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3. *Copies of Consensus Standards.* Copies of the consensus standards may be obtained from the Docket (see section B.1.). Copies of the consensus standards may also be obtained from the following sources, depending on the standard. Copies of final methods published by American Society for Testing and Materials (ASTM) are available for a nominal cost through ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959. Copies of "Standard Methods" are available for a nominal cost from the American Public Health Association, 1015 Fifteenth Street, NW., Washington, DC 20005. Copies of Association of Official Analytical Chemists International (AOAC) methods are available for a nominal cost from the Association of Official Analytical Chemists International, 481 N. Frederick Ave., Suite 500, Gaithersburg, MD 20877.

I. Statutory Authority

Today's rule is promulgated pursuant to the authority of sections 303(c), 304(a), 304(h), and 501(a) of the Clean Water Act (CWA or "the Act"), 33 U.S.C. 1314(a), 1314(h), 1361(a). Section 303(c) of the Act establishes the basis for the current water quality standards program. This section requires EPA to review and approve or disapprove State-adopted water quality standards. Section 304(a) of the Act requires the EPA Administrator to develop and publish water quality criteria associated with specific ambient water uses. When these criteria are adopted as State water quality standards under section 303(c), they become the enforceable maximum

acceptable levels of pollutants in ambient waters. Section 304(h) of the Act requires the EPA Administrator to "promulgate guidelines establishing test procedures for the analysis of pollutants that shall include the factors which must be provided in any certification pursuant to section 401 of this Act or permit applications pursuant to section 402 of this Act." Section 501(a) of the Act authorizes the Administrator to "prescribe such regulations as are necessary to carry out his functions under this Act." EPA publishes CWA analytical method regulations at 40 CFR part 136.

II. Background

A. The Role of Methods for Biological Pollutants

To fulfill the CWA's mandate to maintain "fishable and swimmable" waters, EPA develops ambient water quality criteria based on a scientific assessment of the relationship between pollutant concentrations and environmental and human health effects. Ambient water refers to any fresh, marine, or estuarine surface water used for recreation, propagation of fish, shellfish, or wildlife, agriculture, industry, navigation, or as source water for drinking water facilities. Ambient water quality criteria become enforceable water quality standards when adopted by State, Territorial, Tribal, and local governments and approved by EPA.

For bacterial pollution in ambient water designated for recreational use, EPA has developed water quality criteria for *E. coli* in freshwater and for enterococci in both freshwater and marine waters (51 FR 8012, March 7, 1986). There are a number of zoonotic diseases of concern to humans (diseases transferred from animals to humans) if ambient waters are contaminated with fecal material from non-human animal species. *E. coli* species are a subset of the coliform bacteria group that is part of the normal intestinal flora of humans and animals and are direct indicators of fecal contamination from these sources in water. Enterococci, which include *Enterococcus faecalis* and *Enterococcus faecium*, are enteric bacteria used to indicate fecal contamination and the possible presence of pathogens in water. Based on previous EPA guidance, total and fecal coliform bacteria are included in many water quality standards as indicators of bacterial contamination (EPA, 1976). More recent epidemiological studies (Cabelli 1983, Dufour 1984) described in Ambient Water Quality Criteria for Bacteria—1986 (EPA, 1986a), indicate that *E. coli*

and enterococci show a direct correlation with swimming-associated gastrointestinal illness rates, while fecal coliforms do not. As the concentration of *E. coli* and/or enterococci increase(s), the illness rates also increase. Thus, using these indicators as part of the bacterial water quality standards will enhance the protection of human health and the environment.

In addition to bacterial pollution, EPA is concerned about waterborne parasites and developed test methods for *Cryptosporidium* and *Giardia* in freshwater. These waterborne parasites have been found to be the causative agent of human gastroenteritis in some contaminated waters and are responsible for cases of severe and widespread human illness when present in drinking water supplies as a result of contamination of source waters. Because one of the designated uses of some ambient waters may be use of the water body as a drinking water source, EPA may develop ambient water quality criteria for *Cryptosporidium* and *Giardia* in the future. EPA would expect to use the test methods discussed in this action to support these future criteria. By doing so, EPA desires to promote consistency in the methods used for these future criteria to ensure that the data collected are of good quality and are comparable for all freshwater. EPA also wishes to make these methods available for use by the States for general risk assessments.

By today's action, EPA is promulgating test methods for *E. coli*, enterococci, *Cryptosporidium*, and *Giardia* for use in freshwaters, and enterococci for use in marine waters. Promulgation of the bacterial methods supports the use of *E. coli* and enterococci as indicators of fecal contamination in addition to fecal coliform indicators in State, Territorial, Tribal, and local water quality-based monitoring. States may use the test methods for *Cryptosporidium* and *Giardia* for different monitoring purposes, such as evaluating surface water occurrence of these organisms and the associated watershed vulnerability for waterbodies designated as potential drinking water sources.

This rule provides uniform methodology to assist State, Territorial, Tribal, and local implementation of water quality standards, ambient water monitoring programs, and public notification programs to reduce public health risks posed by biological pollutants in ambient water. Today's rule supports several EPA initiatives: The Beaches Environmental Assessment Closure and Health (BEACH) Program, the Beach Action Plan (EPA-600-R-98-079), the Beach Watch Program, the