EPA Science Forum 2003
Partnering to Protect Human Health and the Environment

Environmental Technology Verification
Homeland Security and Cyanide Detectors

Homeland Security

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What is ETV?

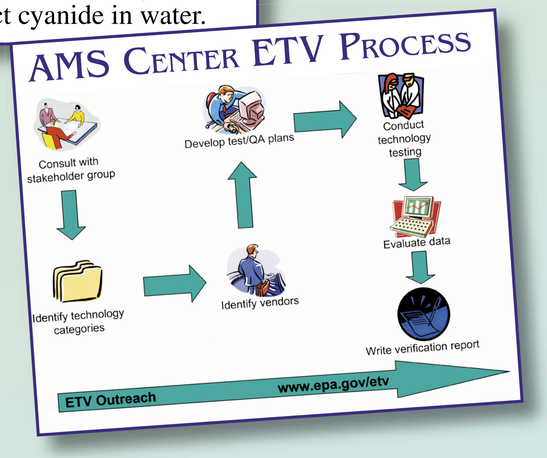
EPA's Environmental Technology Verification (ETV) Program was established in 1995 to objectively verify the performance of technologies that measure/monitor the quality of our environment, both for background or at suspected contamination sites. The ETV program has established six centers to verify a wide variety of environmental technologies. This technology verification program is now incorporated into EPA's Homeland Security efforts. One of the Centers, the Advanced Monitoring Systems (AMS) Center, recently conducted an analysis of commercially available devices to detect cyanide in water.

ETV Program
Advanced Monitoring Systems Center

Goal: to generate credible third-party performance data so that buyers and users of the technologies can make informed purchase, application, and permitting decisions

- ✓ Open to all commercial technologies
- ✓ Stakeholder involvement
- ✓ Outreach and communication
- ✓ High level of quality oversight

AMS Center ETV Process



Demonstration of Cyanide Detectors

The Monitor — *The Newsletter of the ETV Advanced Monitoring Systems (AMS) Center*
Volume 6, Number 1 January 2003

Ryan James, Battelle's ETV verification test coordinator, demonstrated the test process for the six cyanide detectors.

Cyanide Detectors

'Field Day' Launches First Verification Test of Homeland Security Technologies

The first verification test of technologies applicable to homeland security was launched in January by keynote speakers from the U.S. Environmental Protection Agency (EPA) at a Technology Field Day at Battelle's laboratories in Columbus, Ohio.

Linda Fisher, EPA Deputy Administrator, and Tim Oppelt, Director of EPA's new National Homeland Security Research Center, described the important role of EPA's Environmental Technology Verification (ETV) program in testing technologies that can monitor for, detect, and clean up chemical or biological contamination intentionally placed in the nation's drinking water supplies and indoor environments. Excerpts from their remarks at the Technology Field Day are in the right-hand column. Jeff Wadsworth, senior vice president at Battelle, served as the master of ceremonies.

The verification test featured at the Technology Day will evaluate the performance of six technologies that can detect cyanide in water. The test is being conducted by Battelle, which manages with EPA the ETV Advanced Monitoring Systems (AMS) Center.

Ryan James, Battelle's verification test coordinator, demonstrated how the hand-held technologies can be used in the field to detect cyanide. Two types of portable water analyzers/test kits are being tested: colorimeter test kits and ion selective electrodes. The test

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EPA Officials Express Importance of Homeland Security Technologies

Following are excerpts from the remarks of Ms. Fisher and Mr. Oppelt at the Technology Field Day.

Linda Fisher
Deputy Administrator
U.S. EPA

- *The events of September changed all of our lives, personally and professionally, as the missions of our agency evolved overnight.*
- *EPA has a long history of responsibility in emergency response, chemical and hazardous waste cleanup, air pollution control and monitoring, and protecting the safety of our watersheds, wetlands, and drinking water supplies. What many didn't know was that these same areas of expertise would play such an important role in our broader mission of homeland security.*
- *Our responsibilities include being the lead federal agency charged with helping to protect the nation's water infrastructure… responsibilities for cleanup of any biological or chemical attacks…and certain radiological attacks…and, a new responsibility, reducing the vulnerability to terrorist attack in the chemical industry and hazardous materials sector.*
- *This joint effort between EPA and Battelle focuses on the verification of detection devices and early warning systems. These systems will assist water utilities, public health officials, and first responders in identifying the presence of contaminants in drinking water.*

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ETV — *The AMS Center is part of the U.S. Environmental Protection Agency's Environmental Technology Verification Program. ETV was established to accelerate the development and commercialization of improved environmental technologies through third-party verification testing and reporting of the technologies' performance. The ETV process provides purchasers and permitters with an independent assessment of the technology they are buying or permitting and facilitates multi-state acceptance. For further information, contact Helen Latham at Battelle, 505 King Ave., Columbus, Ohio 43201-2693; Phone 614-424-4062; Fax 614-424-5801; E-mail lathamh@battelle.org.*

Launch *(from Page 1)*

will evaluate various parameters for each technology, such as precision, accuracy, and detection limit.

Sixty-five people attended the Technology Field Day, including representatives from the Ohio EPA, officials and researchers from area and state agencies and water utilities, members of state and national associations with interests in water treatment and monitoring, emergency responders, area environmental groups, stakeholder groups, and media representatives.

Their major questions revolved around the technologies' accuracy and precision, vulnerability to weather conditions, real-time capability, other detection uses, and cost.

The AMS Center is currently planning additional water security verification tests as well as tests for technologies that can detect or decontaminate chemical and biological agents on indoor surfaces or in air and water.

Officials *(from Page 1)*

Tim Oppelt
Director
National Homeland Security Research Center

- *Demand for and types of technologies to support the nation's Homeland Security needs is not very different from the nation's environmental needs.*
- *Technology verification is one way EPA is helping protect the nation's citizens and critical infrastructure from harm by using state-of-the-art technologies that prevent or minimize terrorist threats, and remediate contaminated sites in the event of an attack.*
- *The traditional ETV scope has been expanded to include verification testing of Homeland Security technologies, including technologies to monitor and protect the quality of the nation's drinking water supplies, which is why we are here today. Also included in ETV's scope is verification testing of technologies for use in monitoring indoor environments in buildings and other structures and cleaning up contamination from intentional acts of terrorism.*
- *We are here today to talk about one of the most important features of the water security program—verification of detection devices and early warning systems to assist water utilities, public health officials, and first responders in identifying contaminants in drinking water.*
- *Under a funding agreement with EPA's Office of Water, three ETV centers will focus on technologies, including the AMS Center operated by Battelle, which will develop protocols and conduct tests to verify chemical and biological detection and monitoring technologies.*
- *The verification of hand-held cyanide detectors that began Monday is the first verification of Homeland Security technologies under the ETV program and many additional verifications are planned for both water and safe building programs over the next several years.*
- *The next water security verification test will be for toxicity measurement technologies.*
- *Battelle will also be providing support to EPA's safe buildings program, verifying technologies to monitor and detect contaminants in indoor air and on surfaces, and managing the new Building Decontamination Center.*

The Six Cyanide Detectors Being Tested

From left, the detectors being tested are two ion selective electrode sensors from Thermo-Orion and WTW and four colorimeter test kits from Orbeco, Chemetrics, LaMotte, and Thermo-Orion.

New Water Security Committee Meets

Members of the AMS Center's new water security stakeholder committee listened to presentations about the U.S. EPA's role in Homeland Security, potential threats to water security, methods to ensure the security of public water supplies, and the initial verification test of water security technologies—portable cyanide detectors. The meeting was held January 14 at Battelle in Columbus, Ohio.

The committee's major purposes are to provide advice in identifying the most needed water security technologies, describe possible threats to public water supplies, and review verification test plans and reports of results. Its members represent a variety of relevant backgrounds, including regulatory agencies, trade and professional associations, public water authorities, city departments of health, and federal and military research groups.

United States Environmental Protection Agency

Partnering to Protect Human Health and the Environment