Post-validation revisions to proposed *NSF 244-3 – Supplemental Microbiological Water Treatment Systems – Filtration*

Presented on behalf of the Microbiological Water Treatment Sub-Task Group to the DWTU Joint Committee, May 13, 2015 by Gary Hatch, Chair
Recent Background

- Validation testing began in 2013 based on the draft Standard 244-3 balloted (and passed) January 2011
- Validation test completed September 2013 by 3 separate laboratories
- Results compiled then reviewed and discussed on a January 9, 2014 conference call by the Sub-Task Group and participating laboratories
Key validation testing issues

• Very high number of samples required
• Logistically not enough time to sample and analyze all of the samples for a given test day
• Difficult to challenge with and analyze for *Brevundimonas diminuta* (*B. dim*) (on the 1\textsuperscript{st} day), the two coliphage virus surrogates (MS-2 and fr), and *Raoultella terrigena* (*Rt*) the following days
Suggested revisions

• Reduce number of samples – e.g., by challenging only on Days 1 and 3
• Eliminate initial Day 1 *B. dim* test
• Combine ‘simulated accidental contamination event test’ (SACET) with the ‘> 75% flow reduction test’
• Provide example test scenarios for better explanation of challenging, sampling, etc.
• Limit testing to ‘up to 8 hr per day’ to accommodate 1 day shift Labs
• Limit stagnation sampling to only *Rt*, not viruses
Protocol revisions based on conference calls on April 11, June 26, 2014 & Feb 10, 2015

• New challenge scenario –
  - each of the 3 weeks, challenge Day 1 with ‘virus 1’ and Rt, Day 3 with ‘virus 2’ and again with Rt (wk 1 – pH 9, wk 2 – pH 6, wk 3 - pH 7.5)
  - remaining run times and all other days (Days 2, 4 and 5) are non-challenge days
  - Day 1, week 4, collect stagnation sample (sample for Rt and HPC)
  - begin 75% flow reduction using the high turbidity, high TOC (with humic acid), high TDS, pH 9 – conduct the ‘simulated accidental contamination event test’ (SACET)
Other revisions

• Reworded ‘Cyst reduction claim’, was confusing
• Updated and added Annexes A & B (challenge preparations and analytical procedures for viruses and bacteria)
• Use 60 psi test pressure instead of 80 psi (consistent with other DWTU standards)
• Added example test scenarios for each types of devices being testing
• Added protocols for testing ‘mouth-drawn’ and ‘squeeze’ bottles (Annexes C and D)
• Added updates to sections in common with the other DWTU standards as they were balloted
Other revisions (cont’d)

• Added draft of a FOREWORD
• Added numerous editorial revisions for clarifications, streamlining the protocols for enhancing sample run times (e.g., reducing Unit Void Volume flushing, revising on-off cycles, etc.)
• Revised ‘negative control’ for test units to allow for $\leq 10$ cfu per 100 mL prior to $Rt$ a start-up
• Revised the ‘Acceptance criteria’ (Section 7.4.12) to reflect the change in number of samples and to be consistent with P231 acceptance criteria
THANKS!

• The 3 validation test Labs:
  - Pentair (Nathaniel Spransy)
  - KX Technologies (Carol DeLandra)
  - NSF (Mandy Huntoon)
• Standard 244-3 Sub-Task Group
• DWTU Joint Committee (for persevering since 1999)