

## Highlights

- A New Rapid Method for Viable Bacteria
- ITLA Quarterly Meeting Notice
- MWRA Update



# ITLA

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## Message from the President

*By Jim Occhialini*

Greetings fellow members of the Independent Testing Laboratories Association - Our next meeting will soon be upon us – Dec. 7<sup>th</sup> at the Sturbridge Host Hotel and Conference Center in Sturbridge, MA. We like to spread our meeting locations around to best accommodate the geographic distribution of our membership. So, if anyone has any strategic locations they would like to suggest for upcoming meetings, please do so.

It's hard to imagine that the end of the year is almost upon us, and not long after that, the end of my term as President will be here as well. With that being said, please let me say that ITLA needs you! Specifically, we are looking for candidates for President and Vice President. I can tell you that serving in my present role has been a rewarding and informative experience for me and either position could be a tremendous opportunity for the right person. So, if you are interested, or know someone who would be a good

candidate, please contact any member of the Executive Board.

We have a great meeting planned for December. Our vendor presentation will be by EST Analytical. They will present "Improving Productivity in the VOC Laboratory", something I'm sure everyone is interested in. Our featured speaker will be Dr. Windsor Sung of the Massachusetts Water Resources Authority. Dr. Sung is the Program Manager for Chemistry for the MWRA. The title of his presentation is "A Tale of 2 Reservoirs: Water Quality and Treatment at the MWRA". Dr. Sung will discuss how differing raw water quality from the Wachusett and Quabbin reservoirs and their associated treatment processes have an impact on finished water quality and the generation of disinfection by-products. Abstracts for both of these presentations are included in the body of this newsletter.

So, please plan to attend the meeting in Sturbridge on December 7<sup>th</sup>. One last comment from a housekeeping perspective, please

**Quarterly Meeting** - Wednesday, December 7, 2005, Sturbridge Host Hotel, Sturbridge, MA  
**Feature Presentation:** "A Tale of 2 Reservoirs: Water Quality and Treatment at the MWRA"  
by Dr. Windsor Sung, Program Manager for Chemistry at MWRA See page 5 for agenda

send in your dues if you have not already done so. We need your support if we are to continue to put on meetings such as this. As always, if anyone has any issues they would like to have addressed or ways in which the ITLA can be more effective, please do not hesitate to contact me at [jocchialini@alphalab.com](mailto:jocchialini@alphalab.com), or (508) 898-9220 as well as any member of the Executive Board.

## Regulatory Update

*By Bob Bentley, Regulatory Affairs Chair  
bob@ h2otest.net*

### eDEP

The DEP has rolled out many new forms, and say that they are now available online. In a recent correspondence from Andrew Durham, it seems that the implementation of these new forms, although desired by DEP, has not made much headway within the laboratory community. I anticipate that more direction will be required before labs embrace this - and that should be coming in the near future.

### Perchlorate

ITLA has continued to press the LCO for acceptance of the LC/MS/MS and IC/MS methods for perchlorate. Although we were promised that formal requirements for gaining approval of these methods would be available by the end of September, we have not seen anything yet. We will bring this up again at our next LAC meeting scheduled just before our quarterly meeting. Stay tuned.

### Lead & Copper Reporting

For those who analyze lead and copper in drinking water, you should be aware that the DEP has come up with a totally new format for reporting. Discussions with Damon Guterman of the DEP indicated that this was promulgated months ago, and the labs were "forgotten." The new form is available at the following web address: <http://www.mass.gov/dep/water/approvals/dwsforms.htm>.

We hope the state reviewers have their magnifying glasses ready to read this!

### State Oversight

We know about a number of initiatives occurring now in New England, which have the potential to impact your operation if you analyze drinking water for the

private homeowner. Rhode Island has recently promulgated regulations requiring laboratories to submit data to them - even without the homeowner's consent. There are a number of other states (New Hampshire, Maine, Connecticut, and possibly Massachusetts) looking into requiring a report from the laboratory. We are looking for volunteers to assist in watching this developing issue. Please contact me directly at the e-mail address listed above.

## MWRA Items

*Provided by Mike Delaney  
([mike.delaney@mwra.state.ma.us](mailto:mike.delaney@mwra.state.ma.us))*

### MWRA TRAC Training Session.

MWRA is planning to have a training session on Wednesday, January 18, 2006, for labs and consultants who work for industries with MWRA sewer use permits. The MWRA pretreatment program, called Toxic Reduction and Control (TRAC), issues permits to industries that discharge into the MWRA sewer system. Many of these permits require self-monitoring by the industries using certified laboratories and NPDES-approved methods. The training session will be held at the Deer Island Treatment Plant in Winthrop, MA, and will include a tour of the treatment plant and the MWRA Central Lab.

For security reasons, all attendees will need to be registered in advance and be prepared to show government-issued identification upon arrival at Deer Island. We will be sending invitations to contract labs and consultants that we expect will be interested in attending, but if you are interested, you can get an invitation/registration form from Mike Delaney ([Mike.Delaney@mwra.state.ma.us](mailto:Mike.Delaney@mwra.state.ma.us), 617-660-7801).

We plan to cover the following topics:

- Introduction to MWRA and TRAC
- Overview of the Industrial Pre-Treatment Program
- Role of the MWRA Laboratory
- Deer Island NPDES permit
- TRAC sewer use regulation
- Local Limits process
- Sampling and preservation requirements

- Lab Testing requirements
- Electronic reporting using “eSMART”
- Ethical responsibilities
- Tour of the Deer Island Treatment Plant and Central Lab

### **MWRA Ozonated Drinking Water Passes the Taste Test**

MWRA has been using ozone as the primary disinfectant for drinking water treatment in Eastern Massachusetts since late July. A taste test of bottled and MWRA tap water was conducted by a local brewer, a local wine expert, the research director of an environmental group, and the MWRA Executive Director. The group found no “essentially no difference” in taste difference between the MWRA water and bottled water. There is a link to the full Boston Globe story at [www.mwra.com](http://www.mwra.com). MWRA water costs about a half-cent per gallon while the most expensive bottled water in this taste test cost \$6.82 a gallon.

### **“A Healthy Environment Starts at Home.”**

MWRA’s guide to reducing our use of hazardous household products is now available online at [www.mwra.com](http://www.mwra.com) as a 25-page, full-color downloadable “PDF” file. Publication of this booklet was required by the MWRA’s wastewater discharge permit from EPA and MA DEP.

### **TRAC “eSMART”**

We continue to receive laboratory data electronically using the web-based “e-SMART” program. Labs access e-SMART using a PIN provided by MWRA. The program accepts either data files in a specific format, or on-line data entry. Chains of custody are scanned and submitted as PDF files. So far, over 20 labs are using e-SMART. To find out more about e-SMART contact Alice Chang at 617-305-5621 or [Alice.Chang@mwra.state.ma.us](mailto:Alice.Chang@mwra.state.ma.us).

Labs using e-SMART are reminded of the following: If the chain of custody form is missing, or is missing vital information, including the permit number, the sample location number, or the effluent flow information, TRAC will return the report for correction and resubmission.

### **e-SMART File Format Specification**

To better assist labs that choose to use a LIMS

system to submit data, TRAC modified the e-SMART File Format Specification that labs can access using the e-SMART Help function. The specifications include: a data file overview, formatting instructions, a sample file, instructions for checking the file format, and a dictionary of MWRA test codes and components.

### **Visit our web page for more information**

Check us out at [www.mwra.com](http://www.mwra.com). We have a wealth of information for both the public and for experts on our water and wastewater activities. This includes monthly updates on drinking water quality testing, information on lead, our most recent Consumer Confidence Report, and many technical reports associated with the Deer Island Treatment Plant and our extensive Harbor and Outfall Monitoring program.

## ***A New Rapid Method for Total Viable Bacteria***

*By Philip A. Tangorra, Research Scientist, Mohawk Valley Water Authority*

### **Flow Cytometry**

- Used in clinical laboratories for identification of bacteria in body fluids
- Food and beverage industry pioneered development of technology for other uses

### **Flow Cytometry**

- Methods are:
  - Rapid
  - Quantitative
  - Versatile:
    - nucleic acid probes and immunofluorescence
    - viability

### **RBD 3000**

- Advanced Analytical, Inc.
- Ames, IA
- [www.aati-us.com](http://www.aati-us.com)

### **RBD 3000**

- Rapid enumeration of cells (within 20 minutes)
- Broad dynamic range of 10<sup>1</sup>-10<sup>6</sup> cells/ml
- Fully-automated operation that eliminates

subjective counting and frees up technicians

- Automated preparation and analysis of up to 36 samples

### Flow Cytometry

- Immunomagnetic separation and antibody labeling:
  - E. coli 0157:H7
  - Cryptosporidium
  - Aeromonas
  - Listeria

### TVO Work

- Two Separate Datasets
  - MVWA Distribution Samples
    - Data still being collected
  - Pilot Scale Study
    - Nitrification Control Study
    - May 2004 – January 2005
- Compare results against R2A Plate counts
  - 7-day HPC on R2A agar (low nutrient)

### MVWA Distribution Data

- 500 samples analyzed
- Developing baseline data
- Specificity to site
- Seasonality to data

### MVWA Distribution Info

- 125,000 customers
- Samples for bacteria collected daily
- 2 Uncovered Finished Water Reservoirs
  - Marcy: 15.2 mg; Detention <1 day
  - Deerfield: 104 mg; Detention ~30 days
    - Problematic in summer months → Algae
- 4 Pressure Zones

### Pilot Study Samples

- Pilot Scale Distribution System
- Plug-Flow configuration
- Intentionally cause nitrification
  - Loss of disinfectant residual
  - Increase in bacterial population
  - Compromise water quality overall
- Weekly sampling effort

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### Food for Thought

A professional is someone who can do his best work when he doesn't feel like it. Alistair Cooke

### Duplicate Analyses

	n	TVO		R2A	
		Mean RPD	St. Dev	Mean RPD	St. Dev
<b>Distribution Dataset</b>	38	9%	+6%	27%	+23%
<b>Pilot Dataset</b>	25	12%	+12%	29%	+27%

### Conclusions

- RBD 3000 is a versatile instrument
- TVO > R2A (dilution errors; culturable growth)
- Continuing data collection/analysis
- Baseline data needs to be collected
- Utility Tool for security??

## Regulatory News

Information provided by Jerry Parr, Calibrate

### Further Clarification on the Use of Freon in

**Environmental Methods:** Last week's issue used the phrase "companies that supply freon to laboratories." This was meant to imply manufacturers, not companies that have stockpiled freon for resale. Labs may continue to use stock-piled freon until all existing supplies are depleted. Unless EPA mandates that laboratories cannot use freon, existing supplies appear to be adequate for the foreseeable future.

**Guidance on Interpreting NDs:** Low-level concentrations of organic & inorganic chemicals are often re-reported as "nondetect" or "less-than" values. This article provides an overview of methods for interpreting data with nondetects. [http://pubs.acs.org/subscribe/journals/esthag-a/39/i20/html/101505feature\\_helsel.htm](http://pubs.acs.org/subscribe/journals/esthag-a/39/i20/html/101505feature_helsel.htm)

**Revision to Wastewater Regulations:** EPA has finalized a rule that revises several provisions of the NPDES regulations. Among other items, the rule allows POTWs to waive the sampling requirements for industrial facilities if a pollutant was not expected to be present greater than the background level. (10/14/05; 70 FR 60133)

### Cross-Media Electronic Reporting Rule Final:

EPA has finalized a rule by which it will accept electronic reports. The rule does not mandate that electronic methods. (10/13/05; 70 FR 59847)

# ITLA Quarterly Meeting

**Wednesday December 7, 2005**  
**Sturbridge Host Hotel and Convention Center**  
**366 Main Street, Sturbridge, MA**  
**(508) 347-7393**

**8:30 a.m. Registration**

**9:00 a.m. Committee Reports**

Secretary  
Technical  
Newsletter  
Election  
Lab Advisory  
Membership  
Treasurer  
Regulatory  
By-laws  
Ethics

**9:15 a.m. Regulatory/Lab Advisory  
Committee Report**

*Mr. Bob Bentley, Analytical Balance*

**9:30 a.m. ACIL Ethics Training**

*Mr. Mike Delaney, MWRA*

**10:00 a.m. Break**

**10:10 a.m. "Improving VOC Laboratory  
Productivity"**

*Mr. Jim Murphy, EST Analytical*

There are several demands and requirements imposed on chemists performing Volatile Organic Analysis in today's Environmental Laboratory. The first and most important is that the analysis must be performed in compliance with USEPA methodologies. Next, there is a continued trend to achieve lower levels of detection. How can the VOC chemist improve sample throughput without sacrificing data quality, meet the required level of detection and still remain compliant to the EPA method?

Limitations to improving sample throughput in Volatile Organic Analysis with a single Purge and Trap system has historically been the overall Purge and Trap cycle time coupled with the speed in which a syringe driven autosampler could process the sample and rinse the glassware in preparation for the next sample.

This presentation will compare and evaluate two options to improve sample throughput up to 100% using a single fixed loop autosampler. All Quality Assurance data per USEPA methodologies using optimized methods will be presented.

**11:00 a.m. Featured Speaker**

**"A Tale of 2 Reservoirs: Water  
Quality and Treatment at the  
MWRA"**

*Dr. Windsor Sung, MWRA*

The Massachusetts Water Resources Authority (MWRA) supplies water to 3 communities in Central Western Communities (known as the Chicopee Valley Aqueduct communities or CVA) and over 40 communities in the metropolitan Boston area. The source water comes from two major reservoirs, the Quabbin and the Wachusett. The CVA communities are served by Quabbin reservoir, which has better water quality overall. Current treatment provided by MWRA at CVA consists of primary disinfection by sodium hypochlorite only. A mixture of Quabbin and Wachusett reservoir water serves metropolitan Boston communities. Current treatment of this water includes primary disinfection by ozone, corrosion control by soda ash, fluoridation and secondary disinfection by chlorine and ammonia. Treated water quality from these 2 systems, in particular the disinfection by-products will be compared and contrasted.

**12:00 p.m. Meeting Adjourns**

calendar

**2006 Annual  
Meeting**

March 1, 2006

Worcester, MA  
8:30 a.m. - 3:00 p.m.