered wide-mouthed bottles after the water has stood motionless in the sampling site's plumbing for at least six hours without flushing the tap prior to collecting the sample.
 - ii) The supplier must analyze first-draw tap samples for copper, when applicable, and fifth-liter tap samples for lead.
 - iii) The supplier must use wide-mouthed bottles to collect these samples. The supplier must collect the first-draw tap sample in the first numbered bottle, then sequentially fill each numbered bottle until the final bottle is full with the fifth-liter tap sample, constantly running the water while collecting the samples. The fifth-liter tap sample is the final sample collected in this sequence.
 - iv) The supplier must collect first-draw and fifth-liter tap samples from residential housing from the cold-water kitchen or bathroom sink tap. The supplier must collect first-draw and fifth-liter tap samples from a nonresidential building at an interior cold water tap typically used for consuming water.
 - v) The supplier may itself collect first-draw and fifth-liter tap samples or allow residents to collect the samples after instructing the residents on the sampling procedures in this subsection (b)(3)(B). The sampling instructions the supplier provides to customers must not direct the customer to remove the aerator or clean or flush the taps before the minimum six-hour stagnation period begins. To avoid problems from residents handling nitric acid, the supplier may acidify first-draw tap samples up to 14 days after the resident collects the sample. After the supplier acidifies the sample to resolubilize the metals, the sample must stand in

its original container for the time a USEPA-approved method provides before analysis. If the supplier allows residents to sample, the supplier may not challenge the accuracy of sampling results based on alleged errors collecting samples.

4) Follow-Up First-Draw Tap Samples

- A) A supplier must collect each follow-up first-draw tap sample from the same sampling site where the previous sample originated. A supplier must collect each follow-up fifth-liter tap sample from the same sampling site where the previous sample originated.
- B) If the supplier cannot access a sampling site to collect a follow-up tap sample for reasons beyond the control of the supplier, 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 Tap Samples

- A) A NTNCWS supplier or a CWS supplier meeting the criteria in Sections 611.2355(b)(7)(A) and (b)(7)(B) not having enough taps for first-draw tap samples or fifth-liter tap samples meeting the six-hour minimum stagnation time may apply to the Agency in writing for a SEP allowing the supplier to substitute non-first-draw, first-draw, or fifth-liter tap samples that do not meet the six-hour minimum stagnation time.
- B) A supplier approved to substitute non-first-draw tap samples must collect as many first-draw or fifth-liter tap samples from interior taps typically used for consuming water, as possible and must identify sampling times and locations that likely give the longest standing time for the remaining sites.
- C) The Agency may grant a SEP waiving the requirement for prior Agency approval of sites not meeting the six-hour stagnation time.

c) Number of Samples

- 1) A supplier must collect at least one sample each from the number of sites in the first column of [Section 611. Table D](#) ~~Table D~~ (labelled “standard monitoring”) during each six-month tap monitoring period subsection (d) specifies.

- 2) A supplier conducting reduced monitoring under subsection (d)(4) must collect at least one sample each from the number of sites in the second column of Section 611.2351 Table D (labelled “reduced monitoring”) during each reduced tap monitoring period subsection (d)(4) specifies. The reduced monitoring sites must represent the sites standard monitoring requires. A supplier whose system has fewer than five drinking water taps capable of use for human consumption that meet the sampling site criteria of subsection (a) must collect multiple samples from individual taps to reach the required number of sampling sites Table D requires. To accomplish this, the supplier must collect at least one sample from each tap, then additional samples from those taps on different days during the tap sampling period, to collect a total number of samples meeting the required number of sampling sites. Alternatively, the Agency may issue a SEP allowing the supplier whose system has fewer than five drinking water taps to collect a number of samples that is fewer than the number of sites this subsection (c) specifies if the Agency determines that the supplier samples 100 percent of all taps capable of use for human consumption and that the reduced number of samples will produce the same results as collecting multiple samples from some taps. The Agency must base any SEP approving a reduced minimum number of samples on a request from the supplier or Agency on on-site verification. The Agency may specify sampling locations in a SEP when a system conducts reduced monitoring.

d) Timing of Monitoring

- 1) Standard Monitoring. Standard monitoring is a six-month tap monitoring period beginning on January 1 or July 1 of a year during which the supplier monitors at the standard number of sites under subsection (c).
- A) A supplier having lead service lines, including a supplier Section 611.2351(b)(3) deems to have optimized or re-optimized OCCT or a supplier that did not monitor complying with this Section (i.e., selecting sites under subsection (a), collecting samples under subsection (b), etc.) before January 16, 2024, must begin its first standard tap monitoring period on January 1, 2025. After completing the first standard monitoring cycle, the supplier must monitor under subsection (d)(2)(d)(1)(B).
- B) A supplier that completed monitoring complying with this Section (i.e., selecting sites under subsection (a), collecting samples under subsection (b), etc.) before January 16, 2024 or a supplier that completed monitoring under subsection (d)(1)(A), must continue monitoring:

- i) A supplier not meeting the criteria in subsection (d)(4) must conduct standard monitoring.
- ii) A supplier meeting the criteria in subsection (d)(4) must continue to monitor under subsection (d)(4).
- iii) A supplier monitoring at a reduced frequency under subsection (d)(4) and exceeding the lead or copper action level must resume standard monitoring on January 1 immediately after the tap monitoring period during which the supplier exceeded the action level. The supplier must also monitor water quality parameters as Section 611.2357(b), (c), or (d) require.
- iv) A supplier monitoring at a reduced frequency and exceeding the lead trigger level but not the copper action level must monitor no less frequently than annually and must collect samples from the standard number of sites that subsection (c) establishes. The supplier must begin this monitoring in the calendar year after the tap monitoring period during which the supplier exceeded the lead trigger level. The supplier must also monitor water quality parameters as Section 611.2357(b), (c), or (d) require.
- v) A supplier failing to operate at or above the minimum value or within the range of values for the water quality parameters the Agency specifies under Section 611.2352(f) for more than nine days in any water quality monitoring period Section 611.2357 specifies must conduct standard tap water monitoring and resume sampling for water quality parameters under Section 611.2357(d). The supplier must begin this standard monitoring no later than the six-month tap monitoring period beginning January 1 of the calendar year after the supplier fails to comply with the Agency-specified water quality parameters.
- vi) A supplier becoming a large supplier without corrosion control treatment or any large supplier without corrosion control treatment having a 90th percentile lead concentration exceeding the lead practical quantitation limit must conduct standard monitoring for at least two consecutive six-month tap monitoring periods, then continue monitoring under this subsection (d)(1)(B)(vi).

2) Monitoring after Installing Initial or Re-Optimized Corrosion Control Treatment, Installing Source Water Treatment, Adding a New Source, or a Change in Treatment

- A) A supplier installing or re-optimizing corrosion control treatment after exceeding the lead or copper action level must monitor for lead and copper every six months and comply with applicable Agency-designated water quality parameter values until the Agency issues a SEP specifying new water quality parameter values for optimal corrosion control.
- B) A supplier reoptimizing corrosion control treatment as a result of exceeding the lead trigger level but not exceeding the lead or copper action level must annually monitor for lead at the standard number of sites subsection (c) requires. The supplier must triennially analyze samples for copper. A small or mid-sized supplier not exceeding the lead trigger level in three annual tap monitoring periods may reduce lead monitoring under subsection (d)(4).
- C) A supplier installing source water treatment under Section 611.2353(a)(3) must monitor every six months until the supplier is at or below lead and copper action levels for two consecutive six-month tap sampling periods. A supplier not exceeding the lead or copper action level for two consecutive six-month tap monitoring periods may reduce monitoring under subsection (d)(4).
- D) If a supplier gives prior notice to the Agency under Section 611.2360(a)(3) of adding a new source or making a long-term change in treatment, the supplier must monitor every six months at the standard number of sites subsection (c) requires until the supplier is at or below the lead and copper action levels for two consecutive six-month monitoring cycles, unless the Agency issues a SEP determining that adding the new source or making the long-term change in treatment is not significant and does not warrant more frequent monitoring. A supplier not exceeding the lead action level, copper action level, or lead trigger level for two consecutive six-month tap sampling periods may reduce monitoring under subsection (d)(4).

3) Monitoring after the Agency Specifies Water Quality Parameter Values for OCCT

- A) After the Agency specifies the values for water quality control parameters under Section 611.2352(f), the supplier must conduct

standard monitoring for two consecutive six-month tap monitoring periods.

- B) A supplier that must complete the re-optimization steps in Section 611.2351(d) after exceeding the lead trigger level but not exceeding the lead or copper action level must monitor for two consecutive six-month tap monitoring periods. The supplier may then reduce monitoring under subsection (d)(4) after the Agency issues a SEP approving reduced monitoring.
- 4) Reduced Monitoring Based on 90th Percentile Concentrations. Reduced monitoring refers to an annual or triennial tap monitoring period. A supplier's 90th percentile concentration determines the reduced monitoring frequency.
- A) Reducing to Annual Monitoring for Suppliers Meeting the Criteria for Reduced Monitoring. A supplier meeting the criteria for reduced monitoring under subsection (d)(4) must collect these samples from sampling sites the supplier identified under subsection (a). A supplier monitoring annually or less frequently must conduct lead and copper tap sampling during June, July, August, or September, unless the Agency approves a different tap sampling period under subsection (d)(4)(A)(i)
 - i) The Agency may grant a SEP approving a different tap sampling period for conducting lead and copper tap sampling to a supplier collecting samples at a reduced frequency. The duration of the period must not exceed four consecutive months within one calendar year and must represent a time of normal operation when the highest lead levels are most likely to occur. For a NTNCWS supplier not operating during any of the months June through September and whose normal operating period when 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 monitoring can only begin during the Agency-designated period in the calendar year immediately following the end of the second six-month tap monitoring period, for a supplier initiating annual monitoring, or in the three-year period following the end of the third consecutive year of annual monitoring, for a supplier initiating triennial monitoring.

- ii) A supplier monitoring annually and collecting samples during the months of June through September that receives Agency approval to alter its tap sampling period under subsection (d)(4)(A)(i) must collect its next round of samples during a time period ending no later than 21 months after its previous round of sampling. A supplier monitoring once every three years and collecting samples during the months of June through September that receives Agency approval to alter its tap sampling period under subsection (d)(4)(A)(i) must collect its next round of samples during a time period ending no later than 45 months after the previous tap sampling period. The supplier must conduct subsequent monitoring annually or once every three years, as this Section requires.
 - iii) A small supplier collecting samples during the months of June through September, receiving a waiver under subsection (g) and receiving Agency approval to alter its tap sampling period under subsection (d)(4)(A)(i) must collect its next round of samples before the end of the nine-year tap monitoring period (as Section 611.101 defines the term).
- B) A supplier meeting the lead trigger level and copper action level during two consecutive six-month tap monitoring periods may reduce its monitoring frequency to annual monitoring and must sample at the standard number of sampling sites for lead and reduced number of sites for copper that subsection (c) specifies. A supplier operating OCCT must also maintain the range of OWQPs the Agency set under Section 611.2352(f) during the same period and receive a SEP from the Agency approving annual monitoring based on the Agency's review of the supplier's monitoring, treatment, and other relevant information the supplier reports under Section 611.2360. The supplier must begin this sampling no later than the calendar year immediately following the last calendar year during which the supplier sampled.
- C) A supplier exceeding the lead trigger level but neither the lead nor copper action level during two consecutive six-month tap monitoring periods must monitor no less frequently than annually at the standard number of sampling sites for lead and copper subsection (c) specifies. A supplier operating OCCT must also maintain the range of OWQPs the Agency set under Section 611.2352(f) during the same period and receive a SEP from the Agency approving annual monitoring based on the Agency's

review of monitoring, treatment, and other relevant information the supplier reports under Section 611.2360. The supplier must begin this sampling no later than the calendar year immediately following the last calendar year during which the supplier sampled.

- D) A supplier exceeding the lead trigger level but neither the lead nor copper action level during three consecutive years of monitoring may increase the tap monitoring period (reduce its monitoring frequency) for copper to once every three years; however, the supplier may not increase the tap monitoring period (reduce its monitoring frequency) for lead. A supplier operating OCCT must also maintain the range of OWQPs the Agency set under Section 611.2352(f) during the same period and receive a SEP from the Agency approving triennial monitoring based on the Agency's review of monitoring, treatment, and other relevant information the supplier reports under Section 611.2360. The supplier must begin this sampling no later than the third calendar year immediately following the last calendar year during which the supplier sampled.
- E) A small or mid-sized supplier not exceeding the lead trigger level or copper action level during three consecutive years of monitoring (completing standard monitoring during both six-month tap monitoring periods of a calendar year constitutes one year of monitoring) may sample at the reduced number of sites for lead and copper that subsection (c) provides and reduce its monitoring frequency to triennially monitoring. A supplier operating OCCT must also maintain the range of OWQPs the Agency set under Section 611.2352(f) during the same three-year period and receive a SEP from the Agency approving triennial monitoring based on the Agency's review of monitoring, treatment, and other relevant information the supplier reports under Section 611.2360. The supplier must begin this sampling no later than three calendar years after the last calendar year during which the supplier sampled.
- F) A supplier demonstrating for two consecutive six-month tap monitoring periods that its 90th percentile lead concentration, calculated under Section 611.2350(c)(4), is less than or equal to 0.005 mg/ L and that its 90th percentile copper concentration, calculated under Section 611.2350(c)(4), is less than or equal to 0.65 mg/ L may sample at the reduced number of sites for lead and copper under subsection (c) and reduce its monitoring to triennially. A supplier applying corrosion control treatment must maintain the range of water quality parameter values reflecting OCCT the Agency specifies under Section 611.2352(f) to qualify for reduced monitoring under this subsection (d)(4)(F).

- e) Additional Monitoring. The supplier and the Agency must consider the results of any monitoring the supplier conducts in addition to the minimum requirements in this Section (such as customer-requested sampling) in making any determinations (i.e., calculating the 90th percentile lead concentration or copper action level) under this Subpart AH. A supplier serving through lead service lines that cannot collect the minimum number of samples from Tier 1 or Tier 2 sites must calculate the 90th percentile concentration using data from all sites it serves through lead service lines (Tier 1 and Tier 2 sites) together with the highest lead and copper results from lower-tier sites to complete the minimum number of sampling sites subsection (c) requires. The supplier must submit data from additional Tier 3, Tier 4 or Tier 5 sites to the Agency but may not use these results in calculating the 90th percentile concentration. The supplier must include customer-requested samples from sites the supplier knows it serves through lead service lines in calculating its 90th percentile concentration if the samples comply with this Section.
- f) Invalidation of Lead and Copper Tap Samples Used in Calculating the 90th Percentile Concentration. A sample the Agency invalidates under this subsection (f) does not count toward determining lead or copper 90th percentile concentrations under Section 611.2350(c)(4) or toward meeting the minimum monitoring requirements of subsection (c).
 - 1) The Agency must invalidate a lead or copper tap water sample if it determines that any of certain conditions exists:
 - A) The laboratory establishes that improper sample analysis caused erroneous results;
 - B) The supplier took the sample from a site that did not meet the site selection criteria in this Section;
 - C) The sample container sustained damage in transit; or
 - D) There is substantial reason to believe that someone tampered with the sample.
 - 2) The supplier must report the results from all samples to the Agency and submit all supporting documentation for samples the supplier believes the Agency should invalidate.
 - 3) To invalidate a sample under subsection (f)(1), the Agency must document its decision and rationale for the decision in writing. The Agency may not invalidate a sample solely because a follow-up sample result is higher or lower than that of the original sample.

- 4) The supplier must collect replacement samples for any samples the Agency invalidates under this Section if the supplier has too few samples to meet the minimum requirements of subsection (c) after the Agency invalidates samples. The supplier must take any replacement samples as soon as possible but no later than the latter of 20 days after the Agency invalidates the original sample or before the end of the applicable tap sampling period. The supplier must not use replacement samples it takes after the end of the applicable tap sampling period to meet the monitoring requirements of a subsequent tap sampling period. The supplier must take replacement samples at the same locations where it took the invalidated samples or, if that is not possible, at other locations the supplier did not use for sampling during the tap sampling period.
- g) Monitoring Waivers for Suppliers Serving 3,300 or Fewer Persons. Any supplier serving 3,300 or fewer persons complying with the criteria in this subsection (g) may apply to the Agency for a SEP reducing its lead and copper monitoring frequency under this Section to once every nine years (i.e., a “full waiver”) if the supplier complies with all of the materials criteria subsection (g)(1) specifies and all of the monitoring criteria subsection (g)(2) specifies. Any supplier serving 3,300 or fewer persons complying with the criteria subsections (g)(1) and (g)(2) only for lead or copper may apply to the Agency for a SEP reducing its tap water monitoring frequency 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, 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 this subsection (g)(1) defines these terms:
 - A) Lead. To qualify for a SEP granting a full waiver or a partial waiver of the tap water monitoring requirements for lead (i.e., a “lead waiver”), the supplier must provide certification and supporting documentation to the Agency demonstrating that its system is free of all lead-containing materials:
 - i) The system has no plastic pipes or service lines containing lead plasticizers; and
 - ii) The system is free of lead service lines, lead pipes, lead soldered pipe joints, and leaded brass- or bronze-alloy fittings and fixtures, unless those fittings and fixtures comply with Section 611.126(b).

BOARD NOTE: Corresponding 40 CFR 141.86(g)(1)(i)(B) specifies “any standard established pursuant to 42 U.S.C. 300g-6(e) (SDWA section 1417(e))”. Congress changed the lead standards for fittings and fixtures in the Reduction of Lead in Drinking Water Act, P.L. 111-380, section 2(a)(2) and (b), 124 Stat. 4131 (Jan. 4, 2011). The Board incorporated the statutory changes into this Section by referencing Section 611.126(b).

- B) Copper. To qualify for a SEP granting a full waiver or a partial waiver of the tap water monitoring requirements for copper (i.e., a “copper waiver”), the supplier must provide certification and supporting documentation to the Agency demonstrating that its 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 Agency-approved sites and from the number of sites subsection (c) requires and demonstrate to the Agency that the 90th percentile concentrations for any and all rounds of monitoring conducted since the system became free of all lead-containing or copper-containing materials, as appropriate, meet certain criteria:
 - A) Lead Levels. To qualify for a full waiver or a lead partial waiver, the supplier must demonstrate that its 90th percentile lead concentration does not exceed 0.005 mg/ L.
 - B) Copper Levels. To qualify for a full waiver or a copper partial waiver, the supplier must demonstrate that its 90th percentile copper concentration does not exceed 0.65 mg/ L.
 - 3) Agency Approval of Waiver Application. The Agency must notify the supplier of its waiver determination in a SEP stating the basis of its decision and any condition on the waiver. As a condition on 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 supplier must continue monitoring for lead and copper at the tap as subsections (d)(1) through (d)(4) require, as appropriate, until the supplier receives written notification from the Agency approving the waiver.
 - 4) Monitoring Frequency for Suppliers with Waivers

- A) A supplier with a full waiver must conduct tap water monitoring for lead and copper under subsection (d)(4)(D) at the reduced number of sampling sites subsection (c) identifies at least once every nine years and provide to the Agency the materials certification subsection (g)(1) specifies for both lead and copper together with the monitoring results. The supplier must collect samples every nine years no later than the ninth calendar year.
 - B) A supplier with a partial waiver must conduct tap water monitoring for the waived contaminant under subsection (d)(4)(D) at the reduced number of sampling sites subsection (c) specifies at least once every nine years and provide to the Agency the materials certification subsection (g)(1) specifies pertaining to the waived contaminant together with the monitoring results. Such a supplier also must continue to monitor for the non-waived contaminant in under the applicable of subsections (d)(1) through (d)(4).
 - C) A supplier with a full or partial waiver must notify the Agency in writing under Section 611.2360(a)(3) of any upcoming long-term change in treatment or adding a new source, as that rule describes. The Agency must review and approve adding a new source or long-term change in water treatment before the supplier implements it. The Agency may 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, etc.) if the Agency determines that the modifications are necessary to address system treatment or source water changes.
 - D) If a supplier with a full or partial waiver becomes aware that its system 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 the change.
- 5) Continued Eligibility. If the supplier continues to comply with subsection (g)(4), the waiver will renew automatically, unless any of the conditions in subsections (g)(5)(A) through (g)(5)(C) occur. A supplier whose waiver the Agency revokes may re-apply for a waiver when the supplier again meets the appropriate materials and monitoring criteria of subsections (g)(1) and (g)(2).
- A) A full waiver or a lead partial waiver does not renew if the supplier no longer satisfies the materials criteria of subsection (g)(1)(A) or has a 90th percentile lead concentration greater than 0.005 mg/ L.

- B) A full waiver or a copper partial waiver does not renew if the supplier no longer satisfies the materials criteria of subsection (g)(1)(B) or has a 90th percentile copper concentration greater than 0.65 mg/ L.
 - C) A waiver terminates when the Agency notifies the supplier that the Agency revokes the waiver, in writing and describing the basis of its decision.
- 6) Requirements Following Waiver Revocation. A supplier whose full or partial waiver the Agency revokes must comply with specific corrosion control treatment and lead and copper tap water monitoring requirements:
- A) If the supplier exceeds the lead or copper action level, the supplier must implement corrosion control treatment within the deadlines Section 611.2351(e) specifies and any other applicable requirements under this Subpart AH.
 - B) If the supplier meets both the lead and the copper action levels, 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 subsection (c) specifies.
- 7) Pre-Existing Waivers. A waiver the Agency granted a supplier in writing prior to April 11, 2000 remains in effect under certain conditions:
- A) If the supplier demonstrates that its system is free of both lead-containing and copper-containing materials, as subsection (g)(1) requires, and that its 90th percentile lead and copper concentrations comply with subsection (g)(2), the waiver remains in effect so long as the supplier continues to be eligible for a waiver under subsection (g)(5). The supplier must complete its first round of tap water monitoring under subsection (g)(4) no later than nine years after the supplier last monitored for lead and copper at the tap.
 - B) If the supplier complies with the materials criteria of subsection (g)(1) but has not complied with the monitoring criteria of subsection (g)(2), the supplier must conduct a round of monitoring for lead and copper at the tap demonstrating that it complied with subsection (g)(2). Thereafter, the waiver remains in effect as long as the supplier complies with the continued eligibility criteria in subsection (g)(5). The supplier must complete its first round of tap water monitoring under subsection (g)(4) no later than nine years after the supplier conducts the monitoring under subsection (g)(2).

- h) Follow-Up Samples for “Find-and-Fix” Under Section 611.2352(j). A supplier must collect a follow-up sample at any site exceeding the lead action level within 30 days after receiving the sample results. For these follow-up samples, the supplier may use different sample volumes or different sample collection procedures to assess the source of elevated lead. A supplier must submit the results from samples it collects under this Section to the Agency but must not include those results in calculating its 90th percentile concentration.
- i) Public Availability of Tap Monitoring Results the Supplier Used in Calculating its 90th Percentile Concentration. A supplier must make the results of its compliance tap water monitoring data, including data the supplier used in calculating its 90th percentile concentration under Section 611.2350(c)(4), available to the public within 60 days after the end of the applicable tap sampling period. This Section does not require a supplier to make publicly available the addresses of the sites where the supplier collected tap samples. A large supplier must make available the monitoring results in a digital format. A small or mid-sized supplier must make available the monitoring results in either a written or digital format. A supplier must retain tap sampling monitoring data per the recordkeeping requirements under Section 611.2361.

BOARD NOTE: This Section derives from 40 CFR 141.86.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 611.2358 Monitoring for Lead and Copper in Source Water

- a) Sampling Location, Collection Methods, and Number of Samples
 - 1) A supplier failing to meet the lead or copper action level on the basis of tap samples under Section 611.2356 must collect lead and copper source water samples under specific requirements for sample location, number of samples, and collection methods:
 - A) A groundwater supplier must take a minimum of one sample at every entry point to the distribution system after the supplier applies any treatment or in the distribution system at a point representing each source after treatment (a “sampling point”). The supplier must take one sample at the same sampling point unless conditions make another sampling point more closely represent a source or treatment plant.
 - B) A surface water supplier must take a minimum of one sample at every entry point to the distribution system after treatment or in the distribution system at a sampling point. The supplier must take

each sample at the same sampling point unless conditions make another sampling point more closely represent a source or treatment plant.

BOARD NOTE: For this subsection (a)(1)(B), a system using a combination of surface water and groundwater sources is a surface water system.

- C) If a supplier draws water from more than one source and combines the sources before distribution, the supplier must sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water represents all sources being used).
- D) The Agency may issue a SEP reducing the total number of samples a supplier must ~~have analyzed~~analyze by allowing the use of compositing. Certified laboratory personnel must composite the samples. A composite sample may include a maximum of five samples. However, if the lead concentration in the composite sample is greater than or equal to 0.001 mg/ L or the copper concentration is greater than or equal to 0.160 mg/ L, the supplier must do either of two things:
 - i) The supplier must take and analyze a follow-up sample within 14 days at each sampling point included in the composite sample; or
 - ii) If duplicate samples or sufficient volumes of the original samples are available from each sampling point the certified laboratory used in the composite sample, the supplier may use those instead of resampling.

2) SEP Requiring an Additional Sample

- A) Upon determining that sampling indicates exceedance of the lead or copper MPC under Section 611.2353(b)(4), the Agency must issue a SEP requiring the supplier to collect one additional sample as soon as possible after the initial sample at the same sampling point but before two weeks after the supplier took the initial sample.
- B) If a supplier takes an Agency-required confirmation sample for lead or copper, the supplier must average the results obtained from the initial sample with those from the confirmation sample to

determine whether it complies with the Agency-specified lead and copper MPCs.

- i) For averaging, consider any analytical result below the MDL as zero.
 - ii) Consider any value above the MDL but below the PQL either as the measured value or one-half the PQL.
- b) Monitoring Frequency after System Exceeds Tap Water Action Level. A supplier exceeding the lead or copper action level in tap for the first time or for the first time after adding a new source or installing source water treatment under Section 611.2353(b)(2) must collect one source water sample from each entry point to its distribution system no later than six months after the end of the tap sampling period during which the supplier exceeds the lead or copper action level. For annual or less frequent tap monitoring periods, the end of the tap sampling period is September 30 of the calendar year during which the sampling occurs or the last day of any alternative tap sampling period the Agency establishes in a SEP. If the Agency determines under Section 611.2353(b)(2) that source water treatment is not necessary, the Agency may issue a SEP waiving source water monitoring for the supplier subsequently exceeding the lead or copper action level at the tap under subsections (b)(1)(A) through (b)(1)(C).
 - 1) The Agency may issue a SEP waiving source water monitoring for the supplier exceeding the lead or copper action level at the tap under specific conditions:
 - A) The supplier already conducted source water monitoring after previously exceeding the lead or copper action level;
 - B) The Agency issued a SEP determining that source water treatment is not necessary; and
 - C) The supplier has not added any new water sources.
 - 2) This subsection (b)(2) corresponds with 40 CFR 141.88(b)(2), which USEPA marked “[reserved]”. This statement maintains structural consistency with USEPA’s rule.
- c) Monitoring Frequency after Installing Source Water Treatment or Adding a New Source
 - 1) A supplier installing source water treatment under Section 611.2353(a)(3) must collect one source water sample from each entry point to its distribution system during each of two consecutive six-month source

water monitoring periods on or before 36 months after completing step 2, as Section 611.2353(a)(4) specifies.

- 2) A supplier adding a new source must collect one source water sample from each entry point to its distribution system during each six-month source water monitoring period until the supplier demonstrates that the supplier has maintained finished drinking water entering the distribution system below the MPCs for lead and copper the Agency specifies under Section 611.2353(b)(4), or the Agency issues a SEP determining that the supplier does not need source water treatment.

d) Monitoring Frequency after the Agency Specifies the Lead and Copper MPCs

- 1) A supplier must monitor at the frequency subsections (d)(1) and (d)(2) specify if the Agency specifies the MPCs under Section 611.2353(b)(4).

A) GWS Suppliers

- i) A GWS supplier sampling under subsection (d)(1) must collect samples once during the three-year compliance period (as Section 611.101 defines the term) during which the Agency makes its determination under Section 611.2353(b)(4).
- ii) A GWS supplier sampling under subsection (d)(1) must sample once during each subsequent compliance period.
- iii) A supplier must triennially collect samples every third calendar year.

- B) A SWS or mixed system supplier must collect samples once during each calendar year, the first annual source water monitoring period to begin during the year in which the Agency makes its determination under Section 611.2353(b)(4).

- 2) A supplier needs not sample source water for lead or copper if the supplier meets the action level for the specific contaminant in all tap water samples during the entire source water monitoring period under subsection (d)(1)(A) or (d)(1)(B).

e) Reduced Monitoring Frequency

- 1) A GWS supplier may reduce its source water monitoring frequency for lead and copper to once during each nine-year compliance cycle (as Section 611.101 defines the term), provided the supplier collects the

samples no later than every ninth calendar year, and only if the supplier meets certain criteria:

- A) The supplier demonstrates that finished drinking water entering the distribution system remains below the MPCs for lead and copper the Agency specifies under Section 611.2353(b)(4) during at least three consecutive monitoring periods under subsection (d)(1).
 - B) This subsection (e)(1)(B) corresponds with 40 CFR 141.88(e)(1)(ii), which USEPA marked “[reserved]”. This statement maintains structural consistency with USEPA’s rule.
- 2) A SWS or mixed system supplier may reduce its monitoring frequency subsection (d)(1) requires to once during each nine-year compliance cycle (as Section 611.101 defines the term) if the supplier collects the samples no later than every ninth calendar year, and only if the supplier meets certain criteria:
- A) The supplier demonstrates that finished drinking water entering its distribution system remains below the MPCs for lead and copper the Agency specifies under Section 611.2353(b)(4) for at least three consecutive years.
 - B) This subsection (e)(2)(B) corresponds with 40 CFR 141.88(e)(1)(ii), which USEPA marked “[reserved]”. This statement maintains structural consistency with USEPA’s rule.
- 3) A supplier using a new source of water must not reduce its monitoring for lead or copper until after the supplier demonstrates, by samples it collected from the new source during three consecutive source water monitoring periods under subsection (d)(1), that lead or copper levels are below the MPC the Agency specifies under Section 611.2353(a)(5).

BOARD NOTE: This Section derives from 40 CFR 141.88.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 611.2359 Analytical Methods

The supplier must conduct analyses for lead, copper, pH, alkalinity, orthophosphate, and silica, using the methods in Section 611.611(a).

- a) Only a certified laboratory in one of the categories in Section 611.490(a) may conduct analyses for lead and copper to demonstrate that a supplier complies with

this Subpart G. To obtain certification for conducting analyses for lead and copper, a laboratory must fulfill specific conditions:

- 1) The laboratory must analyze lead- and copper-containing performance evaluation samples provided by or acceptable to USEPA or the Agency at least once a year by each method for which the laboratory seeks certification;
- 2) The laboratory must achieve certain quantitative acceptance limits:
 - A) For lead: ± 30 percent of the actual amount in the performance evaluation sample when the actual amount is greater than or equal to 0.005 mg/ L (the PQL for lead is 0.005 mg/ L);
 - B) For copper: ± 10 percent of the actual amount in the performance evaluation sample when the actual amount is greater than or equal to 0.050 mg/ L (the PQL for copper is 0.050 mg/ L);
- 3) The laboratory must achieve method detection limit (MDL) for lead of 0.001 mg/ L using the procedures in 35 Ill. Adm. Code 186 and appendix B to 40 CFR 136: "Definition and Procedure for the Determination of the Method Detection Limit—Revision 1.11", incorporated by reference in Section 611.102(c); and
- 4) The laboratory must have current certification to perform analyses under the specifications this subsection (a) describes.

BOARD NOTE: This subsection (a) derives from 40 CFR 141.89(a) and (a)(1).

- b) The Agency must issue a SEP allowing a supplier to use previously collected monitoring data under this Subpart AH if the supplier collected and analyzed the data complying with this Subpart AH.

BOARD NOTE: This subsection (b) derives from 40 CFR 141.89(a)(2).

- c) Reporting Lead and Copper Levels

- 1) The supplier must report all lead and copper levels greater than or equal to the lead and copper PQL ($Pb \geq 0.005$ mg/ L and $Cu \geq 0.050$ mg/ L) as measured.
- 2) The supplier must report all lead and copper levels less than the PQL but greater than the MDL (0.005 mg/ L $> Pb > MDL$ and 0.050 mg/ L $> Cu > MDL$) either as measured or as one-half the PQL in subsection (a) (i.e., 0.0025 mg/ L for lead or 0.025 mg/ L for copper).

- 3) The supplier must report all lead and copper levels below the lead and copper MDL (MDL > Pb) as zero.

BOARD NOTE: This subsection (c) derives from 40 CFR 141.89(a)(3) and (a)(4).

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 611.APPENDIX A Regulated Contaminants

Microbiological Contaminants

Contaminant (units): Total Coliform Bacteria

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): E. coli

Traditional MCL in mg/l: Routine and repeat samples are total coliform-positive and either is E. coli-positive or system fails to take repeat samples following E. coli-positive routine sample or system fails to analyze total coliform-positive repeat sample for E. coli.

To convert for CCR, multiply by: —

MCL in CCR units: Routine and repeat samples are total coliform-positive and either is E. coli-positive or system fails to take repeat samples following E. coli-positive routine sample or system fails to analyze total coliform-positive repeat sample for E. coli.

MCLG: 0

Major sources in drinking water: Human and animal fecal waste.

Health effects language: E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, the elderly, and people with severely-compromised immune systems.

Contaminant (units): Fecal Indicators (enterococci or coliphage).

Traditional MCL in mg/l: TT.

To convert for CCR, multiply by: —

MCL in CCR units: TT.

MCLG: N/A

Major sources in drinking water: Human and animal fecal waste.

Health effects language: Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term health effects, such as diarrhea, cramps, nausea,

headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.

Contaminant (units): Total organic carbon (ppm)

Traditional MCL in mg/ℓ: TT

To convert for CCR, multiply by: —

MCL in CCR units: TT

MCLG: N/A

Major sources in drinking water: Naturally present in the environment.

Health effects language: Total organic carbon (TOC) has no health effects.

However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.

Contaminant (units): Turbidity (NTU)

Traditional MCL in mg/ℓ: TT

To convert for CCR, multiply by: —

MCL in CCR units: TT

MCLG: N/A

Major sources in drinking water: Soil runoff.

Health effects language: Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

Radioactive Contaminants

Contaminant (units): Beta/photon emitters (mrem/yr)

Traditional MCL in mg/ℓ: 4 mrem/yr

To convert for CCR, multiply by: —

MCL in CCR units: 4

MCLG: 0

Major sources in drinking water: Decay of natural and man-made deposits.

Health effects language: Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta particle and photon radioactivity in excess of the MCL over many years may have an increased risk of getting cancer.

Contaminant (units): Alpha emitters (pCi/ℓ)

Traditional MCL in mg/ℓ: 15 pCi/ℓ

To convert for CCR, multiply by: —

MCL in CCR units: 15

MCLG: 0

Major sources in drinking water: Erosion of natural deposits.

Health effects language: Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.

Contaminant (units): Combined radium (pCi/ℓ)

Traditional MCL in mg/ℓ: 5 pCi/ℓ

To convert for CCR, multiply by: —

MCL in CCR units: 5

MCLG: 0

Major sources in drinking water: Erosion of natural deposits.

Health effects language: Some people who drink water containing radium-226 or -228 in excess of the MCL over many years may have an increased risk of getting cancer.

Contaminant (units): Uranium (μg/ℓ)

Traditional MCL in mg/ℓ: 30 μg/ℓ

To convert for CCR, multiply by: —

MCL in CCR units: 30

MCLG: 0

Major sources in drinking water: Erosion of natural deposits.

Health effects language: Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer and kidney toxicity.

Inorganic Contaminants

Contaminant (units): Antimony (ppb)

Traditional MCL in mg/ℓ: 0.006

To convert for CCR, multiply by: 1000

MCL in CCR units: 6

MCLG: 6

Major sources in drinking water: Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder.

Health effects language: Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.

Contaminant (units): Arsenic (ppb)

Traditional MCL in mg/ℓ: 0.010

To convert for CCR, multiply by: 1000

MCL in CCR units: 50

MCLG: 0

Major sources in drinking water: Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes.

Health effects language: Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.

Contaminant (units): Asbestos (MFL)

Traditional MCL in mg/l: 7 MFL

To convert for CCR, multiply by: —

MCL in CCR units: 7

MCLG: 7

Major sources in drinking water: Decay of asbestos cement water mains; erosion of natural deposits.

Health effects language: Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.

Contaminant (units): Barium (ppm)

Traditional MCL in mg/l: 2

To convert for CCR, multiply by: —

MCL in CCR units: 2

MCLG: 2

Major sources in drinking water: Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.

Health effects language: Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.

Contaminant (units): Beryllium (ppb)

Traditional MCL in mg/l: 0.004

To convert for CCR, multiply by: 1000

MCL in CCR units: 4

MCLG: 4

Major sources in drinking water: Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries.

Health effects language: Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions.

Contaminant (units): Bromate (ppb)

Traditional MCL in mg/l: 0.010

To convert for CCR, multiply by: 1000

MCL in CCR units: 10

MCLG: 0

Major sources in drinking water: By-product of drinking water disinfection.

Health effects language: Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer.

Contaminant (units): Cadmium (ppb)

Traditional MCL in mg/l: 0.005

To convert for CCR, multiply by: 1000

MCL in CCR units: 5

MCLG: 5

Major sources in drinking water: Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints.

Health effects language: Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.

Contaminant (units): Chloramines (ppm)

Traditional MCL in mg/ℓ: MRDL=4

To convert for CCR, multiply by: —

MCL in CCR units: MRDL=4

MCLG: MRDLG=4

Major sources in drinking water: Water additive used to control microbes.

Health effects language: Some people who drink water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose.

Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia.

Contaminant (units): Chlorine (ppm)

Traditional MCL in mg/ℓ: MRDL=4

To convert for CCR, multiply by: —

MCL in CCR units: MRDL=4

MCLG: MRDLG=4

Major sources in drinking water: Water additive used to control microbes.

Health effects language: Some people who drink water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose.

Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.

Contaminant (units): Chlorine dioxide (ppb)

Traditional MCL in mg/ℓ: MRDL=800

To convert for CCR, multiply by: 1000

MCL in CCR units: MRDL=800

MCLG: MRDLG=800

Major sources in drinking water: Water additive used to control microbes.

Health effects language: Some infants and young children who drink water containing chlorine dioxide well in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia.

Contaminant (units): Chlorite (ppm)

Traditional MCL in mg/ℓ: MRDL=1

To convert for CCR, multiply by: —

MCL in CCR units: MRDL=1

MCLG: MRDLG=0.8

Major sources in drinking water: By-product of drinking water disinfection.

Health effects language: Some infants and young children who drink water containing chlorite well in excess of the MCL could experience nervous system effects.

Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia.

Contaminant (units): Chromium (ppb)

Traditional MCL in mg/l: 0.1

To convert for CCR, multiply by: 1000

MCL in CCR units: 100

MCLG: 100

Major sources in drinking water: Discharge from steel and pulp mills; erosion of natural deposits.

Health effects language: Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.

Contaminant (units): Copper (ppm)

Traditional MCL in mg/l: TT, 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: TT, AL=0.010

To convert for CCR, multiply by: 1000

MCL in CCR units: AL=10

MCLG: 0

Major sources in drinking water: Corrosion of household plumbing systems and service lines connecting buildings to water mains, erosion of natural deposits.

Health effects language: There is no safe level of lead in drinking water. Exposure to lead in drinking water can cause serious health effects in all age groups, especially pregnant people, infants (both formula-fed and breastfed), and young children. Some of the health effects to infants and children include decreases in IQ and attention span. Lead exposure can also result in new or worsened learning and behavior problems. The children of persons who are exposed to lead before or during pregnancy may be at increased risk of these harmful health effects. Adults have increased risks of heart disease, high blood pressure, kidney or nervous system problems. Contact your health care provider for more information about your risks.

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): Hazard Index PFAS (HFPO-DA, PFBS, PFHxS, and PFNA)
(unitless)

Traditional MCL in mg/l: 1(unitless)

To convert for CCR, multiply by:

MCL in CCR units: 1

MCLG: 1

Major sources in drinking water: Discharge from manufacturing and industrial chemical facilities, use of certain consumer products, occupational exposures, and certain firefighting activities.

Health effects language: Per- and polyfluoroalkyl substances (PFAS) can persist in the human body and exposure may lead to increased risk of adverse health effects. Low levels of multiple PFAS that individually would not likely result in increased risk of adverse health effects may result in adverse health effects when combined in a mixture. Some people who consume drinking water containing mixtures of PFAS in excess of the Hazard Index (HI) MCL may have increased health risks such as liver, immune, and thyroid effects following exposure over many years and developmental and thyroid effects following repeated exposure during pregnancy and/or childhood.

Contaminant (units): HFPO-DA (mg/l)

Traditional MCL in mg/l: .00001

To convert for CCR, multiply by: 1,000,000

MCL in CCR units: 10

MCLG: 10

Major sources in drinking water: Discharge from manufacturing and industrial chemical facilities, use of certain consumer products, occupational exposures, and certain firefighting activities.

Health effects language: Some people who drink water containing HFPO-DA in excess of the MCL over many years may have increased health risks such as immune, liver, and kidney effects. There is also a potential concern for cancer associated with HFPO-DA exposure. In addition, there may be increased risks of

developmental effects for people who drink water containing HFPO-DA in excess of the MCL following repeated exposure during pregnancy and/or childhood.

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): PFHxS (mg/l)

Traditional MCL in mg/l: .00001

To convert for CCR, multiply by: 1,000,000

MCL in CCR units: 10

MCLG: 10

Major sources in drinking water: Discharge from manufacturing and industrial chemical facilities, use of certain consumer products, occupational exposures, and certain firefighting activities.

Health effects language: Some people who drink water containing PFHxS in excess of the MCL over many years may have increased health risks such as immune, thyroid, and liver effects. In addition, there may be increased risks of developmental effects for people who drink water containing PFHxS in excess of the MCL following repeated exposure during pregnancy and/or childhood.

Contaminant (units): PFNA (mg/l)

Traditional MCL in mg/l: .00001

To convert for CCR, multiply by: 1,000,000

MCL in CCR units: 10

MCLG: 10

Major sources in drinking water: Discharge from manufacturing and industrial chemical facilities, use of certain consumer products, occupational exposures, and certain firefighting activities.

Health effects language: Some people who drink water containing PFNA in excess of the MCL over many years may have increased health risks such as elevated cholesterol levels, immune effects, and liver effects. In addition, there may be increased risks of developmental effects for people who drink water containing PFNA in excess of the MCL following repeated exposure during pregnancy and/or childhood.

Contaminant (units): PFOA Perfluorooctanoate (mg/l)

Traditional MCL in mg/l: .0000040

To convert for CCR, multiply by: 1,000,000

MCL in CCR units: 4.0

MCLG: 0

Major sources in drinking water: Discharge from manufacturing and industrial chemical facilities, use of certain consumer products, occupational exposures, and certain firefighting activities.

Health effects language: Some people who drink water containing PFOA in excess of the MCL over many years may have increased health risks such as cardiovascular, immune, and liver effects, as well as increased incidence of certain types of cancers including kidney and testicular cancer. In addition, there may be

increased risks of developmental and immune effects for people who drink water containing PFOA in excess of the MCL following repeated exposure during pregnancy and/or childhood.

Contaminant (units): PFOS (mg/l)

Traditional MCL in mg/l: .0000040

To convert for CCR, multiply by: 1,000,000

MCL in CCR units: 4.04

MCLG: 0

Major sources in drinking water: Discharge from manufacturing and industrial chemical facilities, use of certain consumer products, occupational exposures, and certain firefighting activities.

Health effects language: Some people who drink water containing PFOS in excess of the MCL over many years may have increased health risks such as cardiovascular, immune, and liver effects, as well as increased incidence of certain types of cancers including liver cancer. In addition, there may be increased risks of developmental and immune effects for people who drink water containing PFOS in excess of the MCL following repeated exposure during pregnancy and/or childhood.

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.

(Source: Amended at 50 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. Corresponding row 1a in appendix B to subpart Q to 40 CFR 141 no longer applies by its own terms. This statement maintains structural consistency with the federal regulations.			
1b. Corresponding row 1b in appendix B to subpart Q to 40 CFR 141 no longer applies by its own terms. This statement maintains structural consistency with the federal regulations.			
1c. Fecal indicators (GWR): i. E. coli ii. enterococci iii. coliphage	Zero None None	TT TT TT	Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.
1d. Groundwater Rule TT Violations	None	TT	Inadequately treated or inadequately protected water may contain disease-causing organisms. These organisms can cause symptoms such as diarrhea, nausea, cramps, and associated headaches.

1e. Subpart Y Coliform Assessment and Corrective Action Violations	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).
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1f. Subpart Y E.coli Assessment and Corrective Action Violations	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	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	N/A	TT	When this violation includes the failure to monitor for total coliforms or E. coli prior to serving water to the public, the mandatory language found at Section 611.905(d)(2) must be used. When this violation includes failure to complete other actions, the appropriate elements found in Section 611.905(a) to describe the violation must be used.
2a. This entry relates to the obsolete MCL for turbidity in 40 CFR 141.13 that does not apply to any supplier in Illinois. This statement maintains structural consistency with the corresponding USEPA rule.			
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 ¹³	There is no safe level of lead in drinking water. Exposure to lead in drinking water can cause serious health effects in all age groups, especially pregnant people, infants (both formula-fed and breastfed), and young children. Some of the health effects to infants and children include decreases in IQ and attention span. Lead exposure can also result in new or worsened learning and behavior problems. The children of persons who are exposed to lead before or during pregnancy may be at increased risk of these harmful health effects. Adults have increased risks of heart disease, high blood pressure, kidney or nervous system problems. Contact your health care provider for more information about your risks.

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. PFAS (HFPO-DA, PFBS, PFHxS, and PFNA)	1 (unitless	1 (unitless	Per- and polyfluoroalkyl substances (PFAS) can persist in the human body and exposure may lead to increased risk of adverse health effects. Low levels of multiple PFAS that individually would not likely result in increased risk of adverse health effects may result in adverse health effects when combined in a mixture. Some people who consume drinking water containing mixtures of PFAS in excess of the Hazard Index (HI) MCL may have increased health risks such as liver, immune, and thyroid effects following exposure over many years and developmental and thyroid effects following repeated exposure during pregnancy and/or childhood

56. HFPO-DA	0.00001	0.00001	Some people who drink water containing HFPO-DA in excess of the MCL over many years may have increased health risks such as immune, liver, and kidney effects. There is also a potential concern for cancer associated with HFPO-DA exposure. In addition, there may be increased risks of developmental effects for people who drink water containing HFPO-DA in excess of the MCL following repeated exposure during pregnancy and/or childhood
57. PFHxS	0.00001	0.00001	Some people who drink water containing PFHxS in excess of the MCL over many years may have increased health risks such as immune, thyroid, and liver effects. In addition, there may be increased risks of developmental effects for people who drink water containing PFHxS in excess of the MCL following repeated exposure during pregnancy and/or childhood.

58. PFNA	0.00001	0.00001	Some people who drink water containing PFNA in excess of the MCL over many years may have increased health risks such as elevated cholesterol levels, immune effects, and liver effects. In addition, there may be increased risks of developmental effects for people who drink water containing PFNA in excess of the MCL following repeated exposure during pregnancy and/or childhood.
59. PFOA	zero	<u>0.00000400</u> 0004	Some people who drink water containing PFOA in excess of the MCL over many years may have increased health risks such as cardiovascular, immune, and liver effects, as well as increased incidence of certain types of cancers including kidney and testicular cancer. In addition, there may be increased risks of developmental and immune effects for people who drink water containing PFOA in excess of the MCL following repeated exposure during pregnancy and/or childhood.

60. PFOS	zero	<u>0.00000400.0</u> 0004	Some people who drink water containing PFOS in excess of the MCL over many years may have increased health risks such as cardiovascular, immune, and liver effects, as well as increased incidence of certain types of cancers including liver cancer. In addition, there may be increased risks of developmental and immune effects for people who drink water containing PFOS in excess of the MCL following repeated exposure during pregnancy and/or childhood.
61. 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.
62. 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.
63. 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.
64. 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.

65. 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.
66. 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.
67. 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.
68. cis-1,2-Dichloro-ethylene	0.07	0.07	Some people who drink water containing cis-1,2-dichloro-ethylene in excess of the MCL over many years could experience problems with their liver.
69. trans-1,2-Dichloro-ethylene	0.1	0.1	Some people who drink water containing trans-1,2-dichloro-ethylene well in excess of the MCL over many years could experience problems with their liver.
70. 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.
71. 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.

72. 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.
73. 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.
74. 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.
75. 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.
76. 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.
77. 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.
78. 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.

79. 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.
80. 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.
75a ²³²² 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			
81. 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.
82. 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.
83. Combined radium (226 and 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.

84. 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: If 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			
85. 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.
86. 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.
87. 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.
88. 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.

89. 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.
90. 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.
91. Chlorine dioxide, if any two consecutive daily samples taken at the entrance to the distribution system are above the MRDL	0.8 (MRDLG)	0.8 (MRDL)	Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia. Add for public notification only: The chlorine dioxide violations reported today are the result of exceedances at the treatment facility only, not within the distribution system that delivers water to consumers. Continued compliance with chlorine dioxide levels within the distribution system minimizes the potential risk of these violations to consumers.

92. Chlorine dioxide, if one or more distribution system samples are above the MRDL	0.8 (MRDLG)	0.8 (MRDL)	Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia. Add for public notification only: The chlorine dioxide violations reported today include exceedances of the USEPA standard within the distribution system that delivers water to consumers. Violations of the chlorine dioxide standard within the distribution system may harm human health based on short-term exposures. Certain groups, including fetuses, infants, and young children, may be especially susceptible to nervous system effects from excessive chlorine dioxide exposure.
93. 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:			
94. 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.
95. 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. This endnote corresponds with endnote 3 to appendix B to subpart Q to 40 CFR 14, which applied only to paragraph 1a in the table, which no longer has operative effect. This statement maintains structural consistency with the corresponding federal rules.
4. In the corresponding USEPA rule, this note relates to an entry for the obsolete MCL for turbidity that does not apply to any supplier in Illinois. This statement maintains structural consistency with the corresponding USEPA rule.
5. In the corresponding USEPA rule, this note relates to an entry for the obsolete MCL for turbidity that does not apply to any supplier in Illinois. This statement maintains structural consistency with the corresponding USEPA rule.
6. There are various regulations that set turbidity standards for different types of systems, including 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 the 1989 SWTR, the 1998 IESWTR, and the 2002 LT1ESWTR. For a supplier

subject to the IESWTR (a supplier serving 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 serving fewer than 10,000 people, using surface water or groundwater under the direct influence of surface water) using conventional filtration or direct filtration, 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 bacteria is an indicator of whether there is enough disinfectant in the distribution system.
10. SWTR, IESWTR, and LT1ESWTR treatment technique violations that involve turbidity exceedances may use the health effects language for turbidity instead.
11. Millions of fibers per liter.
12. Action Level = 0.015 mg/L.
13. Action Level = 1.3 mg/L.
14. Millirems per year.
15. Picocuries per liter.
16. A surface water system supplier or a groundwater system supplier under the direct influence of surface water is regulated under Subpart B. A Subpart 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 using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL.
17. Community and non-transient non-community systems must comply with Subpart Y TTHM and HAA5 MCLs of 0.080 mg/L and 0.060 mg/L, respectively (with compliance calculated as a locational running annual average) on the schedule in Section 611.970.
18. The MCL for total trihalomethanes is the sum of the concentrations of the individual trihalomethanes.

19. The MCL for haloacetic acids is the sum of the concentrations of the individual haloacetic acids.
20. “MRDLG” means maximum residual disinfectant level goal.
21. “MRDL” means maximum residual disinfectant level.
22. The supplier is in compliance unless one of the following conditions occurs: (1) the supplier’s system has an E. coli-positive repeat sample following a total coliform- positive routine sample; (2) the supplier’s system has a total coliform-positive repeat sample following an E. coli-positive routine sample; (3) the supplier fails to take all required repeat samples following an E. coli-positive routine sample; or (4) the supplier fails to test for E. coli when any repeat sample tests positive for total coliform.
23. The above appendix ~~HB~~ has two contaminants assigned to 75, the second contaminant with the number 75, xylene, is numbered 75a to retain structural integrity with 40 CFR 141 Appendix B to subpart Q.

BOARD NOTE: This Appendix H derives from appendix B to subpart Q to 40 CFR 141.

(Source: Amended at 50 Ill. Reg. _____, effective _____)