September 2008

Drinking Water Systems Center

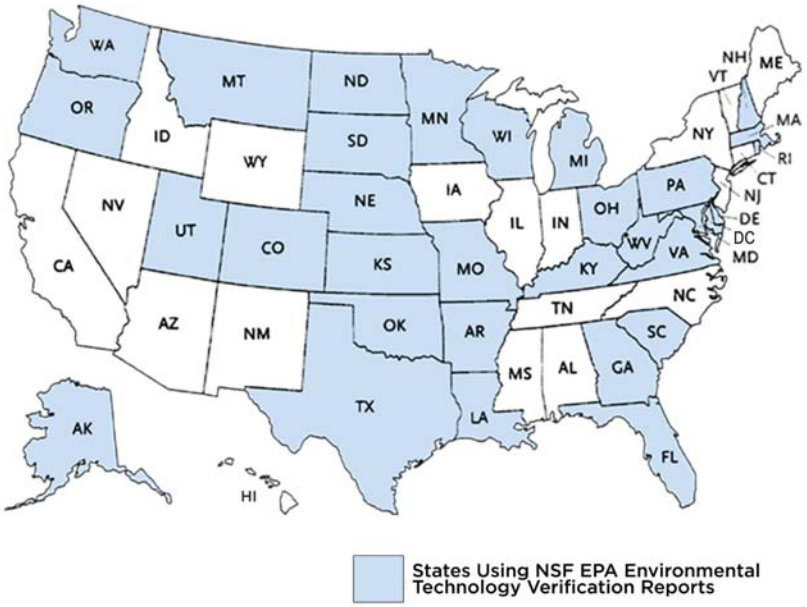
Introduction

The NSF International (NSF) Drinking Water Systems (DWS) Center is one of several US EPA Environmental Technology Verification (ETV) centers dedicated to producing credible environmental performance data. The EPA Office of Research and Development (ORD) leads the ETV Program.

DWS Center Key Features

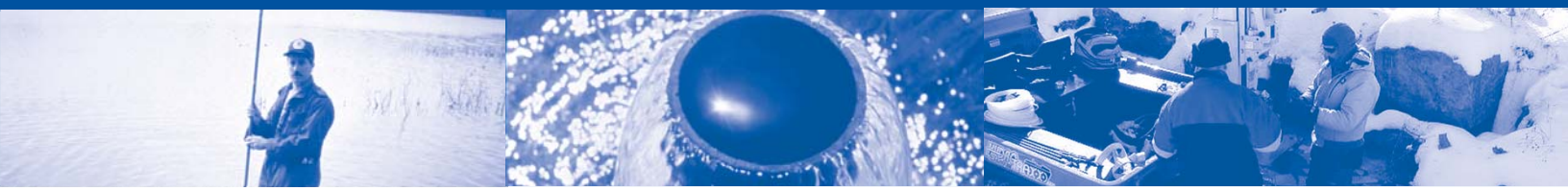
The DWS Center's activities include development of verification protocols and test plans, independent testing and verification of equipment, conveying and supporting government/industry partnerships to obtain credible performance and cost data, and preparation of product-specific verification reports for broad dissemination. The DWS Center has targeted drinking water concerns such as arsenic reduction, microbiological contaminants, particulate removal, disinfection by-products, radionuclides, and other chemical contaminants. A stakeholder steering committee and technical panels help to advise the DWS Center on verification activities and direction.

The DWS Center currently has twenty-six test plans that outline testing procedures for various technologies. The Center has prioritized the following technology categories: low pressure membrane filtration, alternative membrane separation processes, adsorptive media and resins, coagulation and alternative filtration processes, UV & ozone disinfection and oxidation, ion exchange, air stripping, cartridge/bag filter processes, and on-site halogen generation systems. The DWS Center has also evaluated residential Point-of Use (POU) devices, Point-of-Entry (POE) whole building systems, and mobile water treatment systems for their ability to remove chemical and biological agents of concern.



EPA/ETV Report Recognition

In 2007 NSF survey of ASDWA members, thirty-five states reported they recognize NSF/EPA ETV reports for drinking water treatment systems, although mostly through policy (see map below). Utah is currently the only state with a formal reference to the ETV reports in their regulations. Massachusetts' water permit application mentions ETV and the State of Washington's water system design manual references ETV protocols for surface water treatment. Thirty-one states indicated they would allow for reduced pilot testing if the ETV report demonstrates adequate performance. Most stated that they would reduce the required pilot testing if source waters were similar to those in the ETV report.



Recently Completed Verification Tests and Reports:

- "Environmental Technology Verification Report: Removal of Inorganic, Microbial, and Particulate Contaminants from a Fresh Surface Water by Village Marine Tec. Expeditionary Unit Water Purifier, Generation 1"
- "Environmental Technology Verification Report: Removal of Inorganic, Microbial, and Particulate Contaminants from Sea Water by Village Marine Tec. Expeditionary Unit Water Purifier, Generation 2"
- "Environmental Technology Verification Report: Removal of Inorganic, Microbial, and Particulate Contaminants from Brackish Secondary Treated Waste Water by Village Marine Tec. Expeditionary Unit Water Purifier, Generation 1"
- "Environmental Technology Verification Report: Full Scale Removal of Microbial Contaminants in Drinking Water Koch Membrane Systems, Inc., HF-82-35-PMPW Ultrafiltration Membrane"

Current Test Plan or Protocol Activity

- "Test/QA Plan: Removal of Uranium in Drinking Water by Brimac HA 216 Adsorptive Media"
- "Test/QA Plan For The Microbial Seeding Challenge Study Of The Siemens Memcor® L10v, L20v, And S10v Microfiltration Modules"
- The ETV membrane protocol is included in the USEPA's Long Term 2 Enhanced Surface Water Treatment Rule's Membrane Filtration Guidance Manual.
- The USEPA UV disinfection guidance manual will replace the existing ETV UV protocol.

Updated lists of verification reports and protocols can be found on the EPA ETV Web Site (www.epa.gov/etv) and NSF web site (www.nsf.org/info/etv).

Future Activities

The DWS Center's future work is based on market interest as a result of the Center being supported by non-EPA funding sources. Some projects in progress include the following:

Verification Testing

- Inorganic Chemical Removal for Small Systems: Brimac Environmental Services Inc. for uranium reduction by adsorptive media
- LT2 Membrane challenge testing for Siemens Memcor L10, L20 and S10 products
- UV reactor validation to Disinfection of the Water Supply (DVGW 294)

Test Plan Under Development

- Test plan for UV verification of Samkun™ UV reactor per the "German Technical and Scientific Association for Gas and Water Technical Standard Work Sheet W-294-2 June 2006, UV Devices for Disinfection of the Water Supply"

Contact the DWS Center

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