# THE INSTITUTE REVIEW

**A publication of The NELAC-Institute**

## November 2022

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**Robin Cook, City of Daytona Beach**
***Editor in Chief***

# THE INSTITUTE REVIEW
## November 2022
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# It's Time to Reserve Your Spot at the Forum

By Jerry Parr, 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 San Antonio, Texas from January 9-12, 2023.


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.

The 2023 Forum will include:

- Training courses on Detection/Quantitation Limits and Cause Analysis,
- Meetings of TNI committees,
- A mentor session,
- An assessment forum,
- A general session with updates about TNI programs, and
- A special session on TNI's new effort to establish a credentialing initiative.

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 January 9 in person and view recordings of any session you missed from January 16 to March 30, 2023. For those that do not plan to come to San Antonio, you have the ability to view recordings of any session from January 16 to March 30, 2023. 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 January 12 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 here.

We look forward to seeing you in San Antonio!

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# Welcome to San Antonio

By Patty Carvajal, San Antonio River Authority

In January, we will be gathering in San Antonio for our Winter Meeting. There are a multitude of activities and sites to see in the area and I highly recommend taking advantage of the opportunity to visit some of the historic and cultural sites in the San Antonio and surrounding area.

San Antonio was founded in May 1718 with the establishment of the San Antonio de Béxar Presidio and Mission San Antonio de Valero (now the Alamo). It's these inhabitants who helped lay the foundation for the eclectic art, diverse culture, and stunning innovations that have become signatures of life in San Antonio. San Antonio is now the seventh-largest city in the nation.

***If you visit San Antonio, you will likely want to visit the following places:***

## SAN ANTONIO MISSIONS

The San Antonio Missions were designated as UNESCO Word Heritage sites in 2015. These sites are a group of five (5) Spanish colonial missions including the Alamo. This great honor has been bestowed upon only twenty-four (24) sites in the United Stated and the missions are the first and only World Heritage site in Texas. The missions are an example of the interweaving of Spanish and Indigenous cultures that are an important part of American heritage. The designation includes Mission Concepcion, Mission San Jose, Mission San Juan, Mission Espada, Mission San Antonio de Valero, Rancho de las Cabras, and their associated irrigation and agricultural features. These communities were formed in 1718 and were at the northern frontier of New Spain, a territory of the Spanish Empire. Mission Concepcion, Mission San Jose, Mission San Juan, Mission Espada are part of the Archdiocese of San Antonio and have weekly religious services to this day.

## THE RIVERWALK

The Riverwalk is always worth a visit. There are several restaurants and shops along the river and strolling the Riverwalk is always an enjoyable way to end your day.

Though many are familiar with this portion of the River Walk, the area has expanded over the past twenty (20) years to include the Museum Reach up to the Pearl to the north and to the Museum Reach to the south. The San Antonio River has been the focus of community and culture in the area since it was founded. This is evident in the location of the San Antonio Missions which are located along the river to the south. These communities have been such a vital part of the cultural heritage of San Antonio that they are named UNSESCO World Heritage sites.

## THE ALAMO

No visit to San Antonio is complete without a visit to the Alamo, the Shrine of Texas Liberty. The city has grown around this historic site that now sits in the middle of downtown San Antonio, just a short walk away from where the conference will take place.

## SAN ANTONIO MISSIONS

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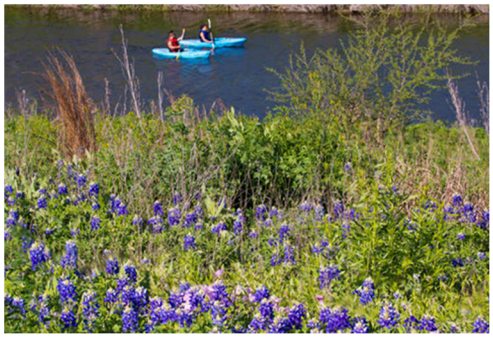
***If you are looking for fun stuff to do, these might be to your liking:***

## KAYAKING THE SAN ANTONIO RIVER



Have you ever wanted to see the Riverwalk from a different perspective? Prior to COVID it was only possible to be on the water in the Riverwalk on the powered barges. Now it is possible to kayak in downtown San Antonio! Thanks to special permission from the City of San Antonio, a kayak outfitter provides kayaks to those interested in a unique experience. The activity has proven to be very popular, and hopes are that it will continue beyond 2022.

## MISSION KAYAK

You can also kayak in other areas of the San Antonio River, such as The King William reach of the river and the Mission Reach of the river, for a more natural area of the river.

## VISIT THE TEXAS HILL COUNTY

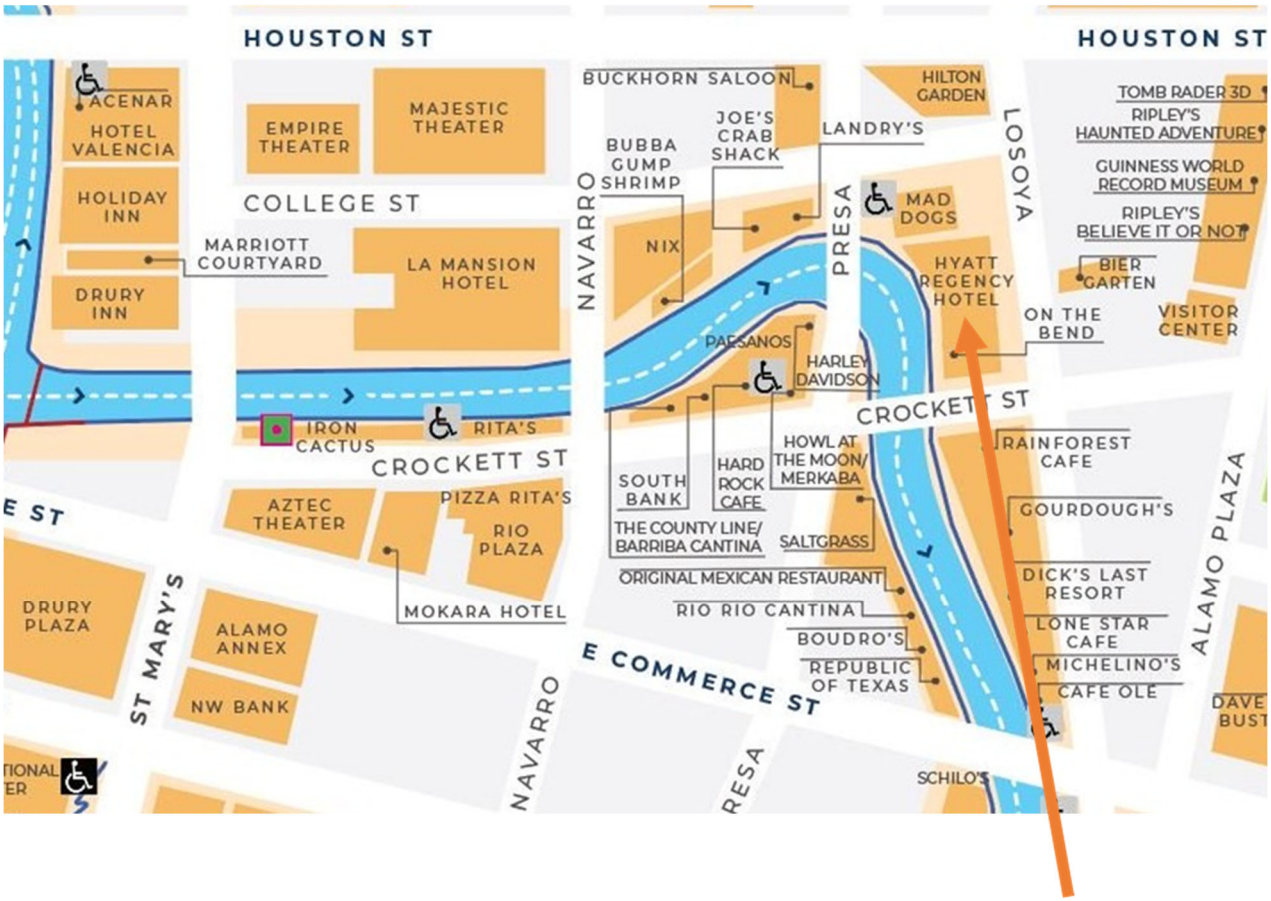
The Texas Hill Country was primarily settled by German and Eastern European immigrants. Their heritage is evident in the architecture and artifacts that in the area. Also available are Texas antique shops on old-fashioned main streets and celebrations with roots in the Old World, like Wurstfest (a sausage festival) and Weihnachten (a Christmas festival).

The Hill Country is also home to several wineries as the Hill Country has become a hot spot for wine connoisseurs. It is the second largest wine producing region on the United States. You can choose to visit these wineries on your own or you can book a Wine Tour for a relaxing fun-filled experience. The main grape varieties grown in the Texas Hill Country are Cabernet Sauvignon, Zinfandel, Chardonnay, and Chenin Blanc.

### *If you're looking for a place to eat:*

There are so many places to choose from I don't know where to begin. The culinary traditions of the original settlers of San Antonio blend with new, homegrown talent from the Culinary Institute of America San Antonio for a food and drink scene that has something for everybody. A few choice locations have been identified on this map to help you decide on where to go to get a bite to eat. The majority of them are within walking distance of the hotel where the conference will be taking place.

I hope that you all enjoy your visit to San Antonio. Feel free to reach out to me with any questions about our wonderful city.



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# NEMC 2023 Call for Abstracts

By Earl Hansen, TNI

Organized by The NELAC Institute (TNI), the 2023 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 July 31, 2023, in Minneapolis, MN. This year's Symposium theme is *Science and Innovation that Serves the Public Good*. The NEMC Steering Committee is inviting abstracts for oral or poster presentations in these specific topic areas:

## ~TOPIC AREAS FOR ABSTRACTS~

- Academic Research Topics in Environmental Measurement and Monitoring
- Advances in Sensor Technologies for Environmental Monitoring and Measurement
- Air Monitoring, Methods, and Technology
- Analyzing Microplastics in the Environment.
- Best Management Practices for Environmental Laboratories.
- Collaborative Efforts to Improve Environmental Monitoring
- Community Based Monitoring and Environmental Justice
- Consensus Methods for Environmental Sampling and Measurement
- Data Quality Management and Review
- Drinking Water
- Environmental Forensics
- Emerging Environmental Analysis Applications for High Resolution Mass Spectrometry
- Identifying and Combatting Inappropriate Laboratory Practices
- Laboratory Informatics
- New Organic Monitoring Techniques
- Operational Issues Impacting the Environmental Laboratory Industry
- PFAS in the Environment
- Shale Oil and Gas
- Succession Planning in the Environmental Laboratory
- Wastewater Surveillance

## ~DEADLINE: FEBRUARY 1, 2023~

Please provide your abstract by **February 1, 2023**. 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, https://envirosymposium.group.

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# Nominations for 2023 Board of Directors

By Sharon Mertens; Chair, Nominating Committee

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 2023.

TNI is governed by an elected Board, including five (5) 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.

- 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 years and are renewable. The Board meets by teleconference monthly and in face-to-face meetings, as necessary.

To maintain stakeholder balance, we are particularly looking for candidates from the "accredited organization" stakeholder groups. However, nominations from other stakeholder groups will be considered as we review all submittals.

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.

## 2023 ELECTION TIMELINE

- November 1 – December 31, 2022: Nominations accepted
- January 2-13, 2023: Nomination Committee will review the nominations and prepare a slate of candidates.
- January 16: Voting opens with the announcement of the slate of candidates on the TNI website
- February 16: Voting closes
- March 15: 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.

# Environmental Measurement Symposium 2022

By Lara Phelps, US EPA

The 2022 Environmental Measurement Symposium was held in Crystal City, VA from August 1-5, 2022. For the seventeenth year, the Symposium consisted of a combined meeting of the 38th annual National Environmental Monitoring Conference (NEMC) and The NELAC Institute's (TNI) Forum on Environmental Accreditation. A total of 486 individual attended the 2022 Symposium.

This article summarizes the Symposium as a whole and the NEMC breakout sessions. Two other articles in this issue of The Institute Review summarize the TNI sessions and the special EPA general session.

## SYMPOSIUM SUMMARY

The 2022 Symposium featured nineteen (19) NEMC technical breakout sessions with 100 oral and 25 poster presentations as summarized in the table below. These presentations are available for download at the Symposium website.

**~NEMC Session Details~**

| | Oral | Poster |
|---|---|---|
| Air Monitoring, Methods, and Technology | 8 | |
| Analyzing Microplastics in the Environment | 6 | 2 |
| Applications in HRMS | 0 | 1 |
| Best Management Practices for Environmental Laboratories | 4 | |
| Citizen Science | 3 | 1 |
| Collaborative Efforts to Improve Environmental Monitoring | 12 | 1 |
| Drinking Water | 11 | 3 |
| Laboratory Informatics | 5 | |
| Metals Analysis and Remediation | 3 | 3 |
| New Organic Monitoring Techniques | 13 | 3 |
| Operational and Advocacy Issues | 17 | 1 |
| Polyfluoroalkyl Substances (PFAS) in the Environment | 14 | 9 |
| Spotlight on Reducing Interferences in ICP/MS | 5 | 2 |
| Wastewater Surveillance | 4 | |
| Shale Oil and Gas | 4 | |

The 2022 Symposium also featured three (3) keynote presentations and one general session with four (4) presentations from EPA as summarized on the next page.

- Strategies to Prepare for an Aging Workforce
  Fiona F. Middleton, Eurofins Environment Testing America

- Environmental Sustainability
  Andre Argenton, Dow Chemical

- Simple, Smart, Sustainable – Preparing Your Environmental Lab for the Future
  Suneet Chadha, Perkin Elmer

- EPA Priorities from the Infrastructure and Jobs Act
  Zealan Hoover, Senior Advisor to the EPA Administration for Infrastructure

- EPA's Strategy for Addressing PFAS in Water, Air, and Land
  Susan Burden, Scientific Support Advisor & ORD PFAS Executive Lead, Office of the Science Advisor

- Advancing Environmental Justice with New Measurements Methods
  Phillip (Phil) Fine, Deputy Associate Administrator, Office of Policy

- Environmental Justice, Risk, and Innovation
  Louie Rivers, Senior Social Science Advisor in ORD's Immediate Office of the Assistant Administrator

As in previous years, the 2022 Symposium had an exhibit program with fifty-four (54) exhibitors and an innovative new technology showcase with twelve (12) organizations participating.

Finally, Ray Frederici of Eurofins Environment Testing America was the recipient of the 2022 Dr. Charlie W. Carter award. Nominations for the 2023 award are now open. Visit the EMS website to submit a nomination for next years' award.

*Ray Frederici*
*Dr. Charlie W. Carter*
*Award Recipient*

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# Summary of the 2022 Summer Forum on Environmental Accreditation

By Jerry Parr, TNI

This article summarizes committee meetings and other events that occurred at the 2022 Summer Forum on Environmental Accreditation, which was combined with the National Environmental Monitoring Conference (NEMC) under the umbrella of the Environmental Measurement Symposium. Almost 600 individuals participated in the 2021 meeting. Other article summarize some of the other events that occurred at the Symposium.

Any presentations made will be posted on the TNI conferences page. The TNI Assessment Forum and Mentor Session will be available as a Conference Learning on the TNI website in December.

**MONDAY, AUGUST 2, 2022...**

**Assessment Forum: Internal Audits—Bringing Together Assessor Expectations and Perspectives**

**Session Moderator: Judy Morgan, Pace Analytical Service**

TNI's Assessment Forum was structured to provide an opportunity for laboratories and laboratory assessors to share information on how to improve the laboratory assessment process. The 2022 assessment forum covered internal audits from the Accrediting Body perspective. The 2022 Forum included the following presentations:

- Overview of TNI 2016 Standard EL-V1M2 Section 4.14 Internal Audits (ISO/IEC 17025:2005, Clause 4.14)
- Overview of Standard Interpretations relative to internal audits
- Internal Auditing and SOP Review – Survey results on requirements/expectations of Accrediting Bodies
- Assessing effectiveness of the internal audit schedule and SOP review process relative to requirements of the Standard; Kristin Brown, Utah DOH
- Best Practices on how to effectively meet internal audit requirements; Mitzi Miller, Miller Quality Consulting
- SOP Review: Anticipating the Blind Spots, Aaren Alger, Alger Consulting and Technology

**TNI Proficiency Testing Program Executive Committee**

**Committee Chair: Fred Anderson, Advanced Analytical Solutions**

The Proficiency Testing (PT) Program Executive Committee has two (2) work groups working on Volume 1/ Volume 2 and the other work group on Volume 3/Volume 4. They went over their proposed and planned changes. They took public comment on the concepts. Their intent is to propose all four (4) volumes in January.

**TUESDAY, AUGUST 3, 2022...**

### Laboratory Accreditation Body Expert Committee

**Committee Chair: Aaren Alger, Alger Consulting and Technology**

The committee discussed elements of the standard (Volume 2, Module 1) that are being worked on at the moment. Chief among them were the frequency and components of internal audits, availability of laboratory records, and assessor competency. They have received 94 comments with 62 of 84 resolved being persuasive. There were also discussions regarding remote onsite assessments.

### TNI Mentor Session — Internal Audits: Bringing Together Assessor Expectations and Perspectives

**Session Moderator: Dorothy Love, Eurofins Environment Testing America**

This session was a combination of an interactive Family Feud-style game and presentations.

- Microbiology Auditing – David Caldwell, Oklahoma DEQ
- Chemistry Auditing – Michelle Wade, A2LA Workplace Training
- When Can Normal Activities Be Considered a Review/Audit — Eric Davis, Horizon LIMS

The Family Feud game PowerPoint is available here. (Note: It may take a moment to load so give it time.)

### Quality Systems Expert Committee

**Committee Chair: Debbie Bond, Alabama Power**

The committee chair, Debbie Bond of Alabama Power, led the discussion with most of the time allocated the Quality Systems committee has rolled TNI language into ISO 17025:2017. In conjunction with this they reviewed ISO 17025:2005 for any language that we would like to keep. TNI language that was added to the 2016 Standard has been placed in this framework. Duplicate language between TNI and ISO 17025 has been eliminated. Two work groups are also working on the standard. The Definitions Workgroup is working on definitions, both those that already exist in the standard and revisions to some that have been requested including the terms “annual,” “quarterly,” “support equipment,” “duplicate,” “customer,” “procedure,” and “corrective action.” The Language Update Workgroup is working on the following issues:

- Clarify differences between analytical/technical and support/QMS documents in 4.2.8.5
- Clarify listed items are not a required outline of sections for procedures in 4.2.8.5
- Evaluate use of word “unique” in sample identification in 5.8.5
- Clarify what is meant by “undue delay” in 8.8.2d)
- Review record retention requirement last “entry” versus last “use” in 4.13.3b)
- Clarification of unique ID for standards, reference materials and reagents in 5.6.4.2d)

The technical specialist groups for the various modules are also busy with that language. They've reached consensus and are almost done. Radiochemistry had language that is great for how to handle new methods and the committee plans to encourage this approach for the other modules. recommended that it be used across the board.

## WEDNESDAY, AUGUST 4, 2022...

### Chemistry Expert Committee

**Committee Chair: Michelle Wade, A2LA Workplace Training**

The committee chair, Michelle Wade, led the discussion. A significant portion of the meeting centered around Standard Interpretation Requests (SIRs) regarding analyst training, method-specified requirements and the determination of Relative Error for pH, conductivity, fluoride, ammonia, and other tests performed using ion specific electrodes (ISE). the committee discussed SIR requests and reviewed them. There are four work groups working on revising the standard. They reviewed the content of three of those work groups.

### Microbiology Expert Committee

**Committee Chair: Cody Danielson, Oklahoma DEQ**

The committee reviewed the training series – part one of five will be given Friday August 5. It was created by a work group of eight people. The other parts are not yet finished but they hope to be done by November. All would be offered as webinars. The first session is offered from a non-microbiology background, and then the parts build from there so that part five will be very detailed. Part one should run about three others the others are likely shorter. They haven't selected which methods they will address. Sections 2 to 4 are likely to be an hour long while part five could be two to three hours long. Hoping to finish the standard and get feedback in San Antonio.

### Proficency Testing Expert Committee

**Committee Chair: Kirstin Daigle, Pace Analytical Laboratories**

One work group is working on Volume 1/Volume 2 and the other work group on Volume 3/Volume 4. They went over their proposed and planned changes. They took public comment on the concepts. Their intent is to propose all four volumes in January.

## THURSDAY, AUGUST 5, 2022...

### NELAP Accreditation Council

**Council Chair: Kristin Brown, Utah HHS**

The AC offered status updates. They are closer to fully implementing the 2016 Standard. Two action items for the AC are working with Dan Hickman on method codes and SIR consistency.

### Laboratory Accreditation System Executive Committee

**Committee Chair: Maria Friedman, California ELAP**

The committee offered their background and how to find what exists regarding SIRs. They received feedback for the assessment form and the mentor session. They discussed the revised SIR approval process. They're proposing a change in the SOP requiring two-thirds approval from the subcommittee, but working on making it easier to return to the expert committee if it is not OK. They will also begin to look into policies as well as the standard when reviewing SIRs.

### Training Committee

**Committee Chair: Calista Daigle, Pace Analytical Services**

There are lots of new faces at the training and assessment sessions. They talked about their usage of LinkedIn. They discussed the catalog for training, trying to make it more intuitive and interactive and yet still something that could be printed. Ken Brown talked about credentialing and that it might be a secondary path for the technical specialist. One suggested topic would be EPA method 537.1 for a lab trying to start up that method. Jerry indicated that EPA drinking water office ordinarily wouldn't do training such as this, but that they are considering it due to it being a new technology and a very high priority. This might be better than if it were vendor driven. Due to a special session in San Antonio on credentialing, training may get about a 30 minute portion of that session. Jerry indicated we could have half-day long session on credentialing focusing on the talking points for implementation. Still needing to be worked out are how exams will be proctored, who could write test questions, and a business plan. We think this would be a good draw to keep people there.

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# Technical Specialist Consensus Update

By Debbie Bond, Alabama Power Company

*Note: We plan to use the term "Technical Specialist" in the next revision of the TNI Standard for the role named "Technical Manager" in the 2016 revision of the Standard.*

The Quality Management System Expert Committee (QMS EC) – with plenty of help from the Competency Task Force, Technical Module Committees, and TNI stakeholders – has been developing a description of a Technical Specialist and outlining the minimum education and experienced required for this role. Today, this journey feels like it is approaching an end, at least for inclusion in the current Draft of TNI Standard Volume 1 Module 2. Though the destination is unlikely to make any party delighted, completing this phase of the journey represents countless hours of sharing ideas, reviewing outcomes, reviewing language, and understanding how different laboratories can function within the language proposed. As the saying goes, the sign of a good compromise is that no one party is completely satisfied.

To best explain the consensus status of proposed Technical Specialist (TS) clauses, I must begin by describing the work done by various groups, beginning with the Competency Task Force (CTF). The CTF reviewed current language and explored the idea that having an inadequate TS would be visible in laboratory output, whereas a suitable TS would likewise be reflected in laboratory activities. This led to the proposal of three (3) TS language options. All options clarified that the role was not required to be a managerial or supervisory one. The different options outlined a range of qualification requirements from allowing each laboratory to define TS qualifications to making specific education and experience requirements. Typically, laboratories prefer making personnel decisions internally, Assessors need the Standard to be clear about requirements they must review, and Accreditation Bodies must have consistent directions for the way laboratories qualify personnel.

*The compromise?* Proposed TS clauses will have specific education and experience requirements, but we will look very closely at ensuring only absolutely necessary education and experience are required. Though options for grandfathering a TS is not in the Draft, additional avenues for qualifying an individual without education requirements are present. These changes have been proposed in an effort to provide laboratories access to a larger pool of candidates for the position, while still ensuring the laboratory has access to necessary technical expertise.

Each Technical Module committee reviewed its section of TS Qualifications. Overall, they worked to limit education and experience only to what they judged necessary. In many cases, the qualification requirements for laboratories with limited fields of accreditation on their scopes is greatly reduced. There are some modules that allow for substituting ongoing experience for some education. Some modules expand the educational fields allowed to meet the education requirements.

The QMS EC compiled and reviewed language proposed by the CTF and each Technical Module committee. We have asked for clarification from Technical Modules committees where needed, revised for consistency, clarified language throughout, and scrutinized the allowed exceptions to TS qualifications. This language was presented in Crystal City, VA during NEMC. We received valuable feedback and suggestions from those in attendance. The intent of the proposed TS clauses will stay much as they are, but there will be minor tweaking.

## Technical Specialist Consensus Update cont.

The proposed Technical Specialist language is close to inclusion in the TNI Standard V1M2 Draft. Stakeholders will have further opportunities to review the proposed language once the Module 2 Draft is complete. In the meantime, if you are interested in helping with the Draft and other QMS Expert Committee business, please consider joining the committee. Currently voting membership is full, but we are always happy to welcome associate members.

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# EPA Updates from NEMC

By Jerry Parr, TNI

On August 1, 2022, as part of the National Environmental Monitoring Conference (NEMC), the Environmental Protection Agency (EPA) provided updates from the RCRA, CWA, and SDWA programs.

## DRINKING WATER PROGRAM

### *Draft Contaminant Candidate List (CCL) 5*

List of contaminants that are currently not subject to any proposed or promulgated national primary drinking water regulations, but are known or anticipated to occur in public water systems. Draft CCL 5 includes 66 chemicals, 3 chemical groups (per- and polyfluoroalkyl substances (PFAS), cyanotoxins, and disinfection byproducts) and 12 microbial contaminants. Contaminant Candidate List 5—CCL 5

### *Unregulated Contaminant Monitoring Rule (UCMR) 5*

- Used to collect data for contaminants that are suspected to be present in drinking water and do not have health-based standards set under the Safe Drinking Water Act (SDWA)
- UCMR 4 (2017-2021) completed– data available here
- UCMR 5 final rule published December 2021 (86 FR 73131)
- Monitoring for 30 chemical contaminants at the Entry Point to the Distribution System
  - 29 PFAS and lithium
- Methods: EPA 533, EPA 537.1, EPA 200.7/SM 3120B/ASTM D1976-20
- UCMR 5 sampling period 2023 – 2025
- UCMR 5 includes many more small PWSs than in prior UCMR cycles
  - ~6000 small PWS (vs. 800 small PWS in previous cycles), subject to availability of appropriations (to fund monitoring at small PWSs) and sufficient laboratory capacity
- Fifth Unregulated Contaminant Monitoring Rule
- Labs need to be certified to analyze one or more drinking water compliance monitoring parameters to apply for EPA approval to support UCMR 5
  - Qualify and participate in PT studies offered by EPA
  - Demonstrate capability to perform methods for which approval is being sought
- Laboratories approved for UCMR 5 analyses: Laboratories Approved List

### *Regulatory Determinations for CCL 4*

- Final determination to regulate perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA)
- Final determination to not regulate six contaminants (1,1-dichloroethane, acetochlor, methyl bromide (bromomethane), metolachlor, nitrobenzene, and RDX)

- Technical Support Documents for Final Regulatory Determinations 4 are available on www.regulations.gov: Docket ID No. EPA-HQ-OW-2019-0583
- Goal for proposed PFOS/PFOA NPDWR is Fall 2022
- https://www.epa.gov/ccl/regulatory-determination-4

### *EPA PFAS Strategic Roadmap*

On October 18, 2021, EPA announced the Agency's PFAS Strategic Roadmap:

- A whole-of-agency approach to addressing PFAS
- Undertake nationwide monitoring for PFAS in drinking water under UCMR 5
- Establish a national primary drinking water regulation for PFOA and PFOS that would set enforceable limits and require monitoring of public water supplies
- Proposed rule anticipated fall 2022, final rule anticipated fall 2023
- Pfas Strategic Roadmap
- Toxicity assessments to better understand their human health and environmental effects. Human Health Toxicity Assessment
- Public health advisories to enable tribes, states, and local governments to inform the public and take appropriate action. Drinking Water Health Advisories for GenX Chemicals and PFBS

### *PFAS Drinking Water Health Advisory*

On June 15, 2022, EPA issued:

- Final health advisories for two PFAS:
  - hexafluoropropylene oxide (HFPO) dimer acid and its ammonium salt (referred to as "GenX chemicals")
  - perfluorobutane sulfonic acid and its potassium salt (PFBS)
- Interim updated drinking water health advisories for PFOA
- Drinking Water Health Advisories for PFOA and PFOS
- Drinking Water Health Advisories for GenX Chemicals and PFBS

### *MDBP Potential Rule Revisions*

Eight candidates for revision:

- Chlorite
- Cryptosporidium
- Haloacetic acids
- Heterotrophic bacteria
- Giardia lamblia
- Legionella

- Total trihalomethanes
- Viruses

***Drinking Water Laboratory Certification: LT2 update***

- Round 1 and Round 2 monitoring required under the Long Term 2 Enhanced Surface Water Treatment Rule now complete
- Rule continues to apply to new surface water systems
- Cryptosporidium monitoring would only be required for large new surface water systems
- Oversight of any additional monitoring would be implemented by Primacy Agencies
- States can continue to certify laboratories for Cryptosporidium if desired
- EPA-developed technical support materials for Method 1623/1623.1 posted on EPA website for use
- Drinking Water Lab Certification

***Safe Drinking Water Act (SDWA): Primacy Agreements***

SDWA authorizes EPA to set federal enforceable health standards for contaminants that apply to all public water systems. Establishes a joint Federal-State system for assuring compliance. Authority to implement/ enforce regulations is delegated to the "States" through Primacy Agreements. Certification Authority has been delegated authority by EPA to certify laboratories through Primacy Agreements.

Non-governmental agencies (i.e., NGO ABs) are not Primacy Agencies

- Cannot be delegated the authority to certify DW laboratories for compliance sample analysis
- States can utilize Third Party Auditors (TPAs) to conduct laboratory audits
- TPAs are not the same as Certification Officers
- Certification decisions must reside with the Primacy Agency
- TPAs must address any Conflict of Interest (COI) concern
- Primacy Enforcement Responsibility for Public Water Systems

**WASTEWATER PROGRAM**

***2021 Routine MUR***

- Proposed October 2019
- Signed on May 3, 2021 by Administrator Michael S. Regan
- Effective July 19, 2021
- Methods Update Rule 2021

### *Next Routine MUR*

- Materials received by VCSBs and ATP applicants
- Proposal likely in early 2023

### *Update EPA Microbial Methods in the 2022 MUR*

- Update equipment
- Standardize language between methods
  - e.g., QA, scope, legal disclaimer
  - e.g., no mercury thermometers, disposable culture dishes
- Rapid methods for E. coli and enterococci by droplet digital PCR in ambient water
- Single-laboratory validation completed
  - Two laboratories participated
  - Shortens response time for swimming advisories

### *Adsorbable Organic Fluorine (AOF) Draft Method 1621*

- Thousands of PFAS exist
- Increasing demand for aggregate methods like AOF
- Naturally occurring organofluorines are rare
- Collaborated with ASTM D19 and EPA ORD on single-laboratory validation of AOF screening method
- Single-Laboratory Validation Included:
  - Calibration and sorbent testing
  - Recovery of individual PFAS, mixed PFAS, and non PFAS organofluorines
  - Initial precision and recovery and method detection limit studies
  - Ten wastewater and surface water matrices were tested at two spike concentrations
  - Organofluorine compounds were retained on a granular activated carbon (GAC) sorbent
  - Then measured by combustion ion chromatography (CIC)
- Yields a single result that estimates an aggregate concentration of any organofluorine compounds in the sample
- Finalizing Study Plan and collecting test matrices
  - Over a dozen labs with CICs have expressed interest in participating
  - Clean Water Act Analytical Methods

### *Method 1628 for PCB Congeners*

- Multi-Laboratory Validation
  - 12 laboratories recruited, 7 finished
  - 6 Commercial and 1 state laboratories

- Identifies and quantifies individual PCB congeners using low resolution GC/MS
- Wastewater, biosolids, sediment, and fish tissue
- 48 congeners calibrated, all 209 monitored
- 29 isotope dilution standards
- Validation study report and EPA Method 1628 completed.
- Clean Water Act Analytical Methods

***Validation of Method 1633 for PFAS***

- Solid-phase extraction isotope dilution method
  - Based on an SOP originally developed by SGS AXYS
  - DoD is funding and managing both single and multi-laboratory validation studies of the method, EPA OW and OLEM are providing review
  - The goal is to provide EPA OW with the documentation needed to consider publication of this method as a CWA method. OLEM plans to also leverage the validation data to support an SW-846 method.
  - Test matrices: wastewater, surface water, groundwater, landfill leachate, soil, sediment, biosolid, and fish tissue (includes shellfish)
- Single-Laboratory Validation Completed
- Draft Method 1633 and single laboratory validation study report are both posted
- Clean Water Act Analytical Methods

***Multi-Laboratory Validation of 1633***

- Currently underway, study includes 10 participant laboratories, referee laboratory, and data validators
- Received initial calibration and initial demonstration of capability data
- Aqueous (wastewater, surface water, and groundwater) samples analyzed
- Soil, sediment, biosolid, tissue, and landfill leachate sample analysis forthcoming
- Data review and statistical analysis ongoing

***608.1, 624.1, and 625.1 QC Criteria Update***

- TNI, ACIL, APHL, and WEF have volunteered to provide data to update QC criteria
  - Initial calibration, MDLs, calibration verification, ongoing precision and recovery, surrogate recovery, MS/MSDs
- Secondary Data Collection
  - Use existing data anonymously
  - Volunteer laboratories

- ⊕ Perform NPDES compliance monitoring
- ⊕ Have an SOP and formal quality system
- ♦ Coordinate with laboratory associations

- Over 20 laboratories recruited
- Data collection this fall

### *Revision to EPA Method 900.0 for Gross Alpha and Beta*

- OGWDW approved a revision in 2018 for drinking water at 40 CFR 141.66(c)
- Clean Water Act approved EPA method for Gross Alpha Beta is the original Method 900.0 published in 1980
- Plan to evaluate the performance of the method in wastewater with high total dissolved solids (TDS)
- Study plan finalized and we have recruited volunteer labs
- Testing to start this year

### *Continuous Compliance Monitoring*

- Total residual chlorine pilot study
- Based on EPA Drinking Water Method 334.0
- Hampton Roads Sanitation District's (HRSD) SOP for Online Total Residual Chlorine Analysis approved as a limited use ATP by VA DEQ for compliance analysis of total residual chlorine (TRC) in the contact tank to meet VPDES permit requirements.
- Collaborating with Standard Methods Joint Task Group to develop an approach for validating the calibration and measurements resulting from online analyzer technology

### *ATP Reviews*

- Alternate test procedures (ATPs) for nationwide use are submitted to EPA HQ for review
- Codified at 40 CFR 136.4 and 136.5
- Protocols for EPA review of ATPs and new methods are available here

## HAZARDOUS WASTE PROGRAM

### *Method 1340 – In Vitro Bioaccessibility Assay for Lead and Arsenic in Soil*

- Standard Operating Procedure for an In Vitro Bioaccessibility Assay for Pb and As in Soil
- Validation Assessment of the In Vitro Arsenic Bioaccessibility Assay for Predicting Relative Bioavailability of Arsenic in Soils and Soil-like Materials at Superfund Sites (OLEM 9355.4-29 April 20, 2017)
- Guidance for Sample Collection for In Vitro Bioaccessibility Assay for Arsenic and Lead in Soil and Applications of Relative Bioavailability Data in Human Health Risk Assessment
- Fact Sheet: Relative Bioavailability and In Vitro Bioaccessibility of Lead in Soil
- Fact Sheet: Relative Bioavailability and In Vitro Bioaccessibility of Arsenic in Soil

### *Why a Method for Pb and As Bioaccessibility?*

- Determining bioavailability for soil contaminants is important for understanding site-specific risk
- Commonly found together at sites and accurately measuring their RBA has a significant impact on the risk assessment and on the selection of cleanup levels.
- Does not require the use or sacrifice of animals and the reduced cost per sample allows risk assessors to obtain a more representative number of samples per exposure unit.
- Incorporation of As into the already existing method for Pb means that laboratories already have experience performing the assay

### *Updating Method 6200 – X-Ray Fluorescence Spectrometry for the Determination of Elemental Concentrations in Soil and Sediment*

- XRF can guide real-time, in-field choices, set decision unit (DU) boundaries, and evaluate sample processing.
- Technological progress enabled broadening of elements, rapid, low cost, and nondestructive analysis - detection limits for most of trace elements are usually below regulatory levels.
- Does not produce analytical waste, low energy consuming, safe and easy to operate.

### *Method 3060 – Alkaline Digestion for Cr(VI)*

- Method Parameters
  - High pH (~13) and high carbonate
  - Liquid : solid ratio = 20 mL/g
  - Borosilicate glass or quartz extraction vessels
  - Stir samples at 90-95ºC for at least 1 hour
  - Adjust pH to 7.5 with nitric acid

- Analysis
  - 7196A Visible Spectrophotometry
  - 7199 Ion Chromatography
  - 6800 Speciated Isotope Dilution Mass Spectrometry
- Challenges of Existing Method
  - Addition of MgCl2 causes immediate precipitation of hydroxides and carbonates. Incomplete Cr(VI) Extraction
  - USGS studies show extraction of Cr(VI) is not quantitative compared to X-ray absorption near edge structure (XANES) spectroscopy results.
  - Difficult to operate
  - Does not address heterogeneity or particle size.

***Potential Updates***

- Smaller Particle Size
- Extraction Vessel
  - High pH/high carbonate extraction fluid dissolved borosilicate glass
  - PTFE extraction vessels
- Liquid to Solid Ratio
  - ~1000 (50x that of 3060A prescribed ratio)
- Extraction Time
  - Dissolution of mineral phases and exchange processes may be kinetically limited (48 hours)

***ASTM Collaboration***

- Interlaboratory studies for D8174-18, D8175-18
- Modernizing Ignitable Liquids Determinations rule finalized in 2020, incorporated D8174 and D8175: RCRA ignitability characteristic regulation
- Based on ASTM D3278-78 (Small scale closed cup), D93-79/D93-80 (Pensky-Martens)
  - Maintain method-defined elements - cup dimensions, materials of construction, sample size, heating rate
  - Standards need interlaboratory studies to generate precision statements
  - SW-846 methods team working with National Enforcement Investigations Center laboratory, D34 committee

***Additional Methods***

- Method 3110 – Extraction of Seafood for Arsenic Species
- Method 6870 – Arsenic Speciation Analysis in Seafood Using IC/ICP-MS
- Method 6850 – Perchlorate in Water, Soils, and Solid Wastes Using High Performance Liquid Chromatography/Electrospray Ionization/Mass Spectrometry (HPLC/ESI/MS)

- Method 6860A – Perchlorate in Water, Soils, and Solid Wastes Using Ion Chromatography/ Electrospray Ionization/Mass Spectrometry (IC/ESI/MS)
- … and several others

***SW-846 Organic Methods Updates: PFAS***

- DoD collaboration with EPA on analytical methods validation study
  - OW/OST published draft Method 1633 based on single lab data
  - Includes aqueous and solid sample matrices
  - Status: Multi-laboratory validation study underway
  - Data acquisition anticipated to be complete by end of 2022 or early 2023
- ASTM collaboration with EPA on interlaboratory study for D8421-22
  - Aqueous matrices
  - Developed by EPA Region 5 laboratory
  - Similar to ASTM D7979-20, SW-846 Methods 3512/8327
  - Includes more target analytes, tested in a wider array of wastewaters
  - Status: ASTM in planning stage for interlaboratory study
- EPA evaluation of calibration models for methods 3512 and 8327

***Planned New/Revised SW-846 PFAS Analytical Methods:***

- 3536: Solid Phase Extraction using Weak Anion Exchange (Aqueous)
- 3551: Equilibrium basic solvent extraction (Solids)
- 3670: Non-porous graphitized carbon cleanup
- 3512A: Solvent dilution of non-potable waters
- 8327A: Per- and Polyfluoroalkyl Substances by Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)
- Add target analytes, performance data, chromatography conditions, isotope dilution calibration
- SW-846 Methods Updates: Leaching Environmental Assessment Framework (LEAF)
- Aqueous leaching methods, data management/visualization software, "How to" guide, case studies
- LEAF provides inputs for fate and transport modeling
  - Equilibrium-based Tests (Method 1313, 1316)
    - Batch tests on size-reduced material
    - *Contaminant concentration and release as function of: Eluate pH* – Method 1313
    - *Liquid-solid ratio (L/S)* – Method 1316
  - Percolation Column Test (Method 1314)
    - Up-flow column – saturated to minimize preferential flow
    - *Contaminant concentration and flux as a function of water percolated*

- Mass Transport Rate Test (Method 1315)
  - Tank-based leaching test, monolithic or compacted granular
  - *Rates of contaminant release*

***SW-846 Inorganic Methods Updates: Method 3050C***

- Strong acid digestion to solubilize metals that could become "environmentally available"
- 3050B has separate digestion steps for ICP-OES (6010D)/AA and ICP-MS (6020B)
- ICP-MS collision/reaction cell technology reduces Cl-related interferences
- 3050C changes:
  - Add HCl earlier
  - One solids digestion for both ICP and ICP-MS
- Validation study complete
  - Ten participating laboratories
  - Five solid certified reference materials
- Next steps:
  - EPA management review
  - Propose for public comment

# Member Spotlight—Stacie Crandall

By Zonetta English, Louisville Jefferson Co., MSD

Stacie has worked at Hampton Roads Sanitation District (HRSD) in the Central Environmental Laboratory for 29 years. She was an analyst for 6 years performing various types of wastewater analysis, served as the Quality Assurance Manager for 8 years, and has been the Chief of the Laboratory for the last 8 years. During this time, she led the efforts to become accredited through the Virginia Environmental Laboratory Accreditation Program at the inception of the program and have had the opportunity to serve on many committees and in leadership roles for quite a few professional organizations, including chair of the WEF Laboratory Practices Committee and President of the Virginia Water Environment Association. Stacie currently serves on the TNI Board of Directors Chair the Proficiency Testing Program Executive Committee and a member of the Advocacy Committee . In addition, Stacie recently became involved with the Environmental Monitoring Coalition.

Stacie has a lot of creative hobbies. Stacie states “I do mosaic, make crocheted wire jewelry, and crochet everything from baby blankets to clothing. I plan to develop some sort of small business at some point so my house doesn’t fill up with all of this stuff as I stockpile it. I also enjoy time on the beach and spending time with family and friends whenever the opportunity arises.”

One of the biggest challenges that Stacie is currently facing now is working with a group that is planning for the construction of a new laboratory for HRSD that will meet analytical needs over the next 25 years. This has involved using best information available to make determinations on possible new regulatory actions, expansion of HRSD’s service area and future research needs.

Stacie supports laboratory accreditation for a lot of reasons. She explains, “ I have seen improvements in my laboratory because Virginia became an accreditor for the National Environmental Laboratory Accreditation Program. Using a philosophy of continuous improvement to implement corrective actions and address concerns that arise during onsite assessments has been valuable to my laboratory. In addition, the PT program, if applied correctly, can provide a wealth of learning opportunity for laboratories to make improvements in data quality. I feel the demonstration of capability have requirements of the TNI Standard have led to my laboratory developing a more extensive training program, ensuring only those that are properly trained are performing analysis, and that their capability is maintained.”

# Cheesy Chicken and Spinach Enchiladas

By Robin Cook, City of Daytona Beach

***Below is a delicious recipe for Cheesy Chicken and Spinach Enchiladas. It's pretty easy to make and everyone will enjoy it. Read on for ingredients and instructions:***

## INGREDIENTS

| | |
|---|---|
| Cream Cheese | (1) 8oz package |
| Frozen Spinach | (1) box |
| Onion | (1) medium |
| Cumin | (2) tsp |
| Butter | (1) tbsp |
| Rotel w/Green Chiles (drained) | (1) can (8oz) |
| Chopped Chicken (alternative: 1 lb ground chicken) | (2—3) cups |
| Montery Jack (or your favorite) | (2) cups |
| Heavy Whipping Cream | (1) pint |
| Flour or Wheat Tortillas | (8) 8" tortillas |
| Salt and Pepper | To taste |

## HERE'S HOW

1. Dice onion. Cook in a skillet with the butter until the onions are partially cooked.
2. Add in the cubed or ground chicken. Cook for approximately 2 minutes on medium-high.
3. Add cumin , salt, and pepper, and the drained can of Rotel. Cook for a bit while stirring well.
4. Add the thawed and drained spinach and the cream cheese. Mix well.
5. Spray cooking spray in 9 x 13 cooking dish. Fill a tortilla with the mix. Roll tortillas tightly and place in dish with the seam facing down. This recipe should easily fill 8 tortillas. Any left-overs can be placed on top of the tortillas before the next step, or you can use it as an appetizer with some tortillas chips. Great either way.
6. Once the stuffed tortillas are in the pan, sprinkle cheese over the entire dish and pour the whipping cream over the top.
7. Cover with foil and bake for 25 minutes at 350 degrees. Remove foil and bake another 10 –15 minutes until golden brown.

## *HELPFUL NOTES*

- A bit of cilantro in the stuffing mixture is a nice extra bit of flavor if that's your thing.
- This recipe can also be put together layer style if you want to get smaller servings. If you do the layer style, place tortillas at the bottom AND the top to hold it all together.
- Don't be afraid to use more cheese or your favorite tex-mex spices. You can make iT as spicy or mild as you like. I always tweak this recipe a bit depending on my mood.

# ChairSpeaks

## *"Musings from the TNI Chair"*

## Act or React, that is the Question

If Hamlet had been written in this century, his soliloquy might have started a bit differently, but still true to his original preoccupation: do we let things be, or do we change them by taking decisive action?

I thought about this dilemma recently when an evaluation team asked a question concerning an Accreditation Body (AB), that accredits laboratories, that test cannabis in a variety of matrices. I had a recollection of TNI Board meetings in which we heard pros and cons for having the Institute take a role at, what was then, an emerging field. Now that it is not such a new area, I revisited how we arrived at our decision and how that stacked-up with current developments. The day after the evaluation team posed the question, President Biden pardoned possessors of marijuana that had been convicted in Federal courts. Talk about timing!

Back then, some Directors felt this was a probable sector for TNI expansion, others felt that it would be too complicated to devise an accreditation module specific to laboratories analyzing cannabis, and still others were concerned about the legal implications of collaborating with a sector that was still penalized by the Federal government.

After much debating, we opted not to pursue developing a module for accrediting cannabis laboratories, while at the same time admitting that a recognized AB could use our quality systems module to accredit those laboratories. We went the Hamlet way — I wonder where we would be today if we had not. We once considered developing a standard for taxonomists…

### *Organizational Ethos...*

We are not fast reactors. We ponder, consult, and then document our positions, which need to be vetted by many before they become public. Consensus takes time and then more time. Government agencies are saddled with deliberately long processes for adopting regulations, so change within that group is even slower. The commercial laboratory sector is unlikely to adopt without governmental sanction, so this cascading torpor results at best in some good products, but mostly delivered past their prime-time sparkle.

I am not suggesting that fast and ready is always best. There are very good reasons for taking one's sweet time in creating something. Especially when that something will be used by many in the progressive present and future, but our modus operandi makes us ill-equipped to act quickly and deal with emerging trends. Our position tends to be one of reacting to a perceived need, not one of seizing an emerging opportunity.

Institutionally, we are no longer the fledgling organization we started as and have entered a mature phase with all its concomitant attributes. Understandably, we are now interested in ensuring the Institute's continuity by maintaining systems and stabilizing operations.

### *The Road Less Taken...*

Arguably, pursuing emerging trends can be rewarding and institutionally invigorating. Taking risks, even measured risks, can shake-up the complacent and revitalize an organization. The biggest impediment to stepping into different territory is the fear of failure. So, a healthy organization tolerates and allows failure, without setting itself for it.

Change is not incompatible with organizational stability. Healthy, stable institutions are in perpetual dynamic equilibrium (think chemistry), not static status quo, always micro-changing and re-adjusting. Give me vibrancy over stagnation.

Wouldn't it be great if TNI had an entrepreneurial center? Wouldn't it be cool if that group could pursue opportunities without fear of jeopardizing the future of the Institute? Wouldn't it be swell if we could decouple taking action from our fear of being in the wrong? Wouldn't it be awesome if that group could act independently from, but cooperatively with, our expert committees?

King Lear goes majestically mad and finds wisdom after prolonged suffering. I would not suggest him as a role model for our Institute, but I would like us to, at times, be less like Hamlet and tolerate a little "madness", if that could eventually bring us enlightenment, with or without a puff.

And until we find that right character,

Only connect.

*Alfredo*

Alfredo Sotomayor
TNI Chair

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