



P.O. Box 1467
Harrisburg, PA 17105-1467
October 8, 2008

Bureau of Laboratories

Phone: 717-346-7200

Re: **Sample Volume and Dilution Guidance for LT2 *E. coli* Laboratories**

Dear Sir or Madam:

PA DEP is providing clarification for laboratories regarding the requirements and guidance for choosing sample volumes when performing analysis of the analyte *E. coli* (enumeration) under the Long Term 2 Enhanced Surface Water Treatment Rule ("LT2 Rule"). It has been noted that several laboratories are reporting analytical results of **<10.0 *E. coli* / 100mL** for PWS under the LT2 Rule, which has the potential for triggering a monitoring event for *Cryptosporidium* for certain water systems.

Under the LT2 Rule, small filtered systems may monitor for *E. coli*, rather than the more expensive *Cryptosporidium* analyses. Only those small filtered systems with *E. coli* levels that exceed the trigger level are required to monitor for *Cryptosporidium* under 40 CFR §141.701(a)(4). The trigger levels are a mean of **> 50 *E. coli*/100mL** for flowing stream-type source waters and **> 10 *E. coli*/100mL** for reservoir/lake source waters.

When a sample is analyzed, and no *E. coli* are detected, the laboratory must report results as "**< X**" *E. coli*/100mL. When calculating the mean for systems to determine if the trigger limit has been exceeded the EPA drops the less than sign and the value "X" *E. coli*/100mL is used. For example, if the laboratory reported "**<10**" *E. coli*/100mL, then a value of "10" *E. coli*/100mL will be used to determine if the water system will be triggered into *Cryptosporidium* monitoring. Therefore, if any of the samples analyzed result in a count of over 10 *E. coli*/100mL, the average will exceed the trigger level and result in additional *Cryptosporidium* monitoring for the PWS.

PA DEP strongly recommends that laboratories analyze a full 100mL sample volume as one of the dilutions for analysis of *E. coli* under the LT2 Rule. PA DEP is also strongly recommending that laboratories choosing not to analyze a full 100mL volume for LT2 Rule samples due to historical data showing the target countable range for the method chosen is not met avoid dilutions that will result in reported results of **<10 or <50 *E. coli* per 100mL**.

Guidance for choosing sample volumes and dilutions for multi-well, multiple tube and membrane filtration methods can be found in Section 4.5 of EPA's Microbial Laboratory Guidance Manual for the Final Long Term 2 Enhanced Surface Water Treatment Rule (EPA 815-R06-006, February 2006), located at http://www.epa.gov/safewater/disinfection/lt2/pdfs/guide_lt2_microbialguidancemanual.pdf

If you have any questions concerning this letter or the LT2 Program please contact Mr. Dwayne N. Burkholder at 717-346-8213.

Sincerely,

Aaren S. Alger, Chief
Laboratory Accreditation Program
PA Department of Environmental Protection