Evaluation of Analytical Methods

Proposed revised Total Coliform Rule (RTCR) Stakeholder Meeting

April 3, 2009

Overview

- Background
- AIP recommendations
- Agency plans for AIP recommendations
  - More timely results
  - Method performance evaluation
  - ATP protocol review

Background and Progress

- AIP includes recommendations for RTCR analytical methods
- Currently drafting preamble and proposal
  - RTCR proposal could seek public comment on
    - Timeframe for positive results to be reported to PWS
    - Appropriateness of current methods
      - Should Agency continue to have 2 categories of approved methods (lactose fermentation and enzyme substrate)?
- Method performance evaluation plan
  - Consultation with Agency scientists

AIP Recommendations

- Ensure best available analytical methods be used to detect *E. coli* and TC indicator bacteria.
  - Specific items:

1. Consider approving methods that allow the timely (e.g. on the order of 24 hours) analytical results for *E. coli* and that provide relatively concurrent analyses, without significantly sacrificing accuracy, precision, and specificity.
2. Evaluate all currently approved coliform analytical methods to determine whether these methods continue to be appropriate for use for drinking water compliance monitoring
3. Engage stakeholders in a technical dialogue in its review of the Alternative Test Procedure (ATP) microbial protocol for TC/*E. coli* methods

AIP item 1: More Timely Results

- Depends on:
  a. Timeframe for positive results to be reported to PWS
  b. Analytical method

AIP Item 1: More Timely Results - a. Timeframe for positive results to be reported to PWS

- Time by which the laboratory must report results to the PWS not defined in TCR
  - results may be reported via phone, email, or mail
- Some labs do not accept shipments Friday-Sunday
  - Repeat samples may be collected the week following a TC+ routine sample
    - Note: TCR specifies that repeat samples be collected within 24 hrs, but States have the flexibility to extend this timeline

Addressing AIP Item 1: More Timely Results - a. Timeframe for positive results to be reported to PWS

- RTCR proposal could seek public comment on how to address timeframe issues
- Items for consideration:
  - Should RTCR define time by which PWS must receive positive results from the laboratory?
  - Should RTCR limit state discretion that currently allows repeat samples to be taken after 24 hours?
  - How should EPA address implementation issues?

Addressing AIP item 1: More Timely Results – b. Analytical Method

- Will evaluate methods of varying incubation times to better understand coliform recovery.
  - use bacterial cells to mimic real world conditions
- Enzyme substrate methods generally recover a broader range of non-stressed organisms
  - Need to better understand how well 24 hr. incubation time supports recovery of stressed/injured organisms
    - DS bacteria likely to be chlorine/starvation stressed

Addressing AIP Item 2: Evaluate Performance of Current Methods

- Based on results from study described in previous slide
  - If appropriate, perform a small scale scoping study to compare method performance
    - Obtain additional information based on “apples to apples” comparison

- Proposed rule could seek public comment on appropriateness of current methods approved
  - Should Agency continue to have 2 categories of approved methods?

Addressing AIP Item 3: ATP protocol review

- Review ATP protocol; revise as appropriate
  - informed by results of method performance studies
- Items for consideration:
  - How best to establish method acceptance criteria?
  - Should current reference method continue to be used?
  - Should the Agency request method validation data as a part of the ATP process?
  - How should the Agency define a total coliform?

Summary of Questions

1. Should RTCR define time by which PWS must receive positive results from the laboratory?
2. Should RTCR limit state discretion that currently allows repeat samples to be taken after 24 hours?
   - How should EPA address implementation issues?
3. Should the Agency continue to have 2 categories of approved methods?

Summary of Questions

4. How best to establish method acceptance criteria?
5. How should the Agency define a total coliform?
6. Should current reference method continue to be used?
7. Should method validation data be included as a part of the ATP process?