



**U.S. EPA Environmental Technology Verification (ETV) Program
Advanced Monitoring Systems (AMS) Center**

Water Stakeholder Committee Teleconference

Thursday, May 15, 2008

1:00 pm – 3:00 pm EDT

Teleconference Meeting Minutes

AGENDA

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Introduction of New Stakeholder Glenn Sabadosa	Rachel Sell
ETV Upcoming Events <ul style="list-style-type: none">• EPA Science Forum• Upcoming ETV Team Meetings	Amy Dindal, Battelle
Update on Technology Categories <ul style="list-style-type: none">• International ETV – Passive Groundwater Samplers• Test/QA Plan Discussion - ELISA Test Kits for Endocrine• Disrupting Compounds (EDCs) in Water	Amy Dindal
ITRC Guidance Document: Overview of Sensors and their Use for Environmental Quality Professionals	Stu Nagourney, New Jersey Dept. of Environmental Protection
Discussion of Evolving Technology Categories <ul style="list-style-type: none">• Chemical Oxygen Demand Techniques• Total Organic Carbon Analyzers/On-line Nutrient Monitoring• Automated Pathogen Concentrator• Lead in Drinking Water Test Kits• Water Infrastructure Inspection Technologies• Fluorometers/Ballast Water Exchange Screening Technology Round 2	Ann Louise Sumner, Battelle

Update on Non-Water AMS Technology Categories Amy Dindal

- Air update
- Soil Rapid Toxicity Technologies
- Spot Test Kits for Lead in Paint
- Radio Frequency Identification Devices for Hazardous Waste Package Tracking

Recap of Priorities – *What's on the Horizon?* Rachel Sell

Next Meeting and Action Items Rachel Sell

Adjourn

ATTENDEES

Stakeholder Committee Members:

Marty Link, Nebraska Dept. of Environmental Quality
Stu Nagourney, New Jersey Department of Environmental Protection
Glenn Sabadosa, Bayer MaterialScience
Roy Spalding, University of Nebraska
Peter Tennant, Ohio River Valley Water Sanitation Commission (ORSANCO)
Ken Wood, DuPont Corporate Environmental Engineering Group

Participant:

Max Lee, Dow Chemical (Note: Dr. Lee became a stakeholder committee member after this teleconference. Dr. Lee will introduce himself and his background at the next committee meeting.)

ETV AMS Center Staff:

Amy Dindal, Battelle
Doug Grosse, EPA
Rachel Sell, Battelle
Ann Louise Sumner, Battelle

Welcome, Agenda, and Meeting Objectives

Rachel Sell, Battelle AMS Center Stakeholder Committee Coordinator, welcomed committee stakeholders and AMS Center staff, took roll call of those stakeholders participating in the teleconference, and proceeded with an overview of the agenda, noting the focus of the call would be on upcoming ETV events, updates on technology categories moving forward, updates on evolving technology categories, and identifying priority technology categories for verification.

Introduction of New EPA Project Officer Doug Grosse

Ms. Sell introduced Doug Grosse, the new EPA project officer for the AMS Center. Doug replaced Bob Fuerst, who retired from EPA. Doug is an environmental engineer in EPA's Office of Research and Development, National Risk Management Research Laboratory. Doug has been with the EPA nearly 30 years; in this capacity he has served as branch chief in the Technology

Transfer program. In addition, Doug has participated in evaluations under the Superfund Innovative Technology Evaluation (SITE) program and has been the author of workshop proceedings in a number of different technical areas including mercury, arsenic, and vapor intrusion.

Introduction of New Stakeholder Glenn Sabadosa

Ms. Sell introduced a new stakeholder, Glenn Sabadosa, to the Water Stakeholder Committee. Dr. Sabadosa is a senior chemist within the Environmental Control Department at Bayer MaterialScience. As the team leader and supervisor of the Bayer Regulatory Compliance Laboratory, Dr. Sabadosa oversees EPA compliance and wastewater process testing. He has developed and implemented methods for the analysis of wastewater samples and is responsible for all water permits and reports to state and federal agencies.

ETV Upcoming Events

Amy Dindal, Battelle AMS Center program manager, provided an update on upcoming ETV events. The 2008 EPA Science Forum will be held May 20-22, in Washington, D.C. This year's Science Forum will emphasize the theme of "Innovative Technologies: Key to Environmental and Economic Progress," and will feature presentations on several ETV tests. In addition, six AMS Center vendors will exhibit their technologies. ETV will also staff a booth. Ms. Dindal added that an ETV team meeting will be held on May 19 in conjunction with the Science Forum. The ETV team meeting will cover updates from the various ETV Centers; discussion of ETV policies will also be held. The next ETV event will be held in New York City on October 7-8 in conjunction with EPA Region 2 and EPA's Small Business Innovative Research (SBIR) office. This workshop will highlight recent and upcoming environmental technology developments, verification under these two programs, and will identify opportunities for linking technology with needs and priorities in Region 2 and other local organizations. Stakeholders, particularly those in the NYC area, will be contacted for their interest in participating in these meetings.

Update on Technology Categories

Ms. Dindal provided an update on two technology categories, and reviewed slides from a PowerPoint presentation distributed to stakeholders before the teleconference.

International ETV – Passive Groundwater Samplers

In cooperation with the Nordic Water Technology Verification Center (NOWATECH), the AMS Center is preparing for verification testing of passive ground water samplers. The test/QA plan is being developed jointly by NOWATECH and the AMS Center; an existing ETV test/QA plan will serve as the starting point. One vendor, Sorbisense, is currently participating in the verification test, slated for summer/fall of 2008 in Denmark. The AMS Center will provide technical and quality assurance oversight of testing and reporting, which is expected to be completed by the end of 2008. Testing is expected to involve volatile organic compounds (mono-, di-, tri-, and tetrachloroethenes; BTEX; MTBE) and include a range of highly contaminated to uncontaminated groundwater. It is anticipated that a supplemental document will be prepared to describe the procedures for US ETV and NOWATECH acceptance of the joint verification process. Ken Wood offered DuPont as a source of peer review for this verification test. Roy Spalding suggested that Battelle contact Diane Easley, EPA Region 7, as a possible reviewer.

ELISA Test Kits for Endocrine Disrupting Compounds (EDCs) in Water

Ms. Dindal provided an update on EDC ELISA test kits, another technology category currently in-progress. Ms. Dindal explained that a test will be conducted in collaboration with EPA's National Risk Management Research Laboratory (NRMRL) in Cincinnati as well as other EPA and USGS labs. The verification will evaluate the ability of different ELISA test kits to detect estrogenic compounds or nonylphenol in four different water matrices: deionized water; surface water; wastewater treatment plant (WWTP) effluent; and WWTP influent. Each matrix will be spiked with 10 ng/L of Estradiol (E2) and 17- α -Ethinylestradiol (EE2) in one aliquot and 30 ug/L nonylphenol in another aliquot. Dr. Spalding asked about the concentrations selected, as they seem to be higher than what is typically observed in the real-world. Ms. Dindal responded that the concentrations were selected to be as close to realistic as possible while staying within the operating ranges of the kits that are being tested. Abraxis, LLC is the only vendor participating in the test. Testing is expected to begin in July. Verification parameters will include accuracy, precision, matrix effects, and evaluation of operational factors such as ease of use, sample throughput, and waste production. Ms. Dindal thanked the peer reviewers (Lisa Olsen from USGS and Paul Pennington from NOAA) for their review of the test/QA plan.

ITRC Guidance Document:

Overview of Sensors and their Use for Environmental Quality Professionals

Stu Nagourney provided a status update on a guidance document providing an overview of sensors and their use for environmental professionals, an initiative underway through the Interstate Technology and Regulatory Council (ITRC). Mr. Nagourney is the Team Leader for the Sampling, Characterization and Monitoring Team for ITRC who is preparing the document. Examples of sensor technologies and a comparison to traditional data acquisition methods are presented. Data quality from sensors is discussed, with emphasis on their ability to generate legally defensible data. The regulatory community's perspective on the use of sensors for environmental monitoring is presented. Potential benefits for citizen stakeholders are discussed, as well as concerns they may have. The document includes a discussion of potential instrument and data security concerns that are unique to sensors. This document discusses sensor types (physical, chemical, and radiological), sensor applications, operational issues and practical concerns. Mr. Nagourney described how the ITRC sensor document and its associated internet based training are both in final review and should be available shortly.

Discussion of Evolving Technology Categories

Ann Louise Sumner provided an update on six technology categories still under development, and reviewed slides from a PowerPoint presentation distributed to stakeholders before the teleconference.

Chemical Oxygen Demand (COD) Techniques

Dr. Sumner indicated that the vendor, Aqua Diagnostic, has completed all internal trial work of their PeCOD™ on-line and field-portable COD analyzers and expects to have commercially available products in the July to September timeframe. The analyzer utilizes photo-electrochemical oxidation to determine COD levels. An illuminated TiO₂ sensor creates the oxidizing agent. The verification will be in collaboration with DuPont; verification discussions will begin once the analyzer becomes available this summer.

Max Lee asked if he could receive information about the instrument. Dr. Sumner said that she would take the action to send Dr. Lee additional information about Aqua Diagnostic's technology after the call.

Total Organic Carbon (TOC) Analyzers/On-line Nutrient Monitoring

In 2007, Ohmart/VEGA contacted the AMS Center about Pollution Control System's BioTector® TOC and nutrient analyzer, which is especially well-suited for process control and traditional wastewater applications, as opposed to compliance monitoring or ambient monitoring. The analyzer costs approximately \$70,000, depending on the options selected. The vendor is interested in verification and is expected to provide significant funding for the test. No additional vendors responded to the solicitation for TOC technologies. The AMS Center is currently identifying collaborators for the test. During the last teleconference, Mr. Minei offered to provide in-kind support. Dr. Lee mentioned that Dow has worked with the BioTector and has testing data they may be able to share. Dr. Sumner will follow-up with Dr. Lee regarding Dow's work with the BioTector.

Automated Pathogen Concentrator

Dr. Sumner's next update regarded an automated pathogen concentrator developed by Tufts University/Haemonetics. The CFC100A™ is a portable automated concentrator for protozoa, bacteria, bacterial spores, and viruses in fresh and salt water. Tufts University/Haemonetics is interested in having the unit verified under the ETV program. Some funding is expected from the vendor, but the AMS Center is also seeking additional financial and in-kind collaborations. Concurrence for testing was provided at the last stakeholder meeting. At this time, Dr. Sumner is waiting to receive a signed vendor agreement and deposit from the vendor before proceeding with plans for testing.

Lead in Drinking Water Test Kits

Two vendors with test kits for lead in water have expressed an interest in verification: Silver Lake Research's Watersafe® kit and Industrial Test Systems, Inc., Sensafe LEADQuick™ test. Given the low cost of the test kits, significant external funding will be needed to offset the cost of verification to the vendors. The AMS Center will continue to pursue potential leads for co-funding and collaborators, including PA DEP Bureau of Laboratories, Delaware Health and Social Services, Illinois EPA, and the Division of Environmental Quality at the Suffolk County Department of Health Services (Vito Minei). The committee agreed that this is still a priority area for testing.

Water Infrastructure Inspection Technologies

Dr. Sumner introduced water infrastructure inspection technologies at the last stakeholder meeting. Since that meeting, she has communicated with VideoRay LLC, the vendor of a remotely operated vehicle (ROVs), which has been used to inspect drinking water storage tanks. The vendor still has interest in testing, but collaborative funding is needed to proceed. There are a number of ongoing EPA initiatives focused on water infrastructure and the AMS Center is looking for collaborative opportunities.

Fluorometers/Ballast Water Exchange Screening Technology Round 2

Dr. Sumner stated that two vendors with hand-held fluorimeters, Turner Designs and WetLabs, may have interest in testing and can provide in-kind support, but not co-funding for a test. The

group recalled that Lisa Olsen was a proponent of additional testing of such technologies, and Ms. Sell agreed to revisit this category with Ms. Olsen after the call.

Update on Non-Water AMS Technology Categories

Air update

Ms. Dindal provided an update on additional AMS Center activities. Sixty of the AMS Center's 129 verifications have been completed in the air area. A test of leak detection and repair technologies is being planned with three or four vendors participating. Battelle opened up a vendor solicitation for automated sampling and analysis systems applicable to the Clean Air Status and Trends Network (CASTNET). It appears that at least one vendor is interested in participating. EPA's Clean Air Markets Division in the Office of Air and Radiation will collaborate with AMS on this test. There are several air categories under development, including cavity ringdown spectroscopy, fungal contamination field monitors, odor detection technologies, and ozone detection cards.

Soil Rapid Toxicity Technologies

In addition to the joint verification with NOWATECH, a second international technology verification currently in progress is the development of a joint protocol for rapid whole soil and soil extract toxicity with ETV Canada. The joint protocol for soil toxicity technologies builds on a generic protocol that the AMS Center completed in 2007. The generic protocol was developed with co-funding from EPA's Office of Solid Waste and Emergency Response (OSWER). With participation from Environment Canada and ETV Canada, this protocol has been expanded to include whole soil testing in addition to soil extract testing. The protocol is undergoing final review with the U.S. EPA and Canadian ETV programs, as well as with peer reviewers. Once the protocol is finalized, the AMS Center and the ETV Canada program will recruit vendors and collaborators to participate in a verification test. The final protocol also will be posted on the ETV website (www.epa.gov/etv).

Spot Test Kits for Lead in Paint

EPA's Office of Pollution Prevention and Toxics is currently funding the development of an AMS Center protocol for testing the performance of lead-based paint test kits. A technical panel has been established to assist with the development of the protocol, which is expected to be finalized towards the end of the summer.

Radio Frequency Identification Devices for Hazardous Waste Package Tracking

The AMS Center is pursuing a verification test of radio frequency identification (RFID) devices for hazardous waste package tracking. A test plan was developed under ETV's ESTE program that will serve as the basis for the test. Ten vendors are interested in participating in the test. Co-funding and in-kind support are being sought.

Recap of Priorities - What's on the Horizon?

Ms. Sell said that stakeholder concurrence had been received (at this or previous meetings) for four technology categories that were under discussion: automated pathogen concentrators, lead in drinking water test kits, COD analyzers, and TOC analyzers/on-line nutrient monitors. Two stakeholders ranked TOC and COD analyzers as top priorities, while another felt that the automated pathogen concentrator and test kits for lead in drinking water were higher priorities. Verification testing will be pursued in all four areas.

In terms of other technologies on the horizon, Ken Wood mentioned that methods to detect and quantify pharmaceuticals and personal products were gaining a lot of attention. Max Lee mentioned that ammonia and nitrate in drinking water are also important areas.

Next Meeting and Action Items

Ms. Sell thanked all of the stakeholders for attending the meeting and for their continued input and contributions to the ETV program. She said that she would distribute meeting minutes to review and said the next stakeholder teleconference would be planned for the September timeframe. The call adjourned at 3:00 pm *EDT*.