

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this action and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a "major rule" as defined by 5 U.S.C. 804(2).

Under section 307(b)(1) of the CAA, petitions for judicial review of this action must be filed in the United States

Court of Appeals for the appropriate circuit by August 4, 2008. Filing a petition for reconsideration by the Administrator of this final rule does not affect the finality of this action for the purposes of judicial review nor does it extend the time within which a petition for judicial review may be filed, and shall not postpone the effectiveness of such rule or action. This action may not be challenged later in proceedings to enforce its requirements. (See section 307(b)(2).)

#### List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by reference, Intergovernmental relations, Lead.

Dated: May 12, 2008.

**Bharat Mathur,**

*Acting Regional Administrator, Region 5.*

■ For the reasons stated in the preamble, part 52, chapter I, of title 40 of the Code of Federal Regulations is amended as follows:

#### PART 52—[AMENDED]

■ 1. The authority citation for part 52 continues to read as follows:

**Authority:** 42 U.S.C. 7401 *et seq.*

#### Subpart Y—Minnesota

■ 2. In § 52.1220 the table in paragraph (e) is amended by adding an entry for "Lead Maintenance Plan" to read as follows:

#### § 52.1220 Identification of plan.

\* \* \* \* \*

(e) \* \* \*

#### EPA-APPROVED MINNESOTA NONREGULATORY PROVISIONS

| Name of nonregulatory SIP provision | Applicable geographic nonattainment area | State submittal date/ effective date | EPA approved date   | Comments                 |
|-------------------------------------|--|--------------------------------------|---|--------------------------|
| * * * * *                           | * * * * *                                | * * * * *                            | * * * * *   | * * * * *                |
| Lead Maintenance Plan.              | Dakota County .....                      | 11/18/2002 and 11/19/2007.           | 8/4/2008, [Insert page number where the document begins]. | Maintenance plan update. |
| * * * * *                           | * * * * *                                | * * * * *                            | * * * * *   | * * * * *                |

\* \* \* \* \*

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#### ENVIRONMENTAL PROTECTION AGENCY

#### 40 CFR Part 141

[EPA-HQ-OW-2006-0958; FRL-8573-7]

#### Expedited Approval of Alternative Test Procedures for the Analysis of Contaminants Under the Safe Drinking Water Act; Analysis and Sampling Procedures

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Final rule.

**SUMMARY:** This action announces the Environmental Protection Agency's (EPA's) approval of alternative testing methods for use in measuring the levels of contaminants in drinking water and determining compliance with national primary drinking water regulations. The Safe Drinking Water Act (SDWA) authorizes EPA to approve the use of alternative testing methods through

publication in the **Federal Register**. EPA is using this streamlined authority to make 99 additional methods available for analyzing drinking water samples required by regulation. This expedited approach provides public water systems, laboratories, and primary agencies with more timely access to new measurement techniques and greater flexibility in the selection of analytical methods, thereby reducing monitoring costs while maintaining public health protection.

**DATES:** This action is effective June 3, 2008.

#### FOR FURTHER INFORMATION CONTACT:

Patricia Snyder Fair, Technical Support Center, Office of Ground Water and Drinking Water (MS 140), Environmental Protection Agency, 26 West Martin Luther King Drive, Cincinnati, OH 45268; telephone number: (513) 569-7937; e-mail address: [fair.pat@epa.gov](mailto:fair.pat@epa.gov).

#### SUPPLEMENTARY INFORMATION:

#### I. General Information

##### A. Does This Action Apply to Me?

Public water systems are the regulated entities required to measure contaminants in drinking water samples. In addition, EPA Regions as well as States and Tribal Governments with authority to administer the regulatory program for public water systems under SDWA may also measure contaminants in water samples. When EPA sets a monitoring requirement in its national primary drinking water regulations for a given contaminant, the Agency also establishes in the regulations standardized test procedures for analysis of the contaminant. This action makes alternative testing methods available for particular drinking water contaminants beyond the testing methods currently established in the regulations. Starting today, public water systems required to test water samples have a choice of using either a test procedure already established in the existing regulations or an alternative test procedure that has been approved in this action (or that is approved in similar future actions). Categories and

entities that may ultimately be affected by this action include:

| Category                            | Examples of potentially regulated entities   | NAICS <sup>1</sup> |
|-------------------------------------|--|--------------------|
| State, Local, & Tribal Governments. | States, local and tribal governments that analyze water samples on behalf of public water systems required to conduct such analysis; States, local and tribal governments that themselves operate community and non-transient non-community water systems required to monitor. | 924110             |
| Industry .....                      | Private operators of community and non-transient non-community water systems required to monitor.  | 221310             |
| Municipalities .....                | Municipal operators of community and non-transient non-community water systems required to monitor.  | 924110             |

<sup>1</sup> North American Industry Classification System.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be affected by this action. This table lists the types of entities that EPA is now aware could potentially be affected by this action. Other types of entities not listed in the table could also be impacted. To determine whether your facility is affected by this action, you should carefully examine the applicability language at 40 CFR 141.2 (definition of public water system). If you have questions regarding the applicability of this action to a particular entity, consult the person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

#### *B. How Can I Get Copies of This Document and Other Related Information?*

1. *Docket.* EPA has established a docket for this action under Docket ID No. EPA-HQ-OW-2006-0958. Publicly available docket materials are available either electronically through <http://www.regulations.gov> or in hard copy at the Water Docket in the EPA Docket Center, (EPA/DC) EPA West, Room 3334, 1301 Constitution Ave., NW., Washington, DC. Copyrighted materials are available only in hard copy. The EPA Docket Center Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the Water Docket is (202) 566-2426.

2. *Electronic Access.* You may access this **Federal Register** document electronically through the EPA Internet under the **Federal Register** listings at <http://www.epa.gov/fedrgrstr/>.

#### **Abbreviations and Acronyms Used in This Action**

APHA: American Public Health Association  
ASDWA: Association of State Drinking Water Administrators  
ATP: Alternate Test Procedure  
AVICP-AES: Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry

CFR: *Code of Federal Regulations*  
EPA: Environmental Protection Agency  
FEM: Forum on Environmental Measurements  
GWR: Ground Water Rule  
HPLC: High-Performance Liquid Chromatography  
ITS: Industrial Test Systems, Inc.  
LT2ESWTR: Long Term 2 Enhanced Surface Water Treatment Rule  
NEMI: National Environmental Method Index  
SDWA: Safe Drinking Water Act  
VCSB: Voluntary Consensus Standard Body

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#### **II. Background**

##### *A. What Is the Purpose of This Action?*

In this action, EPA is approving 99 analytical methods for determining contaminant concentrations in samples collected under SDWA. Regulated parties who are required to sample and monitor may do so by using either the testing methods already established in existing regulations or the alternative testing methods being approved in this action. The new methods are listed in Appendix A to Subpart C in 40 CFR 141 and on EPA's drinking water methods Web site at <http://www.epa.gov/safewater/methods/expedited.html>. A hard copy of the list of methods is also available by calling the Safe Drinking Water Hotline at (800) 426-4791.

##### *B. What Is the Basis for This Action?*

When EPA determines that an alternative analytical method is "equally effective" (i.e., as effective as a method that has already been

promulgated in the regulations), SDWA allows EPA to approve the use of the alternative method through publication in the **Federal Register**. See section 1401(1) of SDWA. EPA is using this streamlined approval authority today to make 99 additional methods available for determining contaminant concentrations in samples collected under SDWA. EPA has determined that, for each contaminant or group of contaminants listed below, the additional testing methods being approved in this action are equally as effective as one or more of the testing methods already established in the regulations for those contaminants. Section 1401(1) states that the newly approved methods "shall be treated as an alternative for public water systems to the quality control and testing procedures listed in the regulation." Accordingly, this action makes these additional (and optional) 99 analytical methods legally available for meeting monitoring requirements.

This action does not add regulatory language, but does, for informational purposes, add an appendix to the regulations at 40 CFR part 141 that lists the newly approved methods. Accordingly, while this action is not a rule, it is adding CFR text and therefore is being published in the "Final Rules" section of this **Federal Register**.

EPA described this expedited methods approval process in an April 10, 2007, **Federal Register** notice (72 FR 17902) (USEPA 2007a) and announced its intent to begin using the process. EPA also solicited public comments on some of the implementation aspects of the process. EPA received comments from seven States, two water systems, the Association of Public Health Laboratories, the Association of State Drinking Water Administrators (ASDWA), American Water Works Association, a commercial vendor, a manufacturing company, and an anonymous person. The comments were very supportive of the new approval process. A summary of the most significant public comments is

presented in Section II.C and D. The public docket for this action includes the Agency's complete response to comments (USEPA, 2008).

### C. Solicited Comments

1. Location of the comprehensive list of methods approved under the expedited process. In the April 10, 2007, **Federal Register** notice (72 FR 17902) (USEPA 2007a), EPA suggested three potential places for listing all of the alternative methods that EPA has approved using this expedited process. Public comments supported the use of all three approaches (i.e., publishing as an appendix in the *Code of Federal Regulations* (CFR), posting on the EPA Web site, and making available from a designated Agency contact). The National Environmental Method Index (NEMI) was mentioned as an additional mechanism for making the list available.

EPA is providing the list in all of the suggested locations. First, this action adds Appendix A to Subpart C of Part 141 (titled "Alternative Testing Methods Approved for Analyses Under the Safe Drinking Water Act") to the CFR. The appendix provides the States with a reference they can cite in their regulations, as was requested by ASDWA and others. EPA intends to update the appendix each time additional methods are approved using the expedited process.

The EPA drinking water methods Web site contains a new page that focuses on the expedited methods approval process <http://www.epa.gov/safewater/methods/expedited.html>. The page contains a link that allows users to download a copy of the list of methods approved using this process. The revision date and reference to the CFR citation are included on the list. Hard copies of the list are also available from the Safe Drinking Water Hotline.

EPA will continue to provide the managers of NEMI with the information needed to incorporate newly approved methods into the NEMI database. EPA methods are available for download from the NEMI Web site (<http://www.nemi.gov>) and information is provided on the sources of any methods that must be purchased.

2. Type of information included with expedited approval decisions published in the **Federal Register**. Almost everyone who commented requested that EPA provide information beyond a listing of methods and the regulations to which the methods apply. A summary of the method, the method citation, and the source for obtaining the method were of greatest interest. EPA is including the method citation and source in the footnote section of the

table that lists methods approved under the expedited process. This format ensures that the information is always available with the list. EPA plans to provide a summary of each new method as part of the discussion in the **Federal Register** that approves the method, unless the method is an updated version of a previously approved method (e.g., published in an earlier edition of *Standard Methods for the Analysis of Water and Wastewater*). In the latter case, the original method will have already been described. The approvals are effective on the date of publication in the **Federal Register**.

EPA intends to provide additional information concerning the method approval as part of the supporting material in the docket for each action that approves additional, alternative methods using the expedited process. A copy of each method being approved will be included in the docket for the action. Additional information will generally include:

- The Alternative Test Procedures (ATP) summary report for methods evaluated under the ATP process;
- EPA method development report for EPA methods (summary of experiments conducted during method development);
- A description of changes to the original method for modified methods; and
- Rationale for approval including:
  - Summary of the performance characteristics that relate to approval;
  - Detection limits and/or minimum reporting levels (MRLs) when they are a regulatory requirement; and
  - Benefits provided by the new method.

In some cases, EPA may have already promulgated more than one analytical method for a particular contaminant. In considering a new method for approval, EPA may find that the new method has performance characteristics that fall within the range of more than one of the existing promulgated methods. In those cases, EPA may approve the new method under the expedited process by comparing its effectiveness to the group of existing promulgated methods rather than by reference to a single existing method.

3. Amending regulatory text to describe where the list of methods approved using the expedited process is found. Most commenters indicated it would be helpful if the methods tables in the regulations include a reference to the list of additional, alternative methods approved under the expedited process. The commenters provided mixed reactions to adding the same information at 40 CFR 141.27. EPA is

considering adding the requested references to the CFR text as part of a future regulatory action.

Some commenters wanted EPA to publish a comprehensive list of all approved drinking water methods. A few suggested that EPA incorporate the alternative methods approved under the expedited method approval process into the regulations when the methods tables are updated.

EPA understands the desire to have all methods listed together. As a result, EPA is revising the drinking water methods Web site (<http://www.epa.gov/safewater/methods/methods.html>) to address this request. The user will be able to download comprehensive lists organized by regulation/monitoring requirement (e.g., Ground Water Rule, Unregulated Contaminant Monitoring Rule, Organic Contaminant Monitoring, etc.). Each list will include the drinking water methods authorized in the regulation and the alternative methods approved via the expedited process. The revision date and CFR citations will be included on each list. EPA believes that making the comprehensive lists available on the Internet provides more timely access to the information in the requested format than amending the methods tables in the regulations would provide.

4. Format of the table that lists methods approved using the expedited approval process. Most commenters indicated the table format presented in the April 10, 2007, **Federal Register** notice (72 FR 17902) (USEPA 2007a) is acceptable. One commenter suggested that the contaminants be listed alphabetically in the first column of the table in order to be consistent with the methods tables in the regulation, while also providing a listing of all methods for a single contaminant together. The commenter also requested that the table be completely updated each time new approvals are made instead of appending new approvals to the end of the table.

EPA is incorporating several of the suggestions into the final table format. The table is organized by contaminant in order to improve stakeholder access to the information. The table is divided into sections so that the format mimics the methods tables in 40 CFR 141 and 143. In future expedited method approval actions, EPA will also incorporate new methods into the table rather than appending them onto the end in order to maintain the format.

Appendix A to Subpart C of Part 141 contains the same type of information as was presented in the April 10, 2007, notice. Additional information regarding the newly approved,

alternative methods is included in the **Federal Register** preamble and in the docket as part of the background information concerning the approvals.

In the future, if EPA withdraws approval for a method that was approved via the expedited process, the Agency intends to update the table at Appendix A to Subpart C of Part 141 to reflect both the approval and withdrawal dates for the method in question.

5. State implementation of methods approved under the expedited process. States' approaches to allowing use of methods approved under the expedited process will vary. Some States will need to incorporate the expedited process into their regulations while other States may allow the use of the methods as soon as laboratories become certified to use them. Some State certification programs are able to adopt methods as soon as EPA approves them. This variability in implementation approaches means some States will be able to adopt methods approved under the expedited process more quickly than other States. Although this variability was mentioned in the comments, this situation is not unique to methods approved using the expedited process; it is also a factor for methods approved via rulemaking.

One approach that EPA is using to assist States is to add an appendix in the CFR that lists all alternative methods approved using the expedited process. States can cite this appendix (Appendix A to Subpart C in 40 CFR 141) when they update their regulations.

EPA is also making a copy of the appendix available on a Web page <http://www.epa.gov/safewater/methods/expedited.html>. Some States may be able to cite the URL as a source for alternative methods approved under the expedited process.

Some States requested early access to information about methods that are under consideration for approval in order to provide more time to adopt EPA-approved methods. EPA will consider this request as it implements the expedited process. Early sharing of information with States would give them additional time to prepare for adopting new analytical methods after they are published in the **Federal Register**.

State adoption of alternative methods approved under the expedited process is optional. States may choose to allow only a more limited set of methods to be used for compliance. States that choose to allow the alternative methods approved through this expedited process will be consistent with the requirement that States must have

programs at least as stringent as the Federal drinking water program in order to have primary enforcement responsibility for the drinking water program.

When the regulation requires that the laboratory be certified to perform analyses of samples for a specific contaminant, then this requirement extends to the use of methods approved through the expedited process. This means the States that choose to allow these alternative methods will need to develop certification criteria, train auditors, and evaluate laboratory capabilities for using the newly approved methods. EPA expects that State certification programs will incorporate methods approved using the expedited process into their programs in the same manner as methods that are approved using rulemaking. If the method is an updated version or a slight modification of a previously approved method, then an abbreviated certification process may be applicable.

The approval of methods, whether under rulemaking or the expedited approach, presents similar challenges to the Agency and the States. The approval decisions must be conveyed to the appropriate persons within the States. EPA plans to disseminate information concerning future method approvals using several approaches. A copy of the **Federal Register** action will be sent to the State drinking water certification and program offices. The Safe Drinking Water Hotline will have information concerning the approvals and information will be posted on EPA's drinking water methods Web page.

Withdrawal of method approval is a rare event under the regulatory process and EPA expects its occurrence under the expedited process will also be very limited. Methods will generally be withdrawn using the same process as was used for their approval. Methods approved via the expedited process will generally be withdrawn using the expedited process; methods approved under rulemaking will be withdrawn using rulemaking. Soliciting public comment through a rule proposal and issuing a final rule after taking those comments into consideration provides the States with time to withdraw the methods from their programs. In order to provide a comparable timeframe under the expedited process, EPA plans to consult with the States prior to establishing effective dates for withdrawal of methods under the expedited process. It is important that the effective date provide time for the States to implement withdrawal, so that States will not be in a position of allowing methods that were

disapproved by EPA. The appendix in the CFR will reflect both the approval and withdrawal dates for any method that is withdrawn using the expedited process. Citing both dates will eliminate any confusion as to when/whether a method approval is in effect.

#### *D. Additional Comments*

The April 10, 2007, **Federal Register** notice solicited comments on the process used by EPA to announce the approval of alternative methods to the methods listed in regulation. EPA also received comments that are indirectly related to the expedited method approval process. Brief discussions of the major topics are presented below. All of the comments and the Agency's response to comments (USEPA 2008) are available in the docket for this action.

1. EPA evaluation process. The expedited approval process allows EPA to approve methods more quickly and commenters support more timely approval of methods. However, shortening the approval process raised the question about whether EPA is changing the way that it evaluates methods prior to issuing approval decisions. Some commenters asked that EPA maintain its high standards for evaluating methods. Other commenters provided recommendations for changing the review process in order to both streamline and strengthen it.

The evaluation process is separate from the expedited approval process. EPA is open to improving our evaluation process and to making the process as transparent as possible. EPA appreciates the suggestions and will consider them with any future evaluation of potential improvements to the ATP program. EPA notes that some of the requested changes are already included in our current evaluation protocol. For example, minor modifications to existing methods generally do not require extensive data submissions in order to demonstrate acceptable method performance.

2. Prioritization of method evaluations. EPA recognizes that the ability to approve methods more quickly may result in an increase in the number of methods that are submitted to EPA for evaluation. It was suggested that EPA prioritize method reviews so that methods that provide the greatest benefit are evaluated first. EPA agrees with this approach and intends to give new methods that provide significant advantages over currently approved methods higher priority in the review process. Improvements may be in areas such as waste minimization, reduced analysis time, cost reduction, increased

method flexibility, introduction of an innovative technology, etc. Implementation of this approach means that new methods will not necessarily be reviewed/approved in the order in which they are submitted to the Agency.

3. Public comment as part of the method approval process. EPA understands the desire for the public to have an opportunity to comment on methods approved under the expedited approval process. However, introducing a comment period on these alternative methods is not consistent with the expedited process intended by Congress; as a result, EPA does not generally plan to solicit comment on these alternative method approval decisions.

The purpose of this alternative procedure is to identify and allow the use of methods that are equally as effective as methods already approved in prior regulations. As a result, the benchmark for these alternatives has already been provided through notice-and-comment rulemaking on the original method(s). In addition, this expedited approval process simply provides a broader set of compliance opportunities for water systems. Finally, EPA expects to use the expedited process only for those alternative methods that are clearly equally effective relative to methods already approved through regulation and that have performance that has been fully evaluated and well documented, as discussed below.

EPA methods undergo peer review prior to publication. The experimental results obtained during method development are usually summarized in a report that is included in the docket when the method is approved. The EPA method development research is often published in a peer reviewed journal. In addition, new chemical and radiochemical methods developed by EPA are evaluated according to Agency guidance adopted by the EPA Forum on Environmental Measurements (FEM). (USEPA 2005, 2006a) The method validation principles are based on current, international approaches and guidelines for intralaboratory (single laboratory) and interlaboratory (multiple laboratory) method validation studies. The Agency is developing similar guidance for validation of microbiological methods and that guidance will be adopted when it becomes available.

EPA plans to extend the use of the FEM guidance to methods that are reviewed under the ATP program. EPA encourages method developers to consult with the ATP coordinator during the development of their ATP study plans so that the experimental designs incorporate the appropriate tests. EPA intends to work with method developers during this consultation process to be sure that their ATP study plans address the principles outlined in the validation guidance. In addition, EPA plans to solicit external scientific review for ATP methods that involve new technology. The docket will contain the ATP study summary report and the external scientific review comments in order to document the basis for EPA's approval decision. If the method developer submits confidential business information as part of the ATP review process, the information will not be included in the docket.

Generally-accepted validation principles are usually followed for methods that are developed by Voluntary Consensus Standard Bodies (VCSBs), such as Standard Methods and ASTM, International. When a new method is adopted by a VCSB, EPA reviews the data generated during development and validation to verify the method is suitable for analyzing drinking water samples. EPA plans to use the expedited method approval process for methods that perform as well as the regulatory methods. The supporting data that EPA uses to make the approval determination will be placed in the docket so that the information is publically available.

In unique cases in which EPA believes public comment is warranted prior to approval, EPA may solicit comment through a notice and then issue its decision on approving the alternative method after taking the comments into consideration.

4. Methods recommended for approval. In the April 10, 2007, **Federal Register** notice (72 FR 17902) (USEPA 2007a), EPA included two examples of methods that were being considered for approval using the expedited approval process. Commenters supported the approval of these methods (i.e., EPA Method 200.5 and Standard Method 6610-04). They also recommended additional methods for consideration.

EPA has enough information to make approval determinations for many of the methods that were listed in the public

comments. In those cases, EPA is approving them as part of this action. Additional approval decisions are pending submission of data that will allow EPA to further compare the new methods' performance to that obtained by the regulatory methods.

III. Summary of Approvals

EPA is approving 99 methods, 85 of which are identical to previously approved methods from earlier publications and 14 of which represent new or modified methods. EPA notes that the approval for all of these methods, including the 85 "identical" methods previously required a notice-and-comment rulemaking action.

A. Methods From Voluntary Consensus Standard Bodies (VCSB)

1. Standard Methods. EPA approved 73 methods in "Standard Methods Online" as part of a "Methods Update Rule" issued on March 12, 2007 (72 FR 11200) (USEPA 2007b). Identical versions of these methods are also published in the 21st edition of *Standard Methods for the Analysis of Water and Wastewater* (Walker and Wendelken 2007). EPA recognizes that some States and laboratories prefer the hardcopy version to the electronic version that was previously approved. Since the 21st edition versions of these methods are equally effective relative to the online versions, EPA is approving the 73 methods from the 21st edition in this action. The 21st edition (APHA 2006) can be purchased from American Public Health Association (APHA), 800 I Street, NW., Washington, DC 20001-3710.

Six methods were published in "Standard Methods Online" too late to be included in the March 12, 2007, Methods Update Rule. These methods are also included in the 21st edition of *Standard Methods for the Analysis of Water and Wastewater* (APHA 2006). Four of the methods are unchanged and the other two updated methods reflect minor editorial changes to the versions published in the 20th edition of Standard Methods which are approved at 40 CFR 141.23 and 143.4 (Fair 2008a). EPA is approving the following methods because they are equally effective relative to the currently approved versions:

| SM (21st ed)<br>(APHA 2006) | Standard methods online       | Contaminant          | Regulation           |
|-----------------------------|-------------------------------|----------------------|----------------------|
| 4500-P E .....              | 4500-P E-99 (APHA 1999) ..... | Orthophosphate ..... | 40 CFR 141.23(k)(1). |
| 4500-P F .....              | 4500-P F-99 (APHA 1999) ..... | Orthophosphate ..... | 40 CFR 141.23(k)(1). |

| SM (21st ed)<br>(APHA 2006)                | Standard methods online                                    | Contaminant   | Regulation       |
|--|--|---------------|------------------|
| 4500-SO <sub>4</sub> <sup>-2</sup> C ..... | 4500-SO <sub>4</sub> <sup>-2</sup> C-97 (APHA 1997a) ..... | Sulfate ..... | 40 CFR 143.4(b). |
| 4500-SO <sub>4</sub> <sup>-2</sup> D ..... | 4500-SO <sub>4</sub> <sup>-2</sup> D-97 (APHA 1997a) ..... | Sulfate ..... | 40 CFR 143.4(b). |
| 4500-SO <sub>4</sub> <sup>-2</sup> E ..... | 4500-SO <sub>4</sub> <sup>-2</sup> E-97 (APHA 1997a) ..... | Sulfate ..... | 40 CFR 143.4(b). |
| 4500-SO <sub>4</sub> <sup>-2</sup> F ..... | 4500-SO <sub>4</sub> <sup>-2</sup> F-97 (APHA 1997a) ..... | Sulfate ..... | 40 CFR 143.4(b). |

The 21st edition can be obtained from APHA, 800 I Street, NW., Washington, DC 20001-3710 and the Online methods can be purchased at <http://www.standardmethods.org>.

The November 8, 2006, Ground Water Rule (GWR) (71 FR 65653) (USEPA 2006b) approved Colilert and Colisure media (Standard Method 9223 B, 20th Edition) for determining the presence of *E. coli*. Those two *E. coli* media, along with a third medium, Colilert-18 (all part of SM 9223B), were listed in Table IV-1 of the preamble as being approved in the rule. However, due to a publication oversight, the Colilert-18 methodology was omitted in the table at 40 CFR 141.402(c)(2). EPA is using this expedited approval action to correct the inconsistency between the preamble and rule language and clarify the status of Colilert-18 as an approved methodology. Colilert-18, as described in Standard Method 9223 B and published in the 20th edition of *Standard Methods for the Analysis of Water and Wastewater* (APHA 1998), is equally as effective as the previously promulgated Colilert and Colisure media in Standard Method 9223 B (page 65593 of the GWR preamble, USEPA 2006c) and is therefore approved in this action. Accordingly, EPA is adding the Colilert-18 methodology to the list of approved methods in Appendix A to Subpart C of Part 141.

Identical versions of Standard Method 9223 B are published in the 20th and 21st editions of *Standard Methods for the Analysis of Water and Wastewater* and in "Standard Methods Online" (Fair 2008a). Because the methods from all three sources are equally effective, EPA is approving the 21st edition and the 1997 online version of Method 9223 B for the Colilert, Colisure, and Colilert-18 methodologies. These newer versions are equally effective relative to the methods cited at 40 CFR 141.402(c)(2). The 21st edition of Standard Methods (APHA 2006) can be obtained from APHA, 800 I Street, NW., Washington, DC 20001-3710 and Standard Method 9223 B-97 (APHA 1997b) can be purchased at <http://www.standardmethods.org>.

EPA approved Standard Method 9230 B in the 20th edition of *Standard Methods for the Analysis of Water and Wastewater* as one of the methods for

determining Enterococci under the GWR (71 FR 65653) (USEPA 2006b). The online version of this method (9230 B-04) is identical to the version published in the 20th edition (Fair 2008a). EPA is approving Standard Method 9230 B-04 (APHA 2004b) for Enterococci detection, because it is equally effective relative to the methods cited at 141.402(c)(2). The online method can be purchased at <http://www.standardmethods.org>.

The January 5, 2006, Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) (71 FR 654) (USEPA 2006c) established source water monitoring requirements for *E. coli*. It approved the same methods for *E. coli* that are approved for ambient water monitoring under 40 CFR 136.3. The preamble in the LT2ESWTR proposal (68 FR 47640, August 11, 2003) (USEPA 2003a) listed the *E. coli* methods in the same format as they were presented in the proposed Guidelines Establishing Test Procedures for the Analysis of Pollutants; Analytical Methods for Biological Pollutants in Ambient Water (66 FR 45811, August 30, 2001) (USEPA 2001a). Two membrane filter methods (Standard Methods 9222 B and 9222 D) used in conjunction with Standard Method 9222 G to enumerate *E. coli* were listed in both proposals. When the final Guidelines Establishing Test Procedures for the Analysis of Pollutants; Analytical Methods for Biological Pollutants in Ambient Water (68 FR 43272, July 21, 2003) (USEPA 2003b) was published, the methods table at 40 CFR 136.3 was published in a different format from the proposal. Standard Method 9222 D/9222 G was listed as two step membrane filtration in the table of approved methods and footnote 19 in the table indicated other membrane filter procedures could be used prior to Standard Method 9222 G. Since Standard Method 9222 D is not explicitly listed in the final rule, there is some confusion as to whether Standard Method 9222 D is acceptable for the membrane filtration step. The July 21, 2003, preamble (USEPA 2003b) stated that the final rule was promulgating the test methods described in the proposed rule, and there was no reason presented to exclude Standard Method 9222 D published in the 20th edition of

*Standard Methods for the Analysis of Water and Wastewater* (APHA 1998) as an approved method. Therefore, EPA is using this expedited method approval process to clarify that Standard Method 9222 D in combination with 9222 G is approved for enumerating *E. coli* under the LT2ESWTR. Standard Method 9222 D/9222 G is equally as effective as other promulgated methods for enumerating *E. coli* (USEPA 2001a). Accordingly, EPA is adding Standard Method 9222 D/9222 G published in the 20th edition of *Standard Methods for the Analysis of Water and Wastewater* (APHA 1998) to the list of approved methods in Appendix A to Subpart C of Part 141.

The April 10, 2007, **Federal Register** notice (72 FR 17902) (USEPA 2007a) listed Standard Method 6610-04 (APHA 2004a) as a potential candidate for approval under the expedited approval process. This new Standard Method uses high-performance liquid chromatography (HPLC) with post-column derivatization and fluorescence detection to determine carbamate pesticide concentrations in drinking water. After the addition of a surrogate compound and filtration, water samples are injected directly onto an HPLC and separated by use of a gradient and a C<sub>18</sub> column. The 11 carbamate pesticides that are analyzed by this method are generally classified as phenyl and oxime carbamates and have an N-methyl group in common. After chromatographic separation, the compounds are hydrolyzed with 0.05N sodium hydroxide at 80 to 95 °C, yielding a methyl amine which is then reacted with o-phthalaldehyde and 2-mercaptoethanol to form a highly fluorescent isoindole that is detected instrumentally. The method is applicable to carbofuran and oxamyl, which are regulated in drinking water. The method uses the same chemistry and quality control criteria as EPA Method 531.2 (USEPA 2001b), which is approved for analyzing compliance samples for carbofuran and oxamyl (40 CFR 141.24(e)(1)). EPA is approving Standard Method 6610-04 (APHA 2004a) for the analysis of compliance samples for carbofuran and oxamyl, because it is equally effective relative to EPA Method 531.2 (Fair 2008a). EPA is also approving the identical version of Standard Method 6610 that is published

in the 21st edition of *Standard Methods for the Analysis of Water and Wastewater* (APHA 2006). EPA recognizes that this method may be used to determine concentrations of additional compounds for which there are no Federal monitoring requirements.

2. ASTM International. EPA compared new versions of six ASTM methods to the most recent versions of those methods cited in 40 CFR 141 and 143. The new versions included changes such as:

- More detailed quality control sections (D 512–04 B and D 1179–04 B);
- Additional choices in equipment or reagents (D 859–05, D 1179–04 B, and D 2036–06 A and B);
- More stringent reagent water specifications (D 512–04 B and D 859–05);
- Additional instructions for handling interferences (D 2036–06 A and B);
- Modifications to allow analysis of additional types of samples (D 5673–05); and

- Editorial changes in all methods (changes in references, reorganization, corrections of errors).

Data generated using the new methods are comparable to data obtained using the previous versions because the chemistry and sample-handling protocols are unchanged. The new versions are equally effective relative to the version cited in regulation. (Fair, 2008a) Thus, EPA is approving the use of these six ASTM methods:

| ASTM method                           | Contaminant | Regulation           |
|---------------------------------------|-------------|----------------------|
| D512–04 B (ASTM International 2004a)  | Chloride    | 40 CFR 143.4(b).     |
| D859–05 (ASTM International 2005a)    | Silica      | 40 CFR 141.23(k)(1). |
| D1179–04 B (ASTM International 2004b) | Fluoride    | 40 CFR 141.23(k)(1). |
| D2036–06 A (ASTM International 2006)  | Cyanide     | 40 CFR 141.23(k)(1). |
| D2036–06 B (ASTM International 2006)  | Cyanide     | 40 CFR 141.23(k)(1). |
| D5673–05 (ASTM International 2005b)   | Uranium     | 40 CFR 141.25(a).    |

The ASTM methods are available from ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959 or <http://www.astm.org>.

#### B. Methods Developed by EPA

1. EPA Method 200.5, Revision 4.2. EPA described this method as a candidate for approval under the expedited approval program in the April 10, 2007, **Federal Register** notice (72 FR 17902) (USEPA 2007a). Commenters were universally supportive of method approval.

EPA Method 200.5 (USEPA 2003c) uses axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP–AES) to determine concentrations of 22 trace elements and contaminants in drinking water. The method involves the following steps:

- Sample digestion;
- Volume reduction to provide a 2X concentration; and
- Multi-elemental determinations by axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP–AES) using sequential or simultaneous instruments. The instruments measure characteristic atomic-line emission spectra by optical spectrometry.

Approved methods for 19 of the EPA Method 200.5 analytes are listed at 40 CFR 141.23(k)(1) and 40 CFR 143.4. The performance characteristics of EPA Method 200.5, Revision 4.2 were compared to the characteristics of the methods listed at 40 CFR 141.23(k)(1) for antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, copper, lead, magnesium, nickel, selenium, silica, and sodium. The performance characteristics of EPA Method 200.5, Revision 4.2 were

compared to the characteristics of the methods listed at 40 CFR 143.4 for aluminum, iron, manganese, silver, and zinc (Fair 2008b). Since EPA Method 200.5 is equally effective relative to the methods already promulgated in the regulations, EPA is approving it for determining aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, copper, iron, lead, magnesium, manganese, nickel, selenium, silica, silver, sodium, and zinc concentrations in drinking water to comply with 40 CFR 141.23 and 143.4.

EPA Method 200.5, Revision 4.2 (USEPA 2003c) can be accessed and downloaded directly on-line at <http://www.epa.gov/nerlcwww/ordmeth.htm>.

#### C. Methods Developed by Vendors

1. *Method D99–003, Revision 3.0.* If approved by the State, 40 CFR 141.74(a)(2) allows the use of DPD colorimetric test kits to determine disinfectant residuals. Evaluation of the free chlorine test strip method, Method D99–003 (Industrial Test Systems, Inc. 2003), under the ATP program demonstrated performance characteristics similar to those obtained using DPD colorimetric test kits. As a result, the March 12, 2007, Methods Update Rule (72 FR 11200) (USEPA 2007b) added language at 40 CFR 141.74(a)(2) to allow the use of Method D99–003 developed by Industrial Test Systems, Inc. (ITS) to determine free chlorine residuals in drinking water, if approved by the State. This approval was specified for systems monitoring under the requirements of 40 CFR 141 Subpart H.

In a similar manner, 40 CFR 141.131(c)(2) allows the State to

approve the use of DPD colorimetric test kits for monitoring requirements specified at 40 CFR 141.132(c)(1). The free chlorine test strip method is not listed. As noted, however, evaluation of the chlorine test strip method has demonstrated performance characteristics similar to those obtained using DPD colorimetric test kits. Accordingly, the chlorine test strip method is an equally effective methodology, and there is no technical reason to withhold approval under one rule while allowing its use under a separate regulation. Therefore, EPA is using this action to approve the use of Method D99–003 (ITS 2003) to meet free chlorine residual monitoring requirements specified at 40 CFR 141.132(c)(1), if approved by the State.

Method D99–003, Revision 3.0, titled “Free Chlorine Species (HOCl<sup>–</sup> and OCl<sup>–</sup>) by Test Strip,” November 21, 2003, is available from Industrial Test Systems, Inc., 1875 Langston St., Rock Hill, SC 29730. The ATP report on this method is contained in the docket for the March 12, 2007, Methods Update Rule.

#### IV. Statutory and Executive Order Reviews

As noted above, under the terms of SDWA Section 1401(1), this streamlined method approval action is not a rule. Accordingly, the Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, does not apply because this action is not a rule for purposes of 5 U.S.C. 804(3). Similarly, this action is not subject to the Regulatory Flexibility Act because it is not subject to notice and comment



requirements under the Administrative Procedure Act or any other statute. In addition, because this approval action is not a rule but simply makes alternative (optional) testing methods available for monitoring under SDWA, EPA has concluded that other statutes and executive orders generally applicable to rulemaking do not apply to this approved action.

## V. References

- APHA. 1997a. Standard Method 4500-SO<sub>4</sub><sup>-2</sup>-97. Sulfate. Approved by Standard Methods Committee 1997. Standard Methods Online. (Available at <http://www.standardmethods.org>).
- APHA. 1997b. Standard Method 9223 B-97. Enzyme Substrate Coliform Test. Approved by Standard Methods Committee 1997. Standard Methods Online. (Available at <http://www.standardmethods.org>).
- APHA. 1998. *Twentieth Edition of Standard Methods for the Examination of Water and Wastewater*, American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710.
- APHA. 1999. Standard Method 4500-P-99. Phosphorus. Approved by Standard Methods Committee 1999. Standard Methods Online. (Available at <http://www.standardmethods.org>).
- APHA. 2004a. Standard Method 6610-04. Carbamate Pesticides—High-Performance Liquid Chromatographic Method. Approved by Standard Methods Committee 2004. Standard Methods Online. (Available at <http://www.standardmethods.org>).
- APHA. 2004b. Standard Method 9230 B-04. Fecal Enterococcus/Streptococcus Groups—Multiple-Tube Technique. Approved by Standard Methods Committee 2004. Standard Methods Online. (Available at <http://www.standardmethods.org>).
- APHA. 2006. *Twenty-first Edition of Standard Methods for the Examination of Water and Wastewater*, American Public Health Association, 800 I Street, NW., Washington, DC 20001-3710.
- ASTM International. 2004a. Method D 512-04 B. Standard Test Method for Chloride Ion in Water by Silver Nitrate Titration. ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959. (<http://www.astm.org>)
- ASTM International. 2004b. Method D 1179-04B. Standard Test Method for Fluoride Ion in Water by Ion Selective Electrode. ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959. (<http://www.astm.org>)
- ASTM International. 2005a. Method D 859-05. Standard Test Method for Silica in Water. ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959. (<http://www.astm.org>)
- ASTM International. 2005b. Method D 5673-05. Standard Test Method for Elements in Water by Inductively Coupled Plasma-Mass Spectrometry. ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959. (<http://www.astm.org>)
- ASTM International. 2006. Method D 2036-06. Standard Test Method for Cyanides in Water. ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959. (<http://www.astm.org>)
- Fair, P., 2008a. Memo to the record describing basis for approving methods from Standard Methods and ASTM International. April 2008.
- Fair, P., 2008b. Memo to the record describing basis for approving EPA Method 200.5. April 2008.
- Industrial Test Systems, Inc. 2003. Method D99-003. Free Chlorine Species (HOCl and OCl<sup>-</sup>) by Test Strip, Revision 3.0, November 21, 2003. Industrial Test Systems, Inc., 1875 Langston St., Rock Hill, SC 29730.
- USEPA. 2001a. Guidelines Establishing Test Procedures for the Analysis of Pollutants; Analytical Methods for Biological Pollutants in Ambient Water; Proposed Rule. 66 FR 45811. August 30, 2001.
- USEPA. 2001b. EPA Method 531.2. Measurement of N-methylcarbamoyloximes and N-methylcarbamates in Water by Direct Aqueous Injection HPLC with Postcolumn Derivatization. Revision 1.0. EPA 815-B-01-002 (Available at <http://www.epa.gov/safewater/methods/sourcalt.html>).
- USEPA. 2003a. National Primary Drinking Water Regulations: Long Term 2 Enhanced Surface Water Treatment Rule; Proposed Rule. 68 FR 47640. August 11, 2003.
- USEPA. 2003b. Guidelines Establishing Test Procedures for the Analysis of Pollutants; Analytical Methods for Biological Pollutants in Ambient Water; Final Rule. 68 FR 43272. July 21, 2003.
- USEPA. 2003c. EPA Method 200.5. Determination of Trace Elements in Drinking Water by Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry. Revision 4.2. EPA/600/R-06/115. (Available at <http://www.epa.gov/nerlcwww/ordmeth.htm>).
- USEPA. 2005. Validation and Peer Review of U.S. Environmental Protection Agency Chemical Methods of Analysis, FEM Document Number 2005-01, October 2005.
- USEPA. 2006a. Validation and Peer Review of U.S. Environmental Protection Agency Radiochemical Methods of Analysis, FEM Document Number 2006-01, August 2006.
- USEPA. 2006b. National Primary Drinking Water Regulations: Ground Water Rule. 71 FR 65574. November 8, 2006.
- USEPA. 2006c. National Primary Drinking Water Regulations: Long Term 2 Enhanced Surface Water Treatment Rule; Final Rule. 71 FR 654. January 5, 2006.
- USEPA. 2007a. Expedited Approval of Test Procedures for the Analysis of Contaminants Under the Safe Drinking Water Act; Analysis and Sampling Procedures. 72 FR 17902. April 10, 2007.
- USEPA. 2007b. Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act; National Primary Drinking Water Regulations; and National Secondary Drinking Water Regulations; Analysis and Sampling Procedures; Final Rule. 72 FR 11200. March 12, 2007.
- USEPA. 2008. Response to Comments Document for Expedited Approval of Test Procedures for the Analysis of Contaminants Under the Safe Drinking Water Act; Analysis and Sampling Procedures (72 FR 17902. April 10, 2007). May 2008.
- Walker, L. and Wendelken, S., 2007. Letter to S. Posavec, Standard Methods Manager, April 11, 2007.

## List of Subjects in 40 CFR Part 141

Environmental protection, Chemicals, Indians-lands, Intergovernmental relations, Radiation protection, Reporting and recordkeeping requirements, Water supply.

Dated: May 20, 2008.

**Benjamin H. Grumbles,**

*Assistant Administrator, Office of Water.*

■ For the reasons stated in the preamble, 40 CFR part 141 is amended as follows:

## PART 141—NATIONAL PRIMARY DRINKING WATER REGULATIONS

■ 1. The authority citation for part 141 continues to read as follows:

**Authority:** 42 U.S.C. 300f, 300g-1, 300j-4, and 300j-9.

■ 2. Subpart C is amended by adding Appendix A to read as follows:

### Appendix A to Subpart C of Part 141—Alternative Testing Methods Approved for Analyses Under the Safe Drinking Water Act.

Only the editions stated in the following table are approved.

**BILLING CODE 6560-50-P**



| Alternative testing methods for contaminants listed at 40 CFR 141.21(f)(3) |  |  |
|--|--|--|
| Organism   | Methodology                              | SM 21 <sup>st</sup> Edition <sup>1</sup> |
| Total Coliforms  | Total Coliform Fermentation Technique    | 9221 A, B                                |
|  | Total Coliform Membrane Filter Technique | 9222 A, B, C                             |
|  | Presence-Absence (P-A) Coliform Test     | 9221 D                                   |
|  | ONPG-MUG Test                            | 9223                                     |

| Alternative testing methods for contaminants listed at 40 CFR 141.23 (k)(1) |  |                                  |  |                        |                   |
|---|--|----------------------------------|--|------------------------|-------------------|
| Contaminant   | Methodology  | EPA Method                       | SM 21 <sup>st</sup> Edition <sup>1</sup> | SM Online <sup>3</sup> | ASTM <sup>4</sup> |
| Alkalinity  | Titrimetric  |                                  | 2320 B                                   |                        |                   |
| Antimony  | Atomic Absorption; Furnace   |                                  | 3113 B                                   |                        |                   |
|   | Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES) | 200.5, Revision 4.2 <sup>2</sup> |  |                        |                   |
|   | Atomic Absorption; Furnace   |                                  | 3113 B                                   |                        |                   |
| Arsenic   | Hydride Atomic Absorption  |                                  | 3114 B                                   |                        |                   |
|   | Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES) | 200.5, Revision 4.2              |  |                        |                   |
|   |  |                                  |  |                        |                   |

|              |  |                     |  |           |            |
|--------------|--|---------------------|--|-----------|------------|
| Barium       | Inductively Coupled Plasma   |                     |  | 3120 B    |            |
|              | Atomic Absorption; Direct  |                     |  | 3111 D    |            |
|              | Atomic Absorption; Furnace   |                     |  | 3113 B    |            |
| Beryllium    | Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES) | 200.5, Revision 4.2 |  |           |            |
|              | Inductively Coupled Plasma   |                     |  | 3120 B    |            |
|              | Atomic Absorption; Furnace   |                     |  | 3113 B    |            |
| Cadmium      | Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES) | 200.5, Revision 4.2 |  |           |            |
|              | Atomic Absorption; Furnace   |                     |  | 3113 B    |            |
|              | Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES) | 200.5, Revision 4.2 |  |           |            |
| Calcium      | EDTA titrimetric   |                     |  | 3500-Ca B |            |
|              | Atomic Absorption; Direct Aspiration   |                     |  | 3111 B    |            |
|              | Inductively Coupled Plasma   |                     |  | 3120 B    |            |
| Chromium     | Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES) | 200.5, Revision 4.2 |  |           |            |
|              | Inductively Coupled Plasma   |                     |  | 3120 B    |            |
|              | Atomic Absorption; Furnace   |                     |  | 3113 B    |            |
| Copper       | Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES) | 200.5, Revision 4.2 |  |           |            |
|              | Atomic Absorption; Furnace   |                     |  | 3113 B    |            |
|              | Atomic Absorption; Direct Aspiration   |                     |  | 3111 B    |            |
| Conductivity | Inductively Coupled Plasma   |                     |  | 3120 B    |            |
|              | Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES) | 200.5, Revision 4.2 |  |           |            |
|              | Conductance  |                     |  | 2510 B    |            |
| Cyanide      | Manual Distillation followed by  |                     |  |           | D2036-06 A |

|           |  |                     |                                     |  |            |
|-----------|--|---------------------|-------------------------------------|--|------------|
|           | Spectrophotometric, Amenable   |                     | 4500-CN <sup>-</sup> G              |  | D2036-06 B |
|           | Spectrophotometric Manual  |                     | 4500-CN <sup>-</sup> E              |  | D2036-06 A |
|           | Selective Electrode  |                     | 4500-CN <sup>-</sup> F              |  |            |
| Fluoride  | Ion Chromatography   |                     | 4110 B                              |  |            |
|           | Manual Distillation; Colorimetric SPADNS   |                     | 4500-F <sup>-</sup> B, D            |  |            |
|           | Manual Electrode   |                     | 4500-F <sup>-</sup> C               |  | D1179-04 B |
|           | Automated Alizarin   |                     | 4500-F <sup>-</sup> E               |  |            |
| Lead      | Atomic Absorption; Furnace   |                     | 3113 B                              |  |            |
|           | Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES) | 200.5, Revision 4.2 |                                     |  |            |
| Magnesium | Atomic Absorption  |                     | 3111 B                              |  |            |
|           | Inductively Coupled Plasma   |                     | 3120 B                              |  |            |
|           | Complexation Titrimetric Methods   |                     | 3500-Mg B                           |  |            |
|           | Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES) | 200.5, Revision 4.2 |                                     |  |            |
| Mercury   | Manual, Cold Vapor   |                     | 3112 B                              |  |            |
| Nickel    | Inductively Coupled Plasma   |                     | 3120 B                              |  |            |
|           | Atomic Absorption; Direct  |                     | 3111 B                              |  |            |
|           | Atomic Absorption; Furnace   |                     | 3113 B                              |  |            |
|           | Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES) | 200.5, Revision 4.2 |                                     |  |            |
| Nitrate   | Ion Chromatography   |                     | 4110 B                              |  |            |
|           | Automated Cadmium Reduction  |                     | 4500-NO <sub>3</sub> <sup>-</sup> F |  |            |
|           | Manual Cadmium Reduction   |                     | 4500-NO <sub>3</sub> <sup>-</sup> E |  |            |
|           | Ion Selective Electrode  |                     | 4500-NO <sub>3</sub> <sup>-</sup> D |  |            |
| Nitrite   | Ion Chromatography   |                     | 4110 B                              |  |            |
|           | Automated Cadmium Reduction  |                     | 4500-NO <sub>3</sub> <sup>-</sup> F |  |            |
|           | Manual Cadmium Reduction   |                     | 4500-NO <sub>3</sub> <sup>-</sup> E |  |            |

|                |  |                     |  |                                     |             |         |
|----------------|--|---------------------|--|-------------------------------------|-------------|---------|
|                | Spectrophotometric   |                     |  | 4500-NO <sub>2</sub> <sup>-</sup> B |             |         |
| Orthophosphate | Ion Chromatography   |                     |  | 4110 B                              |             |         |
|                | Colorimetric, ascorbic acid, single reagent  |                     |  | 4500-P E                            | 4500-P E-99 |         |
|                | Colorimetric, Automated, Ascorbic Acid   |                     |  | 4500-P F                            | 4500-P F-99 |         |
|                | Electrometric  |                     |  | 4500-H <sup>+</sup> B               |             |         |
| pH             | Hydride-Atomic Absorption  |                     |  | 3114 B                              |             |         |
|                | Atomic Absorption; Furnace   |                     |  | 3113 B                              |             |         |
|                | Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES) | 200.5, Revision 4.2 |  |                                     |             |         |
|                | Colorimetric   |                     |  |                                     |             | D859-05 |
| Silica         | Molybdosilicate  |                     |  | 4500-SiO <sub>2</sub> C             |             |         |
|                | Heteropoly blue  |                     |  | 4500-SiO <sub>2</sub> D             |             |         |
|                | Automated for Molybdate-reactive Silica  |                     |  | 4500-SiO <sub>2</sub> E             |             |         |
|                | Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES) | 200.5, Revision 4.2 |  |                                     |             |         |
|                | Inductively Coupled Plasma   |                     |  | 3120 B                              |             |         |
|                | Atomic Absorption; Direct Aspiration   |                     |  | 3111 B                              |             |         |
| Sodium         | Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES) | 200.5, Revision 4.2 |  |                                     |             |         |
|                | Thermometric   |                     |  | 2550                                |             |         |

**Alternative testing methods for contaminants listed at 40 CFR 141.24 (e)(1)**

| Contaminant | Methodology  | SM 21 <sup>st</sup> Edition <sup>1</sup> | SM Online <sup>3</sup> |
|-------------|--|--|------------------------|
| Carbofuran  | High-performance liquid chromatography (HPLC) with post-column derivatization and fluorescence detection | 6610 B                                   | 6610 B-04              |
| Oxamyl      | High-performance liquid chromatography (HPLC) with post-column derivatization and fluorescence detection | 6610 B                                   | 6610 B-04              |

| Alternative testing methods for contaminants listed at 40 CFR 141.25(a)    |                        |  |                   |
|--|------------------------|--|-------------------|
| Contaminant  | Methodology            | SM 21 <sup>st</sup> Edition <sup>1</sup> | ASTM <sup>4</sup> |
| Naturally Occurring:   |                        |  |                   |
| Gross alpha and beta   | Evaporation            | 7110 B                                   |                   |
| Gross alpha  | Coprecipitation        | 7110 C                                   |                   |
| Radium 226   | Radon emanation        | 7500-Ra C                                |                   |
|  | Radiochemical          | 7500-Ra B                                |                   |
| Radium 228   | Radiochemical          | 7500-Ra D                                |                   |
| Uranium  | Radiochemical          | 7500-U B                                 |                   |
|  | ICP-MS                 |  | D5673-05          |
|  | Alpha spectrometry     | 7500-U C                                 |                   |
| Man-Made:  |                        |  |                   |
| Radioactive Cesium   | Radiochemical          | 7500-Cs B                                |                   |
|  | Gamma Ray Spectrometry | 7120                                     |                   |
| Radioactive Iodine   | Radiochemical          | 7500-I B                                 |                   |
|  |                        | 7500-I C                                 |                   |
|  |                        | 7500-I D                                 |                   |
| Radioactive Strontium 89, 90   | Gamma Ray Spectrometry | 7120                                     |                   |
|  | Radiochemical          | 7500-Sr B                                |                   |
| Tritium  | Liquid Scintillation   | 7500- <sup>3</sup> H B                   |                   |
| Gamma Emitters   | Gamma Ray Spectrometry | 7120                                     |                   |
|  |                        | 7500-Cs B<br>7500-I B                    |                   |
| Alternative testing methods for contaminants listed at 40 CFR 141.74(a)(1) |                        |  |                   |
| Organism   | Methodology            | SM 21 <sup>st</sup> Edition <sup>1</sup> |                   |

|                        |  |              |
|------------------------|--|--------------|
| Total Coliform         | Total Coliform Fermentation Technique    | 9221 A, B, C |
|                        | Total Coliform Membrane Filter Technique | 9222 A, B, C |
|                        | ONPG-MUG Test                            | 9223         |
| Fecal Coliforms        | Fecal Coliform Procedure                 | 9221 E       |
|                        | Fecal Coliform Filter Procedure          | 9222 D       |
| Heterotrophic bacteria | Pour Plate Method                        | 9215 B       |
| Turbidity              | Nephelometric Method                     | 2130 B       |

**Alternative testing methods for disinfectant residuals listed at 40 CFR 141.74(a)(2)**

| Residual         | Methodology                                    | SM 21 <sup>st</sup> Edition <sup>1</sup> |
|------------------|--|--|
| Free Chlorine    | Amperometric Titration                         | 4500-Cl D                                |
|                  | DPD Ferrous Titrimetric                        | 4500-Cl F                                |
|                  | DPD Colorimetric                               | 4500-Cl G                                |
|                  | Syringaldazine (FACTS)                         | 4500-Cl H                                |
| Total Chlorine   | Amperometric Titration                         | 4500-Cl D                                |
|                  | Amperometric Titration (Low level measurement) | 4500-Cl E                                |
|                  | DPD Ferrous Titrimetric                        | 4500-Cl F                                |
|                  | DPD Colorimetric                               | 4500-Cl G                                |
| Chlorine Dioxide | Iodometric Electrode                           | 4500-Cl I                                |
|                  | Amperometric Titration                         | 4500-ClO <sub>2</sub> C                  |
|                  | Amperometric Titration                         | 4500-ClO <sub>2</sub> E                  |
| Ozone            | Indigo Method                                  | 4500-O <sub>3</sub> B                    |

**Alternative testing methods for contaminants listed at 40 CFR 141.131(b)(1)**

| Contaminant | Methodology               | SM 21 <sup>st</sup> Edition <sup>1</sup> |
|-------------|---------------------------|--|
| HAA5        | LLE (diazomethane)/GC/ECD | 6251 B                                   |

|   |                        |                         |
|---|------------------------|-------------------------|
| Chlorite – daily monitoring as prescribed in 40 CFR 141.132(b)(2)(i)(A) | Amperometric Titration | 4500–ClO <sub>2</sub> E |
|---|------------------------|-------------------------|

| Alternative testing methods for disinfectant residuals listed at 40 CFR 141.131(c)(1) |                                  |  |
|---|----------------------------------|--|
| Residual  | Methodology                      | SM 21 <sup>st</sup> Edition <sup>1</sup> |
| Free Chlorine   | Amperometric Titration           | 4500–Cl D                                |
|   | DPD Ferrous Titrimetric          | 4500–Cl F                                |
|   | DPD Colorimetric                 | 4500–Cl G                                |
|   | Syringaldazine (FACTS)           | 4500–Cl H                                |
| Combined Chlorine   | Amperometric Titration           | 4500–Cl D                                |
|   | DPD Ferrous Titrimetric          | 4500–Cl F                                |
|   | DPD Colorimetric                 | 4500–Cl G                                |
| Total Chlorine  | Amperometric Titration           | 4500–Cl D                                |
|   | Low level Amperometric Titration | 4500–Cl E                                |
|   | DPD Ferrous Titrimetric          | 4500–Cl F                                |
|   | DPD Colorimetric                 | 4500–Cl G                                |
|   | Iodometric Electrode             | 4500–Cl I                                |
| Chlorine Dioxide  | Amperometric Method II           | 4500–ClO <sub>2</sub> E                  |

| Alternative testing methods for disinfectant residuals listed at 40 CFR 141.131(c)(2), if approved by the State |             |                             |
|---|-------------|-----------------------------|
| Residual  | Methodology | Method                      |
| Free Chlorine   | Test Strips | Method D99-003 <sup>5</sup> |

| Alternative testing methods for parameters listed at 40 CFR 141.131(d) |             |  |
|--|-------------|--|
| Parameter  | Methodology | SM 21 <sup>st</sup> Edition <sup>1</sup> |



|  |   |        |
|--|---|--------|
| Total Organic Carbon (TOC)   | High Temperature Combustion                           | 5310 B |
|  | Persulfate-Ultraviolet or Heated Persulfate Oxidation | 5310 C |
|  | Wet Oxidation   | 5310 D |
| Specific Ultraviolet Absorbance (SUVA)<br>Dissolved Organic Carbon (DOC) | Calculation using DOC and UV <sub>254</sub> data      |        |
|  | High Temperature Combustion                           | 5310 B |
|  | Persulfate-Ultraviolet or Heated Persulfate Oxidation | 5310 C |
|  | Wet Oxidation   | 5310 D |
|  | Spectrophotometry                                     | 5910 B |

| Alternative testing methods for contaminants listed at 40 CFR 141.402(c)(2) |                         |  |  |
|---|-------------------------|--|--|
| Organism  | Methodology             | SM 20 <sup>th</sup> Edition <sup>6</sup> | SM 21 <sup>st</sup> Edition <sup>1</sup> |
| <i>E. coli</i>  | Colilert                |  | 9223 B                                   |
|   | Colisure                |  | 9223 B                                   |
|   | Colilert-18             | 9223 B                                   | 9223 B                                   |
| Enterococci   | Multiple-Tube Technique |  | 9230 B-04                                |

| Alternative testing methods for contaminants listed at 40 CFR 141.704(b) |                               |  |
|--|-------------------------------|--|
| Organism   | Methodology                   | SM 20 <sup>th</sup> Edition <sup>6</sup> |
| <i>E. coli</i>   | Membrane Filtration, Two Step | 9222 D/9222 G                            |

| Alternative testing methods for contaminants listed at 40 CFR 143.4(b) |  |                                  |                   |  |
|--|--|----------------------------------|-------------------|--|
| Contaminant  | Methodology  | EPA Method                       | ASTM <sup>4</sup> | SM 21 <sup>st</sup> Edition <sup>1</sup> |
| Aluminum   | Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES) | 200.5, Revision 4.2 <sup>2</sup> |                   |  |
|  | Atomic Absorption; Direct  |                                  |                   | 3111 D                                   |

|           |  |                     |            |                                      |   |
|-----------|--|---------------------|------------|--------------------------------------|---|
| Chloride  | Atomic Absorption; Furnace   |                     |            | 3113 B                               |   |
|           | Inductively Coupled Plasma   |                     |            | 3120 B                               |   |
|           | Silver Nitrate Titration   |                     | D 512-04 B | 4500-Cl <sup>-</sup> B               |   |
|           | Ion Chromatography   |                     |            | 4110 B                               |   |
|           | Potentiometric Titration   |                     |            | 4500-Cl <sup>-</sup> D               |   |
| Color     | Visual Comparison  |                     |            | 2120 B                               |   |
|           | Methylene Blue Active Substances (MBAS)  |                     |            | 5540 C                               |   |
| Iron      | Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES) | 200.5, Revision 4.2 |            |                                      |   |
|           | Atomic Absorption; Direct  |                     |            | 3111 B                               |   |
|           | Atomic Absorption; Furnace   |                     |            | 3113 B                               |   |
|           | Inductively Coupled Plasma   |                     |            | 3120 B                               |   |
| Manganese | Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES) | 200.5, Revision 4.2 |            |                                      |   |
|           | Atomic Absorption; Direct  |                     |            | 3111 B                               |   |
|           | Atomic Absorption; Furnace   |                     |            | 3113 B                               |   |
|           | Inductively Coupled Plasma   |                     |            | 3120 B                               |   |
| Odor      | Threshold Odor Test  |                     |            | 2150 B                               |   |
| Silver    | Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES) | 200.5, Revision 4.2 |            |                                      |   |
|           | Atomic Absorption; Direct  |                     |            | 3111 B                               |   |
|           | Atomic Absorption; Furnace   |                     |            | 3113 B                               |   |
|           | Inductively Coupled Plasma   |                     |            | 3120 B                               |   |
| Sulfate   | Ion Chromatography   |                     |            | 4110 B                               |   |
|           | Gravimetric with ignition of residue   |                     |            | 4500-SO <sub>4</sub> <sup>-2</sup> C | 4500-SO <sub>4</sub> <sup>-2</sup> C-97 |
|           | Gravimetric with drying of residue   |                     |            | 4500-SO <sub>4</sub> <sup>-2</sup> D | 4500-SO <sub>4</sub> <sup>-2</sup> D-97 |
|           | Turbidimetric method   |                     |            | 4500-SO <sub>4</sub> <sup>-2</sup> E | 4500-SO <sub>4</sub> <sup>-2</sup> E-97 |

|                        |  |                     |  |                                      |   |
|------------------------|--|---------------------|--|--------------------------------------|---|
|                        | Automated methylthymol blue method   |                     |  | 4500-SO <sub>4</sub> <sup>-2</sup> F | 4500-SO <sub>4</sub> <sup>-2</sup> F-97 |
| Total Dissolved Solids | Total Dissolved Solids Dried at 180 deg C  |                     |  | 2540 C                               |   |
| Zinc                   | Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES) | 200.5, Revision 4.2 |  |                                      |   |
|                        | Atomic Absorption; Direct Aspiration   |                     |  | 3111 B                               |   |
|                        | Inductively Coupled Plasma   |                     |  | 3120 B                               |   |

<sup>1</sup> Standard Methods for the Examination of Water and Wastewater, 21<sup>st</sup> edition (2005). Available from American Public Health Association, 800 I Street, NW., Washington, DC 20001-3710.

<sup>2</sup> EPA Method 200.5, Revision 4.2. "Determination of Trace Elements in Drinking Water by Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry." 2003. EPA/600/R-06/115. (Available at <http://www.epa.gov/nerlcwww/ordmeth.htm>.)

<sup>3</sup> Standard Methods Online are available at <http://www.standardmethods.org>. The year in which each method was approved by the Standard Methods Committee is designated by the last two digits in the method number. The methods listed are the only online versions that may be used.

<sup>4</sup> Available from ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 or <http://astm.org>. The methods listed are the only alternative versions that may be used.

<sup>5</sup> Method D99-003, Revision 3.0. "Free Chlorine Species (HOCl<sup>-</sup> and OCl<sup>-</sup>) by Test Strip," November 21, 2003. Available from Industrial Test Systems, Inc., 1875 Langston St., Rock Hill, SC 29730.

<sup>6</sup> Standard Methods for the Examination of Water and Wastewater, 20<sup>th</sup> edition (1998). Available from American Public Health Association, 800 I Street, NW., Washington, DC 20001-3710.