

ILLINOIS POLLUTION CONTROL BOARD  
December 7, 2023

IN THE MATTER OF:	)	
SDWA UPDATE, USEPA AMENDMENTS	)	R23-9
(July 1, 2022 through December 31, 2022)	)	(Identical-in-Substance
	)	Rulemaking - Public Water Supply)

Adopted Rule. Final Order.

OPINION AND ORDER OF THE BOARD (by M. Gibson):

**SUMMARY OF THIS ACTION**

The Board today adopts amendments to Illinois rules that are “identical in substance” (IIS) to drinking water regulations adopted by the United States Environmental Protection Agency (USEPA) during the second half of 2022. USEPA did not amend the federal National Primary Drinking Water Regulations (NPDWRs) during this period, but it granted summary approval to seven additional alternative test procedures (ATPs) for analyzing contaminants in drinking water. The Board adds these additional ATPs to the Illinois drinking water monitoring rules.

Sections 7.2 and 17.5 of the Illinois Environmental Protection Act (Act) (415 ILCS 5/7.2, 17.5 (2022)) provide for the Board’s quick adoption of rules that are identical in substance to regulations that USEPA adopts to implement Sections 1412(b), 1414(c), 1417(a), and 1445(a) of the federal Safe Drinking Water Act (SDWA) (42 U.S.C. §§ 300g-1(a), 300g-3(c), 300g-6(a), 300j-4(a) (2017)). The NPDWRs implement these sections of SDWA. SDWA regulations are found at 40 C.F.R. 141 through 143. Section 17.5 of the Act also provides that Title VII of the Act and Section 5 of the Illinois Administrative Procedure Act (APA) (5 ILCS 100/5-35, 5-40 (2022)) do not apply to the Board’s adoption of identical-in-substance rules.

The Board proposed amendments in the *Illinois Register* and received three public comments. The Board today adopts the rules with no substantive changes from the proposal for public comment.

This opinion first extends the due date for final action, and then briefly discusses the nonsubstantive comments the Board received. The text of the Board’s proposed amendments is appended to this opinion and order.

**EXTENSION OF DUE DATE AND REASONS FOR DELAY**

The Board finds it necessary to set forth reasons for delay and extend the due date for final Board adoption of amendments.

Under Section 7.2(b) of the Act (415 ILCS 5/7.2(b) (2022)), the Board must complete this rulemaking within one year after the corresponding federal action. Based on the date

USEPA approved additional methods, the Board's deadline to adopt final rules in this docket was August 17, 2023. The Board finds it necessary to extend the date for completion until December 22, 2023.

The Board used considerable resources to complete the much more complex SDWA rulemaking which includes the Lead and Copper Rule updates. *See* SDWA Update, USEPA Amendments (July 1, 2020 through December 31, 2020), R 21-10 (conslid.), USEPA Amendments (January 1, 2021 through June 30, 2021), R22-2 (IIS SDWA Rule). The Board considered and proposed SDWA updates in this docket simultaneously with the more complex IIS SDWA Rule. However due to the volume and complexity of comments and delay of publication of the IIS SDWA rule in the *Illinois Register*, the Board did not complete that rulemaking until October 1, 2023. Therefore, the Board was unable to complete this rule by October 1, 2023, and today extends the deadline to December 22, 2023.

### **TIMETABLE TO COMPLETE RULEMAKING**

Adopting these amended rules today will allow the Board to complete this rulemaking by December 21, 2023, barring unforeseen delays. The Board intends to adhere to the following schedule:

<b>Board order proposing amendments:</b>	<b>June 1, 2023</b>
Submission for <i>Illinois Register</i> publication:	June 9, 2023
<i>Illinois Register</i> publication:	August 4, 2023
End of 45-day public comment period:	September 19, 2023
<b>Board order adopting amendments:</b>	<b>December 7, 2023</b>
<b>Estimate of when rules take effect:</b>	<b>December 7, 2023</b>
Estimated <i>Illinois Register</i> publication:	December 22, 2023

### **DISCUSSION**

The Board will not reiterate its discussion of the proposal for public comment in this opinion. Please see SDWA Update, USEPA Amendments (July 1, 2022 through December 31, 2022) R23-9 (June 1, 2023) for details of the proposal. The Board received three comments during the public comment time period, all nonsubstantive. The Illinois Secretary of State Administrative Code Division asked the Board to make changes to existing language, including reorganizing some of the incorporations by reference. The Board appreciates the review of the Administrative Code Division, however, the Board did not reorganize the incorporations by reference in this proceeding. Generally, the Board's organization of the incorporations by reference is chronological by year, not by the document number as the Code Division seems to suggest. The Board believes that such a change is too substantive to make in this IIS rulemaking, however, will consider the suggestions in a future substantive rulemaking.


The Joint Committee on Administrative sought clarification of rule language, which the Board noted was correct. The Illinois Environmental Protection Agency pointed to a typo in the IIS-RA(P), which the Board corrects in the IIS-RA(F).

The Board received no other suggestions or comments on the proposed amendatory language. Therefore, the Board will proceed to adoption of this IIS rule.

**ORDER**

The Board directs the Clerk to provide notice in the *Illinois Register* of the appended adopted amendments to the Illinois primary drinking water rules.

I, Don A. Brown, Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above opinion and order on December 7, 2023, by a vote of 4-0.

A handwritten signature in cursive script that reads "Don A. Brown". The signature is written in black ink and is centered on the page.

Don A. Brown, Clerk  
Illinois Pollution Control Board

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

PART 611  
PRIMARY DRINKING WATER STANDARDS

SUBPART A: GENERAL

Section	
611.100	Purpose, Scope, and Applicability
611.101	Definitions
611.102	Incorporations by Reference
611.103	Severability
611.105	Electronic Reporting
611.107	Agency Inspection of PWS Facilities (Repealed)
611.108	Delegation to Local Government
611.109	Enforcement
611.110	Special Exception Permits
611.111	Relief Equivalent to SDWA Section 1415(a) Variances
611.112	Relief Equivalent to SDWA Section 1416 Exemptions
611.113	Alternative Treatment Techniques
611.114	Siting Requirements
611.115	Source Water Quantity (Repealed)
611.120	Effective Dates (Repealed)
611.121	Maximum Contaminant Levels
611.125	Fluoridation Requirement
611.126	Using Lead-Free Pipes, Fittings, Fixtures, Solder, and Flux for Drinking Water
611.130	Special Requirements for Certain Variances and Adjusted Standards
611.131	Relief Equivalent to SDWA Section 1415(e) Small System Variance
611.160	Composite Correction Program
611.161	Case-by-Case Reduced Subpart Y Monitoring for Wholesale and Consecutive Systems

SUBPART B: FILTRATION AND DISINFECTION

Section	
611.201	Requiring a Demonstration (Repealed)
611.202	Procedures for Agency Determinations (Repealed)
611.211	Filtration Required
611.212	Groundwater under Direct Influence of Surface Water
611.213	No Method of HPC Analysis
611.220	General Requirements
611.230	Filtration Effective Dates (Repealed)
611.231	Source Water Limitation
611.232	Site-Specific Conditions (Repealed)

611.233	Treatment Technique Violations
611.240	Disinfection
611.241	Unfiltered PWSs (Repealed)
611.242	Filtered PWSs
611.250	Filtration
611.261	Unfiltered PWSs: Reporting and Recordkeeping
611.262	Filtered PWSs: Reporting and Recordkeeping
611.271	Protection during Repair Work (Repealed)
611.272	Disinfection Following Repair (Repealed)
611.276	Recycle Provisions

#### SUBPART C: USE OF NON-CENTRALIZED TREATMENT DEVICES

Section	
611.280	Point-of-Entry Devices
611.290	Point-of-Use Devices or Bottled Water

#### SUBPART D: TREATMENT TECHNIQUES

Section	
611.295	General Requirements
611.296	Acrylamide and Epichlorohydrin
611.297	Corrosion Control (Repealed)

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

Section	
611.300	State-Only MCLs for Inorganic Chemical Contaminants
611.301	Revised MCLs for Inorganic Chemical Contaminants
611.310	State-Only Maximum Contaminant Levels (MCLs) for Organic Chemical Contaminants
611.311	Revised MCLs for Organic Chemical Contaminants
611.312	Maximum Contaminant Levels (MCLs) for Disinfection Byproducts (DBPs)
611.313	Maximum Residual Disinfectant Levels (MRDLs)
611.320	Turbidity (Repealed)
611.325	Microbiological Contaminants
611.330	Maximum Contaminant Levels for Radionuclides
611.331	Beta Particle and Photon Radioactivity (Repealed)

#### SUBPART G: LEAD AND COPPER

Section	
611.350	General Requirements
611.351	Applicability of Corrosion Control
611.352	Corrosion Control Treatment

611.353	Source Water Treatment
611.354	Lead Service Line Inventory and Replacing Lead Service Lines
611.355	Public Education and Supplemental Monitoring and Mitigation
611.356	Tap Water Monitoring for Lead and Copper
611.357	Monitoring for Water Quality Parameters
611.358	Monitoring for Lead and Copper in Source Water
611.359	Analytical Methods
611.360	Reporting
611.361	Recordkeeping
611.362	Monitoring for Lead in Schools and Child Care Facilities
611.363	Small Supplier Compliance Flexibility

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

Section	
611.380	General Requirements
611.381	Analytical Requirements
611.382	Monitoring Requirements
611.383	Compliance Requirements
611.384	Reporting and Recordkeeping Requirements
611.385	Treatment Technique for Control of Disinfection Byproduct (DBP) Precursors

#### SUBPART K: GENERAL MONITORING AND ANALYTICAL REQUIREMENTS

Section	
611.480	Alternative Analytical Techniques
611.490	Certified Laboratories
611.491	Laboratory Testing Equipment (Repealed)
611.500	Consecutive PWSs
611.510	Special Monitoring for Unregulated Contaminants (Repealed)

#### SUBPART L: MICROBIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

Section	
611.521	Routine Coliform Monitoring (Repealed)
611.522	Repeat Coliform Monitoring (Repealed)
611.523	Invalidation of Total Coliform Samples (Repealed)
611.524	Sanitary Surveys (Repealed)
611.525	Fecal Coliform and E. Coli Testing (Repealed)
611.526	Analytical Methodology (Repealed)
611.527	Response to Violation (Repealed)
611.528	Transition from Subpart L to Subpart AA Requirements (Repealed)
611.531	Analytical Requirements
611.532	Unfiltered PWSs

611.533 Filtered PWSs

#### SUBPART M: TURBIDITY MONITORING AND ANALYTICAL REQUIREMENTS

Section

611.560 Turbidity (Repealed)

#### SUBPART N: INORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

Section

611.591 Violation of a State-Only MCL  
611.592 Frequency of State Monitoring  
611.600 Applicability  
611.601 Monitoring Frequency  
611.602 Asbestos Monitoring Frequency  
611.603 Inorganic Monitoring Frequency  
611.604 Nitrate Monitoring  
611.605 Nitrite Monitoring  
611.606 Confirmation Samples  
611.607 More Frequent Monitoring and Confirmation Sampling  
611.608 Additional Optional Monitoring  
611.609 Determining Compliance  
611.610 Inorganic Monitoring Times  
611.611 Inorganic Analysis  
611.612 Monitoring Requirements for Old Inorganic MCLs  
611.630 Special Monitoring for Sodium  
611.631 Special Monitoring for Inorganic Chemicals (Repealed)

#### SUBPART O: ORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

Section

611.640 Definitions  
611.641 State-Only MCLs  
611.645 Analytical Methods for Organic Chemical Contaminants  
611.646 Phase I, Phase II, and Phase V Volatile Organic Contaminants  
611.647 Sampling for Phase I Volatile Organic Contaminants (Repealed)  
611.648 Phase II, Phase IIB, and Phase V Synthetic Organic Contaminants  
611.650 Monitoring for 36 Contaminants (Repealed)  
611.657 Analytical Methods for 36 Contaminants (Repealed)  
611.658 Special Monitoring for Organic Chemicals (Repealed)

#### SUBPART P: THM MONITORING AND ANALYTICAL REQUIREMENTS

Section

611.680 Sampling, Analytical, and other Requirements (Repealed)  
611.683 Reduced Monitoring Frequency (Repealed)

- 611.684 Averaging (Repealed)
- 611.685 Analytical Methods (Repealed)
- 611.686 Modification to System (Repealed)
- 611.687 Sampling for Maximum THM Potential (Repealed)
- 611.688 Applicability Dates (Repealed)

#### SUBPART Q: RADIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

##### Section

- 611.720 Analytical Methods
- 611.731 Gross Alpha
- 611.732 Beta Particle and Photon Radioactivity
- 611.733 General Monitoring and Compliance Requirements

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

##### Section

- 611.740 General Requirements
- 611.741 Standards for Avoiding Filtration
- 611.742 Disinfection Profiling and Benchmarking
- 611.743 Filtration
- 611.744 Filtration Sampling Requirements
- 611.745 Reporting and Recordkeeping Requirements

#### SUBPART S: GROUNDWATER RULE

##### Section

- 611.800 General Requirements and Applicability
- 611.801 Sanitary Surveys for GWS Suppliers
- 611.802 Groundwater Source Microbial Monitoring and Analytical Methods
- 611.803 Treatment Technique Requirements for GWS Suppliers
- 611.804 Treatment Technique Violations for GWS Suppliers
- 611.805 Reporting and Recordkeeping for GWS Suppliers

#### SUBPART T: REPORTING AND RECORDKEEPING

##### Section

- 611.830 Applicability
- 611.831 Monthly Operating Report (Repealed)
- 611.832 Notice by Agency (Repealed)
- 611.833 Cross Connection Reporting (Repealed)
- 611.840 Reporting
- 611.851 Reporting MCL, MRDL, and other Violations (Repealed)
- 611.852 Reporting other Violations (Repealed)
- 611.853 Notice to New Billing Units (Repealed)



- 611.854 General Content of Public Notice (Repealed)
- 611.855 Mandatory Health Effects Language (Repealed)
- 611.856 Fluoride Notice (Repealed)
- 611.858 Fluoride Secondary Standard (Repealed)
- 611.860 Record Maintenance
- 611.870 List of 36 Contaminants (Repealed)

#### SUBPART U: CONSUMER CONFIDENCE REPORTS

- Section
- 611.881 Purpose and Applicability
- 611.882 Compliance Dates
- 611.883 Content of the Reports
- 611.884 Required Additional Health Information
- 611.885 Report Delivery and Recordkeeping

#### SUBPART V: PUBLIC NOTIFICATION OF DRINKING WATER VIOLATIONS

- Section
- 611.901 General Public Notification Requirements
- 611.902 Tier 1 Public Notice: Form, Manner, and Frequency of Notice
- 611.903 Tier 2 Public Notice: Form, Manner, and Frequency of Notice
- 611.904 Tier 3 Public Notice: Form, Manner, and Frequency of Notice
- 611.905 Content of the Public Notice
- 611.906 Notice to New Billing Units or New Customers
- 611.907 Special Notice of the Availability of Unregulated Contaminant Monitoring Results
- 611.908 Special Notice for Exceedance of the Fluoride Secondary Standard
- 611.909 Special Notice for Nitrate Exceedances above the MCL by a Non-Community Water System
- 611.910 Notice by the Agency on Behalf of a PWS
- 611.911 Special Notice for Cryptosporidium

#### SUBPART W: INITIAL DISTRIBUTION SYSTEM EVALUATIONS

- Section
- 611.920 General Requirements
- 611.921 Standard Monitoring
- 611.922 System-Specific Studies
- 611.923 40/30 Certification
- 611.924 Very Small System Waivers
- 611.925 Subpart Y Compliance Monitoring Location Recommendations

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

Section	
611.950	General Requirements
611.951	Finished Water Reservoirs
611.952	Additional Watershed Control Requirements for Unfiltered Systems
611.953	Disinfection Profile
611.954	Disinfection Benchmark
611.955	Combined Filter Effluent Turbidity Limits
611.956	Individual Filter Turbidity Requirements
611.957	Reporting and Recordkeeping Requirements

#### SUBPART Y: STAGE 2 DISINFECTION BYPRODUCTS REQUIREMENTS

Section	
611.970	General Requirements
611.971	Routine Monitoring
611.972	Subpart Y Monitoring Plan
611.973	Reduced Monitoring
611.974	Additional Requirements for Consecutive Systems
611.975	Conditions Requiring Increased Monitoring
611.976	Operational Evaluation Levels
611.977	Requirements for Remaining on Reduced TTHM and HAA5 Monitoring Based on Subpart I Results
611.978	Requirements for Remaining on Increased TTHM and HAA5 Monitoring Based on Subpart I Results
611.979	Reporting and Recordkeeping Requirements

#### SUBPART Z: ENHANCED TREATMENT FOR CRYPTOSPORIDIUM

Section	
611.1000	General Requirements
611.1001	Source Water Monitoring Requirements: Source Water Monitoring
611.1002	Source Water Monitoring Requirements: Sampling Schedules
611.1003	Source Water Monitoring Requirements: Sampling Locations
611.1004	Source Water Monitoring Requirements: Analytical Methods
611.1005	Source Water Monitoring Requirements: Approved Laboratories
611.1006	Source Water Monitoring Requirements: Reporting Source Water Monitoring Results
611.1007	Source Water Monitoring Requirements: Grandfathering Previously Collected Data
611.1008	Disinfection Profiling and Benchmarking Requirements: Requirements When Making a Significant Change in Disinfection Practice
611.1009	Disinfection Profiling and Benchmarking Requirements: Developing the Disinfection Profile and Benchmark
611.1010	Treatment Technique Requirements: Bin Classification for Filtered System Suppliers
611.1011	Treatment Technique Requirements: Filtered System Additional

- 611.1012 Cryptosporidium Treatment Requirements  
Treatment Technique Requirements: Unfiltered System Cryptosporidium Treatment Requirements
- 611.1013 Treatment Technique Requirements: Schedule for Compliance with Cryptosporidium Treatment Requirements
- 611.1014 Treatment Technique Requirements: Requirements for Uncovered Finished Water Storage Facilities
- 611.1015 Requirements for Microbial Toolbox Components: Microbial Toolbox Options for Meeting Cryptosporidium Treatment Requirements
- 611.1016 Requirements for Microbial Toolbox Components: Source Toolbox Components
- 611.1017 Requirements for Microbial Toolbox Components: Pre-Filtration Treatment Toolbox Components
- 611.1018 Requirements for Microbial Toolbox Components: Treatment Performance Toolbox Components
- 611.1019 Requirements for Microbial Toolbox Components: Additional Filtration Toolbox Components
- 611.1020 Requirements for Microbial Toolbox Components: Inactivation Toolbox Components
- 611.1021 Reporting and Recordkeeping Requirements: Reporting Requirements
- 611.1022 Reporting and Recordkeeping Requirements: Recordkeeping Requirements
- 611.1023 Requirements to Respond to Significant Deficiencies Identified in Sanitary Surveys Performed by USEPA or the Agency

#### SUBPART AA: REVISED TOTAL COLIFORM RULE

##### Section

- 611.1051 General
- 611.1052 Analytical Methods and Laboratory Certification
- 611.1053 General Monitoring Requirements for all PWSs
- 611.1054 Routine Monitoring Requirements for Non-CWSs That Serve 1,000 or Fewer People Using Only Groundwater
- 611.1055 Routine Monitoring Requirements for CWSs That Serve 1,000 or Fewer People Using Only Groundwater
- 611.1056 Routine Monitoring Requirements for Subpart B Systems That Serve 1,000 or Fewer People
- 611.1057 Routine Monitoring Requirements for PWSs That Serve More Than 1,000 People
- 611.1058 Repeat Monitoring and E. coli Requirements
- 611.1059 Coliform Treatment Technique Triggers and Assessment Requirements for Protection Against Potential Fecal Contamination
- 611.1060 Violations
- 611.1061 Reporting and Recordkeeping

#### SUBPART AG: INTERIM LEAD AND COPPER RULES

##### Section

- 611.1350 General Requirements

611.1351	Applicability of Corrosion Control
611.1352	Corrosion Control Treatment
611.1353	Source Water Treatment
611.1354	Lead Service Line Replacement
611.1355	Public Education and Supplemental Monitoring
611.1356	Tap Water Monitoring for Lead and Copper
611.1357	Monitoring for Water Quality Parameters
611.1358	Monitoring for Lead and Copper in Source Water
611.1359	Analytical Methods
611.1360	Reporting
611.1361	Recordkeeping
611.APPENDIX A	Regulated Contaminants
611.APPENDIX B	Percent Inactivation of G. Lamblia Cysts
611.APPENDIX C	Common Names of Organic Chemicals
611.APPENDIX D	Defined Substrate Method for the Simultaneous Detection of Total Coliforms and Escherichia Coli from Drinking Water (Repealed)
611.APPENDIX E	Mandatory Lead Public Education Information for Community Water Systems
611.APPENDIX F	Mandatory Lead Public Education Information for Non-Transient Non-Community Water Systems
611.APPENDIX G	NPDWR Violations and Situations Requiring Public Notice
611.APPENDIX H	Standard Health Effects Language for Public Notification
611.APPENDIX I	Acronyms Used in Public Notification Regulation
611.TABLE A	Total Coliform Monitoring Frequency (Repealed)
611.TABLE B	Fecal or Total Coliform Density Measurements
611.TABLE C	Frequency of RDC Measurement
611.TABLE D	Number of Lead and Copper Monitoring Sites
611.TABLE E	Lead and Copper Monitoring Start Dates (Repealed)
611.TABLE F	Number of Water Quality Parameter Sampling Sites
611.TABLE G	Summary of Section 611.357 Monitoring Requirements for Water Quality Parameters (Repealed)
611.TABLE H	CT Values (mg·min/ℓ) for Cryptosporidium Inactivation by Chlorine Dioxide
611.TABLE I	CT Values (mg·min/ℓ) for Cryptosporidium Inactivation by Ozone
611.TABLE J	UV Dose Table for Cryptosporidium, Giardia lamblia, and Virus Inactivation Credit
611.TABLE R	Radionuclide Conversion Factors
611.TABLE Z	Federal Effective Dates

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

SOURCE: Adopted in R88-26 at 14 Ill. Reg. 16517, effective September 20, 1990; amended in R90-21 at 14 Ill. Reg. 20448, effective December 11, 1990; amended in R90-13 at 15 Ill. Reg. 1562, effective January 22, 1991; amended in R91-3 at 16 Ill. Reg. 19010, effective December 1, 1992; amended in R92-3 at 17 Ill. Reg. 7796, effective May 18, 1993; amended in R93-1 at 17 Ill. Reg.

12650, effective July 23, 1993; amended in R94-4 at 18 Ill. Reg. 12291, effective July 28, 1994; amended in R94-23 at 19 Ill. Reg. 8613, effective June 20, 1995; amended in R95-17 at 20 Ill. Reg. 14493, effective October 22, 1996; amended in R98-2 at 22 Ill. Reg. 5020, effective March 5, 1998; amended in R99-6 at 23 Ill. Reg. 2756, effective February 17, 1999; amended in R99-12 at 23 Ill. Reg. 10348, effective August 11, 1999; amended in R00-8 at 23 Ill. Reg. 14715, effective December 8, 1999; amended in R00-10 at 24 Ill. Reg. 14226, effective September 11, 2000; amended in R01-7 at 25 Ill. Reg. 1329, effective January 11, 2001; amended in R01-20 at 25 Ill. Reg. 13611, effective October 9, 2001; amended in R02-5 at 26 Ill. Reg. 3522, effective February 22, 2002; amended in R03-4 at 27 Ill. Reg. 1183, effective January 10, 2003; amended in R03-15 at 27 Ill. Reg. 16447, effective October 10, 2003; amended in R04-3 at 28 Ill. Reg. 5269, effective March 10, 2004; amended in R04-13 at 28 Ill. Reg. 12666, effective August 26, 2004; amended in R05-6 at 29 Ill. Reg. 2287, effective January 28, 2005; amended in R06-15 at 30 Ill. Reg. 17004, effective October 13, 2006; amended in R07-2/R07-11 at 31 Ill. Reg. 11757, effective July 27, 2007; amended in R08-7/R08-13 at 33 Ill. Reg. 633, effective December 30, 2008; amended in R10-1/R10-17/R11-6 at 34 Ill. Reg. 19848, effective December 7, 2010; amended in R12-4 at 36 Ill. Reg. 7110, effective April 25, 2012; amended in R13-2 at 37 Ill. Reg. 1978, effective February 4, 2013; amended in R14-8 at 38 Ill. Reg. 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 R13-26 at 47 Ill. Reg. 7556, effective May 16, 2023; amended in R21-10/R22-2 at 47 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_; amended in R23-9 at 47 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_.

### **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 (610-832-9585 or <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 2005, 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<sup>®</sup> (00)” means “Chromocult<sup>®</sup> 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, “Radiometry”, 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](http://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<sup>®</sup>)” means m-ColiBlue24<sup>®</sup> Test, Method No. 10029, “Total Coliforms and E. coli Membrane Filtration Method with m-ColiBlue24<sup>®</sup> 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 (Cl<sub>2</sub>) 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)”).

“ITS D99-003 (03)” means “Method # (D99-003): Free Chlorine Species  
(HOCl<sup>-</sup> and OCl<sup>-</sup>) 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)”). Referenced in Section 611.381.

“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)”). Referenced in Section 611.611.  
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.

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](http://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 Leshar 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/doc/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 <sup>226</sup>Ra and <sup>228</sup>Ra, 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, <https://www.awwa.org/Publications/Standard-Methods>; Water Environment Federation, 601 Wythe Street, Alexandria, VA 22314, 800-

666-0206, [www.wef.org](http://www.wef.org); or Standard Methods Online, 800-633-4931, [www.standardmethods.org](http://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, and 23rd 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, and 23rd 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, and 23rd 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 and 23rd 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”. 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, and 23rd 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 and 23rd 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 and 23rd 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 and 23rd 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, and 23rd 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, and 23rd 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, and 23rd 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, and 23rd 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, and 23rd 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, and 23rd 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, and 23rd 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, and 23rd 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, and 23rd 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, and 23rd editions. Referenced in Sections 611.381 and 611.531.

“SM 4500-ClO<sub>2</sub> C (88)” means Method 4500-ClO<sub>2</sub> C, “Chlorine Dioxide”, “Amperometric Method I”, only the version in the 18th edition. Referenced in Sections 611.381 and 611.531.

“SM 4500-ClO<sub>2</sub> C (93)” means Method 4500-ClO<sub>2</sub> C, “Chlorine Dioxide”, “Amperometric Method I”, only the version in the 19th and 20th editions. Referenced in Section 611.531.

“SM 4500-ClO<sub>2</sub> C (00)” means Method 4500-ClO<sub>2</sub> C, “Chlorine Dioxide”, “Amperometric Method I”, only the version in the 21st, 22nd, and 23rd editions. Referenced in Section 611.531.

“SM 4500-ClO<sub>2</sub> D (88)” means Method 4500-ClO<sub>2</sub> D, “Chlorine Dioxide”, “DPD Method”, only the version in the 18th edition. Referenced in Section 611.531.

“SM 4500-ClO<sub>2</sub> D (93)” means Method 4500-ClO<sub>2</sub> D, “Chlorine Dioxide”, “DPD Method”, only the version in the 19th and 20th editions. Referenced in Sections 611.381 and 611.531.

“SM 4500-ClO<sub>2</sub> D (00)” means Method 4500-ClO<sub>2</sub> D, “Chlorine Dioxide”, “DPD Method”, only the version in the 21st edition. Referenced in Section 611.381.

“SM 4500-ClO<sub>2</sub> E (88)” means Method 4500-ClO<sub>2</sub> E, “Chlorine Dioxide”, “Amperometric Method II (Proposed)”, only the version in the 18th edition. Referenced in Section 611.531.

“SM 4500-ClO<sub>2</sub> E (93)” means Method 4500-ClO<sub>2</sub> 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-ClO<sub>2</sub> E (00)” means Method 4500-ClO<sub>2</sub> E, “Chlorine Dioxide”, “Amperometric Method II”, only the version in the 21st, 22nd, and 23rd editions. Referenced in Sections 611.381 and 611.531.

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

“SM 4500-CN<sup>-</sup> C (97)” means Method 4500-CN<sup>-</sup> C, “Cyanide”, “Total Cyanide after Distillation”, only the version in the 20th edition. Referenced in Section 611.611.

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

“SM 4500-CN<sup>-</sup> C (16)” means Method 4500-CN<sup>-</sup> C, “Cyanide”,

“Total Cyanide after Distillation”, only the version in the 23rd edition. Referenced in Section 611.611.

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

“SM 4500-CN<sup>-</sup> E (97)” means Method 4500-CN<sup>-</sup> E, “Cyanide”, “Colorimetric Method”, only the version in the 20th edition. Referenced in Section 611.611.

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

“SM 4500-CN<sup>-</sup> E (16)” means Method 4500-CN<sup>-</sup> E, “Cyanide”, “Colorimetric Method”, only the version in the 23rd edition. Referenced in Section 611.611.

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

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

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

“SM 4500-CN<sup>-</sup> F (16)” means Method 4500-CN<sup>-</sup> F, “Cyanide”, “Cyanide-Ion Selective Electrode Method”, only the version in the 23rd edition. Referenced in Section 611.611.

“SM 4500-CN<sup>-</sup> G (90)” means Method 4500-CN<sup>-</sup> 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<sup>-</sup> G (97)” means Method 4500-CN<sup>-</sup> G, “Cyanide”, “Cyanides Amenable to Chlorination after Distillation”, only the version in the 20th edition. Referenced in Section 611.611.

“SM 4500-CN<sup>-</sup> G (99)” means Method 4500-CN<sup>-</sup> 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<sup>-</sup> G (16)” means Method 4500-CN<sup>-</sup> G, “Cyanide”, “Cyanides Amenable to Chlorination after Distillation”, only the version in the 23rd edition. Referenced in Section 611.611.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

“SM 4500-NO<sub>3</sub><sup>-</sup> D (88)” means Method 4500-NO<sub>3</sub><sup>-</sup> D, “Nitrogen (Nitrate)”, “Nitrate Electrode Method”, only the version in the 18th edition. Referenced in Section 611.611.

“SM 4500-NO<sub>3</sub><sup>-</sup> D (93)” means Method 4500-NO<sub>3</sub><sup>-</sup> D, “Nitrogen (Nitrate)”, “Nitrate Electrode Method”, only the version in the 19th edition. Referenced in Section 611.611.

“SM 4500-NO<sub>3</sub><sup>-</sup> D (97)” means Method 4500-NO<sub>3</sub><sup>-</sup> D, “Nitrogen (Nitrate)”, “Nitrate Electrode Method”, only the version in the 20th edition. Referenced in Section 611.611.

“SM 4500-NO<sub>3</sub><sup>-</sup> D (00)” means Method 4500-NO<sub>3</sub><sup>-</sup> D, “Nitrogen (Nitrate)”, “Nitrate Electrode Method”, only the version in the 21st and 22nd editions. Referenced in Section 611.611.

“SM 4500-NO<sub>3</sub><sup>-</sup> D (16)” means Method 4500-NO<sub>3</sub><sup>-</sup> D, “Nitrogen (Nitrate)”, “Nitrate Electrode Method”, only the version in the 23rd edition. Referenced in Section 611.611.

“SM 4500-NO<sub>3</sub><sup>-</sup> E (88)” means Method 4500-NO<sub>3</sub><sup>-</sup> E, “Nitrogen (Nitrate)”, “Cadmium Reduction Method”, only the version in the 18th edition. Referenced in Section 611.611.

“SM 4500-NO<sub>3</sub><sup>-</sup> E (93)” means Method 4500-NO<sub>3</sub><sup>-</sup> E, “Nitrogen

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

“SM 4500-NO<sub>3</sub><sup>-</sup> E (97)” means Method 4500-NO<sub>3</sub><sup>-</sup> E, “Nitrogen (Nitrate)”, “Cadmium Reduction Method”, only the version in the 20th edition. Referenced in Section 611.611.

“SM 4500-NO<sub>3</sub><sup>-</sup> E (00)” means Method 4500-NO<sub>3</sub><sup>-</sup> E, “Nitrogen (Nitrate)”, “Cadmium Reduction Method”, only the version in the 21st and 22nd editions. Referenced in Section 611.611.

“SM 4500-NO<sub>3</sub><sup>-</sup> E (16)” means Method 4500-NO<sub>3</sub><sup>-</sup> E, “Nitrogen (Nitrate)”, “Cadmium Reduction Method”, only the version in the 23rd edition. Referenced in Section 611.611.

“SM 4500-NO<sub>3</sub><sup>-</sup> F (88)” means Method 4500-NO<sub>3</sub><sup>-</sup> F, “Nitrogen (Nitrate)”, “Automated Cadmium Reduction Method”, only the version in the 18th edition. Referenced in Section 611.611.

“SM 4500-NO<sub>3</sub><sup>-</sup> F (93)” means Method 4500-NO<sub>3</sub><sup>-</sup> F, “Nitrogen (Nitrate)”, “Automated Cadmium Reduction Method”, only the version in the 19th edition. Referenced in Section 611.611.

“SM 4500-NO<sub>3</sub><sup>-</sup> F (97)” means Method 4500-NO<sub>3</sub><sup>-</sup> F, “Nitrogen (Nitrate)”, “Automated Cadmium Reduction Method”, only the version in the 20th edition. Referenced in Section 611.611.

“SM 4500-NO<sub>3</sub><sup>-</sup> F (00)” means Method 4500-NO<sub>3</sub><sup>-</sup> F, “Nitrogen (Nitrate)”, “Automated Cadmium Reduction Method”, only the version in the 21st and 22nd editions. Referenced in Section 611.611.

“SM 4500-NO<sub>3</sub><sup>-</sup> F (16)” means Method 4500-NO<sub>3</sub><sup>-</sup> F, “Nitrogen (Nitrate)”, “Automated Cadmium Reduction Method”, only the version in the 23rd edition. Referenced in Section 611.611.

“SM 4500-NO<sub>2</sub><sup>-</sup> B (88)” means Method 4500-NO<sub>2</sub><sup>-</sup> B, “Nitrogen (Nitrite)”, “Colorimetric Method”, only the version in the 18th edition. Referenced in Section 611.611.

“SM 4500-NO<sub>2</sub><sup>-</sup> B (93)” means Method 4500-NO<sub>2</sub><sup>-</sup> B, “Nitrogen (Nitrite)”, “Colorimetric Method”, only the version in the 19th and 20th editions. Referenced in Section 611.611.

“SM 4500-NO<sub>2</sub><sup>-</sup> B (00)” means Method 4500-NO<sub>2</sub><sup>-</sup> B, “Nitrogen (Nitrite)”, “Colorimetric Method”, only the version in the 21st,

22nd, and 23rd editions. Referenced in Section 611.611.

“SM 4500-O<sub>3</sub> B (88)” means Method 4500-O<sub>3</sub> B, “Ozone (Residual) (Proposed)”, “Indigo Colorimetric Method”, only the version in the 18th edition. Referenced in Section 611.531.

“SM 4500-O<sub>3</sub> B (93)” means Method 4500-O<sub>3</sub> B, “Ozone (Residual)”, “Indigo Colorimetric Method”, only the version in the 19th edition. Referenced in Section 611.531.

“SM 4500-O<sub>3</sub> B (97)” means Method 4500-O<sub>3</sub> B, “Ozone (Residual)”, “Indigo Colorimetric Method”, only the version in the 20th, 21st, 22nd, and 23rd 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 edition. 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 edition. 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-SiO<sub>2</sub> C (97)” means Method 4500-SiO<sub>2</sub> C, “Silica”, “Molybdosilicate Method”, only the version in the 20th, 21st, 22nd, and 23rd editions. Referenced in Section 611.611.

“SM 4500-SiO<sub>2</sub> D (97)” means Method 4500-SiO<sub>2</sub> D, “Silica”, “Heteropoly Blue Method”, only the version in the 20th, 21st, 22nd, and 23rd editions. Referenced in Section 611.611.

“SM 4500-SiO<sub>2</sub> E (97)” means Method 4500-SiO<sub>2</sub> E, “Silica”, “Automated Method for Molybdate-Reactive Silica”, only the version in the 20th, 21st, 22nd, and 23rd 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 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 edition. 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 edition. 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 and 23rd 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 and 23rd 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 and 23rd 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 and 23rd 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 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 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 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 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, and 23rd 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, and 23rd 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, and 23rd 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, and 23rd 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, and 23rd 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, and 23rd 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, and 23rd editions. Referenced in Section 611.720.

“SM 7500-Ra E (01)” means Method 7500-Ra E, “Radium”, “Gamma Spectrometry Method”, only the version in the 22nd edition. Referenced in Section 611.720.

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

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

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

“SM 7500-<sup>3</sup>H B (00)” means Method 7500-<sup>3</sup>H B, “Tritium”, “Liquid Scintillation Spectrometric Method”, only the version in the 21st, 22nd, and 23rd editions. 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, and 23rd 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 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 edition. 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 edition. 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 edition. 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 edition. 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 edition. 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 edition. 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 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 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 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 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 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 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 9223 (92)” means Method 9223, “Chromogenic Substrate Coliform Test (Proposed)” (also referred to as the variations “Colilert<sup>®</sup>” and “Colisure<sup>TM</sup>” 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<sup>®</sup>” and “Colisure<sup>TM</sup>” 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<sup>®</sup>” and “Colisure<sup>TM</sup>” 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<sup>®</sup>”, “Colisure<sup>TM</sup>”, and “Colilert-18<sup>®</sup>” 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<sup>®</sup>” and “Colisure<sup>TM</sup>” 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<sup>®</sup>” and “Colisure<sup>TM</sup>” 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<sup>®</sup>” and “Colisure<sup>TM</sup>” 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<sup>®</sup>” and “Colisure<sup>™</sup>” depending on the medium used), only the version in the 23rd edition. 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 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 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 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.

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

“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)”).

“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 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](http://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](http://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- $\beta$ -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 “EMSLV053917”) 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/](http://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](http://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](https://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](https://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](https://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](https://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](https://pubs.usgs.gov/publication/ofr93125) and [https://www.nemi.gov/methods/method\\_summary/8907/](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](https://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](https://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](https://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](https://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](https://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](https://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](https://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](https://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](https://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](https://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](https://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](https://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](https://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](http://www.waters.com)) and USEPA, OGWDW (under “Inorganic Contaminants and Other Inorganic Constituents (PDF)”). Referenced in Section 611.611.

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

19 CFR 101.1 (2022) (Definitions), referenced in Section 611.126.

40 CFR 3.3 (2021) (What Definitions Are Applicable to This Part?), referenced in Section 611.105.

40 CFR 3.10 (2021) (What Are the Requirements for Electronic Reporting to EPA?), referenced in Section 611.105.

40 CFR 3.2000 (2021) (What Are the Requirements Authorized State, Tribe, and Local Programs’ Reporting Systems Must Meet?), referenced in Section 611.105.

40 CFR 136.3(a) (2021), referenced in Section 611.1004.

Appendix B to 40 CFR 136 (2021), 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 47 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

### **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 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 B (91), SM 9222 B (94), SM 9222 B (97), SM 9222 B (06), SM 9222 B (15), SM 9222 C (91), SM 9222 C (94), SM 9222 C (97), SM 9222 C (06), or SM 9222 C (15).
- 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 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), or SM 9222 D (15).

C) Heterotrophic Bacteria

- i) Pour Plate Method. SM 9215 B (88), SM 9215 B (94), SM 9215 B (00), SM 9215 B (04), or SM 9215 B (16).

BOARD NOTE: The time from collecting the sample to beginning analysis must not exceed eight hours. The supplier 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), or Mitchell-M5331 (16).

- 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-C1 D (89), SM 4500-C1 D (93), or SM 4500-C1 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. Palintest ChlordioX Plus (13), Palintest ChlordioX Plus (20), SM 4500-ClO<sub>2</sub> C (88), SM 4500-ClO<sub>2</sub> C

- (93), SM 4500-ClO<sub>2</sub> C (00), SM 4500-ClO<sub>2</sub> E (88), SM 4500-ClO<sub>2</sub> E (93), or SM 4500-ClO<sub>2</sub> E (00).
- B) DPD Method. SM 4500-ClO<sub>2</sub> D (88) or SM 4500-ClO<sub>2</sub> D (93).
  - C) Spectrophotometric. USEPA 327.0 (05).
- 4) Ozone. Indigo Method. SM 4500-O<sub>3</sub> B (88), SM 4500-O<sub>3</sub> B (93), or SM 4500-O<sub>3</sub> B (00).
- 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, provided 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, and 23rd 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, 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), 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-ClO<sub>2</sub> C-93, 4500-ClO<sub>2</sub> D-93, and 4500-ClO<sub>2</sub> E-93 appear in the 19th and 20th editions as Methods 4500-ClO<sub>2</sub> C, 4500-ClO<sub>2</sub> D, and 4500-ClO<sub>2</sub> E. These appear in this Section as SM 4500-ClO<sub>2</sub> C (93), SM 4500-ClO<sub>2</sub> D (93), and SM 4500-ClO<sub>2</sub> E (93).

Standard Methods Online, Methods 4500-ClO<sub>2</sub> C-00 and 4500-ClO<sub>2</sub> E-00 appear in the 19th and 20th editions as Methods 4500-ClO<sub>2</sub> C and 4500-ClO<sub>2</sub> E. These appear in this Section as SM 4500-ClO<sub>2</sub> C (00) and SM 4500-ClO<sub>2</sub> E (00).

Standard Methods Online, Method 4500-O<sub>3</sub> B-97 appears in the 20th edition as Method 4500-O<sub>3</sub> B. This appears in this Section as SM 4500-O<sub>3</sub> 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 47 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

### **Section 611.645 Analytical Methods for Organic Chemical Contaminants**

The laboratory must analyze for the Section 611.311(a) VOCs under Section 611.646, the Section 611.311(c) SOCs under Section 611.648, the Section 611.310 State-only MCLs under Section 611.641, and the Section 611.312 MCL for TTHMs under Section 611.381 using the methods in this Section. All methods are incorporated by reference in Section 611.102. USEPA Technical Notes, incorporated by reference in Section 611.102, contains other required analytical



test procedures germane to conducting these analyses.

- a) Volatile Organic Chemical Contaminants (VOCs)
  - 1) Benzene
    - A) Purge and Trap Gas Chromatography. USEPA 502.2 (95).
    - B) Purge and Trap Gas Chromatography-Mass Spectrometry. USEPA 524.2 (95), 524.3 (09), or 524.4 (13).
  - 2) Carbon tetrachloride
    - A) Purge and Trap Capillary Column Gas Chromatography. USEPA 502.2 (95).
    - B) Purge and Trap Gas Chromatography-Mass Spectrometry. USEPA 524.2 (95), 524.3 (09), or 524.4 (13).
    - C) Liquid-Liquid Extraction and Gas Chromatography. USEPA 551.1 (95).
  - 3) Chlorobenzene
    - A) Purge and Trap Capillary Column Gas Chromatography. USEPA 502.2 (95).
    - B) Purge and Trap Gas Chromatography-Mass Spectrometry. USEPA 524.2 (95), 524.3 (09), or 524.4 (13).
  - 4) 1,2-Dichlorobenzene
    - A) Purge and Trap Capillary Column Gas Chromatography. USEPA 502.2 (95).
    - B) Purge and Trap Gas Chromatography-Mass Spectrometry. USEPA 524.2 (95), 524.3 (09), or 524.4 (13).
  - 5) 1,4-Dichlorobenzene
    - A) Purge and Trap Capillary Column Gas Chromatography. USEPA 502.2 (95).
    - B) Purge and Trap Gas Chromatography-Mass Spectrometry. USEPA 524.2 (95), 524.3 (09), or 524.4 (13).

- 6) 1,2-Dichloroethane
  - A) Purge and Trap Capillary Column Gas Chromatography. USEPA 502.2 (95).
  - B) Purge and Trap Gas Chromatography-Mass Spectrometry. USEPA 524.2 (95), 524.3 (09), or 524.4 (13).
- 7) 1,1-Dichloroethylene
  - A) Purge and Trap Capillary Column Gas Chromatography. USEPA 502.2 (95).
  - B) Purge and Trap Gas Chromatography-Mass Spectrometry. USEPA 524.2 (95), 524.3 (09), or 524.4 (13).
- 8) cis-Dichloroethylene
  - A) Purge and Trap Capillary Column Gas Chromatography. USEPA 502.2 (95).
  - B) Purge and Trap Gas Chromatography-Mass Spectrometry. USEPA 524.2 (95), 524.3 (09), or 524.4 (13).
- 9) trans-Dichloroethylene
  - A) Purge and Trap Capillary Column Gas Chromatography. USEPA 502.2 (95).
  - B) Purge and Trap Gas Chromatography-Mass Spectrometry. USEPA 524.2 (95), 524.3 (09), or 524.4 (13).
- 10) Dichloromethane
  - A) Purge and Trap Capillary Column Gas Chromatography. USEPA 502.2 (95).
  - B) Purge and Trap Gas Chromatography-Mass Spectrometry. USEPA 524.2 (95), 524.3 (09), or 524.4 (13).
- 11) 1,2-Dichloropropane
  - A) Purge and Trap Capillary Column Gas Chromatography. USEPA 502.2 (95).
  - B) Purge and Trap Gas Chromatography-Mass Spectrometry. USEPA

524.2 (95), 524.3 (09), or 524.4 (13).

- 12) Ethylbenzene
  - A) Purge and Trap Capillary Column Gas Chromatography. USEPA 502.2 (95).
  - B) Purge and Trap Gas Chromatography-Mass Spectrometry. USEPA 524.2 (95), 524.3 (09), or 524.4 (13).
  
- 13) Styrene
  - A) Purge and Trap Capillary Column Gas Chromatography. USEPA 502.2 (95)
  - B) Purge and Trap Gas Chromatography-Mass Spectrometry. USEPA 524.2 (95), 524.3 (09), or 524.4 (13).
  
- 14) Tetrachloroethylene
  - A) Purge and Trap Capillary Column Gas Chromatography. USEPA 502.2 (95).
  - B) Purge and Trap Gas Chromatography-Mass Spectrometry. USEPA 524.2 (95), 524.3 (09), or 524.4 (13).
  - C) Liquid-Liquid Extraction and Gas Chromatography. USEPA 551.1 (95).
  
- 15) Toluene
  - A) Purge and Trap Capillary Column Gas Chromatography. USEPA 502.2 (95).
  - B) Purge and Trap Gas Chromatography-Mass Spectrometry. USEPA 524.2 (95), 524.3 (09), or 524.4 (13).
  
- 16) 1,2,4-Trichlorobenzene
  - A) Purge and Trap Capillary Column Gas Chromatography. USEPA 502.2 (95).
  - B) Purge and Trap Gas Chromatography-Mass Spectrometry. USEPA 524.2 (95), 524.3 (09), or 524.4 (13).
  
- 17) 1,1,1-Trichloroethane

- A) Purge and Trap Capillary Column Gas Chromatography. USEPA 502.2 (95).
  - B) Purge and Trap Gas Chromatography-Mass Spectrometry. USEPA 524.2 (95), 524.3 (09), or 524.4 (13).
  - C) Liquid-Liquid Extraction and Gas Chromatography. USEPA 551.1 (95).
- 18) 1,1,2-Trichloroethane
- A) Purge and Trap Capillary Column Gas Chromatography. USEPA 502.2 (95).
  - B) Purge and Trap Gas Chromatography-Mass Spectrometry. USEPA 524.2 (95), 524.3 (09), or 524.4 (13).
  - C) Liquid-Liquid Extraction and Gas Chromatography. USEPA 551.1 (95).
- 19) Trichloroethylene
- A) Purge and Trap Capillary Column Gas Chromatography. USEPA 502.2 (95).
  - B) Purge and Trap Gas Chromatography-Mass Spectrometry. USEPA 524.2 (95), 524.3 (09), or 524.4 (13).
  - C) Liquid-Liquid Extraction and Gas Chromatography. USEPA 551.1 (95).
- 20) Vinyl chloride
- A) Purge and Trap Capillary Column Gas Chromatography. USEPA 502.2 (95).
  - B) Purge and Trap Gas Chromatography-Mass Spectrometry. USEPA 524.2 (95), 524.3 (09), or 524.4 (13).
- 21) Xylenes (total)
- A) Purge and Trap Capillary Column Gas Chromatography. USEPA 502.2 (95).
  - B) Purge and Trap Gas Chromatography-Mass Spectrometry. USEPA

524.2 (95), 524.3 (09), or 524.4 (13).

- b) Synthetic Organic Chemical Contaminants (SOCs)
  - 1) 2,3,7,8-Tetrachlorodibenzodioxin (2,3,7,8-TCDD or Dioxin). Isotope Dilution High Resolution Gas Chromatography-High Resolution Mass Spectrometry. USEPA 1613 (94).
  - 2) 2,4-D
    - A) Gas Chromatography with Electron Capture Detector. ASTM D5317-93, ASTM D5317-98(2003), ASTM D5317-20, SM 6640 B (01), or SM 6640 B (06).
    - B) Liquid-Liquid Extraction Gas Chromatography with Electron Capture Detector. USEPA 515.1 (89) or USEPA 515.3 (96).
    - C) Liquid-Solid Extraction Gas Chromatography with Electron Capture Detector. USEPA 515.2 (95).
    - D) Liquid-Liquid Microextraction, Derivatization, and Fast Gas Chromatography with Electron Capture Detector. USEPA 515.4 (00).
    - E) High Performance Liquid Chromatography with Photodiode Array Ultraviolet Detector. USEPA 555 (92).
  - 3) 2,4,5-TP (Silvex)
    - A) Gas Chromatography with Electron Capture Detector. ASTM D5317-93, ASTM D5317-98(2003), ASTM D5317-20, SM 6640 B (01), or SM 6640 B (06).
    - B) Liquid-Liquid Extraction Gas Chromatography with Electron Capture Detector. USEPA 515.1 (89) or USEPA 515.3 (96).
    - C) Liquid-Solid Extraction Gas Chromatography with Electron Capture Detector. USEPA 515.2 (95).
    - D) Liquid-Liquid Microextraction, Derivatization, and Fast Gas Chromatography with Electron Capture Detector. USEPA 515.4 (00).
    - E) High Performance Liquid Chromatography with Photodiode Array Ultraviolet Detector. USEPA 555 (92).

- 4) Alachlor
- A) Microextraction and Gas Chromatography. USEPA 505 (95)<sup>1</sup>.
  - B) Gas Chromatography with Nitrogen-Phosphorus Detector. USEPA 507 (95).
  - C) Liquid-Solid Extraction Gas Chromatography with Electron Capture Detector. USEPA 508.1 (95).
  - D) Liquid-Solid Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.2 (95).
  - E) Solid Phase Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.3 (12).
  - F) Liquid-Liquid Extraction and Gas Chromatography. USEPA 551.1 (95).
- 5) Atrazine
- A) Microextraction and Gas Chromatography. USEPA 505 (95)<sup>1</sup>.
  - B) Gas Chromatography with Nitrogen-Phosphorus Detector. USEPA 507 (95).
  - C) Liquid-Solid Extraction Gas Chromatography with Electron Capture Detector. USEPA 508.1 (95).
  - D) Liquid-Solid Extraction Gas Chromatography with Electron Capture Detector. USEPA 523 (11).
  - E) Liquid-Solid Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.2 (95).
  - F) Solid Phase Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.3 (12).
  - G) Liquid Chromatography Electrospray Ionization Tandem Mass Spectrometry. USEPA 536 (07).
  - H) Liquid-Liquid Extraction and Gas Chromatography. USEPA 551.1 (95).
  - I) Immunoassay. Syngenta AG-625<sup>2</sup>.

- 6) Benzo(a)pyrene
  - A) Gas Chromatography-Mass Spectrometry. USEPA 525.2 (95).
  - B) Solid Phase Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.3 (12).
  - C) Liquid Liquid Extraction and HPLC with Coupled Ultraviolet and Fluorescence Detection. USEPA 550 (90) or USEPA 550.1 (90).
- 7) Carbofuran.
  - A) Direct Aqueous Injection HPLC with Post-Column Derivatization. SM 6610 (92), 6610 (96), 6610 B (99), SM 6610 B (04), USEPA 531.1 (95), or USEPA 531.2 (01).
  - B) Liquid Chromatography/Mass Spectrometry. ME 531 (19).
- 8) Chlordane
  - A) Microextraction and Gas Chromatography. USEPA 505 (95)<sup>1</sup>.
  - B) Gas Chromatography with Electron Capture Detector. USEPA 508 (95).
  - C) Liquid-Solid Extraction Gas Chromatography with Electron Capture Detector. USEPA 508.1 (95).
  - D) Gas Chromatography-Mass Spectrometry. USEPA 525.2 (95).
  - E) Solid Phase Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.3 (12).
- 9) Dalapon
  - A) Liquid-Liquid Extraction Gas Chromatography with Electron Capture Detector. USEPA 515.1 (89) or USEPA 515.3 (96).
  - B) Liquid-Liquid Microextraction, Derivatization, and Fast Gas Chromatography with Electron Capture Detector. SM 6640 B (01), SM 6640 B (06), or USEPA 515.4 (00).
  - C) Solid Phase Extractor (Acidic Methanol), Gas Chromatography, Electron Capture Detector. USEPA 552.1 (92).
  - D) Liquid-Liquid Extraction (Acidic Methanol), Gas

Chromatography, Electron Capture Detector. USEPA 552.2 (95) or USEPA 552.3 (03).

- E) Ion Chromatography, Electrospray Ionization, Tandem Mass Spectrometry. USEPA 557 (09).
- 10) Dibromochloropropane (DBCP)
- A) Microextraction and Gas Chromatography. USEPA 504.1 (95).
  - B) Purge and Trap Gas Chromatography-Mass Spectrometry. USEPA 524.3 (09).
  - C) Liquid-Liquid Extraction, Gas Chromatography, Electron Capture Detector. USEPA 551.1 (95).
- 11) Di(2-ethylhexyl)adipate
- A) Liquid-Liquid or Liquid-Solid Extraction and Gas Chromatography with Photoionization Detection. USEPA 506 (95).
  - B) Liquid-Solid Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.2 (95).
  - C) Solid Phase Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.3 (12).
- 12) Di(2-ethylhexyl)phthalate
- A) Liquid-Liquid or Liquid-Solid Extraction and Gas Chromatography with Photoionization Detection. USEPA 506 (95).
  - B) Liquid-Solid Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.2 (95).
  - C) Solid Phase Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.3 (12).
- 13) Dinoseb
- A) Liquid-Liquid Extraction Gas Chromatography with Electron Capture Detector. USEPA 515.1 (89) or USEPA 515.3 (96).
  - B) Liquid-Solid Extraction Gas Chromatography with Electron



- Capture Detector. USEPA 515.2 (95).
- C) Liquid-Liquid Microextraction, Derivatization, and Fast Gas Chromatography with Electron Capture Detector. SM 6640 B (01), SM 6640 B (06), or USEPA 515.4 (00).
  - D) High Performance Liquid Chromatography with Photodiode Array Ultraviolet Detector. USEPA 555 (92).
- 14) Diquat. Liquid-Solid Extraction and HPLC with Ultraviolet Detection. USEPA 549.2 (97).
- 15) Endothall. Ion-Exchange Extraction, Acidic Methanol Methylation and Gas Chromatography/Mass Spectrometry. USEPA 548.1 (92).
- 16) Endrin
- A) Microextraction and Gas Chromatography. USEPA 505 (95)<sup>1</sup>.
  - B) Gas Chromatography with Electron Capture Detector. USEPA 508 (95).
  - C) Liquid-Solid Extraction Gas Chromatography with Electron Capture Detector. USEPA 508.1 (95).
  - D) Liquid-Solid Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.2 (95).
  - E) Solid Phase Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.3 (12).
  - F) Liquid-Liquid Extraction and Gas Chromatography. USEPA 551.1 (95).
- 17) Ethylene Dibromide (EDB)
- A) Microextraction and Gas Chromatography. USEPA 504.1 (95).
  - B) Purge and Trap Gas Chromatography-Mass Spectrometry. USEPA 524.3 (09).
  - C) Liquid-Liquid Extraction, Gas Chromatography, Electron Capture Detector. USEPA 551.1 (95).
- 18) Glyphosate

- A) Direct Aqueous Injection HPLC, Post-Column Derivatization, and Fluorescence Detection. USEPA 547 (90).
- B) Anion- or Cation-Exchange HPLC and Post-Column Derivatization with Ultraviolet Fluorescence Detector. SM 6651 B (91), SM 6651 B (96), SM 6651 B (00), or SM 6651 B (05).

19) Heptachlor

- A) Microextraction and Gas Chromatography. USEPA 505 (95)<sup>1</sup>.
- B) Gas Chromatography with Electron Capture Detector. USEPA 508 (95).
- C) Liquid-Solid Extraction Gas Chromatography with Electron Capture Detector. USEPA 508.1 (95).
- D) Liquid-Solid Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.2 (95).
- E) Solid Phase Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.3 (12).
- F) Liquid-Liquid Extraction and Gas Chromatography. USEPA 551.1 (95).

20) Heptachlor Epoxide

- A) Microextraction and Gas Chromatography. USEPA 505 (95)<sup>1</sup>.
- B) Gas Chromatography with Electron Capture Detector. USEPA 508 (95).
- C) Liquid-Solid Extraction Gas Chromatography with Electron Capture Detector. USEPA 508.1 (95).
- D) Liquid-Solid Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.2 (95).
- E) Solid Phase Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.3 (12).
- F) Liquid-Liquid Extraction and Gas Chromatography. USEPA 551.1 (95).

21) Hexachlorobenzene

- A) Microextraction and Gas Chromatography. USEPA 505 (95)<sup>1</sup>.
- B) Gas Chromatography with Electron Capture Detector. USEPA 508 (95).
- C) Liquid-Solid Extraction Gas Chromatography with Electron Capture Detector. USEPA 508.1 (95).
- D) Liquid-Solid Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.2 (95).
- E) Solid Phase Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.3 (12).
- F) Liquid-Liquid Extraction and Gas Chromatography. USEPA 551.1 (95).

22) Hexachlorocyclopentadiene

- A) Microextraction and Gas Chromatography. USEPA 505 (95)<sup>1</sup>.
- B) Gas Chromatography with Electron Capture Detector. USEPA 508 (95).
- C) Liquid-Solid Extraction Gas Chromatography with Electron Capture Detector. USEPA 508.1 (95).
- D) Liquid-Solid Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.2 (95).
- E) Solid Phase Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.3 (12).
- F) Liquid-Liquid Extraction and Gas Chromatography. USEPA 551.1 (95).

23) Lindane

- A) Microextraction and Gas Chromatography. USEPA 505 (95)<sup>1</sup>.
- B) Gas Chromatography with Electron Capture Detector. USEPA 508 (95).
- C) Liquid-Solid Extraction Gas Chromatography with Electron Capture Detector. USEPA 508.1 (95).

- D) Liquid-Solid Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.2 (95).
  - E) Solid Phase Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.3 (12).
  - F) Liquid-Liquid Extraction and Gas Chromatography. USEPA 551.1 (95).
- 24) Methoxychlor
- A) Microextraction and Gas Chromatography. USEPA 505 (95)<sup>1</sup>.
  - B) Gas Chromatography with Electron Capture Detector. USEPA 508 (95).
  - C) Liquid-Solid Extraction Gas Chromatography with Electron Capture Detector. USEPA 508.1 (95).
  - D) Gas Chromatography-Mass Spectrometry. USEPA 525.2 (95).
  - E) Solid Phase Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.3 (12).
  - F) Liquid-Liquid Extraction and Gas Chromatography. USEPA 551.1 (95).
- 25) Oxamyl-
- A) Direct Aqueous Injection HPLC with Post-Column Derivatization. SM 6610 (92), 6610 (96), 6610 B (99), SM 6610 B (04), USEPA 531.1 (95), or USEPA 531.2 (01).
  - B) Liquid Chromatography/Mass Spectrometry. ME 531 (19).
- 26) PCBs (measured for compliance purposes as decachlorobiphenyl). Screening by Perchlorination and Gas Chromatography. USEPA 508A (89).
- 27) PCBs (qualitatively identified as alachlors)
- A) Microextraction and Gas Chromatography. USEPA 505 (95)<sup>1</sup>.
  - B) Gas Chromatography with Electron Capture Detector. USEPA 508 (95).

- C) Liquid-Solid Extraction Gas Chromatography with Electron Capture Detector. USEPA 508.1 (95).
- D) Gas Chromatography-Mass Spectrometry. USEPA 525.2 (95).
- E) Solid Phase Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.3 (12).

28) Pentachlorophenol

- A) Gas Chromatography with Electron Capture Detector. ASTM D5317-93, ASTM D5317-98(2003), ASTM D5317-20, SM 6640 B (01), or SM 6640 B (06).
- B) Liquid-Liquid Extraction Gas Chromatography with Electron Capture Detector. USEPA 515.1 (89) or USEPA 515.3 (96).
- C) Liquid-Solid Extraction Gas Chromatography with Electron Capture Detector. USEPA 515.2 (95).
- D) Liquid-Liquid Microextraction, Derivatization, and Fast Gas Chromatography with Electron Capture Detector. USEPA 515.4 (00).
- E) Gas Chromatography-Mass Spectrometry. USEPA 525.2 (95).
- F) Solid Phase Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.3 (12).
- G) High Performance Liquid Chromatography with Photodiode Array Ultraviolet Detector. USEPA 555 (92).

29) Picloram

- A) Gas Chromatography with Electron Capture Detector. ASTM D5317-93, ASTM D5317-98(2003), ASTM D5317-20, SM 6640 B (01), or SM 6640 B (06).
- B) Liquid-Liquid Extraction Gas Chromatography with Electron Capture Detector. USEPA 515.1 (89) or USEPA 515.3 (96).
- C) Liquid-Solid Extraction Gas Chromatography with Electron Capture Detector. USEPA 515.2 (95).
- D) Liquid-Liquid Microextraction, Derivatization, and Fast Gas

Chromatography with Electron Capture Detector. USEPA 515.4 (00).

E) High Performance Liquid Chromatography with Photodiode Array Ultraviolet Detector. USEPA 555 (92).

30) Simazine

A) Microextraction and Gas Chromatography. USEPA 505 (95)<sup>1</sup>.

B) Gas Chromatography with Electron Capture Detector. USEPA 507 (95).

C) Liquid-Solid Extraction Gas Chromatography with Electron Capture Detector. USEPA 508.1 (95).

D) Liquid-Solid Extraction Gas Chromatography with Electron Capture Detector. USEPA 523 (11).

E) Gas Chromatography-Mass Spectrometry. USEPA 525.2 (95).

F) Solid Phase Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.3 (12).

G) Liquid Chromatography Electrospray Ionization Tandem Mass Spectrometry. USEPA 536 (07).

H) Liquid-Liquid Extraction and Gas Chromatography. USEPA 551.1 (95).

31) Toxaphene

A) Microextraction and Gas Chromatography. USEPA 505 (95)<sup>1</sup>.

B) Gas Chromatography with Electron Capture Detector. USEPA 508 (95).

C) Liquid-Solid Extraction Gas Chromatography with Electron Capture Detector. USEPA 508.1 (95).

D) Gas Chromatography-Mass Spectrometry. USEPA 525.2 (95).

E) Solid Phase Extraction and Capillary Column Gas Chromatography-Mass Spectrometry. USEPA 525.3 (12).

c) Total Trihalomethanes (TTHMs)

- 1) Purge and Trap Capillary Column Gas Chromatography. USEPA 502.2 (95).
  - 2) Purge and Trap Gas Chromatography-Mass Spectrometry. USEPA 524.2 (95), USEPA 524.3 (09), or USEPA 524.4 (13).
  - 3) Liquid-Liquid Extraction and Gas Chromatography. USEPA 551.1 (95).
- d) State-Only MCLs (for which a method is not listed in subsections (a) through (c))
- 1) Aldrin
    - A) Microextraction and Gas Chromatography. USEPA 505 (95)<sup>1</sup>.
    - B) Gas Chromatography with Electron Capture Detector. USEPA 508 (95).
    - C) Liquid-Solid Extraction Gas Chromatography with Electron Capture Detector. USEPA 508.1 (95).
    - D) Gas Chromatography-Mass Spectrometry. USEPA 525.2 (95).
  - 2) DDT
    - A) Microextraction and Gas Chromatography. USEPA 505 (95)<sup>1</sup>.
    - B) Gas Chromatography with Electron Capture Detector. USEPA 508 (95).
  - 3) Dieldrin
    - A) Microextraction and Gas Chromatography. USEPA 505 (95)<sup>1</sup>.
    - B) Gas Chromatography with Electron Capture Detector. USEPA 508 (95).
    - C) Liquid-Solid Extraction Gas Chromatography with Electron Capture Detector. USEPA 508.1 (95).
    - D) Gas Chromatography-Mass Spectrometry. USEPA 525.2 (95).
- e) The following endnotes are appended to method entries in subsections (a) and (b):

<sup>1</sup> denotes that, for the particular contaminant, the laboratory should substitute a nitrogen-phosphorus detector for the electron capture detector

in USEPA 505 (95) (or use another approved method) to determine alachlor, atrazine, and simazine if it needs a lower detection limit.

<sup>2</sup> denotes that the laboratory may not use Syngenta AG-625 (01) for atrazine in any system using chlorine dioxide for treatment. In samples from all other systems, the laboratory must confirm any result for atrazine using Syngenta AG-625 (01) that is greater than one-half the maximum contaminant level (MCL) (in other words, greater than 0.0015 mg/ L or 1.5 µg/ L) using another approved method and additional volume of the original sample the supplier collected. If a result from Syngenta AG-625 (01) triggers confirmatory testing, the supplier must use the confirmatory result to determine compliance.

BOARD NOTE: This Section derives from 40 CFR 141.24(e) 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 6610 B-04 appears in the 22nd and 23rd editions as Method 6610 B. This appears in this Section as SM 6610 B (04).

Standard Methods Online, Method 6640 B-01 appears in the 21st edition as Method 6640 B. This appears in this Section as SM 6640 B (01).

Standard Methods Online, Method 6640 B-06 appears in the 22nd and 23rd editions as Method 6640 B. This appears in this Section as SM 6640 B (06).

Standard Methods Online, Method 6651 B-00 appears in the 21st edition as Method 6651 B. This appears in this Section as SM 6651 B (00).

Standard Methods Online, Method 6651 B-05 appears in the 22nd and 23rd editions as Method 6651 B. This appears in this Section as SM 6651 B (05).

(Source: Amended at 47 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

### **Section 611.720 Analytical Methods**

- a) A certified laboratory must use specific methods or alternative methods the Agency approved under Section 611.480 to determine whether the supplier complies with Section 611.330.
  - 1) Gross Alpha and Beta
    - A) Evaporation Methods. SM 302 (71); SM 7110 B (85); SM 7110 B (91); SM 7110 B (96); SM 7110 B (00); USEPA 900.0 (80);



USEPA 900.0 (18); USEPA 00-01 (84); USEPA IRM (76), pages 1-3; USEPA RCA (79), pages 1-5; or USGS R1120-76.

- B) Liquid Scintillation Methods. ASTM D7283-17 or SM 7110 D (17).
- 2) Gross Alpha. Coprecipitation Methods. SM 7110 C (91), SM 7110 C (96), SM 7110 C (00), or USEPA 00-02 (84).
  - 3) Radium-226
    - A) Radiochemical Methods. ASTM D2460-97; ASTM D2460-07; Georgia Radium (04); New York Radium (82); SM 304 (71); SM 7500-Ra B (88); SM 7500-Ra B (93); SM 7500-Ra B (01); USEPA 903.0 (80); USEPA 903.0 (21); USEPA Ra-03 (84); USEPA IRM (76), pages 13-15; USEPA RCA (79), pages 19-32; or USGS R-1140-76.
    - B) Radon Emanation Methods. ASTM D3454-97; ASTM D3454-05; ASTM D3454-18; EML (97) Ra-04; EML (90) Ra-05; SM 305 (71); SM 7500-Ra C (88); SM 7500-Ra C (93); SM 7500-Ra C (01); USEPA 903.1 (80); USEPA 903.1 (21); USEPA Ra-04 (84); USEPA IRM (76), pages 16-23; or USGS R-1141-76.
    - C) Gamma Spectrometry. SM 7500-Ra E (01) or SM 7500-Ra E (07).
  - 4) Radium-228
    - A) Radiochemical Methods. Georgia Radium (04); New Jersey Radium (90); New York Radium (82); SM 7500-Ra D (88); SM 7500-Ra D (93); SM 7500-Ra D (01); USEPA 904.0 (80); USEPA 904.0 (22); USEPA Ra-05 (90); USEPA IRM (76), pages 24-28; USEPA RCA (79), pages 19-32; or USGS R-1142-76.
    - B) Gamma Spectrometry. SM 7500-Ra E (01) or SM 7500-Ra E (07).
  - 5) Uranium
    - A) Radiochemical Methods. SM 7500-U B (88), SM 7500-U B (91), SM 7500-U B (96), SM 7500-U B (00), or USEPA 908.0 (80).
    - B) Fluorometric Methods. ASTM D2907-97, EML (90) U-04, EML (97) U-04, SM 7500-U C (88), SM 7500-U C (91), SM 7500-U C (96), SM 7500-U C (00), USEPA 908.1 (80), USGS R-1180-76, or USGS R-1181-76.

- C) ICP-MS Methods. ASTM D5673-03, ASTM D5673-05, ASTM D5673-10, ASTM D5673-16; SM 3125 (97); or USEPA 200.8 (94).
- D) Alpha Spectrometry. ASTM D3972-97; ASTM D3972-02; ASTM D3972-09; EML (90) U-02; EML (97) U-02; USEPA 00-07 (84); USEPA RCA (79), pages 33-48; or USGS R-1182-76.
- E) Laser Spectrometry. ASTM D5174-97, ASTM D5174-02, or ASTM D5174-07.
- F) Alpha Liquid Scintillation Spectrometry. ASTM D6239-09.

BOARD NOTE: If the laboratory determines uranium (U) by mass, it must use a conversion factor of 0.67 pCi/μg U. This conversion factor reflects the characteristic 1:1 activity ratio of <sup>234</sup>U and <sup>238</sup>U of naturally occurring uranium.

6) Radioactive Cesium

- A) Radiochemical Methods. ASTM D2459-72; SM 7500-Cs B (88), SM 7500-Cs B (93); SM 7500-Cs B (00); USEPA 901.0 (80); USEPA IRM (76), pages 4-5; or USGS R-1111-76.
- B) Gamma Ray Spectrometry. ASTM D3649-91; ASTM D3649-98a; ASTM D3649-06; EML (90) Ga-01; EML (97) Ga-01-R; SM 7120 (94); SM 7120 (97); USEPA 901.1 (80); USEPA RCA (79), pages 92-95; or USGS R-1110-76.

7) Radioactive Iodine

- A) Radiochemical Methods. ASTM D3649-91; ASTM D3649-98a; ASTM D3649-06; SM 7500-I B (88); SM 7500-I B (93); SM 7500-I B (00); SM 7500-I C (88); SM 7500-I C (93); SM 7500-I C (00); SM 7500-I D (88); SM 7500-I D (93); SM 7500-I D (00); USEPA 902.0 (80); USEPA IRM (76), pages 6-8; or USEPA IRM (76), pages 9-12.
- B) Gamma Ray Spectrometry. ASTM D4785-93; ASTM D4785-00a; ASTM D4785-08; ASTM D4785-20; EML (90) Ga-01; EML (97) Ga-01-R; SM 7120 (94); SM 7120 (97); USEPA 901.1 (80); or USEPA RCA (79), pages 92-95.

8) Radioactive Strontium-89 and -90. Radiochemical Methods. EML (90) Sr-01; EML (97) Sr-01; EML (90) Sr-02; EML (97) Sr-02; SM 303 (71); SM 7500-Sr B (88); SM 7500-Sr B (93); SM 7500-Sr B (01); USEPA

905.0 (80); USEPA Sr-04 (84); USEPA IRM (76), pages 29-33; USEPA RCA (79), pages 65-73; or USGS R-1160-76.

- 9) Tritium. Liquid Scintillation. ASTM D4107-91; ASTM D4107-98; ASTM D4107-08; ASTM D4107-20; SM 306 (71); SM 7500-<sup>3</sup>H B (88); SM 7500-<sup>3</sup>H B (93); SM 7500-<sup>3</sup>H B (00); USEPA 906.0 (80); USEPA H-02 (84); USEPA IRM (76), pages 34-37; USEPA RCA (79), pages 87-91; or USGS R-1171-76.
- 10) Gamma Emitters. Gamma Ray Spectrometry. ASTM D3649-91; ASTM D3649-98a; ASTM D3649-06; ASTM D4785-93; ASTM D4785-00a; ASTM D4785-08; ASTM D4785-20; EML (90) Ga-01; EML (97) Ga-01-R; SM 7120 (94); SM 7120 (97); SM 7500-Cs B (88); SM 7500-Cs B (93); SM 7500-Cs B (00); SM 7500-I B (88); SM 7500-I B (93); SM 7500-I B (00); USEPA 901.0 (80); USEPA 901.1 (80); USEPA 902.0 (80); USEPA RCA (79), pages 92-95; or USGS R-1110-76.

b) When the laboratory must identify and measure radionuclides other than those in subsection (a), it must use methods from either of two sources, incorporated by reference in Section 611.102, except if the Agency approves alternative methods under Section 611.480:

- 1) USEPA ARP (73).
- 2) EML (90) or EML (97).

c) For monitoring radioactivity concentrations in drinking water, a detection limit defines the required sensitivity of the radio analysis. The detection limit is the concentration a laboratory can measure with a precision of plus or minus 100 percent at the 95 percent confidence level ( $1.96\sigma$ , where  $\sigma$  is the standard deviation of the net counting rate of the sample).

1) When determining compliance with Section 611.330(b), (c), and (e), the detection limit must not exceed certain concentrations:

Contaminant	Detection Limit
Gross alpha particle activity	3 pCi/ L
Radium-226	1 pCi/ L
Radium-228	1 pCi/ L
Uranium	1 µg/ L

BOARD NOTE: This subsection (c)(1) derives from 40 CFR 141.25(c) Table B.

- 2) When determining compliance with Section 611.330(d), the detection limits must not exceed certain concentrations:

Radionuclide	Detection Limit
Tritium	1,000 pCi/ L
Strontium-89	10 pCi/ L
Strontium-90	2 pCi/ L
Iodine-131	1 pCi/ L
Cesium-134	10 pCi/ L
Gross beta	4 pCi/ L
Other radionuclides	1/10 of applicable limit

BOARD NOTE: This subsection (c)(2) derives from 40 CFR 141.25(c) Table C.

- d) When determining compliance with the MCLs in Section 611.330, the laboratory must use averages of data and round results to the same number of significant figures as the MCL.

BOARD NOTE: This Section derives from 40 CFR 141.25 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, Methods 7110 B-91 and 7110 C-91 appear in the 18th and 19th editions as Methods 7110 B and 7110 C. These appear in this Section as SM 7110 B (91) and SM 7110 C (91).

Standard Methods Online, Methods 7110 B-00 and 7110 C-00 appear in the 21st, 22nd, and 23rd editions as Methods 7110 B and 7110 C. These appear in this Section as SM 7110 B (00) and SM 7110 C (00).

Standard Methods Online, Method 7120-97 appears in the 20th, 21st, 22nd, and 23rd editions as Method 7120. This appears in this Section appears as SM 7120 (97).

Standard Methods Online, Method 7500-Cs B-00 appears in the 21st, 22nd, and 23rd editions as Method 7500-Cs B. In this Section, thus appears as SM 7500-Cs B (00).

Standard Methods Online, Methods 7500-I B-00, 7500-I C-00, and 7500-I D-00 appear in the 21st, 22nd, and 23rd editions as Methods 7500-I B, 7500-I C, and 7500-I D. These appear in this Section as SM 7500-I B (00), SM 7500-I C (00), and SM 7500-I D (00).

Standard Methods Online, Methods 7500-Ra B-01, 7500-Ra C-01, and 7500-Ra D-01 appears in the 21st and 22nd editions as Methods 7500-Ra B, 7500-Ra C, and 7500-Ra D. These appear in this Section as SM 7500-Ra B (01), SM 7500-Ra C (01), and SM 7500-Ra D (01).

Standard Methods Online, Methods 7500-Ra B-07, 7500-Ra C-07, 7500-Ra D-07, and 7500-Ra E-07 appears in the 23rd edition as Methods 7500-Ra B, 7500-Ra C, 7500-Ra D, and 7500-Ra E. These appear in this Section as SM 7500-Ra B (07), SM 7500-Ra C (07), SM 7500-Ra D (07), and SM 7500-Ra E (07).

Standard Methods Online, Method 7500-Sr B-01 appears in the 21st, 22nd, and 23rd editions as Method 7500-Sr B. This appears in this Section as SM 7500-Sr B (01).

Standard Methods Online, Method 7500-<sup>3</sup>H B-00 appears in the 21st, 22nd, and 23rd editions as Method 7500-<sup>3</sup>H B. This appears in this Section as SM 7500-<sup>3</sup>H B (00)

Standard Methods Online, Methods 7500-U B and 7500-U C-00 appear in the 21st, 22nd, and 23rd editions as Methods 7500-U B and 7500-U C. These appear in this Section as SM 7500-U B (00) and SM 7500-U C (00).

(Source: Amended at 47 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)