

**Meeting Packet for the ETV Drinking Water Systems Center
Stakeholder Meeting, November 27, 2007
Status & Future Initiatives**

AGENDA

1. Business of the Steering Committee (SC) – 8:30 AM
 - a. Antitrust Statement
 - b. Welcome and Introductions
 - c. Selection of Chairperson
 - d. New Member Orientation
 - i. History of ETV DWS
 - ii. Present State of the Center
 - iii. History of the Current Issues before the SC
2. Break ~ 9:45 AM
3. ETV Drinking Water Systems Center Update
4. UV Protocol and Issues Related to LT2 Rule
5. Lunch at Noon
6. Membrane Protocol Proposed Changes per LT2 Rule
7. Status of Secondary or Existing Data Use
8. Other Discussion Items
 - a. Mobile Emergency Response Treatment Systems
 - b. Distribution Rehabilitation – Drinking Water Issues and Needs
 - c. Potential Dates for Next Meeting of all Stakeholders

Adjournment by 3:30 PM

ETV DWSC Stakeholder Meeting

Issues and Discussion

Business of ETV Drinking Water Stakeholders by Steering Committee

Antitrust Statement:

NSF International (NSF) directs all attendees to read and agree to the following antitrust statement:

“Because this meeting involves representatives of competing businesses, it is important that NSF has everyone’s agreement before we begin that the meeting will be conducted in full compliance with the antitrust laws. We must avoid any comment or action that encourages joint action by participating firms to restrict their competition. If any of you have any questions, I refer you to the NSF Antitrust Guide for the conduct of meetings.”

The Environmental Technology Verification (ETV) Drinking Water Systems (DWS) Center stakeholders advise NSF, the organization that manages the ETV DWS Center, on policies, test plans, protocols, and other issues deemed pertinent to the operation of the DWS Center. The Steering Committee (SC) serves to provide advice to NSF for the ETV DWS Center during the period between the annual stakeholders meeting and does not directly provide advice to or consult with the United States Environmental Protection Agency (EPA). Consequently, the SC is not covered under the scope of the Federal Advisory Committee Act (FACA).

Welcome and Introductions:

New member introductions and thanks to those who served before.

Selection of a New Chairperson

The (SC) is a group that helps NSF and EPA in managing the ETV Drinking Water Systems Center (DWSC). It is a rapid response group representative of drinking water stakeholders that may vote on recommendations to the EPA and NSF. It is not a standards body nor does it reach consensus but often looks for common agreement among the regulatory, vendors and those using/purchasing the technologies verified under ETV.

The SC is responsible for selecting its Chair. The SC Chair should be from the State regulatory component of the SC so that the agenda and topics of discussion are not swayed by financial interest or gain. The SC also needs to have a balanced representation of stakeholders: regulatory, vendors and those using/purchasing the technologies verified under ETV. Thus, the SC elects new members to the SC. The EPA, NSF and the

Association of State Drinking Water Administrators (ASDWA) may recommend membership to the SC.

ETV Drinking Water Systems Center Update

Recently Completed Verification Tests and Report:

- “Environmental Technology Verification Report: Physical Removal of Microbial Contaminants in Drinking Water: Watts Premier Incorporated, WP-4V Point-of-Use Drinking Water Treatment System.”
- “Environmental Technology Verification Report: Removal of Chemical and Microbial Contaminants in Drinking Water: Watts Premier Incorporated, M-2400 Point-of-Entry Reverse Osmosis, Drinking Water Treatment System.”
- “Environmental Technology Verification Report: Removal of Microbial Contaminants in Drinking Water Koch Membrane Systems, Inc., HF-82-35-PMPW Ultrafiltration Membrane.”
- “Environmental Technology Verification Report: Removal of Chemical Contaminants in Drinking Water, RASco, Incorporated, Hyd-RO-Secure™ Series 2 Anti-Terrorism/Force Protection Drinking Water Treatment System”
- “Environmental Technology Verification Report: Removal of Arsenic in Drinking Water, Advanced Remediation Systems USA, LLC, ARS CFU-50 APC Electroflocculation and Filtration Water Treatment System.”

Current Verification Testing

- Inorganic Chemical Removal for Small Systems:
 - Brimac Environmental Services Inc. for uranium reduction by adsorptive media
- Emergency Response Water Treatment Systems:
 - Department of Defense Expeditionary Unit Water Purification (EUWP): testing at three field locations: Gallup, New Mexico; Selfridge Air National Guard Base, Michigan; and Port Hueneme, California

Current Test Plans:

- Test plan for uranium removal by adsorptive media.
- Emergency Response Water Treatment System test plan for multiple contaminants.

UV Protocol and issues related to LT2 Rule

Background and History:

1998-2001

The EPA ETV DWSC verified the performance of three UV reactors (web page for more http://www.nsf.org/business/drinking_water_systems_center/dws_technology_list.asp?program=DrinkingWatSysCen). The first ETV DWSC report contained results that the UV inactivated *Cryptosporidium* using confirmation with animal infectivity methods.

2003

During the November 2003 DWSC meeting, stakeholders recommended replacing the ETV UV protocol with the protocols and standards in the UV Disinfection Guidance Manual (UVDGM). At the time, the draft UVDGM was very specific and appeared to be a very uniform method for validation.

2006

In December 2006, the UVDGM was published in its final version. The final UVDGM was more accommodating to customized test procedures and validation methods and less prescriptive than previous drafts. In UVDGM, UV reactor validation may follow the guidance in the UVDGM; accept testing to NSF Standard 55, NWRI Guidelines, German and Austrian Standards. The LT2 Rule and the UVDGM provided a 3-log₁₀ reduction granted for reactors validated using the German or Austrian Protocols/Standards:

“The Austrian Standards *ÖNORM M 5873-1* and *M 5873-2* (2001 and 2003, respectively) and the German Guideline DVGW W294 (2006) define measured flow rate, UV intensity, and lamp status for a *Bacillus subtilis* RED of 40 mJ/cm². Based on the recommended validation protocol presented in this guidance manual, UV reactors certified by ÖNORM and DVGW for a *B. subtilis* RED of 40 mJ/cm² should be granted 3-log *Cryptosporidium* and 3-log *Giardia* inactivation credit. Validation by *NWRI/AwwaRF Guidelines* and *NSF Standard 55* should be evaluated on a case-by-case basis (NWRI 2003, NSF 2004).”

2007

In 2007, NSF began exploring its role in UV reactor validation including ETV. NSF solicited input from States via ASDWA. In April 2007, NSF held a conference call with six States (PA, CA, MN, UT, NY, and WA) interested in UV reactor validation especially for small systems (flows equal to or less than 2MGD). There was a consensus of the six States that the German Guideline DVGW W294 (2006) would be the protocol best to use in the validation of UV reactors for smaller systems. There was considerable interest in the NSF/ANSI Standard 55 for very small communities (50 GPM maximum continuous flow rate). However, the NSF 55 was not intended to meet the requirements of the UVDGM. It does have features that are designed for the use by laypersons. More detail is available in a presentation given at the International UV Association workshop in August 2007.

In October 2007, NSF had a follow up call with the six States to determine the data and reporting requirements. The UVDGM has more data and quality control reporting

requirements than the DVGW W294. The question before this group was whether these requirements are significant enough to require them in a DVGW W294 report. The result of the call was that the data and quality control requirements of the DVGW W 294 report were adequate. The call also produced a recommendation that NSF, not through the ETV DWSC, prepare a program to list UV reactor validation reports and conduct follow up audits of manufacturers of the listed UV reactors to assess the need for re-validation as described in the UVDGM. The UVDGM outlines guidance in which a reactor should be re-validated due to critical changes in components. Organizations like NSF can oversee and monitor product changes through a certification program.

Today's Discussion Issues

Should the ETV DWSC be involved in UV reactor validation? One role proposed is to focus on UV innovation such as in the use of alternative light sources and wavelengths (light emitting diodes) or new pathogen inactivation such as adenovirus by UV.

In summary, the EPA ETV DWSC is requesting input from the UV industry, State regulators and water utilities especially small systems as to the role of the ETV in UV reactor validation.

Membrane Protocol proposed changes per LT2 Rule

Per the Membrane Filtration Guidance Manual 1-5 November 2005 (MFGM):

In order to receive removal credit for *Cryptosporidium* under the LT2ESWTR, a membrane filtration system must meet the following three criteria:

1. The process must comply with the definition of membrane filtration as stipulated by the rule.
2. The removal efficiency of a membrane filtration process must be established through a product-specific challenge test and direct integrity testing.
3. The membrane filtration system must undergo periodic direct integrity testing and continuous indirect integrity monitoring during operation.

The rule does not prescribe a specific removal credit for membrane filtration processes. Instead, removal credit is based on system performance as determined by challenge testing and verified by direct integrity testing.

Thus, the maximum removal credit that a membrane filtration process may receive is the lower value of either (40 CFR 141.719(b)(1)):

- The removal efficiency demonstrated during challenge testing; **OR**
- The maximum log removal value that can be verified by the direct integrity test used to monitor the membrane filtration process

Also per the MFGM, small-scale modules may be used in the product specific challenge testing:

“Although the decision to allow the use of small-scale module testing is left to the discretion of the State, the option is permitted under the LT2ESWTR since it is considered a valid approach for characterizing removal efficiencies. For the purposes of consistency, it is recommended that manufacturers or independent testing agencies that opt to subject a product line to challenge testing using small-scale modules utilize a protocol that has been accepted by a wide range of stakeholders. Such a protocol has been developed for use under the National Sanitation Foundation (NSF) Environmental Technology Verification (ETV) program. Information about this protocol may be obtained by contacting the NSF at (800) 673-6275 (NSF 2005).”

Proposal:

The present ETV Protocol for challenge testing of membranes requires testing in the field and leaves as an option, to conduct microbiological challenge testing of membranes of any size, small scale or full scale. In consideration of the LT2 Rule and the MFGM to require product specific challenge testing, it is recommended that the ETV Protocol reflect a change to require challenge testing and change field-testing to an option to quantify operations and maintenance information.

Status of Secondary or Existing Data Use¹

The EPA ETV Program in its Quality Management Plan (QMP) has established guidelines for existing data. The QMP defines existing data as the following: *“Existing data are data or information that you plan to use that have not been newly generated by your project. They may also be known as secondary data or non-direct measurement.”* The ETV Program guidelines for data to be considered for use as existing data must undergo a rigorous evaluation process to ensure the credibility of the ETV Program. Vendors shall bear the cost of the existing data evaluation process.

The following are the minimum acceptance criteria for existing data review as established by the EPA ETV Program:

- The data were collected independently of the vendor by a third-party testing organization.
- The data were collected using test/QA plans provided to the verification organization.
- The quality management system employed by the third-party testing organization during the collection of the data meets ETV requirements.
- The test/QA plan used to collect the data is “equivalent” to the existing ETV verification protocol or test plan.
- The data are quality assured and meet the minimum QA/QC requirements and data quality objectives referenced in the test/QA plans.
- The data meet the acceptance criteria in the test/QA plans.
- The data are of sufficient quality and quantity to verify the technology’s performance.

Documentation must be submitted to the verification organization to support the above referenced criteria. Documentation shall include, but is not limited to the following: test/QA plan; data report; QA/QC data; and a letter from vendor stating that it has accurately reported the relationship between the vendor and the third-party testing organization. The verification organization shall assess documentation submitted. If they deem that the minimum acceptance criteria for existing data have been met, then they shall convene a Data Evaluation Panel (DEP) to evaluate the data. The DEP shall consist of four members: verification organization representative; EPA ETV project officer; the EPA quality manager; and an outside expert. If the DEP evaluation confirms that criteria have been met, then the existing data may be used alone or in combination with verification testing and a verification report may be developed.

¹ Source: Environmental Technology Verification Program, Quality Management Plan, Appendix C, April 2007.

Issues for possible discussion:

The DWS Center can develop additional policies in the acceptance of existing data to supplement an ETV Report, to reduce the amount and types of testing, to update an existing ETV report. To date one manufacturer requested the use of existing data to supplement an ETV report; no other requests for use of existing data have been received. Should DWS Center consider a separate type of non-ETV Verification report based on NSF/EPA reviews of existing data?

Other Discussion Items as time allows

Mobile Emergency Response Treatment Systems

When natural disasters like hurricanes, floods and earthquakes occur, safe drinking water can be compromised, limited or unavailable. Under such situations, communities have emergency response plans. One of many options for providing safe drinking water during emergency situations is to use mobile water treatment systems that can create potable water from water of unknown quality. These systems can provide potable water to critical infrastructure, such as hospitals, fire stations, or police stations. Depending on the situation, point-of-use (POU) or point-of-entry (POE) treatment systems could be used, or there may be a need for a larger system capable of treating thousands of gallons or more per day.

Some of these systems are and were verified by the DWSC. Several test plans were developed during an accelerated period. The DWSC is aware of other companies that have been approved by other federal agencies to purchase and use mobile emergency response treatment systems that have not been verified.

The DWSC received some anecdotal information from some State regulators in hurricane and earthquake prone areas of the need for an ETV of these technologies.

One question for discussion is whether the DWSC should begin developing a protocol specific for mobile emergency response treatment systems? One approach is to take existing ETV protocols that were designed for long-term installation and decide what is or is not necessary for verifying the performance of mobile emergency response treatment systems.

Distribution rehabilitation – drinking water issues and needs

In August, the EPA issued a request for proposal “Verification of Drinking Water and Wastewater Systems Assessment Technologies” as part of EPA’s Sustainable Water Infrastructure Initiative. The work involves the verification of products used in pipe rehabilitation in both drinking water and wastewater conveyances. As the EPA prepares to address drinking water infrastructure, and possibly through the ETV Program, the ETV DWSC is soliciting input on the needs of stakeholders in addressing drinking water infrastructure issues. A brief and limited list is provided below and there are probably others. Please review and suggest priorities for verification of technologies related to drinking water infrastructure:

- Coating materials,
- Grouting materials,
- Pipe liner materials
- Pipe bursting,
- Inspection and detection of structural integrity,
- Biological growth support potential.

Potential Dates for Next Meeting of all Stakeholders

Next Meeting and Date – November 2008.