

Biological Pollutants in Ambient Water (66 FR 45811, August 30, 2001) (USEPA 2001i). These proposed methods were selected based on data generated by EPA laboratories, submissions to the alternate test procedures (ATP) program and voluntary consensus standards bodies, published peer reviewed journal articles, and publicly available study reports.

The source water analysis for *E. coli* that will be conducted under the LT2ESWTR is similar to the type of ambient water analyses for which these methods were previously proposed (66 FR 45811, August 30, 2001) (USEPA 2001i). EPA continues to support the findings of this earlier proposal and believes that these methods have the necessary sensitivity and specificity to meet the data quality objectives of the LT2ESWTR.

New Information on *E. coli* Sample Holding Time

It is generally not feasible for systems that must ship *E. coli* samples to an off-site laboratory to comply with an 8-hour holding time requirement. During the ICRSS, 100% of the systems that shipped samples off-site for *E. coli* analysis exceeded the 8 hour holding time; 12% of these samples had holding times in excess of 30 hours. Most large systems that will be required to monitor for *E. coli* under the LT2ESWTR could conduct these analyses on-site, but many small systems will need to ship samples off-site to a certified contract laboratory.

EPA participated in three phases of studies to assess the effect of increased sample holding time on *E. coli* analysis results. These are summarized as follows, and are described in detail in Pope *et al.* (2003).

- Phase 1—EPA, the Wisconsin State Laboratory of Hygiene (WSLH), and DynCorp conducted a study to evaluate *E. coli* sample concentrations from four sites at 8, 24, 30, and 48 hours after sample collection for samples stored at 4°C, 10°C, 20°C, and 35°C. Temperature was varied to assess the effect of different shipping conditions. Samples were analyzed in triplicate by membrane filtration (mFC followed by transfer to NA—MUG) and Colilert (Quanti-Tray 2000) (Pope *et al.* 2003).

- Phase 2—EPA conducted a study to evaluate *E. coli* sample concentrations from seven sites at 8, 24, 30, and 48 hours after sample collection for samples stored in coolers containing wet ice or Utek ice packs (to assess real-world storage conditions). Samples were analyzed in triplicate by membrane filtration (mFC followed by transfer to

NA—MUG) and Colilert (Quanti-Tray 2000) (Pope *et al.* 2003).

- Phase 3—EPA, through cooperation with AWWA, obtained *E. coli* holding time data from ten drinking water utilities that evaluated samples from 12 source waters. Each utility used an *E. coli* method of its choice (Colilert, mTEC, mEndo to NA—MUG, or mFC to NA—MUG). Samples were stored in coolers with wet ice, Utek ice packs, or Blue ice (Pope *et al.* 2003).

Phase 1 results indicated that *E. coli* concentrations were not significantly different after 24 hours at most sites when samples were stored at lower temperatures. Results from Phase 2, which evaluated actual sample storage practices, verified the Phase 1 observations at most sites. Similar results were observed during Phase 3, which evaluated a wider variety of surface waters from different regions throughout the U.S. During Phase 3, *E. coli* concentrations were not significantly different after 24 hours at most sites when samples were maintained below 10°C and did not freeze during storage. At longer holding times (e.g., 48 hours), larger differences were observed.

Based on these studies, EPA has concluded that *E. coli* samples can be held for up to 24 hours prior to analysis without compromising the data quality objectives of LT2ESWTR *E. coli* monitoring. Further, EPA believes that it is feasible for systems that must ship *E. coli* samples to an off-site laboratory for analysis to meet a 24 hour holding time. EPA is developing guidance for systems on packing and shipping *E. coli* samples so that samples are maintained below 10°C and not allowed to freeze (USEPA 2003g). This guidance is available in draft in the docket for today's proposal (<http://www.epa.gov/edocket/>).

c. *Request for comment.* EPA requests comment on whether the *E. coli* methods proposed for approval under the LT2ESWTR are appropriate, and whether there are additional methods not proposed that should be considered. Comments concerning method approval should be accompanied by supporting data where possible.

EPA also requests comment on the proposal to extend the holding time for *E. coli* source water sample analyses to 24 hours, including any data or other information that would support, modify, or repudiate such an extension. Should EPA limit the extended holding time to only those *E. coli* analytical methods that were evaluated in the holding time studies noted in this section? The results in Pope *et al.* (2003) indicate that most *E. coli* samples analyzed using ONPG-MUG (see methods in Table IV—

37) incurred no significant degradation after a 30 to 48 hour holding time. As a result, should EPA increase the source water *E. coli* holding time to 30 or 48 hours for samples evaluated by ONPG-MUG, and retain a 24-hour holding time for samples analyzed by other methods? EPA also requests comment on the cost and availability of overnight delivery services for *E. coli* samples, especially in rural areas.

3. Turbidity

a. *What is EPA proposing today?* For turbidity analyses that will be conducted under the LT2ESWTR, EPA is proposing to require systems to use the analytical methods that have been previously approved by EPA for analysis of turbidity in drinking water, as listed in 40 CFR Part 141.74. These are Method 2130B as published in Standard Methods for the Examination of Water and Wastewater (APHA 1992), EPA Method 180.1 (USEPA 1993), and Great Lakes Instruments Method 2 (Great Lakes Instruments, 1992), and Hach FilterTrak Method 10133.

EPA method 180.1 and Standard Method 2130B are both nephelometric methods and are based upon a comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension. Great Lakes Instruments Method 2 is a modulated four beam infrared method using a ratiometric algorithm to calculate the turbidity value from the four readings that are produced. Hach Filter Trak (Method 10133) is a laser-based nephelometric method used to determine the turbidity of finished drinking waters.

Turbidimeters

Systems are required to use turbidimeters described in EPA-approved methods for measuring turbidity. For regulatory reporting purposes, either an on-line or a bench top turbidimeter can be used. If a system chooses to use on-line units for monitoring, the system must validate the continuous measurements for accuracy on a regular basis using a protocol approved by the State.

b. *How was this proposal developed?* EPA believes the currently approved methods for analysis of turbidity in drinking water are appropriate for turbidity analyses that will be conducted under the LT2ESWTR.

c. *Request for comment.* EPA requests comment on whether the turbidity methods proposed today for the LT2ESWTR should be approved, and whether there are additional methods not proposed that should be approved.