Teleconference Meeting Minutes

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

Water Stakeholder Committee Teleconference
Wednesday, January 28, 2009
1:00 pm – 3:00 pm *EST*

FINAL AGENDA

Welcome and Introductions ▪ New EPA AMS Center Management o Project Officer John McKernan o QA Manager Michelle Henderson	Rachel Sell, Battelle
ETV Updates and AMS Center News ▪ Implementation of European ETV Program ▪ RFID for Hazardous Waste Package Tracking	Amy Dindal, Battelle
Update on Current Verification Tests ▪ ELISA Test Kits for Endocrine Disrupting Compounds (EDCs) in Water ▪ International ETV – Passive Groundwater Samplers ▪ *Cryptosporidium* Monitor ▪ Balloon Remote Sensing of Mixing Zones ▪ Technology Categories – On the Radar	Amy Dindal
Discussion of New Technology Categories ▪ Wastewater Toxicity Detection ▪ Real-time Monitoring of Sand and Particulates in Groundwater	Ryan James, Battelle
Stakeholders: what's on your radar screen? ▪ Nitrification Control in Reservoir Systems	Rachel Sell
Recap of Priorities, Action Items, and Next Meeting	Rachel Sell
Adjourn	

ATTENDEES

Stakeholder Committee Members:
Tom Gargan, U.S. Army Center for Environmental Health Research
Doug Grosse, EPA
Max Lee, Dow Chemical
Alan Mearns, Hazardous Materials Response Division, National Oceanic and Atmospheric

Administration (NOAA)
Stu Nagourney, New Jersey Department of Environmental Protection
Lisa Olsen, U.S. Geological Survey (USGS)
Glenn Sabadosa, Bayer MaterialScience
Rick Sakaji, East Bay Municipal Utility District
Roy Spalding, University of Nebraska
Peter Tennant, Ohio River Valley Water Sanitation Commission (ORSANCO)
Ken Wood, DuPont Corporate Environmental Engineering Group

ETV AMS Center Staff:
Amy Dindal, Battelle
Ryan James, Battelle
John McKernan, EPA
Rachel Sell, Battelle

Welcome and Introductions

Rachel Sell, Battelle AMS Center Stakeholder Coordinator, welcomed committee stakeholders and AMS Center staff, took roll call of the participants in the teleconference. Ms. Sell 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.

Ms. Sell introduced John McKernan, the new EPA project officer for the AMS Center. Doug Grosse, who was serving as the interim project officer, will now represent EPA on both the AMS Center air and water stakeholder committees. Dr. McKernan previously worked at the Centers for Disease Control and Prevention (CDC) National Institute for Occupational Safety and Health (NIOSH). He holds a M.S.P.H. and Sc.D. in Environmental Health/Industrial Hygiene. His primary focus at NIOSH included air monitoring related to human exposure.

Ms. Sell then introduced Michelle Henderson, the new QA Manager for the AMS Center. Ms. Sell provided a brief introduction about Ms. Henderson as she was unable to make the teleconference. Before joining EPA, Ms. Henderson acquired 17 years of quality assurance and health and safety experience while at The Shaw Group, Inc. as a contractor for the EPA focusing primarily on issues related to water.

ETV Updates and AMS Center News

Dr. McKernan provided an update on an EPA program within the Office of Air and Radiation called the Alternative Technology Initiative. EPA's Alternative Technology Initiative seeks to reduce the number of sealed radiation sources used in industrial devices and applications. Part of this effort must involve the acceptance of alternative technologies by those who currently use sealed radiation sources. As with any new technology, the likelihood of acceptance can be significantly increased by independent evaluation and verification of a technology's capabilities, so the program has been exploring collaboration with the ETV program.

Amy Dindal, AMS Center Director, provided an update on AMS Center international activities. Battelle is a participant on a team lead by Dechema (in Germany) to provide support to the European ETV program. Battelle's role will primarily be involved with joint international

testing that will be focused on harmonizing verification testing across the European, U.S., and Canadian ETV Programs. The AMS Center is planning for a verification test of radio frequency identification (RFID) devices for hazardous package tracking across the U.S./Mexico border. Testing is expected to occur in March; a Field Day is also being planned in conjunction with the test. In addition, the AMS Center is in discussions with ETV Canada regarding joint verification testing on remote sensing air monitoring technologies.

Update on Current Verification Tests

Ms. Dindal provided an update on four technology categories (ELISA Test Kits for Endocrine Disrupting Compounds; Passive Groundwater Samplers; *Cryptosporidium* monitor; and balloon-mounted remote sensing for mixing zones) that are in progress and reviewed slides from a PowerPoint presentation distributed to stakeholders before the teleconference. Input from the stakeholders on these areas included the following comments:

Cryptosporidium technology

- Lisa Olsen asked if the technology was quantitative. John McKernan replied that it is a colorimetric technology so it is intended right now to be a screening tool, but the hope is that it will eventually be quantitative. Rick Sakaji stated that in order for the technology to be used for compliance monitoring, it must be able to quantify and view oocysts.
- Ms. Olsen also asked if the technology would work with complex matrices (e.g., non-saturated zone such as found at a dairy farm). Dr. McKernan stated that data provided by the vendor has suggested that the technology has little interferences.
- The stakeholders indicated that water utilities are also interested in watershed and land management, including grazing on their property (e.g., Peter Tennant indicated that utilities along the Ohio River may have an interest).
- Stakeholders provided their concurrence for proceeding with this verification test. It was agreed that a meeting would be convened to map out a test plan once this test is ready to proceed. Rick Sakaji, Lisa Olsen, and Peter Tennant expressed interest in participating.

Balloon Remote Sensing of Mixing Zones

- Ms. Olsen mentioned a study around hot springs, deploying a FLIR camera without a helicopter. Ms. Dindal said the unit can be remotely operated for 90 minutes.
- Ken Wood inquired about the depth of the plume visualization as this is a big factor with thermal plumes. Ms. Dindal indicated that she thought it was around 2 meters. Mr. Tennant said, with respect to power plants, getting down to 2 meters is getting the majority of the impact he thinks, with surface discharge at least.
- Mr. Tennant said another application included confined animal feeding operations (CAFO).
- Alan Mearns described an oil spill in Cordova, AK that used balloon skimmers during oil spill clean up.
- Ms.Olsen said the problem was how to ground truth data and understand positional accuracy.
- Stakeholders provided their concurrence for proceeding with this verification test. It was agreed that a meeting would be convened to map out a test plan once this test is ready to proceed. Lisa Olsen and Peter Tennant expressed interest in participating.

Technology Categories – On the Radar

- Max Lee indicated that Dow has performed some on-/off-line testing of COD and TOC technologies. Dr. Lee will look into the possibility of presenting this information to the rest of the stakeholder group at a future meeting.
- Stuart Nagourney reported that NJ Department of Environmental Protection is looking at nutrient monitoring at a fertilizer plant. Nitrate sensors will be deployed sometime in the next few months. The system will include telemetry data from the site back to the OK Department of Agriculture in order to get real-time information on nitrate concentration. The hope is to add a technology evaluation of the nitrate sensors as part of an ETV test if funding can be secured.

Discussion of New Technology Categories

Ryan James provided an update on two new technology categories and reviewed slides from a PowerPoint presentation distributed to stakeholders before the teleconference. Input from the stakeholders on these areas included the following comments:

Wastewater Toxicity Detection

- Mr. Wood said Microtox is similar to LuminoTox and asked how the two systems compared, or if there are improvements to the LuminoTox. Dr. James answered that Lab Bell desires the comparison with wastewater water quality tests to show their capability in that area. Technology is very similar to Microtox and it doesn't seem that many changes have been made since previous ETV testing was performed.
- Dr. Sakaji questioned whether this was a toxicity test, or COD/TOC test. It is indeed a toxicity test that Lab Bell would like used along with analysis by the more traditional wastewater water quality tests. They are not measuring those water quality parameters. Lab Bell feels that results from the LuminoTox testing can be correlated with results from those tests for a lesser cost.
- Dr. James said we are still waiting on a signed vendor agreement.
- Dr. Lee said that a standard EPA bioassay toxicity test (e.g., minnow, daphnia) takes a lot longer (i.e., 24 hours) versus this test which is along the line of minutes. Dr. James agreed and said that is why there was not a comparison with standard EPA bioassays during previous ETV testing.

***Stakeholders:* what's on your radar screen?**

Dr. Sakaji said a possible fit for ETV verification testing are online chlorine residual monitors. One potential application is nitrification control in large reservoir systems. Water storage management systems are fundamentally mixing units, but also can control chlorine residual. They can be used with chemical feed systems to produce chloramines that boost the disinfection level. He is trying to evaluate how extensive the nitrification problem is; a loss of chlorine residual and total coliform violations is how the problem manifests itself.

The AMS Center previously looked at inline instrument testing for residual chlorine monitoring, but did not proceed because the technology was proven already. Another reason it wasn't pursued was because it fell on the heels of the multi-parameter test (e.g., ORD, turbidity, pH).

Dr. Sakaji believed SolarBee and Severn Trent offer a monitoring package, not just an analyzer.

Dr. Mearns suggested bioelectrical impedance analysis, tiny probes in tissue, to tell whether fish are healthy or not. Marine bird or marine mammal research groups are interested. Goal is to sort out healthy and disease fished populations. Is this applicable from the AMS Center standpoint? From a monitoring standpoint it seems to be a fit (doesn't have to be matrix-specific) even though it's tissue. Dr. Mearns was asked to send vendors or names of specific organizations that may be interested. He thinks there must be a number of vendors. NOAA may have an interest.

Recap of Priorities, Action Items, and Next Meeting

Ms. Sell thanked all of the stakeholders for attending the meeting and for their continued input and contributions to the ETV program. When asked about having an in-person stakeholder meeting in the coming months, stakeholders requested to not travel in the near term. She said the next stakeholder teleconference would be planned for the May timeframe. The call adjourned at 3:00 pm *EDT*.

Ms. Sell reviewed the action items brought forth on the call:

1. A meeting will be convened to map out a test plan once the *Cryptosporidium* technology test is ready to proceed. Rick Sakaji, Lisa Olsen, and Peter Tennant are interested in participating.
2. A meeting would be convened to map out a test plan once the Balloon Remote Sensing of Mixing Zones test is ready to proceed. Lisa Olsen and Peter Tennant expressed interest in participating.
3. Dr. Lee will look into the possibility of presenting information on COD and TOC technologies to the rest of the stakeholder group at a future meeting.
4. A new technology to potentially consider is residual chlorine monitoring packages.
5. Dr. Mearns will send names of vendors and specific organizations that may be interested in monitoring bioelectrical impedance.