



THE INSTITUTE REVIEW

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Fall 2024

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THE INSTITUTE REVIEW

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It's Time to Reserve Your Spot at the Forum

By Stacie Crandall, TNI

We are pleased to invite you to the Forum on Environmental Accreditation, the principal conference for addressing policy and technical issues affecting the accreditation of environmental laboratories and other organizations involved in generating environmental data. The Forum will be held in **Jacksonville, FL from February 3-6, 2025.**



The Forum will feature open public meetings of The NELAC Institute (TNI) committees to allow quality professionals, chemists, analysts, microbiologists, engineers, and managers from federal and state agencies; commercial, municipal, state and federal laboratories; and many others who are actively involved and interested in laboratory accreditation issues to review what has been done and participate in the efforts to establish a national program for environmental accreditation.

[Click to Register](#)

The 2025 Forum will include:

- Training courses on Ensuring Reliable Data and Improving Internal Auditing Skills,
- Meetings of TNI committees,
- A mentor session,
- An assessment forum,
- A general session with updates about TNI programs, including an annual report and a special session on analytical disciplines, and
- A special workshop on the new Credential initiative on how to become a Certified Quality Management System Professional.

The Forum offers you an opportunity to participate in these sessions; to exchange ideas, findings, and recommendations; and to further TNI's efforts towards national accreditation.

All sessions and TNI meetings are open to all attendees according to your registration.

- Attendees have the ability to attend any session the week of February 3 in person and view recordings of any session you missed from February 10 to March 30, 2025.
- For those that do not plan to come to Jacksonville, you have the ability to view recordings of any session from February 10 to March 30, 2025.
- Registration is by full conference, which includes all events, or daily for the In-Person portion of the conference.
- For recordings-only registration, you may choose to register for the full conference or for selected days.
- The two training courses on February 6 are available In-Person only and do not have a recordings option. You may choose to only register for and attend a training course or add it on to your existing Forum registration.

For more information, visit the [conference website](#).

We look forward to seeing you in Jacksonville!

Things to Do and See In and Around Jacksonville

By Steve Arms, Florida DOH retired

Originally named Cowford and once known as the “Bold New City of the South,” Jacksonville, Florida is nestled on the banks of the mighty St. Johns River in the northeast corner of the Sunshine State, the state known for its beautiful “sugar-sand” beaches, palm trees, diverse cultures and, well yes, Disney World. Jacksonville’s claim to fame (or infamy?) in recent years seems to be the fact that it is home to the NFL’s Jaguars. But we who live here know that there is so much more to what I like to think of as our big little city.

Jacksonville is the heart of the “First Coast,” a designation given because tourists and snowbirds reach this region of Florida first when traveling south along the Atlantic seaboard. It’s also because the area is the location of St. Augustine, the first permanent and continually occupied European settlement in the United States. I like to think that it is also because Jacksonville is home to one of the very first state agencies to be recognized as a NELAP Accreditation Body, the Florida Department of Health’s Environmental Laboratory Certification Program. But maybe I’m a little biased.

When people come to Jacksonville, as many of you will this winter, they always ask, “What’s there to do?” Well plenty, especially if you love history, the beautiful outdoors, and if you don’t mind a short drive within the Greater Jacksonville area.

Travel less than an hour north and one finds four (4) state parks. [Amelia Island](#), [Big Talbot Island](#), and [Little Talbot Island](#) offer expansive pristine beaches, camping, hiking, fishing, and even horseback rides on the beach. [Fort Clinch State Park](#) contains one of the best-preserved 19th century forts in the country. Here you can enjoy living history programs as well as numerous outdoor activities. The fort is located in Fernandina Beach, which is one of the few remaining places visitors can experience “Old Florida.” The bustling historic district is listed in





the [National Register of Historic Places](#), and there you can shop, dine, or just stroll the streets and be carried away to another century.

Go the same distance to the south and you come to [St. Augustine](#). I'm a Jacksonville native, but I never tire of visiting this little town so full of our rich history. St. Augustine was founded in 1565, 42 years before the English colonized Jamestown and 55 years before the Pilgrims landed at Plymouth Rock. Throughout the Historic Colonial District, as well as the modern city, are 76 buildings that are either colonial in origin or reconstructed models of colonial buildings. Just taking in the environment of the narrow streets among the Spanish architecture will send you to centuries past. There are also many opportunities for guided tours, and no visit would be complete without a stop at the [Castillo de San Marcos](#), a U.S. National Monument. Never captured in battle, the old fort still stands as if to protect the city and is a testament to the area's Spanish heritage.

Back in Florida's most populous city and the largest city by area in the contiguous U.S., there's still much to do right here at home. The [Jacksonville Zoo and Gardens](#) has been in existence for over 100 years and is among the best zoos in the nation. On the northern reach of the city is the [Timucuan Ecological and Historical Preserve](#), which includes Kingsley Plantation and Fort Caroline. Kingsley lets one imagine what life was like during Florida's plantation period (1763-1865). Fort Caroline memorializes the short-lived French presence in sixteenth century Florida. Here you will find stories of exploration, survival, religious disputes, territorial battles, and first contact between American Indians and Europeans. And just across the river are the Museum of Science and History and Friendship Fountain and Park. Hop a river taxi to the park for a wonderful view of downtown Jacksonville and access to the Southbank Riverwalk. In addition, the Jacksonville Maritime Museum is located on the Riverwalk, adjacent to the northeast corner of the park. Or take a brisk morning walk across the Main Street Bridge (that's the blue one!).

Of course there is so much more than can be contained in one newsletter article, from history and the outdoors to culture and the arts. To the west and south are a multitude of natural springs, with 33 of them discharging more than 64 million gallons per day. Down the coast are Daytona Beach and the Kennedy Space Center. And of course, less than 3 hours away is Disney World.

So whether you come to Jacksonville for a week-long TNI meeting or stay for a lifetime, you'll never run out of things to do. Hope to see you in my hometown this coming February!

Nominations for 2025 Board of Directors

By Sharon Mertens, MMSD

The election for new Directors will begin soon and nominations for individuals to serve a three-year term on the TNI Board of Directors are now being accepted. TNI members may self-nominate or nominate another individual. There are up to six (6) open positions for 2025.

TNI is governed by an elected Board, including five officers. Directors are responsible for decisions regarding TNI's goals, objectives, and allocation of resources. By law, Directors are obligated to:

- 1) act only in the best interests of TNI and to avoid conflicts of interest;
- 2) act honestly, in good faith, and on an informed basis when making decisions; and
- 3) pursue the objectives of TNI's mission. TNI holds in high regard Directors who accept these obligations to serve as stewards of the organization.

Having a strong Board of Directors is vital to the strength and future of our organization. Our Board is balanced and has representation from all recognized stakeholder groups.

TNI's Board culture is characterized by full and open participation by all Directors. We believe that this approach maximizes group energy to address major issues facing our profession and organization. We rely upon diverse perspectives to reach well-informed decisions that further our mission. Our Board exercises strategic leadership through its focus on policy, direction, and strategy.

Qualifications for Directors

The Nominating Committee seeks candidates for the TNI Board of Directors who **demonstrate strong leadership, commitment, and contributions** to the field of environmental laboratory accreditation. We need candidates who have a broad knowledge and awareness of issues facing TNI and are willing to uphold TNI's mission, goals, priorities, and Code of Ethical Conduct.

Directors must **demonstrate a commitment** to TNI's priority to be a highly functioning organization that is continually enriched by its commitment to balance and inclusion, and must possess strong interpersonal skills with the ability to objectively consider various perspectives to guide major policy decisions.

In addition, Directors need to be able to make the **necessary commitment of time and other resources** to serve effectively as a Director and to serve as an effective ambassador for TNI and its principles.

Finally, a Director must be a current member of TNI.

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Nominations for 2025 Board of Directors cont.



These qualifications are designed to ensure that elected Directors are prepared to fulfill their designated responsibilities, including

- exercising fiduciary responsibilities and stewardship with regard to TNI's goals, policies, and allocation of resources;
- contributing to a policy governance model that provides leadership for TNI with a focus on mission; and
- identifying and cultivating future leaders.

Time commitments of Board service

- Directors are elected for a term of three (3) years and are renewable. The Board meets by teleconference monthly and in face-to-face meetings as necessary.
- Directors receive detailed agenda materials for study prior to each meeting. From time to time, Directors may also volunteer or be asked to serve on committees that may conduct business by email, conference call, or additional meetings.

If you are interested in serving on the Board, please complete the [TNI Board Nomination Form](#).

Special Note regarding Federal officials: Federal laws prohibit individuals that work for the Federal government from serving on a Board of a non-profit organization in a fiduciary capacity. This law has been interpreted differently by various Federal agencies, but for the sake of consistency, TNI has decided that any Federal official that wishes to serve on the TNI Board can only do so in an Ex-Officio role. Currently, three Ex-Officio Directors, representing the Department of Energy, Department of Defense, and Environmental Protection Agency, serve on the TNI Board. If you are a Federal official and would like to serve on the TNI Board, please contact Sharon Mertens, the chair of the Nominating Committee, at SMertens@mmsd.com.

2025 Election Timeline

- November 18, 2024 – January 3, 2025 – Nominations accepted
- January 6-10, 2024 – Nomination Committee will review the nominations and prepare a slate of candidates
- January 13 – Voting opens with the announcement of the slate of candidates on the TNI website
- February 14 – Voting closes
- March 12 – Newly elected Directors assume office

Finally, all TNI members have the opportunity and responsibility to vote to select the TNI Board of Directors. The process is through our website and is easy and quick. Our membership is not large, so each and every member's vote can make a difference.

Highlights from TNI's 2024 Summer Meeting

By Jerry Parr, TNI

The 2024 Environmental Measurement Symposium was held August 5-9 in Orange County, CA. As part of the Symposium, TNI had ten (10) sessions as summarized below. The presentations from these sessions will be made available in mid November at: <https://envirosymposium.group/>.

The **Chemistry** committee was focused on revisions to Module 4. Currently, the committee has reviewed the module and accompanying recommendations through Section 5.4.1, MDL determination. The MDL section of the module was the first of the critical sections of the module that necessitated review and modification. The other critical sections yet to be fully addressed are Demonstration of Capabilities and Calibration. In presenting the committee's recommendations, Michelle pointed out that changes reflect the application of the EPA MDL procedure unless methods require an alternative. The current draft language specifically states the EPA procedure dated September 27, 2017 must be used. Michelle then moved on to the section on LOQ. She stated that changes were proposed to accommodate the EPA MDL procedure, but that other proposed changes were minor.

The remainder of the session was devoted to discussion of Demonstration of Capabilities (DOC). Specifically, Sections 6.0, 6.1 (Initial DOC), and 6.2 (On-Going DOC) were reviewed and offered for comments. Attendees were of the opinion that the DOC language should not be abandoned but modification and/or a different approach could be beneficial. The potential use of single blind samples, CRM, or other form of quality control samples should be an alternative to LCS currently required in the standard. After continuing discussion of both initial and on-going DOC, another suggestion was to delete the requirements for on-going DOC while adding additional flexibility in the determination of the initial DOC. One final approach to DOC in EL V1M4 that was presented was to basically redevelop the section by simplifying it, consistent with the approach used in ISO 17025, present minimum requirements and provide a Guidance Document recommending a "how to perform" the DOC. This approach seemed to find support with meeting attendees, particularly as EL V1M4 is not intended to be a "how to", which Sections 6.1 and 6.2 appear to be.

The **Laboratory Accreditation Body** session was well attended. Aaren presented the changes already agreed upon within committee discussions. She then discussed the more complex comments that still remain to be addressed, such as which party can deliver assessment reports, how to ensure that the AB has authority over third party assessors (i.e., contractual arrangements per the ISO language and the qualifications of contract assessors employed by a non-governmental AB), and how to ensure that assessments of preparatory methods are documented with the information available in records retained by the AB.

The **Microbiology** committee shared its current work on Module 5 with the audience. Cody pointed out the key changes that have been made thus far, including the logic behind the changes. Audience feedback was very positive. The Committee has been working closely with the Quality Management Systems Chair to share ideas/suggestions on requirements in each Module (for example, including Lot Number in the list of items to be maintained, expiration of media/reagents). The committee is nearing completion of its review, having taken a review of the draft in total looking for consistency issues and redundancies. The Committee will suggest to the other Technical Modules that Section 4.0 be added to each, titled Technical Specialist. This would be where each Technical Module would include its requirements over and above those found in Module 2.



The **Proficiency Testing Program Executive Committee** meeting included a review of recent accomplishments, subcommittee reports, Proficiency Testing Provider Accreditor (PTPA) Annual Reports, and future goal planning. The addition of three (3) new voting members, Susan Jackson assuming the role of Committee Chair with Stacie Crandall beginning to transition into the role of Program Administrator has been an accomplishment to ensure continuity of committee business. The committee responded to three complaints on the Radiochemistry FoPTs, with no further action required. 29 PFAS compounds were added to the Drinking Water FoPT Table, and a 45-day comment period was conducted to gather input from a broad audience of interested parties. Comments were incorporated and responses sent. Updates to the initial draft included changing acceptance criteria to 70-130% for the six newly regulated compounds and updating nomenclature to match EPA methods. LAMS was also updated to ensure consistency. The updated Drinking Water FoPT Table is posted on the TNI website with an effective date of January 1, 2025.

The Chemistry FoPT subcommittee is beginning the 10-year review process of all Drinking Water FoPTs, pending receipt of all PT Provider data uploads. The Whole Effluent Toxicity (WET) Testing FoPT Subcommittee continues to evaluate data to make changes to the FoPT table to improve applicability of WET PTs. The SOP Subcommittee will begin SOP updates as needed with Amanda Fehr as the new chair. Both PTPAs gave annual reports that included a summary of failure rates and other program performance indicators showing the PT Program remains stable. Future goals include continued review of FoPTs, looking for opportunities to work with non-TNI states, completion of PTPA evaluations, working with the Radiochemistry Expert committee to determine how to handle reporting of uncertainty for PT results, completion of any internal audit items and participate with the technology Workgroup as needed. Long term goals include exploring the feasibility of technology-based PTs and incorporation of preparation methods into the PT Program.

The **Quality Management System Committee** meeting included highlights of changes to Volume 1 Module 2 and updates to Technical Specialist responsibilities and qualifications. Draft language on both topics were provided, and numerous comments from the audience were collected.

The **Assessment Forum** focused on looking beyond the checklist for internal audits and management review to ensure that each item has been evaluated beyond a simple “yes” or “no”, where necessary. Mitzi Miller presented on the proper use of checklists to prevent deficiencies rather than relying on the completeness of the yes/no boxes as an indicator of a successful audit. She then described how to use the checklist to ensure that you are seeing more than just the obvious on the surface and when to go at least one step further.

Jeanne Mensingh presented on understanding digital/electronic records and how to audit the data capture/reporting process and related records to ensure that the data represents the security, detail, and traceability necessary to maintain data integrity and completely reconstruct the analysis. In addition, files that require manual entry, related worksheets, and other types of records will be addressed. Following the presentations, an interactive review of checklist items with audience participation occurred.

The **Mentor Session** focused on the corrective actions after internal audits. While checklists can be good tools, they rarely include all the information and considerations required to develop effective corrective actions. Mitzi Miller described how to effectively and correctly determine the root cause and potential corrective action(s) for a deficiency, the lab management must have a clear and complete understanding of the deficiency. Stephanie



Rippeon stated that an essential part of developing a corrective action plan is to identify the root cause(s) of the deficiency. Once laboratory management has a clear and complete understanding of the deficiency, they must “sus out” its origin to develop an effective corrective action that to resolve the issue. Approaches and methods for performing effective Root Cause Analysis were also described.

The **Field Sampling and Measurement** session focused on future efforts related to the accreditation of Field Sampling and Measurement Organizations (FSMOs).

- Brief Review of Changes to FSMO NEFAP Volume 1 and 2 Standards,
- FAC Review of Ideas for Guidance Tools,
- 2024 and 2025 Sampling Conclaves,
- Future Sampling Workshops, and
- Feedback on Additional Needed Guidance

A TNI **General Session** featured updates from the following committees:

- Advocacy
- NELAP Accreditation Council
- LASEC
- Credentials
- Training

In addition, Jerry Parr presented a future vision for NELAP, and William Daystrom provided a live demonstration of the new software for Credentials and Training that was well received.

Friday was dedicated to a special session focused on **California Laboratories** and their efforts to implement the TNI Standard and was organized into three segments:

1. The Evolving Compliance Landscape in the California Laboratory Community,
2. Harnessing the Power of the TNI Standard, and
3. Determining What is Really Important in Laboratory Assessments

Environmental Measurement Symposium 2024

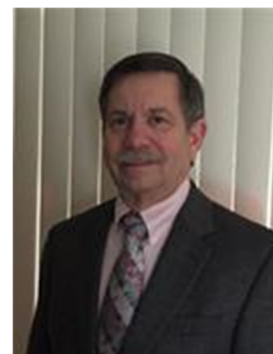
“Reliable Data for Sound Decision Making”

By Lara Phelps, US EPA

The 2024 Environmental Measurement Symposium was held in Garden Grove, CA from August 5-9, 2024. For the twentieth (20th) year, the Symposium consisted of a combined meeting of the 40th annual National Environmental Monitoring Conference (NEMC) and The NELAC Institute’s (TNI) Forum on Environmental Accreditation. A total of 629 individuals attended the 2024 Symposium, a new record.

2024 Charlie W. Carter Award

One major highlight from the 2024 Symposium was the announcement that David Friedman received the 2024 Charlie W. Carter Award.



David began his federal career at the Food and Drug Administration identifying chemicals entering the food chain as a result of their industrial usage, and then moved to the EPA to help develop the hazardous waste regulatory program. In that position, he directed the development of hazardous waste characteristic standards and testing methods, EPA's testing manual “Test Methods for the Identification of Hazardous Waste” (SW-846); created the annual National Environmental Monitoring Conference (NEMC); and served as its chair for twenty (20) years. After moving to the Office of Research and Development, he served as Senior Advisor on Monitoring to the EPA Science Advisor. As a means of improving Agency monitoring policies and procedures, he helped establish the Agency’s Forum on Environmental Measurements (FEM) and the Environmental Laboratory Advisory Board (ELAB), which ended in 2019 due to elimination of Federal funding. Consequently, David helped establish the Environmental Monitoring Coalition (EMC) which serves the industry in a similar capacity to ELAB, addressing issues of concern and fostering communication and collaboration. Since retiring David has been serving as Technical Advisor to the ACIL Environmental Sciences Section. Dr. Friedman's extensive and impactful contributions have left an indelible mark on the field of environmental monitoring. His visionary leadership, technical expertise, continued dedication, and commitment to excellence make him an exceptional awardee of the Charlie Carter Award. Dr. Friedman's profound and lasting contributions to environmental monitoring, serve as not only a tribute to his professional excellence, but also a celebration of his enduring legacy in the field of environmental monitoring.

NEMC Breakout Sessions

The 2024 Symposium featured nineteen (19) NEMC technical breakout sessions with 91 oral and 39 poster presentations as summarized in the table below. These presentations will be available for download at the [Symposium website](#) in mid November.

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Environmental Measurement Symposium 2024 “Reliable Data for Sound Decision Making” cont.



Breakout Sections	Oral	Poster
Air Monitoring, Methods, and Technology	5	2
Analyzing Microplastics in the Environment	7	1
Automation and Innovation for Sample Preparation	7	5
Collaborative Efforts to Improve Environmental Monitoring	6	1
Crafting Consensus Methods	3	
Drinking Water	3	4
Emerging Environmental Applications for High Resolution Mass Spectrometry	5	3
Ensuring Reliable Data	5	1
Environmental Forensics	4	
Innovative Solutions for Water Testing	4	
Laboratory Informatics	5	
Metals Analysis	4	3
New Organic Monitoring Techniques		4
Optimizing Laboratory Operations	6	2
Participatory Science	5	2
Polyfluoroalkyl Substances (PFAS) in the Environment	16	11
The Role of Artificial Intelligence in Environmental Analyses	6	

The 2024 Symposium also featured two (2) keynote presentations and one (1) general session with four (4) presentations on the conference theme as summarized below.

Keynote Presentations

The Role of Artificial Intelligence in Environmental Testing
Augustin Pierri, Weck Laboratories

We All Need You! The Importance of Laboratory Data to Protect Public Health and the Environment
Sean Maguire, California State Water Resources Control Board

Plenary Presentations

Current Trends in Environmental Programs for Environmental Decision Making
Godfrey Uzochukwu, North Carolina A&T University

Leading in Sound Evidence-Driven Decision Making: Inspiring Stories from the Field!
Brighton Musevenzo, Evidence 4 Impact 360

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Environmental Measurement Symposium 2024 “Reliable Data for Sound Decision Making” cont.



Monitoring for Management: A Modular, Ecosystem Function-based Assessment Framework for Estuaries
Christine Whitcraft, California State University, Long Beach

Ensuring Reliable Data Across All EPA Programs
Judith Morgan, Pace Analytical Services

Other Events

The TNI portion of the Symposium consisted of an Assessment Forum, a Mentor Session, and TNI committee meetings as summarized in another article of the issue of *The Institute Review*. As in previous years, the 2024 Symposium had an exhibit program with sixty-three (63) exhibitors and an innovative new technology showcase with twelve (12) organizations participating. The Environmental Monitoring Coalition held an open forum to solicit feedback from attendees.

Summary of the EPA Session at the 2024 Environmental Measurement Symposium

By Jerry Parr, TNI

The 2024 Environmental Measurement Symposium was held August 5-9 in Orange County, CA. As part of the Symposium, EPA provided updates to the wastewater, drinking water, and hazardous waste programs. Perhaps the most significant news was an announcement to phase out Aroclors as analytes for NPDES permits, replacing them with PCB congeners over a 5-year period. Note: These summaries do not contain everything presented; the full presentations will be available for download in mid November at the [Environmental Symposium website](#).

Update on Clean Water Act Activities - Adrian Hanley

Adrian spent most of the presentation focusing on the Method Update Rule (MUR) expected later this fall or early next year which would promulgate Method 1633 for PFAS and remove Aroclors as analytes in the Clean Water Act program.

Method Development Activities Underway

- *E. coli* and enterococci by droplet digital PCR in ambient water.
- Revision Gross Alpha Beta Method 900.0.
- Method 1634 for 6-PPDQ.

Future Method Update Rules (MUR)

- Plan to propose and finalize MURs more frequently. A “Routine MUR” every 1-3 years.
- Routine MURs will contain non-controversial items.
- ATPs, minor editorial updates, and revisions to methods (EPA, VCSBs, etc.).
- “Full MURs” will contain items that are likely to illicit more comments (i.e., new methods) and be proposed separately and less frequently.

EPA will be proposing a Full MUR in the near future

- This rulemaking will propose new parameters and methods as well as the withdrawal of parameters and methods.
- The timing on the MUR is uncertain.
- Awaiting response from the Office of Management and Budget.
- Either this year or early to mid next year.

2024/2025 MUR

Method 1633 - 40 PFAS compounds

- Final EPA Method 1633 and the Multi-Laboratory Validation Study Report posted on the CWA analytical methods website on January 31, 2024. (<https://www.epa.gov/cwa-methods/cwa-analytical-methods-and-polyfluorinated-alkyl-substances-pfas>)



- Validation included ten (10) participant laboratories, referee laboratory, data validators, and statisticians.
- Tested eight (8) environmental matrices: wastewater, surface water, groundwater, landfill leachate, soils, sediments, biosolids, and fish tissue. Minor edits and corrections will be included in the version that is proposed.

Method 1621 – Adsorbable Organic Fluorine

- Thousands of PFAS chemicals exist in the environment.
- Naturally occurring organofluorines are very rare.
- Most organic fluorine is man made.
- EPA Method 1621 yields a single part-per-billion aggregate concentration of all organofluorine compounds in a sample.
- Final EPA Method 1621 and the Multi-Laboratory Validation Study Report posted on the CWA analytical methods website January 2024. (<https://www.epa.gov/cwa-methods/cwa-analytical-methods-and-polyfluorinated-alkyl-substances-pfas>)

EPA Method 1628 PCB Congeners

- Measures all of the 209 distinct PCB chemicals (congeners).
- EPA Method 1628 finalized and posted on the CWA analytical methods website July 2021. (<https://www.epa.gov/cwa-methods/pcb-congeners-low-resolution-gc-ms-method-1628-not-yet-approved>)
- EPA Method 1628 uses widely available affordable equipment.
- Low-resolution gas chromatograph mass spectrometer.
- Quantifies using Carbon-13 isotope dilution standards.

Withdraw the seven Aroclors (commercial PCB mixtures) from Part 136 Table IC

- Aroclor methods are prone to false non-detects and are a poor surrogate for analyzing PCB contamination.
- Replace these parameters with EPA Method 1628 which measures all the PCBs congeners.
- If the rule is finalized, it will initiate a ~5-year phase out of Aroclor analysis from NPDES permits.
- Aroclors are not specifically mentioned in any effluent guideline, but they are on the Priority Pollutant List.
- Steam Electric effluent guideline states: “There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.”
- Water quality criteria use “PCBs.”

Withdrawing old colorimetric methods for individual metals that have long been supplanted by newer techniques

- TNI has no accredited labs for these methods.
- Several more reliable methods are currently approved.



Withdraw Oil and Grease Method 1664A

- Method 1664, Revision B, was approved by EPA in an earlier 2012 rulemaking, 77 FR 29758
- The 2012 rule strongly recommended laboratories and permits replace Method 1664, Revision A with Method 1664, Revision B
- The 2012 rule said EPA may revisit withdrawing Method 1664, Revision A in a future rulemaking
- Laboratories and regulatory entities have had more than 12 years to make this adjustment

PFAS measured using ASTM Method D8421

- ASTM submitted a multi-lab validation (MLV) Report, method, and full data packages supporting the validation of ASTM D8421.
- Same forty (40) analytes as EPA Method 1633, with a few additions.
- Only applies to aqueous samples.
- Less sensitive than EPA Method 1633.
- Uses a small sample size (5 mL), EAD recommends including a small sample sampling guidance.

Peracetic acid and hydrogen peroxide measured using Standard Methods (SM) 4500-PAA and 4500-H2O2

- Peracetic acid is a green substitute for chlorine disinfection.
- Methods: Chemical reaction followed by photometric analysis.
- Similar to the most common residual chlorine field analysis.
- EPA reviewed the study plan and study report in 2019 and considers the results valid and supportive of adopting the method.

Acrolein and Acrylonitrile

- The Environmental Monitoring Coalition provided data showing acrolein and acrylonitrile can be collected in the same bottle and preserved at the same pH as the other volatile organic compounds (VOCs).
- Revised sampling requirement in 136.3 Table II by removing the separate preservation requirement.

Differences between a draft method, final method, promulgated/approved method?

- Draft Method: Not done yet, usually published after it has been single-laboratory validated – essentially guidance.
- Final Method: Two (2) categories.
 - ◇ Most common: A method that has undergone multi-lab validation and is complete.
 - ◇ Less common: A single-lab validated method, which EPA has no plans for a multi-lab validation study, or to propose for rulemaking (e.g., Method 1699).
- Approved/Promulgated Method: A method that been approved at 40 CFR Part 136 through rulemaking for use in NPDES permits.



Safe Drinking Water Act Program Update– Dan Hautman

Dan spent most of the presentation reviewing details of Method 533 and 537.1, sharing information they are also using to educate laboratory assessors.

Final rule announced April 10, 2024, establishing legally enforceable standards for six PFAS in drinking water:

- PFOA, PFOS, PFHxS, PFNA, and HFPO-DA with individual Maximum Contaminant Levels (MCLs).
- PFAS mixtures containing at least two or more of PFHxS, PFNA, HFPO-DA, and PFBS using a Hazard Index MCL to address combined/co-occurring PFAS in drinking water.
- Established health-based, non-enforceable Maximum Contaminant Level Goals (MCLGs) for these PFAS.
- Laboratories must follow approved methods (EPA Methods 533 or 537.1 ver2):
 - ◊ Establish minimum reporting levels (MRLs) at or below regulatory practical quantitation limits (PQLs).
 - ◊ Meet MRL confirmation acceptance criteria in each analytical batch of samples.
 - ◊ Pass laboratory reagent blank (LRB) criteria, i.e., nothing qualitatively detected >1/3 MRL.

Laboratory Requirements

Laboratories must be certified/accredited following the approved methods:

- Initial calibration – a minimum of five (5) calibration standards, including lowest level at or below the MRL.
- Low-level calibration check (Low-level CCC/CCV) – included in each Analysis Batch.
- Mid- and High-level calibration checks (Mid- & High-CCC/CCVs) – alternate every ten (10) Field Samples including one at the end of Analysis Batch.
- Laboratory Reagent Blank (LRB) – prepared with each Extraction Batch.
- Laboratory Fortified Blank (LFB) – prepared with each Extraction Batch, alternating fortification levels and rotating between low, medium, and high concentrations.
- Field Samples – no more than ten (10) between calibration checks, and no more than twenty (20) per analysis batch.
- Additional QC Samples (QCS, LFSM/D, FD, FRB) – see method for frequency and passing criteria
- Quantitation technique.
 - ◊ Isotope Dilution (Method 533)
 - ◊ Internal Standard (Method 537.1, ver. 2.0)
- Linear or Quadratic Calibration Curve forced through zero.
- Calibration curves should extend over no more than two (2) orders of magnitude.
- Linear and branched isomers must be accounted for with all samples.
- Field Reagent Blank.
 - ◊ Ensure target analytes are not introduced into samples during sample collection and handling
 - ◊ One FRB for each field sample location
 - ◊ FRB analysis only required when associated field sample contains method analytes
 - ◊ Failure of FRB invalidates detections of the same target analyte in associated field sample



Initial Demonstration of Capability

QC Sample	Method 533 or 537.1
Demonstration of Low System Background	<1/3 MRL
Demonstration of Precision	RSD <20%
Demonstration of Accuracy	70-130% Recovery
MRL Confirmation	Upper PIR ≤150%
	Lower PIR ≥50%
Quality Control Standard (QCS)	70-130% of the true value

Ongoing Demonstration of Capability for Blanks

QC Sample	EPA Method 533	EPA Method 537.1, v. 2.0
Laboratory Reagent Blank (LRB)	<1/3 MRL	<1/3 MRL
Field Reagent Blank (FRB)	≤1/3 MRL when FS ≥MRL	≤1/3 MRL when FS ≥MRL

- An LRB is included in each Extraction Batch to determine if the method analytes or other interferences are introduced from the laboratory environment, the reagents, glassware, or extraction apparatus.
- The purpose of the FRB is to determine if method analytes or other interferences are introduced into the sample from shipping, storage, and the field environment.
- The FRB is only required if method analytes are measured in the associated field sample.
- Measurement between 1/3 MRL and MRL is expected to be qualitative, demonstrating no trace PFAS is being observed in the LRB or FRB.

Ongoing Demonstration of Capability

QC Sample	Method 533 or 537.1
Continuing Calibration Check (CCC)	Low CCC, 50-150% Recovery
	Mid/High CCC, 70-130% Recovery
Laboratory Fortified Blank (LFB)	When ≤2X MRL, 50-150% Recovery
	When >2X MRL, 70-130% Recovery
Laboratory Fortified Sample Matrix/Duplicate (LFSM/D)	When ≤2X MRL, 50-150% Recovery
	When >2X MRL, 70-130% Recovery
Quality Control Standard (QCS)	70-130% of the true value



- CCC verifies the accuracy of the existing calibration.
- LFB verifies method performance in the absence of sample matrix.
- LFSM/D determines whether the sample matrix contributes bias to the analytical results.
- QCS verifies the integrity of the primary calibration standards.

Ongoing Demonstration of Capability for Blanks

QC Sample	Method 533 or 537.1
Laboratory Reagent Blank (LRB)	<1/3 MRL
Field Reagent Blank (FRB)	≤1/3 MRL when FS ≥MRL

Ongoing Demonstration of Capability

QC Sample	Method 533 or 537.1
Continuing Calibration Check (CCC)	Low CCC, 50-150% Recovery
	Mid/High CCC, 70-130% Recovery
Laboratory Fortified Blank (LFB)	When ≤2X MRL, 50-150% Recovery
	When >2X MRL, 70-130% Recovery
Laboratory Fortified Sample Matrix/Duplicate (LFSM/D)	When ≤2X MRL, 50-150% Recovery
	When >2X MRL, 70-130% Recovery
Quality Control Standard (QCS)	70-130% of the true value

Ongoing QC Acceptance Criteria for Isotopically Labeled Stds

QC Sample	Method 533	Method 537.1, v. 2.0
Internal Standard (IS)	X	50-150% recovery and 70-140% from the most recent CCC.
Surrogate Standard (SUR)	X	70-130% recovery
Isotope Dilution Analogue (IDA)	50-200% recovery and 70-130% recovery in CCCs	X
Isotope Performance Standard (IPS)	50-150% recovery	X

- IS measures the relative response of other method analytes and surrogates (post-extraction/quantitation).
- SUR monitors method performance (extraction efficiency) with each sample (pre-extraction).
- IDA measures the relative response of the method analytes (pre-extraction/quantitation).
- IPS measures the relative response of the isotopically labelled analogues (post-extraction).
- The methods give some flexibility on the selection and use of isotopically labeled standards



Performance Evaluation (PE) Passing Criteria

Analyte	Acceptance Limits
PFOA	70-130%
PFOS	70-130%
PFNA	70-130%
PFHxS	70-130%
PFBS	70-130%
HFPO-DA	70-130%

Note: The “80% Rule” for passing (e.g., passing 16 of 20 regulated VOCs), IS NOT applicable.

PFAS Method General Flexibility

YES

LC columns

LC or MS conditions

Other consumables, where allowed

NO

Sample preservation

QC requirements

Extraction procedure

Follow specific information prescribed in the approved method.

- Following any allowed modification, the laboratory must verify method performance by repeating IDC, verifying all QC in the method are met, and verifying method performance in a representative sample matrix.
- Method modifications should be considered only to improve method performance, not simply shorten analysis time at the expense of performance.
 - ⇒ For example, chromatographic peaks should be reasonably resolved and symmetrical, while maintaining a minimum of ten (10) scans across the peak.

Background Contamination

- Background contamination often observed at 0.1-0.5 ng/L without mitigation.
- Potential sources include (though not limited to):
 - ◇ Instrumentation
 - ◇ Solvents/Reagents
 - ◇ Laboratory Materials
 - ◇ Air
- Reduce contamination by muffling or pre-cleaning all glassware and storing in resealable plastic bags.
- Keep plasticware in resealable plastic bags.
- Use positive displacement pipettes with disposable tips.
- Proper calibration (force through origin).
- Use delay columns (secondary columns to separate target analytes from interferences).



New Analytical Method Development

- LC-MS/MS Direct Injection PFAS Method (*draft Method 534[#]*).
- LC/MS/MS Direct Injection Ultra Short Chain PFAS Method.
- LC/MS/MS Endothall and Glyphosate (*draft Method 561[#]*).
- GC/MS urethane and methyl-2-pyrrolidone (*draft Method 558[#]*).
- EOF Total PFAS Drinking Water Method (ORD lead).

EPA is always looking for laboratories interested in participating in multi-lab validation studies.

[#] Though method numbers are assigned to these draft drinking water methods, they have not been published as method development is on-going.

SW-846 Update – Troy Strock

ASTM/EPA Collaboration: Flash Point Standards

- ORCR published final [Modernizing Ignitable Liquids Determinations](#) rule in June 2020, incorporated ASTM **D8174-18** and **D8175-18** by reference at Part 261.21(a).
 - ◇ **D8174-18**: Small scale closed cup
 - ◇ 2 mL sample size, Applicable flash point range: -20 to 70°C
 - ◇ **D8175-18**: Pensky-Martens
 - ◇ 75 mL sample size, Applicable flash point range: 20 to 70°C
 - ◇ Maintained method-defined aspects of ASTM **D93-79/D93-80, D3278-78**
 - ◇ State adoption was optional
- Next steps: Interlaboratory validation study.

We need at least ten (10) participating laboratories. Please contact me if your laboratory has interest and experience.

PFAS validation studies

- ASTM International collaborating with EPA Region 5 lab on interlaboratory study for D8421-22.
- Next steps: Incorporate data, references into SW-846 updates.
 - ◇ 3512A, 8327A: Add target analytes, include extracted internal standard/isotope dilution calibration
 - ◇ 3536, 3551, 3670(?): New sample preparation and cleanup methods

3050C, Acid Digestion of Sediments, Sludges and Soils

- 3050B (1996): Used different digestion procedures for ICP-OES and ICP-MS.
- Only nitric acid for ICP-MS to minimize polyatomic interferences from chlorine.
- Modern ICP-MS instruments use polyatomic interference correction technologies (e.g., collision/reaction cell, triple quadrupole).
- Same digestate can be analyzed by ICP-OES and ICP-MS.
- Updated digestion process - same for ICP-OES and ICP-MS:
 - ◇ Initial reflux with HNO₃ and HCl
 - ◇ Treatment with hydrogen peroxide
 - ◇ Final reflux with HCl
- Anticipated Release: Fall 2024 proposed for public comment



Organic Updates: VOC Methods, Chapter 4 Sample Preservation and Holding Times

- **5035A:** Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples.
 - ◊ Incorporate reference to frozen holding time study for sealable coring devices from ASTM D6418 research report.
 - ◊ Move Appendix A into chapters, methods, as appropriate.
- **8015D:** Non-halogenated organics using gas chromatography/flame ionization detection (GC/FID)
 - ◊ Add light hydrocarbons.
- **Chapter 4:** Include pH ≤ 2 preservation option for acrolein and acrylonitrile in aqueous samples.

Adapting LEAF Methods to SVOCs and PFAS

- Multi-laboratory validation studies are underway for 1313A and 1316A, and 1314A is starting soon.
- Planning to complete Method 1315A development in the coming year.
- Validation study:
 - ◊ Four (4) field-contaminated soils, two (2) with SVOCs and two with PFAS
 - ◊ Four (4) participating laboratories (commercial, government), with Vanderbilt as the reference lab
- Aqueous leachate samples analyzed by a commercial testing laboratory.
- Timeline: 1313A, 1316A, 1314A anticipated to be ready to propose for publication in 2025, followed by 1315A.

Batch Equilibration LEAF Methods 1313 and 1316

- Advantage: End-over-end mixing to approach equilibrium relatively quickly (e.g., 24 hours for <300 μm particle size), easy to replicate.
- Disadvantage: Potential to over-estimate *in situ* leaching.
- Challenge: Liquid-solid separations.
 - ◊ TSS tends to be higher at alkaline pH
 - ◊ No filtration avoids sorption-related losses
 - ◊ Alum addition resulted in inconsistent separations, increasing TSS during storage
- Solution: Centrifuge.

Include Arsenic in Method 1640A

- Method 1340, "In Vitro Bioaccessibility Assay for Lead in Soil", published in 2017.
- Used to estimate relative bioavailability in ingested soil.
- Validation study for lead and arsenic is complete, round-robin study report written.
- Current status: ORD and OSRTI workgroup that led validation study are reviewing updated method.
- Next steps: SW-846 methods workgroup review, management review, propose for public comment.

Other SW-846 projects

- Representative sample collection methods for different classes of chemicals in soils.
- Passive sampling for PAHs and PCBs in sediment porewater.
- Automated extractions for PFAS in solids, e.g., microwave, pressurized fluid extraction.
- Alternative technologies for acid digestions of solid samples, e.g., infra-red.
- Alternative analytical methods for petroleum hydrocarbons, e.g., UV fluorescence.
- Alternatives to organofluorine testing, e.g., reductive dehalogenation/ion selective electrode.

NEMC 2025 Call for Abstracts

By Earl Hansen, TNI

Organized by The NELAC Institute (TNI), the 2025 Environmental Measurement Symposium is a combined meeting of the National Environmental Monitoring Conference (NEMC) and the Forum on Environmental Accreditation. It is the largest conference focused on environmental measurements in North America, and this year is planned as an in-person event for the week of August 4, 2025 in St. Louis, MO. This year's Symposium theme is ***Building a Quality Culture as the Foundation for Reliable Data***.

Topic Areas for Abstracts

The Symposium Steering Committee is inviting abstracts for oral or poster presentations in these specific topic areas:

- Air Monitoring, Methods, and Technology
- Analyzing Microplastics in the Environment
- Automation & Innovation for Sample Preparation
- Best Management Practices for Environmental Laboratories
- Building a Quality Culture
- Collaborative Efforts to Improve Environmental Monitoring
- Community Science/Research
- Crafting Consensus Methods for Environmental Sampling and Measurement
- Data Quality Management & Validation
- Drinking Water
- Emerging Environmental Applications for High Resolution Mass Spectrometry
- Ensuring Reliable Data
- Environmental Forensics
- Field and Mobile Laboratories
- Innovations in Microbiology
- Innovative Solutions for Reducing Methylene Chloride
- Laboratory Informatics
- Metals Analyses
- New Organic Monitoring Techniques
- Non-Targeted Analysis: What, Why and How
- Optimizing Laboratory Operations
- Per- and Polyfluoroalkyl Substances (PFAS) in the Environment
- Real Time Analysis in Water Industry
- Sustainability in the Lab: Navigating an Evolving Societal Expectation
- The Role of AI in Environmental Analyses

Deadline February 1, 2025

Please provide your abstract by February 1, 2025. Abstracts received after the deadline are not guaranteed to be reviewed due to the number of available time slots and the high number of quality and timely submissions received. More information and submission instructions are on the Environmental Measurement Symposium website at <https://www.envirosymposium.group>.

National Environmental Monitoring Conference (NEMC) Dr. Charlie W. Carter Award

By Lara Phelps, USEPA

Dr. Charles (Charlie) William Carter dedicated over thirty (30) years to the environmental laboratory business and community. Considered a highly respected environmental testing genius by everyone fortunate enough to know him, he was brilliant and had relentless energy, work ethic, and passion for advancing the environmental testing industry by providing critical scientific expertise and support. Charlie was deeply involved in many environmental organizations and a frequent speaker at conferences, forums, and meetings. He was a leader in the industry and one you could count on always pushing the envelope to help the environmental measurement, monitoring, and laboratory community excel in meeting the highest levels of integrity and quality.



This award has been established to recognize a technically competent individual and leader in the environmental measurement, monitoring, or laboratory industry, embodying Charlie's strengths in scientific expertise, communication, and mentoring. One recipient will be selected annually and recognized at the National Environmental Monitoring Conference (NEMC) as part of the Environmental Measurement Symposium (Symposium) held jointly with the Forum on Laboratory Accreditation. The recipient will provide the Monday Keynote Address at the Symposium, receive free registration for the full Symposium, and be presented with the award in the year that follows the nomination.

Nominations will open on the first day of each year's Symposium and close on January 31st of the following year. Submissions must be made through the [Environmental Measurement Symposium website](#) and not exceed three (3) 8.5 x 11 inch pages of single-spaced, standard twelve (12) point type with one (1) inch margins.

All nominations must include the nominee's name, affiliation, address, phone number, and email address, in addition to a written submission considering the following criteria:

1. What technically innovative and impactful contribution(s) has this individual made to the environmental measurement, monitoring, and/or laboratory industry?
2. How does this individual demonstrate their understanding of the technology and policy implications this (these) innovative and impactful contribution(s) have on the industry?
3. How does this individual communicate, mentor, and/or outreach throughout the community to share this (these) contribution(s)?
4. In what ways does this individual demonstrate their leadership by giving of themselves?
5. What professional organizational and/or community membership(s) does this individual hold in addition to leadership service within them?

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National Environmental Monitoring Conference (NEMC)

Dr. Charlie Carter Award cont.



Each nomination must also be accompanied by the name, affiliation, address, phone number, and email address of two (2) nominators to complete the submission. Self-nomination is not permissible.

The NEMC Steering Committee, which is comprised of representatives managing the conference in addition to representatives from federal government, state government, laboratory community, and industry will serve as the independent review panel for award selection. The selected recipient and their nominators will be notified by March 15th of the award year.

Previous Awardees

2016 Richard Burrows

2017 Andy Eaton

2018 Marlene Moore

2019 Judy Morgan

2022 Ray Frederici

2024 David Friedman

New Field Accreditation Standard Published

By Katie Strothman, Sanders Labs

Woot Woot! The new FSMO-V1-2024-Rev3.0 draft standard is out for public comment. Please find it here: <https://nelac-institute.org/news.php?id=5522>. The committee has volunteered many hours to improve the standard. Feedback is essential to the standards' usability and success. Although the comment period closed on October 31, you can still provide comments. Please send your comments and proposed revised text to both Katie Strothman (katie@sanderslabs.net) and Ilona Taunton, the Program Administrator (PA) for the FAC (ilona.taunton@nelac-institute.org). All comments will be tracked by the PA and you will be notified of the committee's response to your comment after all comments are considered and addressed if they are deemed persuasive.

As of today, we have received one comment. The comment was a request to add the definition of "data integrity" to Section 3.

Why is this standard important?

- Data generated from a sample can only be as good as the sample collection process.
- If sampling was not representative, then neither is data generated from that sample.
- Data reliability should start with sampling and field measurements and continue through the lab processes.
- Accreditation ensures data is reliable, and statistics back this up
 - ◊ According to AI, an accredited organization is roughly 30% more reliable than a non-accredited organization! Whelp, that's a big number!
 - ◊ Compliance with the consensus standard ensures a proper quality management system, creating consistency every time the organization performs work
- That standardization is a great foundation for success

Who benefits from a consensus standard for field sampling and measurement organizations? Everyone!

Regulators have more peace of mind just like they do with accredited labs because consensus standards show competency and provide oversight.

The rigorous evaluation and formal recognition are key to accreditation and show the FSMO has:

- quality assurance program
- compliance with the standard
- higher assurance of trustworthiness

So, if you are a regulator find your comfiest nook and read NEFAP FSMO v1 standard over a nice fall brew (pumpkin anyone? Or apple? Yum) and figure out how to implement adherence to the standard within your organization.



Standards benefit a FSMO by:

- setting an even playing field amongst sampling organizations
- ensuring a higher level of quality throughout the industry
- reducing risk and increases peace of mind
- consistent field procedures mean fewer resamples
- reduces client complaints, which equates to less expense

If you're an organization performing sampling and measurements in the field, roll up your sleeves, review the standard and get accredited if you can. Then show off your organization's mad skills in the field! Accreditation makes a difference! It's been proven over and over. Consumer confidence is so important.

I know we are all busy, but pop on the link <https://nelac-institute.org/news.php?id=5522> read the standard and better yet, if you can, apply it to your organization right now!

Collectively we have a voice. Use that voice to show the importance of ensuring reliable data and competence through accreditation to a consensus standard built specifically for Field Sampling and Measurement Organizations!

Coming Soon! TNI's NEW Educational Delivery System Website

By TNI Credentials and Training Committees

You may have heard about the Quality Management System (QMS) Credentialing activity that the Credentials Committee created. The QMS Digital Badges will be available this fall, maybe even by the time this newsletter arrives in your inbox. That alone is a huge step forward for TNI! As the badges have specified training requirements, all of the training course listings were updated by the Training Committee to a standard format that shows much more information about the course content and the digital badges to which each course may be applied to meet the minimum hours. Some features of the software require a distinct login (different than your TNI member login), but access to the training course pages (including registration for courses) does not require a login. However, if you create a login, you will be able to:

- view available courses (a comprehensive listing, or selectively sorted by subject)
- sign up for a course and get either a Certificate of Attendance or of Completion (requires a quiz)
- view courses applicable to the required training for each of the digital badges (and those already taken)
- apply to take the exam for a digital badge and receive the badge if you pass the exam.

The new Educational Delivery System (EDS) software, designed by TNI's IT Administrator and undergoing beta testing as this article is being written, seamlessly integrates the functions of the "old" training page (registering for courses, getting Certificates of Attendance or Completion) while linking the completed trainings with the digital badge application. Also, historical records are available to show training courses taken, linked to the email used to register for the course. There will be a way to show that a now obsolete email actually belongs to the same person as the current email used today so that credit for earlier trainings gets recognized.

If you were fortunate enough to see the live demonstration of the EDS in the NEMC General Session on Thursday afternoon at the conference, you got a sneak preview. Even that couldn't show all of the features of the new software, the training course listings, and the digital badge exam process.

To apply for a digital badge, you should study the KSAs identified for that badge (for now, see the QMS KSA document at <https://nelac-institute.org/committee/credentials>, under the Documents bar), complete the number of required training hours (varies by badge), then apply for the chosen badge (there are twelve (12), with two (2) of those having a five-badge subset, one for each of the technical modules in the 2016 Standard). For badges, the exam is not proctored and consists of thirty (30) questions; the subsets for technical modules are an additional fifteen (15) module-specific questions – both Quality Control and Method Validation). Passing score is seventy percent (70%). Badges never expire, but might become obsolete when the standard is revised.

Once the digital badges are "up and running", a "full credential" certificate will be offered for Certified Quality Management Systems Professional for anyone who has received all of the required badges. This Certified Quality Management Systems Professional Certificate (exam approach) will require that the applicant meet specified education and experience criteria, and then pass a three-hour proctored exam consisting of about 150 questions. Again, 70% is a passing score. The Certificates are valid for three (3) years, and may be renewed

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Coming Soon! TNI's NEW Educational Delivery System Website cont.



upon presentation of proof that the individual has completed a specified number of Professional Development hours. For more specifics about this full credential, see the PowerPoint presentation at the link above. A Handbook for Credentials is in development and will be available when the software “goes live”, that will cover costs, exam details, and much more.

It is easy to search for available training. Live training and the latest on-demand training will be displayed on the EDS home page. Available webcasts will be found under the Webcast menu. Webcasts can be searched by presenter, category, or key term in description. The webcasts can also be sorted by title, presenter, length, or date posted. Selecting the Digital Badge menu will bring up a listing of the digital badges, related KSAs, and the webcasts/courses that can be applied towards the digital badge.

The screenshot displays the TNI Educational Delivery System website. The header includes the TNI logo and the text "TNI Educational Delivery System" with the subtitle "Training & Credentials for Environmental Measurement Professionals". A navigation bar lists: Home, My Account, Webcasts, Credentials, Digital Badges, About EDS, and TNI Website Links. The main content area is titled "Available Webcasts" and includes a paragraph about current education and training opportunities. Below this are search filters for Presenter, Description, Category, and Sort by. The webcasts are listed in a grid of six cards, each showing the title, presenter, role, and duration.

Webcast Title	Presenter	Role	Duration
2023 Proposed EPA Regulations	Jerry Parr and William Lipps	Regulatory	1.5 hours
2024 Methods Update Rule for the Analysis of Effluent	Jerry Parr and William Lipps	Regulatory	1.5 hours
A History of EPA Regulations and How They Created the Environmental Testing Industry	Jerry Parr and Judy Morgan	Fundamental Laboratory Skills, Regulatory	2 hours
Analyst Competency Beyond the Demonstration of Capability	Tony Francis	Management, Quality Systems, TNI Standard	4 hours
Applying Data Integrity to Field Activities	Silky and John Lable	Field Activities	5 hours
Assessor On-Going Training - 2016 TNI Environmental Laboratory Standard	Marlene Moore	Assessment	6 hours

Note: Image is from the beta EDS.

The updated training course listings feature a standardized format for each and every available live training and webcast that provides a synopsis of the course, describes the presenter, the learning objectives, the lab roles that might benefit from the course, and the digital badges associated with the course. To actually register for a training, the same process as always is in place. The Credentialing Committee, Training Committee, and the TNI IT Administrator along with many other volunteers have worked diligently to update training opportunities, provide a consistent approach to course descriptions, and develop a credentialing program. The new EDS is a culmination of the efforts and an exciting progression of the TNI educational system.

Training Courses

By Calista P. Daigle, Pace Analytical Services

Update on Training Courses

The training committee finalized the course description templates, which will be used in the TNI electronic catalogue web page. This new template features a streamlined design that consolidates key course information in consistent locations for easy access. A demonstration of the new web page was provided at the summer conference during the TNI General Session.

New courses offered this year include:

- Understanding Microbiology Series (5 Part Series)
- Policies and Procedures Needed for a NELAP Laboratory
- Managing a Data Integrity Investigation
- Managing the Accreditation Process: Laboratories
- Sampling and Analytical Considerations for National Primary Drinking Water Regulations for PFAS: PFAS Regulation course
- Ensuring Safety in the Environmental Laboratory
- Methods Update Rule for the Analysis of Effluent
- The Use of Test Kits in the Field and Laboratory
- Introduction to the Key concepts of ISO/IEC 17025:2017 for Environmental Testing Laboratories (4 Part Series)
- Field Sampling and Measurement Records – Are They Traceable?

See the [TNI training page](#) for Continuing Webcasts available on demand.

Mentor Session - Beyond the Checklist Series

Focus: Corrective Actions

By Calista P. Daigle and Valerie Slaven, Pace Analytical Services

The TNI Mentor Session was designed with a blend of presentations and interactive activities, offering attendees the chance to engage, network, develop relationships, and exchange insights on shared challenges. The 2024 summer mentor session featured expanded, in-depth guidance on developing effective corrective actions. The session included the following presentations and interactive activities:

Presentations:

- Understanding the Deficiency – Mitzi Miller, MQC, LLC
- Root Cause Analysis: How deep is deep enough? – Stephanie Rippeon, A2LA

Interactive Activities:

- “Don’t Telephone It In” consisting of 5 volunteer groups who tried to determine the root cause of an unclear non-conformance.
- The game “Press Your Luck” where volunteer players competed by answering multiple choice questions related to the developing effective corrective actions.

Multiple choice questions from the game are below:

1. What are SIRs?
 - a. A gentleman in a top hat with an English accent.
 - b. Some Intelligent Recommendation
 - c. A Standard Interpretation Request
 - d. A Standard Information Request
2. What is the process of reviewing and discussing assessment findings prior to the departure of the assessor?
 - a. Corrective Action Plan
 - b. Quarrelsome Quandary
 - c. Root Cause Analysis
 - d. Debrief
3. What is the primary purpose of a corrective action?
 - a. To address and eliminate the root cause of a detected non-conformance
 - b. To train new employees
 - c. To increase the frequency of sampling
 - d. To introduce new testing procedures



4. Which of the following is a key component of a preventative action?
 - a. Retesting all samples
 - b. Implementing measures to prevent recurrence of identified issues
 - c. Issuing warnings to staff
 - d. Increasing the budget for new equipment
5. When should a corrective action report be initiated?
 - a. Only during annual audits
 - b. Immediately after identifying a non-conformance or potential non-conformance
 - c. When new regulations are introduced
 - d. At the end of each fiscal year
6. What is a common tool used to identify the core cause of a problem?
 - a. Statistical process control
 - b. Root Cause Analysis (RCA)
 - c. Cost-benefit analysis
 - d. Financial auditing
7. What is a correction?
 - a. Immediate action to fix an issue.
 - b. Using White Out fluid to “erase” incorrect results
 - c. Updating the company handbook
 - d. Performing a root cause analysis to develop a plan
8. What is one component of Understanding the Deficiency
 - a. Because the auditor said it was a deficiency
 - b. Looking up the cited reference(s)
 - c. Asking AI to explain
 - d. Shaking a magic 8 ball
9. Where can you find SIRs?
 - a. TNI Website (Laboratory Accreditation Tab)
 - b. Disneyland
 - c. TNI Website (Consensus Standards Development)
 - d. The DMV
10. What is the first step in performing a root cause analysis?
 - a. Ordering lunch for the team
 - b. Understanding the deficiency
 - c. Scheduling a vacation
 - d. Conduct a customer satisfaction survey



11. What is a fishbone diagram?
 - a. Poster describing how to filet a fish
 - b. A diagram for visualizing cause and effect
 - c. A way to display management hierarchy
 - d. A time management tool
12. What is an iterative process to determine root cause?
 - a. Fishbone
 - b. 5 What The Fudges
 - c. 5 Whys ???
 - d. 4 M's and Brainstorming (Man, Machine, Method, Material)
13. What is the primary purpose of Brainstorming
 - a. To exercise the brain
 - b. To generate solutions for improving processes and solving problems
 - c. To point fingers and play blame game
 - d. To allow management to dictate process changes
14. Who should participate in the corrective action process?
 - a. Key Stakeholders, parties involved, management
 - b. Only Upper Management and Quality Staff
 - c. Only the bench analyst and immediate supervisor
 - d. The accrediting Body and auditor!
15. What is an ideal tool for larger complex issues?
 - a. Rigorous Risk Management
 - b. Long work sessions with multiple leaders all talking at the same time
 - c. Affinity Diagrams
 - d. Ignoring the problem

Answers 1.c, 2.d, 3.a,4.b, 5.b, 6.b, 7.a, 8.b, 9.c, 10.b, 11.b, 12.c, 13.b, 14.a, 15.c

Remembering Jack Farrell

By Robert Wyeth

Jack Farrell passed away on July 19, 2024, at his home in Altamonte Springs, Florida. The TNI family and the entire Environmental Testing community lost a truly dedicated advocate.

Jack was born and raised in New Jersey. He graduated from Richard Stockton State College with a bachelor's degree in biology and later obtained a degree in chemistry from Stockton College.

Following his graduation from college, Jack began his lifelong career in the environmental industry. He had over forty years of experience in laboratory operations and quality assurance, working as an analyst, Quality Assurance professional, technical and general manager of small, medium, and large commercial laboratories. He was a professional trainer, consultant, and third-party assessor for a number of state and federal regulators and an expert in assessing laboratories for compliance with regulations and accreditation standards. Jack was the Senior Environmental Analyst, President, and Founder of Analytical Excellence, Inc. (AEX). Since its inception in 1993, Jack and Patty Synder, his longtime companion, had been an independent, strictly confidential consulting firm specializing in environmental laboratory operations, analysis, and matters concerning the generation of analytical data to support effective compliance decision-making and aspects of litigation.



Jack was active in numerous industry activities and professional associations, including the NJDEP laboratory Advisory Council, the American Council of Independent Laboratories (ACIL), the Water Environment Federation (WEF), the American Chemical Society (ACS), EPA Laboratory Advisory Board, Florida Society of Environmental Analysts (FSEA), and the NELAC Institute (TNI).

Jack was a recognized leader in the Environmental Testing Industry and as such was a long-time member of TNI's Board of Directors. He also participated in and led many technical and administrative committees, work groups, and task forces commissioned by TNI. In his tenure with TNI, he developed and presented twenty (23) training courses on quality management systems, laboratory ethics, and advanced topics in analytical chemistry. Jack was always a strong proponent of ethical behavior by scientists and was very active in efforts within TNI to include a data integrity component in the requirements for laboratories seeking accreditation.

On a more personal level, I met Jack about thirty (30) years ago during the formative years of the national laboratory accreditation efforts. We have had the opportunity to work together on several occasions where his knowledge and professionalism were always on display. We also had even more opportunities to simply enjoy each other's company while partaking in an Irish beer (if available), a bit of Jameson's Irish whiskey, and a good cigar!

We will likely remember Jack sitting, usually in the back of a room, wearing a baseball cap, chewing on a cigar, and contributing astute comments and suggestions on the topic at hand.

Jack was a good friend and colleague who has left an indelible mark on our industry. I, as well as the industry, will miss him.

ChairSpeaks

“Musings from the TNI Chair”

By Alfredo Sotomayor, TNI Chair

Artificial Intelligence or Synthetic Cleverness

Let's start with the bad parts. First, the name...Who really likes most artificial things? Real flowers are better than plastic ones. We expect emotional genuineness and dislike insincerity in interactions and delivery. And what kind of intelligence can machine learning produce? So much depends on what the machine is chomping on. Algorithmic iteration is much like super-accelerated rote, not a high form of intelligence.

Adding 'generative' to A.I. does not make it more authentic. A.I.'s generated content can be monotonic, lacking sparkle or originality. A.I. can produce “hallucinations”, a loaded word evoking altered mental states. Fakes can now become deepfakes, an extreme form of identity theft or manipulation, deliberately designed to deceive. Ubiquitous unauthorized appropriation by A.I. of intellectual property and protected material is hard to police.

A.I. could lead to workforce reduction. It has been reported that data analysts and bookkeepers, customer service representatives, media content creators, paralegals, and financial analysts are most vulnerable to that potential. Remember travel agents, stenographers, telephone operators, and milkmen?

Interlude: Desk Set

Is it all that bad? Consider this story, harking back to simpler days.

Bunny Watson is a reference librarian at a television network. Richard Sumner, an energy efficiency engineer, is the inventor of an early computer known by its acronym Emmy, which he installs at the library. Bunny and the other librarians deduce the computer will replace them.

When the computer is finally switched-on after weeks of testing, Bunny and her gang receive pink slips, but by the inevitable twist, it is not because of Emmy. It turns out another similar computer in payroll generated, in error, slips for all company employees. That installation was kept secret to keep news of a massive merger from competitors.

Emmy's goal was not to take over the librarians' jobs after all; it was supposed to help employees, including the librarians, manage the increased workload resulting from a corporate coupling. And because this is 1957 and this is the movies, Tracy and Hepburn star in the Desk Set. All ends well, and they fall in love and get engaged.

The moral: New technology can be useful and destabilizing at the same time, but in the end it is the human spirit that triumphs.

The Good Parts

A.I. is an evolution of the technology, mindset, and power that gave us big frame computers, the Internet, and compact smart phones. Most of the apps you use in your semi-intelligent phone rely on some form of A.I. A.I. is extensively used in customer fulfillment sites, navigation, and social media, services you have likely used.



Knowing that we have been using some form of A.I. for years should put us a bit more at ease, and that is good.

Apart from saving us time dedicated to repetitive tasks, A.I. can also elegantly do preliminary research with a single prompt and organize results in digestible chunks and formats. Our saved time and freedom from the headaches of production and reduction could be used to be more strategic and creative.

Robots powered by A.I. improve human safety by minimizing our exposure to hazards and danger. A.I. applications are being used as alternatives or additions to mental health therapies.

How About Us?

At the last Environmental Monitoring Symposium, an entire session was dedicated to A.I. in environmental analyses. Presentations considered, among others, designing better laboratory workflows, enhancing detection of emission sources, and applying A.I.’s power to revolutionize data analytics.

A.I. seems well-suited to tackle data review and validation, assembling data packages, directing the focus of internal audits, and creating solid drafts of SOPs and manuals.

Regulators could develop A.I. applications that review documents, mine data, and generate sets of potential findings for verification. Laboratories could use similar products to anticipate findings and correct them well before an assessment. And how about creating a congenial robot that could perform on-site assessments? OK, maybe by that time there will not be a need for on-site assessments because there would be more powerful and efficient surveillance options afforded by A.I., that as an added benefit, would minimize the “consistency” problem.

For the Institute, I can envision a day when A.I. could generate revisions of standards faster and with sufficient accuracy to be used as discussion drafts. That would free committees and members from the tedious task of creating content and wordsmithing, to engage in refining, reviewing, and approving. A.I. could generate and manage TNI training. It could write a good glossary or even this column. Imagine! How grand!

We would have to develop policies for allowed and unpermitted uses of A.I. at the Institute. We would need some kind of fake or deepfake detector to prevent misinformation and intrusive overtures. Because we set standards that inform compliance decisions, this seems critical. We would also have to address copyright issues, particularly with ISO.

Upslope or Apogee?

The bubble A.I. is experiencing right now makes it appear like the tool sprang “as is”, fiercely by spontaneous generation. Interviewed by the New York Times, Jim Corvello, Goldman Sachs head of stock research, related how he counted nearly 40 signs extolling A.I. on his way from San Jose to San Francisco via Highway 101. Of the billboards, he said: “Not long ago they were all crypto...[and] now they are all A.I.”

Mr. Corvello does not believe the A.I. bubble, like the crypto one, will last. He predicts it will deflate when the companies that are embracing A.I. cut spending when their profits fall, after adoption expectations are not met. I think that by that time, A.I. will be so deeply ingrained in all we do, that lack of high profit margins will not stop its continued development or use.



Consciousness

Intelligence is different from learning. Learning involves retention of information to be recalled for future use. Intelligence denotes a cognitive ability to create, perform, and connect processes based on retained information to produce something novel. By that definition, I am not sure A.I. has completely earned the intelligent moniker.

Richard M. Bucke, in *Cosmic Consciousness*, believed the latter was a process by which the intelligent mind is built uniformly by reception, perception, and conceptualization. Each successive stage includes the other; conceptualization requires receiving and perceiving stimuli. The conceptual mind is self-conscious. At that stage, I am not only conscious of what I see, I also know I am conscious of it. I can stand apart from myself and contemplate myself.

I cannot say with assurance that A.I. has achieved that last stage or that it will. But, who knows? Many believe that when a mixture of organic compounds in a primordial soup was struck by lightning ages ago, life arose. Molecules to man...Maybe an equivalent spark could elevate A.I. from electronically smart to intelligently conscious.

Who could resist Miss Watson? Not Mr. Sumner. The cards were stacked in her favor. The story was a deliberate conceit but hardly a fake. Emmy is a very pretty name, but without prejudice, I would take Bunny over Emmy any day...At least for now.

Only connect.

Alfredo

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