

(7) Addition of an approved method modification using the Pall Gelman Envirochek HV filter. This approval was based on an interlaboratory validation study demonstrating that three laboratories, each analyzing reagent water and a different source water, met all method acceptance criteria for *Cryptosporidium*. EPA issued a letter (dated March 21, 2002) under the Alternative Test Procedures program approving the procedure as an acceptable version of Method 1623 for *Cryptosporidium* (but not for *Giardia*). EPA also noted in the letter that the procedure was considered to be an acceptable modification of EPA Method 1622.

(8) Incorporation of detailed procedures for concentrating samples using an IDEXX Filta-Max™ foam filter. A method modification using this filter already is approved by EPA in the April 2001 versions of the methods.

(9) Addition of BTF EasySeed™ irradiated oocysts and cysts as acceptable materials for spiking routine QC samples. EPA approved the use of EasySeed™ based on side-by-side comparison tests of method recoveries using EasySeed™ and live, untreated organisms. EPA issued a letter (dated August 1, 2002) approving EasySeed™ for use in routine QC samples for EPA Methods 1622 and 1623 and

for demonstrating comparability of method modifications in a single laboratory.

(10) Removal of the Whatman Nuclepore CryptTest™ cartridge filter. Although a method modification using this filter was approved by EPA in the April 2001 versions of the methods, the filter is no longer available from the manufacturer, and so is no longer an option for sample filtration.

The changes in the June 2003 draft revisions of EPA Methods 1622 and 1623 reflect method-related clarifications, modifications, and additions that EPA believes should be addressed for LT2ESWTR *Cryptosporidium* monitoring. Alternatively, these issues could be addressed through regulatory requirements in the final LT2ESWTR (for required changes and additions) and through guidance (for recommended changes and clarifications). However, EPA believes that addressing these issues through a single source in updated versions of EPA Methods 1622 and 1623 (which could be approved in the final LT2ESWTR) may be more straightforward and easier for systems

and laboratories to follow than addressing them in multiple sources (*i.e.*, existing methods, the final rule, and laboratory guidance).

## 2. *E. coli*

a. *What is EPA proposing today?* For enumerating source water *E. coli* density under the LT2ESWTR, EPA is proposing to approve the same methods that were proposed by EPA under Guidelines Establishing Test Procedures for the Analysis of Pollutants; Analytical Methods for Biological Pollutants in Ambient Water (66 FR 45811, August 30, 2001) (USEPA 2001i). These methods are summarized in Table IV–37. Methods are listed within the general categories of most probable number tests and membrane filtration tests. Method identification numbers are provided for applicable standards published by EPA and voluntary consensus standards bodies (VCSB) including Standard Methods, American Society of Testing Materials (ASTM), and the Association of Analytical Chemists (AOAC).

TABLE IV–37.— PROPOSED METHODS FOR *E. COLI* ENUMERATION<sup>1</sup>

Technique	Method <sup>1</sup>	EPA	VCSB methods			Commercial example
			Standard methods <sup>2</sup>	ASTM <sup>3</sup>	AOAC <sup>4</sup>	
Most Probable Number (MPN).	LTB, EC-MUG .....	.....	9221B.1/ 9221F			
	ONPG-MUG .....	.....	9223B		991.15	Colilert® <sup>5</sup> .
	ONPG-MUG .....	.....	9223B			Colilert-18® <sup>5,7</sup> .
Membrane Filter (MF) ..	mFC→NA-MUG .....	.....	9222D/ 9222G			
	mENDO or LES- ENDO→NA-MUG.	.....	9222B/ 9222G			
	mTEC agar .....	1103.1	9213D	D5392–93		
	Modified mTEC agar .....	1603				
	MI medium .....	1604				
	m-ColiBlue24 broth .....	.....				m-ColiBlue24® <sup>6</sup> .

<sup>1</sup> Tests must be conducted in a format that provides organism enumeration.

<sup>2</sup> Standard Methods for the Examination of Water and Wastewater. American Public Health Association. 20th, 19th, and 18th Editions. Amer. Publ. Hlth. Assoc., Washington, DC.

<sup>3</sup> Annual Book of ASTM Standards—Water and Environmental Technology. Section 11.02. ASTM. 100 Barr Harbor Drive, West Conshohocken, PA 19428.

<sup>4</sup> Official Methods of Analysis of AOAC International, 16th Edition, Volume I, Chapter 17. AOAC International. 481 North Frederick Avenue, Suite 500, Gaithersburg, Maryland 20877–2417.

<sup>5</sup> Manufactured by IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, Maine 04092.

<sup>6</sup> Manufactured by Hach Company, 100 Dayton Ave., Ames, IA 50010.

<sup>7</sup> Acceptable version of method approved as a drinking water alternative test procedure.

EPA is proposing to allow a holding time of 24 hours for *E. coli* samples. The holding time refers to the time between sample collection and initiation of analysis. Currently, 40 CFR 141.74(a) limits the holding time for source water coliform samples to 8 hours and requires that samples be kept below 10°C during transit. EPA believes that new studies, described later in this section, demonstrate that *E. coli* analysis results for samples held for 24 hours

will be comparable to samples held for 8 hours, provided the samples are held below 10°C and are not allowed to freeze. This proposed increase in holding time is significant for the LT2ESWTR because typically it is not feasible for systems to meet an 8-hour holding time when samples cannot be analyzed on-site. Many small systems that will conduct *E. coli* monitoring under the LT2ESWTR lack a certified on-site laboratory for *E. coli* analyses

and will be required to ship samples to a certified laboratory. EPA believes that it is feasible for these systems to comply with a 24 hour holding time for *E. coli* samples through using overnight delivery services.

b. *How was this proposal developed?* As noted, EPA recently proposed methods for ambient water *E. coli* analysis under Guidelines Establishing Test Procedures for the Analysis of Pollutants; Analytical Methods for