

AMS Center Reaches Milestone: More Than 100 Verifications Completed

The Advanced Monitoring Systems (AMS) Center has topped the 100 mark of technology verifications, following the completion in January of five reports for multi-parameter water monitors for distribution systems. The AMS Center now has tested and verified 101 monitoring technologies,

which is almost 30% of the EPA's Environmental Technology Verification (ETV) program's current total of 349 verified technologies. The complete list of verified technologies is available at <http://www.epa.gov/etv/verifications/verification-index.html>. The AMS Center is in the process of conducting

verification testing for more than 20 technologies including a personal cascade impactor sampler (see article below), arsenic water monitors (see page 2), dioxin emission monitoring systems, a mobile mass spectrometer, enzymatic test kits, rapid toxicity technologies, and immunoassay test kits for biotoxins.

Personal Cascade Impactor Sampler Next to be Tested

The term fine particulate matter (PM) is commonly used to describe airborne solid particles and liquid droplets that are less than 2.5 micrometers (μm) in aerodynamic diameter. PM results largely from photochemical processes affecting emissions from fuel combustion, and major sources include power plants, industrial facilities, and vehicular exhaust. The research and regulatory communities have shown increasing interest in PM over the past 15 years. Specifically, fine PM has become an international concern because it can penetrate deep into the lung causing significant health effects. Several studies have reported that stationary monitors are poor estimators of personal exposure to PM. Understanding of individual exposures to PM can be significantly improved by the use of personal monitors, which naturally incorporate personal exposure factors such as indoor pollutant sources and human time/activity patterns. Lightweight and user-friendly personal samplers that simultaneously separate and collect particles by size are needed.



Newly introduced into the marketplace, miniaturized personal cascade impactor samplers (PCISs) are worn in the individual's breathing zone, commonly clipped to the shirt collar, and allow simultaneous separation and collection of airborne particles in several size ranges (stages), typically ranging from 0.1 – 10 μm . These samplers are coupled to small, high efficiency, battery-operated pumps capable of sampling for 24 hours on a single battery charge. The mass and chemical constituents of PM can be analyzed by traditional techniques, providing size-specific information about the concentration and chemical content of PM.

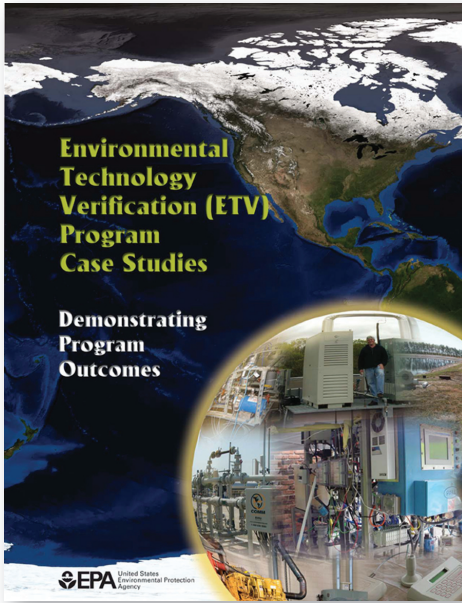
Verification testing of SKC's Sioutas Personal Cascade Impactor Sampler with the Leland Legacy pump will begin this winter. The testing is co-funded by the Mickey Leland National Urban Air Toxics Research Center.

This verification will evaluate the PCIS on the basis of sampling efficiency as compared to more well known reference samplers, the ability to collect detectable levels of metals in ambient air; ruggedness, ease of use, reliability, and user acceptance.

Testing is expected to last several months. For more information, contact Marielle Brinkman, Battelle's Verification Test Coordinator, at 614. 424.5277 or brinkmmc@battelle.org.



The AMS Center, which is part of the U.S. Environmental Protection Agency's Environmental Technology Verification Program, verifies the performance of technologies that monitor for contaminants and natural species in air, water, and soil. ETV was established to accelerate the implementation of improved environmental technologies through third-party verification testing and reporting of the technologies' performance. The ETV process provides purchasers and permittees with an independent assessment of the technology they are buying or permitting and facilitates multi-state acceptance. For further information, contact Amy Dindal at Battelle; Phone 561.422.0113; Fax 561.258.0777; E-mail



ETV Case Studies

The ETV program released in January a booklet of case studies that highlight the potential outcomes and benefits of the ETV program. As described in the publication, historically, the ETV program has measured its performance with respect to outputs (e.g., the number of technologies verified and testing protocols developed). The case studies presented describe how verified technologies and protocols translate into potential outcomes. The program plans to also use the case studies to communicate to the public information about verified technology performance, applicability, and ETV testing requirements. One of the case studies focuses on the results of the verification test of seven ambient ammonia monitors for use at animal feeding operations, which was a test that was conducted by the AMS Center. The case study document can be downloaded from the EPA ETV Web site (www.epa.gov/etv).

Additional Arsenic Monitoring Technologies to be Tested

The AMS Center will test additional technologies for monitoring arsenic in drinking water. Nine technologies for arsenic water monitoring have already been tested by the AMS Center (see verification reports at <http://www.epa.gov/etv/verifications/vcenter1-21.html>). In the current ETV test, SpectraSensors and TraceDetect have submitted technologies for ETV verification. Their technologies employ diode-based spectroscopy and anodic stripping voltammetry, respectively.

In 2001, under the Safe Drinking Water Act, the EPA lowered the maximum contaminant level for arsenic from 50 parts per billion (ppb) to 10 ppb. The new standard became effective on January 23, 2006. EPA estimates that more than 90 percent of the systems affected by the revised rule are small, serving populations of 3,300



SpectraSensors' As-10™ Trace Arsenic Monitor

or fewer. Therefore, the timing of the ETV testing (expected in the February-March timeframe) to assess the performance of additional monitoring technologies is critical for assisting public water utilities in meeting the new standard.

For more information on the ETV test of arsenic monitoring technologies, please contact Anne Gregg, Battelle, at 614.424.7419, or gregga@battelle.org. More information about arsenic and drinking water is available from EPA at: <http://www.epa.gov/safewater/arsenic/>.



TraceDetect's SafeGuard Trace Metals Analyzer

Upcoming Stakeholder Meetings

Jan 31

Air Stakeholder Committee Teleconference

Feb 6

Water Stakeholder Committee Teleconference

For more information, contact Rachel Sell, 614.424.3579 or sellr@battelle.org.