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ITLA

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2011 ITLA Officers

President

Dan Falcone
(781) 296-6155
dan.falcone@testamericainc.com

Vice President

Steve Hartman
(413) 572-3707
steve.hartman@testamericainc.com

Secretary

Nancy Burnett
(508) 460-7600
nburnett@microbac.com

Treasurer

Greg Yogis
(508) 759-4441
gyogis@groundwateranalytical.com

Regulatory Affairs

Bob Bentley
bob@h2otest.net

Technical Affairs

Chris Wakefield
cwakefield@alphalab.com

Senior Advisor

Kevin Braga
kbraga@thielsch.com

Ethics Committee

Mike Delaney
mdelaney@mwra.state.ma.us

President's Message

By Dan Falcone

Pondering moments have led me to contemplate all the technical improvements and changes I have seen during my career.

The analytical chemistry instrumentation has improved to the point where we think of detection limits in the parts per trillion range or even lower. Back in 1974, we were working with parts per million.

Our communication ability has gone from phone booths, to pagers, to cell phones that fit in your pocket. Now Blackberries send entire documents and pictures for perusal and discussion. The Internet has transformed our daily efforts & interactions. Just in a few short years internet social networks like Facebook & Twitter have replaced telephone calls & face to face visits.

Just like these technological advancements, comes improvements in something as basic and precious as drinking water treatment. This June 15th we are all invited to view the state of the art MWRA drinking water treatment plant in Marlboro.

I know I am extremely excited and interested in seeing the technology and learning how the MWRA makes something as important as drinking water safe for us to consume. I hope you share my enthusiasm for this tour of the MWRA Marlboro facility.

I hope to see you at the June ITLA Quarterly Meeting.

MWRA Items

By Mike Delaney
(mike.delaney@mwra.state.ma.us)

Testing Shows No Radiation in MWRA Source Waters

In cooperation with the Massachusetts Departments of Public Health and Environmental Protection, MWRA has been conducting regular testing of water from Quabbin and Wachusett Reservoirs for potential radioactive contaminants from the damaged Japanese reactors. Tests for radioactive Iodine 131 (I-131) and Cesium-137 (Ce-137) have all been non-detectable.

The Mass Department of Public Health had previously reported that very low concentrations of

Quarterly Meeting

Wednesday., June 15, 2011, Marlboro Courtyard in Marlboro, MA. **Feature Presentation:** "The Evolution of Laboratory Maintenance from Service Contract to Laboratory Productivity Solutions" *Agilent Technology*

radioactive Iodine-131 were found in a rainwater sample. According to DPH, the amounts were minute and do not pose any health risk. MWRA will continue to monitor the situation.

For more information, see the Massachusetts Department of Public Health web site.

Update on Hexavalent Chromium

MWRA has begun a testing program for hexavalent chromium and the first set of quarterly samples have been analyzed. Hexavalent chromium was detected at very low levels, just barely above the detection limit of 0.02 parts per billion (or 20 parts per trillion). In December 2010, the Environmental Working Group, a national advocacy group, issued a report on hexavalent chromium (chromium-6) based on limited testing that the group had conducted in 35 cities around the United States. MWRA water was among those tested (identified as Boston in the report) and had among the lowest levels detected nationwide. Hexavalent chromium is not regulated by EPA and testing is not currently required.

Hexavalent chromium is noteworthy as the contaminant made famous in the movie Erin Brockovich starring Julia Roberts. Extensive national coverage of the Environmental Working Group's release of its report on hexavalent chromium prominently headlined the 'carcinogenic Erin Brockovich chemical.' MWRA and water systems across the nation received many calls from consumers interested in learning more about the potential contaminant.

Hexavalent chromium is not regulated in drinking water by EPA or any state at this time. EPA does regulate total chromium at 100 parts per billion (ppb) or micrograms per liter (ug/L). MWRA's total chromium levels have typically been below 1 ppb. Chromium is a relatively abundant element, and trivalent chromium (chromium-3), the more common form, is an essential nutrient with recommended daily allowances of 20-45 ug/day. Hexavalent chromium is another form of chromium and would normally be detected (but not specifically identified) as part of the total chromium measurement. While most of the publicized cases of occurrence of high levels of hexavalent chromium in water have been from

industrial contamination, the most common form of chromium - trivalent chromium - can switch back and forth to hexavalent chromium in the presence of oxidants such as chlorine or ozone.

The Environmental Working Group's report was based on a very limited sampling of waters across the US. The Boston sample was reported to have had a level of 0.03 ppb, which was the lowest level detected. Subsequent to the release of the report, EPA issued guidance on sampling and analysis, using extremely sensitive lab methods. MWRA reviewed EPA's recommendations and decided that a program of testing was appropriate for MWRA's system at this time.

MWRA's testing program will consist of one year of quarterly samples of raw water, finished water at the Carroll Water Treatment Plant, and at four locations within the distribution system. For at least the first quarter, duplicate samples and extra lab and field blanks will be collected and analyzed for improved confidence in the results.

Sample Results

The first quarterly results are very low – just above the method detection limit detection level of 0.02 ppb (or 20 nanograms per liter or parts per trillion). This is consistent with the single result from the EWG report which had a detect of 0.03 ppb. The results are tightly clustered just above the method detection limit, ranging from non-detect (ND, less than 0.02 ppb) to 0.027 ppb. All of the results were below the lab's minimum reporting level of 0.05 ppb. This indicates that the chemical is present, but the actual quantities can only be estimated.

Based on the closeness to the detection level and the tightness of the spread, firm conclusions about sources, transformation of chromium-3 to chromium-6, or degradation of chromium-6 cannot be drawn. But, the data does show the raw water as not detected & most of the finished water samples as detected, lending some support to the theory that ozone and chlorine convert chromium-3 to chromium-6.

While MWRA water typically has non-detectable amounts of total chromium with standard laboratory reporting limits of 1 ppb, additional scrutiny of raw

instrument data allowed estimates of total chromium below 1 ppb to be made. Measurements show the raw water as having some total chromium possibly indicating that the sources may be natural, but other sources such as trace amounts in treatment chemicals cannot be ruled out. After a few more quarters of data, a better picture of possible sources may arise.

Without a regulatory standard, the results are not easy to interpret. The EWG report compared each city's result to the then current draft proposed California Public Health Goal for hexavalent chromium of 0.06 ppb. This goal was later lowered to 0.02 ppb, but is still not finalized. A Public Health Goal is similar to EPA's Maximum Contaminant Level Goal (MCLG); it is a non-enforceable goal designed to be at a level below which there is no health risk, with a margin of safety. Enforceable drinking water standards (called Maximum Contaminant Levels) are set above the MCLGs based on a number of factors set out in the federal Safe Drinking Water Act. California does not have an enforceable drinking water standard at this time. The Public Health Goal is very conservative, and it is expected that drinking water standards to be developed by California and EPA will be much higher.

Discussions with EPA and other water systems indicate that a number of water systems will be conducting sampling over the next year, and MWRA will review its results in light of those of other systems, as well as any available regulatory or health data available at the time.

A MIGHTY WIND

At the Deer Island Treatment Plant, FloDesign Wind, a Massachusetts-based firm, is installing a demonstration unit of its innovative new wind turbine, which is modeled after a jet engine. It uses a shroud to concentrate wind and is expected to be 33% more efficient than a traditional blade turbine. This 100-kW turbine will be fully funded by FloDesign and should be completed in early 20. It should provide an annual savings in electrical costs of \$30,000.

More information on MWRA's renewable energy program can be found here: <http://www.mwra.com/publications/03-2011-ucane/ucane.html>.



MWRA Releases Progress Report, Marks 25th Anniversary

The Massachusetts Water Resources Authority recently transmitted its "Five-year Progress Report" to the Governor and the legislature. The report, required by the statute that created the agency, describes the agency's accomplishments between

1st Quarter Results of Chromium-6 and Total Chromium Sampling

● Sample	Hexavalent Chromium Estimated Results (No drinking water standard)		Total Chromium Estimated Results (EPA MCL = 100 ppb)	
	1 st Sample	Duplicate	1st Sample	Duplicate
Raw water	ND	ND	0.15	0.16
Finished at Plant	ND	0.021	0.18	0.20
Distribution Sample - 1	ND	ND	0.19	0.21
Distribution Sample - 2	0.027	0.026	0.22	0.38
Distribution Sample - 3	0.024	0.020	0.23	0.23
Distribution Sample - 4	0.021	0.023	0.22	0.18

All results are in ug/L or ppb. ND=Not Detected at 0.02 ug/L.

2005 and 2010.

The report was prepared with the assistance of a five-member, independent Citizen Advisory Panel charged with reviewing the draft report and making recommendations on what the agency should focus on over the next five years.

The report also coincides with MWRA's 25th anniversary and includes a pull-out timeline which notes key accomplishments over the course of the agency's history. You can download a copy of the report and timeline here: www.mwra.com/01news/2011/020311-5yearreport-25.html.

Visit our Web Page for More Information

Check us out at 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, & many technical reports associated with the Deer Island Treatment Plant and our extensive Harbor and Outfall Monitoring program.

Regulatory Update

By Bob Bentley, bob@h2otest.net

Reporting MDLs and RLs

As we mentioned in the last update, DEP's position (and apparently EPA's) is that the MDL is just that. DEP says that the MDL must be reported, not the RL (even if the sample has been diluted). Unfortunately, since the December meeting, no further action has been taken. ITLA is still pushing for clarification.

eDEP

As most of you know, the long awaited upgrade to the eDEP bulk upload process was implemented in late April. Although there were to be no changes to the code itself, some of us encountered issues that required re-programming on our end.

We were told again that more time is required to program for added contaminants (e.g. Enterococcus, etc) but DEP committed to the LAC that further changes requiring any re-programming would be discussed with the affected lab community prior to finalization.

We asked about the process to be followed for the submission of sub-contracted data if the lab uploads via eDEP. DEP indicated that the lab should send the hard copies of the sub-contractor's results to the appropriate region and include the transaction ID on the submission.

On volatile organics, the nine additional unregulated compounds at the end of the form are unable to be uploaded via eDEP. When asked what labs should do, we were told to report them using hard copy if any are seen.

Hexavalent Chromium

MA DEP is waiting for EPA to make a decision on how they will proceed before they set a standard for hexavalent chromium. Currently, California has a public health goal of 20 parts per trillion! It has been noted that IC/MS has a carbon interference if the sample is not digested.

Manganese

The Safe Drinking Water Act Advisory Committee (SDWAAC) had more discussions of health effects related to manganese in drinking water. It appears likely that some guidance will be issued from DEP in the foreseeable future. ITLA expressed our concern that adequate notice be given to the laboratory community, particularly since the presence of Mn in private wells is very significant. It appears that the guidance level will be 0.3 mg/L.

Lab Certification Office

At the meeting we were told that the renewal forms for all certified labs have been streamlined for this year's renewals. If you recall, ITLA has been requesting a change in the current form (particularly for C.V information). We are happy to report that they have listened. This year's form has been streamlined (as you probably have seen).

Other

The Labs were asked about their ability to provide 24 hour a day, 7 days a week, 365 days a year coverage. It seems that some labs do not provide this to their customers. The Labs in attendance at the LAC indicated emphatically that they provide this coverage to existing customers, but not to the PWS' who are short-sighted (See **Regs** on page 5)

ITLA Quarterly Meeting

Wednesday, June 15, 2011

Marlboro Courtyard
75 Fenton Street
Marlboro, MA 01752
(508) 480-0015

8:30 a.m. Coffee

9:00 a.m. Committee Reports

9:45 a.m. Break

10:00 a.m. The Evolution of Laboratory Maintenance from Service Contract to Laboratory Productivity Solutions

By Anthony Petrolonis, Agilent Tech.

The laboratory service business has evolved due to customer requirements and business demands to do more with

less. The discussion will focus on the features and benefits of the many different service models that are available in the market today. The building blocks and the technology of a successful service provider will be reviewed. The future of the lab wide service industry and specific deliverables will be presented in the form of a case study. The steps to transitioning to the most effective service model with the most common pitfalls highlighted will be presented from the viewpoint of a service provider.

10:45 a.m. Break - Drive to MWRA Marlboro

11:00 a.m. Tour of MWRA Marlboro

12:30 pm Meeting Adjourns

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enough to not have this in their contracts to start with. You should have received an e-mail requesting a response from DEP. Please respond as requested..

On this and other issues, stay tuned!!! We plan to update you at our upcoming meeting with news from the next Lab Advisory Committee meeting. If you know of other regulatory issues or have any other items we should be watching, please contact me or any member of the Executive Committee.

ITLA Award at the MA State Science & Engineering Fair

ITLA Award - MA Science and Engineering Fair
Patrick Pickering & Joe Xu of Lexington High School were awarded the ITLA Award in Environmental

Science at the recent MA Science & Engineering Fair held at MIT. Their team project, Protozoans in the Charles River, was also awarded a second prize. Additional information about the State Science Fair is available at www.massscifair.com. About \$500,000 in prizes are awarded each year. The ITLA has been sponsoring this award for several years.

