

EPA's Environmental Technology Verification Program for Homeland Security



ETV's Important Role in Homeland Security Technology Verifications

As everyone is aware, the events of September 11, 2001 have placed homeland security at the forefront of our nation's priorities. The U.S. Environmental Protection Agency (EPA) is engaged in identifying and filling data and informational gaps about technology performance with our sister agencies and departments, including the Department of Homeland Security (DHS). As part of EPA's effort, the Environmental Technology Verification (ETV) Program is verifying the performance of commercially available technologies for protecting and maintaining the security of drinking water and for keeping buildings and indoor environments safe. ETV is testing technologies that can be used to: monitor the quality of the nation's drinking water systems and supplies, monitor indoor environments in buildings, and clean up building contamination from intentional acts. In 2003, ETV completed 17 verifications of these technologies. In 2004, 40 more ETV homeland security verifications are expected.

Water Security

The Office of Research and Development's (ORD) National Homeland Security Research Center (NHSRC) and the Office of Water (OW) are working collaboratively on technology verification efforts to support the needs of the nation's water system operators. Under a funding agreement with OW, two ETV technology verification organizations are developing test plans and testing technologies related to ensuring the safety and security of water systems and supplies.

Battelle, which manages the ETV Advanced Monitoring Systems Center, is developing test plans and testing technologies for the detection of chemical and biological warfare agents that may be introduced into drinking water. During 2003, six cyanide detection and eight rapid toxicity detection technologies were verified (<http://www.epa.gov/etv/verifications/verification-index.html>). In 2004, immunoassay test kits and rapid polymerase chain reaction (PCR) technologies will be verified using similar type threat agents.

NSF International, which manages the ETV Drinking Water Systems and the Water Quality Protection Centers, is developing test plans and testing technologies for point-of-use (POU) treatment of biological and chemical contaminants, and for technologies that treat wastewater resulting from the decontamination of buildings. In 2004, several reverse osmosis-based POU technologies and a decontamination treatment system are being verified. Both types, drinking water and decontamination wastewater treatment systems, are being challenged with chemical and biological agents or their surrogates.

ETV Centers

Water Security

**ETV Advanced
Monitoring Systems
Center** Battelle

**ETV Drinking Water
Systems Center**
NSF International

**ETV Water Quality
Protection Center**
NSF International

Safe Buildings

**ETV Safe Buildings
Monitoring and Detection
Technology**
Battelle

**ETV Safe Buildings Air
Filtration and Cleaning
Technology**
Research Triangle Institute

**ETV Building
Decontamination
Technology Center**
Battelle

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Safe Buildings

Buildings that house the nation's workforce and public meeting places may be targets of future terrorist attacks. They represent locations where hundreds or thousands of people congregate for employment, recreation, transportation, shopping or education during a typical day. Two ETV technology verification organizations are developing test plans and testing technologies for monitoring, measuring, detecting, and decontaminating chemical and biological warfare agents introduced into buildings and other structures.

Research Triangle Institute (RTI) is developing test plans and testing technologies used for cleaning building ventilation air. In 2003, verifications for three air filters were finalized and seven more will be completed in 2004 (<http://www.epa.gov/etv/verifications/verification-index.html>). Other air cleaning devices, including those based on ultraviolet light are expected to be tested in 2004.

Battelle is testing technologies used for monitoring, measuring and detecting contaminants in indoor air and on surfaces, as well as testing decontamination technologies for buildings. In 2004, Battelle will complete verifications of an air and surface detection technology (ion mobility spectrometer) and three decontamination technologies (systems based on hydrogen peroxide, chlorine dioxide or formaldehyde).

Participation of Stakeholders and Technical Experts

Each of the ETV technology verification organizations works closely with stakeholder groups to ensure that the most up-to-date information and expertise are used in verification efforts. The stakeholders include representatives from the myriad user communities, as well as technical experts whose skills can be brought to bear on developing the verification design and on evaluating performance data.

Schedule

The technology verification organizations are charged with implementing "rapid" verification. Verifications are completed in six months from the time the vendors agree to participate. Completing the process culminates in an Environmental Technology Verification Report and a signed Verification Statement for each participating technology. Vendors may use these to market their technologies; purchasers, such as water utilities and first responders, may use them to make decisions to purchase these technologies.

ETV Web Site

<http://www.epa.gov/etv>

