

Special points of interest:

- Tekran's User Group Meeting
- Tekran's Product Support
- New Training Course
- Spare Parts
- Tekran 2700

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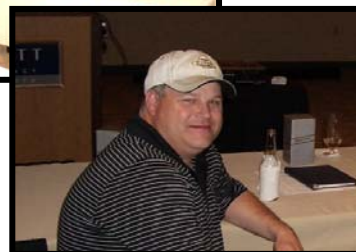
Tekran Convenes CMM Users Group

Tekran Instruments Corporation held its Continuous Mercury Monitoring (CMM) Users Group meeting in Phoenix, Arizona on February 4 and 5, 2009, following the annual Electric Utility Environmental Conference. The meeting was attended by numerous Tekran CMM customers as well as supplier partners Dekoron (CMM umbilical's), M&C (custom CMM probes), and Platt Environmental (CMM Relative Accuracy Test Audits), and QA Support (CMM Project Management and Integration Services). The meeting was kicked off by Tekran's General Manager, Karl Wilber, who summarized issues that surfaced and actions taken from last year's Users Group Meeting. He also outlined some of the ongoing and planned development efforts for the Laboratory, Ambient and CMM product lines. The presentation included new product developments such as Tekran's 2700 Methyl Mercury instrument, new circuit boards and communications platforms for Tekran's 2537B Ambient Mercury Analyzer and 2537S CMM Mercury Analyzer. He also outlined projects underway in monitoring and optimizing mercury abatement systems (e.g. Activated Carbon, Enhanced FGD systems, Electro-Oxidation, etc.). Finally, he provided a status summary of National Institute of Standards and Technology (NIST) and U.S. EPA traceability protocol for CMMs as well as Tekran's increased research, testing and validation

of CMM performance at low (i.e. 0.1 – 1.0 µg/m³) concentrations of mercury in flue gas. Jack Martin of RMB Consulting presented a status report of the EPA/EPRI/NIST program to investigate methodologies for ongoing verification of the stability and traceability of elemental mercury generators used in CMM operations.

RMB served as prime contractor on an EPRI tailored collaboration effort directed at field demonstration and validation of NIST-traceable mercury calibration systems. Mr. Martin confirmed the fact that, when EPA CAMR was promulgated in early 2005, no protocol was established to certify that a) CMMs were commissioned with traceabil-

ity to NIST standards, and b) no procedures or "systems" are in place to certify the ongoing traceability of gas generators used in regular operations of CMM systems. Discussions were held regarding the fact that Tekran's 3300 CMM technology includes elemental and ionic calibrators along with an independent resident permeation source in the 2537 analyzer. Mr. Martin presented data on the field traceability calibration procedures, and the fact that Tekran's permeation source may be used to extend calibration frequencies. (Continued on page 2)



Tekran, Timing and the Economy –

A Message from John “Hap” Fauth, Chairman, Churchill Industries



Tekran

When Churchill Industries acquired Tekran nearly four years ago, we were convinced that their technology was sound and that there would be increased interest in, and a need for monitoring mercury.

While EPA's Clean Air Mercury Rule (CAMR) is now vacated, I am even more convinced that our acquisition basis and strategy was sound. Tekran enjoys a position of technical leadership in the Analytical, Ambient and Continuous Emissions Monitoring arenas. Further, we anticipate, especially as a result of the U.S. Supreme Courts' recent decision not to hear the electric utilities appeal to use cap-and-trade programs, that EPA will move forward with the Maximum Achievable Control Technology (MACT) approach to emissions control and monitoring. As a result, there will likely be more applications for Tekran's Mercury Monitoring technologies.

Timing

Had we made our Tekran acquisition strat-

egy purely on the strength of current regulations and associated market drivers, we may not have moved forward with our plans to add this to our TSI Group. However, as we all know, *no one* can time markets or opportunities with consistency and clairvoyance. Indeed, if we could, all of us would have acted and performed differently in anticipation of the world-wide recession that we are mired in today.

The Economy

We are likely in for an extended period where the economy will be sluggish, at best, unemployment will continue to be high, and revenues and earnings of many companies will be depressed. This unfortunate trend will continue while the de-leveraging of our institutions - and our households - grinds its way out. While banks clean up their balance sheets and rid themselves of problem “investments”, it is possible that credit will remain tight, thus further impeding the recovery of the economy.

So what does this mean relative to the TSI Group and Tekran?

We completed our last fiscal year with record revenues and profits; however we do not anticipate a near-term re-

peat of that performance, especially in light of the aforementioned economic backdrop. While we are cautious under these circumstances, my experience is that there is always opportunity during these periods. Indeed, our companies are continuing to invest millions of dollars in research and development, including product improvements and new products and services development. We are also pursuing a number of acquisitions which will complement our current businesses and broaden our market solutions. We are proud to have strong banking relationships, forged over the last two decades, via the performance of our operations and commitment of our companies and their staffs.

You will be hearing more about our investments in the future of Tekran and our other companies. Know that we will be listening to your voice as we target and pursue these investments and navigate through this challenging economic environment

Tekran Convenes CMM

User's Group *(continued from page 1)*

Tekran's Chuck McDonald provided an overview of Tekran's CMM Training Programs. Tekran envisions upward of 30 training programs ranging from basic CMM operations and maintenance to advanced operations including software and diagnostic tools. (see Newsletter page 4).

Users provided with group with updates on their CMM performance and operations issues. Seventeen points were aired and memorialized in notes and action items from the meeting. Major areas included umbilical failures and solutions, updated Service Bulletins (reflecting component and subsystem maintenance and service), and CMM performance diagnostics and remedial actions.

Finally, a number of Tekran CMM users shared their perspectives on ongoing and future mercury monitoring, reporting and abatement initiatives. The consensus was, while US EPA regulations have been vacated, many states are moving forward, and mercury abatement and monitoring are here to stay.

Some Tekran Initiatives

By Karl R. Wilber, General Manager

I want to share with you some of the initiatives that Hap Fauth alluded to in his companion column in this Newsletter (page 2). I also thank him for his sensitivity to and high respect for “the voice of the customer”, and his unwavering commitment to invest in the technology and growth of Tekran.



Laboratory/Analytical Products

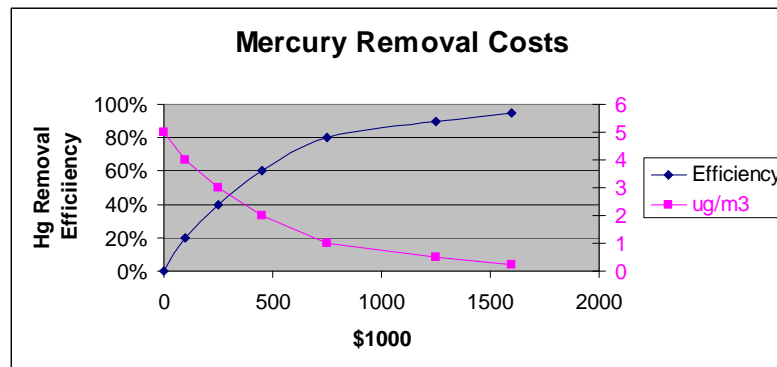
In addition to recent refinements in our 2600 Series Mercury Analytical System, Tekran has completed the development and initial testing of our new 2700 Series - **Methyl Mercury (MeHg)** Instrument. This instrument (shown here), is capable of automated analyses of trace levels of MeHg from a variety of liquid samples. Its design incorporates and advances a number of features of the more labor-intensive handling and analysis of MeHg, while substantially improving the efficiencies, repeatabilities, and accuracies of current targeted laboratory protocol.

Continuous Mercury Monitoring (CMM) - 3300 Series Technology Updates and Product Line Expansions

While the vacature of the Clean Air Mercury Rule has resulted in a stalling of the utility CMM market place, including, but not limited to the “mothballing” of some sixty (60) CMMs [Shaw Engineering – EUJEC 2009], it has provided Tekran with an opportunity to identify and develop additional solutions for this, and allied, markets. Highlights of some of these initiatives are provided below.

NIST Traceability – No CMM Systems currently installed (and there are over 600 on coal-fired power plants alone) are truly traceable to the National Institute of Standards and Technology. Tekran is working closely with EPA, NIST, EPRI and others to finalize standards for initial and ongoing traceability protocol. Our CMMs uniquely provide the ability for ongoing traceability and system drift, to be verified via independent and traceable mercury sources, already resident in your Tekran CMM.

Abatement System Performance and Optimization- Tekran is working with utility and abatement system suppliers to use Tekran technology and software to monitor and optimize abatement system performance, while certifying that the ultimate targets for mercury emissions are met.



Low-Level Measurements Research and Verification – Accurate and defensible measurements of low-level (i.e. < 1.0 $\mu\text{g}/\text{m}^3$) mercury will increase in importance as utilities push the limits of their mercury abatement technologies. If MACT-type regulations ultimately prevail, it is possible that reductions in mercury of up to 95 percent may be required, leading to many sources with emissions in range of 0.1-0.5 $\mu\text{g}/\text{m}^3$! Tekran is working with two outside concerns to test, validate and improve our understandings regarding this measurement challenge.

Tekran's New 3305 System Controller

Tekran 3305 System Controller

Tekran has developed and installed our new 3305 CMM system controller. The 3305 is designed to replace the current Dell-based controller. It incorporates all the functionality of the previous controller with enhanced features like battery back-up and extended data storage. It also incorporates an 8-inch touch screen for ease of operation. The keyboard and mouse are included to facilitate navigation.

The 3305's enhanced memory capacity, along with an internal battery back-up, helps insure

data availability under all operating conditions. It is also easily installed in your existing CMM rack.

Tekran has developed a new software version, 1.02, which can be included with a 3305 upgrade. This package includes a provision for on-going calibrator certifications using recently developed NIST/EPA protocol. Among other capabilities, the software can compare 2537-based perm-source concentrations with resident 3310 elemental Hg concentrations, helping to determine re-



certification intervals.

Our new 3305 system controller with software version 1.02 further has numerous maintenance reports available. All new system orders include the 3305 as standard equipment.

Contact Mark Calloway at Tekran for more information on all new CMM system orders.

The leader in Mercury Monitoring Services

Tekran's Product Support

Tekran offers several CMMs service support programs. From the Premier maintenance package to custom offerings. Tekran has increased the service staff to Ten technicians. Jon Cooper is the Service manager and Brandon LaRoque Service Expediter. Tekran offers the highest quality support in Mercury monitoring.

The Tekran Service Center in Knoxville Tennessee offers complete in-house repairs with

3300 CMM component exchange programs.

Remote diagnostics are a key component to keep your system running smoothly. VPN connectivity helps the Tekran staff diagnose most 3300 CMM problems. Tekran has a dedicated staff just for VPN diagnostic services.

Remote Relative Accuracy Test Audit (RATA) support and on-site RATA preparation are available.

Fast mobilization with a highly qualified staff insures high monitor availability.

Technical phone support available during normal business hours. After-hours support also available. Contact Brandon at 865/246-4413 for all service support inquiries.

Contact Mark Calloway for a quote on any of the service programs.

Training Corner



Chuck McDonald

Tekran is now offering additional training to supplement its popular Operator's Training Class.

Our first Advanced Software Training Class will be offered in May, in Knoxville, and is currently sold out. This offering is available both in the field and in Knoxville with a three-student minimum. Each student will need their own laptop com-

puter and will receive up-to-date simulators, software functional descriptions, and practice exercises under the direction of a qualified instructor. Operator's training will be a prerequisite for this two-day presentation.

Other training presentations covering hands on idle system maintenance and top 10 maintenance procedures are also

being offered later this year. These classes are available in the field or in the Tekran factory in Knoxville, Tennessee. Operator training is a recommended prerequisite.

For more information on Tekran's training classes, contact sales@tekran.com.

Tekran Participates at Pittcon 2009

Tekran returned to Pittcon exposition in early March which was held this year in Chicago at the McCormick Place Convention Center.

Our big news this year was our unveiling of the Tekran 2700 automated Methyl Mercury analyzer. The instruments capabilities and general functionality were presented in a well-attended new product forum by Philip Kilner (pictured on the left) one of Tekran's Instrument Application Scientists.

We enjoyed meeting with customers who stopped by our booth and look forward to seeing you next year in Orlando!

More details about the Tekran 2700 automated Methyl Mercury analyzer can be found on page 7 of this newsletter.



Phil Kilner and Lucas Hawkins

Spare Parts Service

Tekran realizes that system down time can be extremely costly to our customers. This is why we continue to grow our dedicated CMMS parts inventory located in Knoxville. Currently our large inventory allows us to ship a majority of all orders within 24 hours of receiving a purchase order, with an after hours shipping option for most emergency orders.

All spare parts should arrive on

your dock with a Tekran label which includes our logo, part # and a brief description of the part; we believe this should help in the receiving process. As we move forward we will continue to look for ways in which we can better serve our customers.

If you would like to receive an updated price list or need to place a spare parts order please contact Laurie Taylor or Rick Smith at 865-688-0688 or

you can email us at sales@tekran.com.



Rick Smith

**The leader
in Mercury
Monitoring
Parts
Service**

Employee Corner: Brandon LaRoque

Brandon LaRoque has worked with the Knoxville team of Tekran Instruments for just over a year. His main duties revolve around our field service department and is the assistant to Service Manager Jon Cooper. Brandon handles the scheduling and attends to all of our service customers' needs at Tekran Instruments.

Brandon came to Tekran from the motorcycle industry as he was previously a Service Manager at Knoxville Harley-

Davidson. He attended the University of Montana as well as the University of Tennessee. Brandon studied plant biology with a focus on organic lab sciences.

Brandon was born just outside of Chicago in Oak Park, Illinois, in 1978 to Dennis and Myra LaRoque. Brandon grew up closely connected to the art world due to his father graduating from the Art Institute of Chicago in the early seventies. Both parents live in Nashville,

TN. They own and operate a small antique shop that deals with old English and Americana antiques.

You can still find Brandon today rummaging through local yard sales and auctions trying to find the next hidden Picasso. He prides himself on having a broad background. Feel free to give Brandon a call and see where the conversation takes you!



Brandon LaRoque

Tekran Playing Key Role in Upcoming 9th International Conference on Mercury as A Global Pollutant (ICMGP) Guiyang, China - June 7 – 12, 2009

Tekran Instruments Corporation is playing a key role in the upcoming ICMGP planned for Guiyang, in the Province of Guizhou, China this June. ICMGP has developed over the last 20 years into the preeminent international conference for presentation and discussion of scientific advances associated with mercury pollution. This 9th biannual convocation will address all aspects of mercury biogeochemistry, including specific aspects of mercury generation, transport, measurement, modeling, health effects, etc.



As a company whose primary focus is mercury measurement and analysis, and a key player in this field since the early 1990's, Tekran has been solicited to serve in a number of important roles at this conference. Beyond organizational activities and four(4) planned technical papers presentations, Tekran, a conference Platinum Sponsor, will conduct a pre-conference mercury measurement workshop to enhance the opportunity for attending scientists to advance their knowledge about analytical mercury chemistry. While the workshop will include Tekran measurement instruments and advancements in measurements, it will be science-based and will include an overview of the current science, measurement challenges and applied research and monitoring examples from the peer-reviewed literature. The workshop presenters will include both Tekran scientists and internationally-recognized researchers.

PRELIMINARY AGENDA

SESSION I

Aquatic mercury chemistry overview
(invited speaker)
Analysis of total mercury in multiple matrices using automated CVAFS methods
EPA Method 1631 and EPA Method 245.7 theory and practice
Sample digestion and clean techniques
Data and quality assurance
Measuring mercury in natural gas
Analysis of methyl mercury in water using automated CVAFS
EPA Draft Method 1630 theory and practice
Distillation techniques and experience
Direct ethylation methodology
New discoveries from aquatic mercury research (invited speaker)

SESSION II

Atmospheric mercury chemistry overview (Invited Speaker)
Monitoring atmospheric mercury speciation
Principle of the automated continuous CVAFS method
Calibration and quality assurance
Successful instrument operation and maintenance
Summary of the North American Atmospheric Speciation Network Initiative
Standard operating procedures – scientific consensus
Automated data reporting and quality assurance
New discoveries from atmospheric mercury research (Invited Speaker)

SESSION III

Point-source mercury emission monitoring history (Invited Speaker)
Challenges of mercury measurement in coal flue gas
Principle of the CVAFS-based continuous emission monitor (CEM)
Key design, operations and maintenance considerations
Abatement technologies and the importance of low-level measurements
CEM Relative Accuracy test audits (RATA) methods and results
Traceability and Calibration Protocol for Mercury CEMs
Challenges of installation and operation of mercury CEMs for coal-fired power plants (Industry Representative)

Tekran 2700 Methyl Mercury Analysis System

Tekran is introducing the new **Tekran 2700 Methyl Mercury Auto-Analysis System**. The 2700 has been designed to give analytical laboratories and researchers an alternative to the time consuming and complex manual analysis method (**EPA 1630**). The **Tekran 2700** accomplishes this in a fully integrated, self contained compact unit (**MDL=0.002 ng/L**), operated via state of the art software.

Tekran 2700 Auto-Analyzer Features

- Highly sensitive , ultra-stable CVAFS Hg detector
- MDL of 0.002ng/L
- Built-in GC oven
 - ◊ Either isothermal or temp. programmed
 - ◊ Able to run with both capillary and packed GC columns
- Small foot print (51cm X 35cm X 52cm, L:W:H)
- IR trap heating and active cooling
- Utilizes Tenax OR Carbo traps
- Able to analyze either distilled or non-distilled samples
 - ◊ Distilled EPA 1630, or directly ethylated waters
 - ◊ Sediments and biota samples via distillation or extraction
- Autosampler with recirculating wash station
- Syringe drive for precise volumetric injection
- Liquid detector shuts down system in case of malfunction
- Heated valve manifold prevents potential losses
- Capable of interfacing to ICP/MS to yield isotopic ratios for methyl mercury
- Free lifetime technical support (telephone and e-mail)



Tekran 2700 Software features

- Based on Model 2600 (Total Hg) Tek-MDS-2
- Full GC data system capabilities
- Developed "in-house" and fully supported
- Comes complete with EPA standard method
- Easily customized analytical sequences
- Automated trouble flushing and shooting sequences
- Fully programmable analysis cycle parameters to tailor system for any special application

Tekran provides product and service updates about the mercury measurement industry and how it applies to your organization. To receive future issues, email us at info@tekran.com.