



THE INSTITUTE REVIEW

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June 2024

Steve Arms
Retired
Editor in Chief

THE INSTITUTE REVIEW

June 2024

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It's Time To Register for the Upcoming 2024 Environmental Measurement Symposium...

Lara Phelps, USEPA and Jerry Parr, TNI



In its 18th year, the 2024 Environmental Measurement Symposium (EMS) represents the combined meetings of the National Environmental Monitoring Conference (NEMC) and the Forum on Environmental Accreditation (the Forum) to be held in Garden Grove, CA from August 5-9. This year, the theme is *"Reliable Data for Sound Decision Making."*



A few of the highlights for the week include:

- A special half-day general session focused on the conference theme;
- Over 140 oral and poster presentations on a variety of cutting-edge environmental monitoring issues;
- Meetings of TNI Committees to further TNI efforts on environmental laboratory accreditation, proficiency testing, and accreditation of field sampling and measurement organizations;
- A meeting of the Environmental Monitoring Coalition;
- An exhibit program showcasing the latest innovations in environmental monitoring;
- An Innovative New Technology Showcase;
- A special session providing an update from EPA program offices;
- 5 vendor lunch presentations;
- One keynote presentation on the use of Artificial Intelligence in laboratories; and
- A special Friday session focused on the evolution of laboratory accreditation.

The Symposium will be held at the Hyatt Regency Orange County. Special advance registration rates of \$183 per night (single or double) can be obtained by calling **the hotel directly before July 12, 2024 or using our secure on-line registration system.**

Conveniently located just 1.4 miles from Disneyland® Resort, this luxury hotel near Anaheim offers shuttle

service to and from the parks, and is in close proximity to Angel Stadium, world-famous beaches and many other Orange County attractions.

Forum on Environmental Accreditation

Highlights from this summer's Forum include:

- An Assessment Forum and Mentor Session;
- Meetings of TNI's standard development committees; and
- Meetings of the TNI executive committees that manage TNI's Proficiency Testing Program and National Environmental Field Activities Program.

As these sessions become further developed, additional details will be available on the [Symposium website](#).

NEMC Technical Sessions

NEMC provides the principal forum for addressing policy and technical issues affecting monitoring in all environmental media (i.e., water, air, soil, and waste) and across all environmental programs. The technical program is organized by a committee of environmental experts from government and private industry, which brings together a balance of technical and policy topics for each year's symposium that are of interest to all.

Each NEMC technical session consists of 4 – 8 oral presentations. The titles of the presentations, abstracts, and authors can be found on the [Symposium website](#).

Technical Sessions for NEMC 2024 include:

- Air Monitoring, Methods, and Technology
- Analyzing Microplastics in the Environment
- Automation and Innovation for Sample Preparation
- Collaborative Efforts to Improve Environmental Monitoring
- Crafting Consensus Methods for Environmental Sampling and Measurement
- Drinking Water
- Emerging Environmental Applications for High Resolution Mass Spectrometry

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It's Time To Register for the Upcoming 2024 Environmental Measurement Symposium... cont.



- Ensuring Reliable Data
- Environmental Forensics
- Innovative Solutions for Water Testing
- Laboratory Informatics
- Metals
- Optimizing Laboratory Operations
- Participatory Science
- Polyfluoroalkyl Substances (PFAS) in the Environment (3 Sessions)
- Role of AI in Environmental Analysis

Please take a few minutes to look over the preliminary program and register today. To view abstracts and the preliminary program, in addition to conference arrangement details, visit the [Environmental Measurement Symposium website](#).

We look forward to seeing you in August!

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Welcome to Garden Grove, CA—August 2024

Ryan McMullin, Orange County Sanitation District



As you arrive in Garden Grove, California in August 2024, you will likely be greeted by the city's most famous and welcoming feature – the warm California sunshine! While the beautiful, year-round weather is enough to attract tourists from all over the world to the city and the surrounding area of Orange County, the region has so much more to offer its welcomed visitors.

Southern California's most famous (and cleanest) beaches stretch out along 42 miles of golden Orange County coastline. Take a short drive to experience the summer 'Surf City' vibes of Huntington Beach, the laid-back charm of old town Seal Beach, or to marvel at the powerful shore break waves at 'The Wedge' on the Balboa Peninsula of Newport.

Experience the vibrant culinary scene inspired by the many diverse cultural communities that thrive in Orange County. From ramen to kebabs, you can find nearly anything to satisfy your inner 'foodie' at the nearby [Anaheim Packing District](#). Enjoy the warm summer evenings while dining in a fun, outdoor setting at [Steelcraft Garden Grove](#). Savor authentic Vietnamese cuisine in the famous [Little Saigon](#) district, or tasty tacos and ceviche at the [Mercado Gonzalez](#) indoor market in

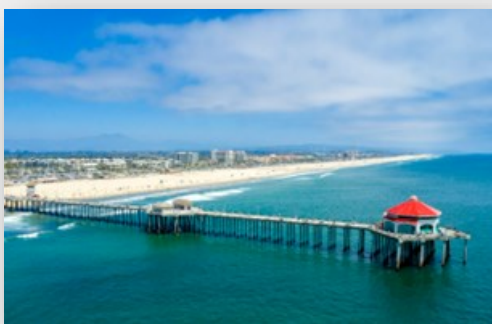
Costa Mesa. Whatever you may be craving, you can surely find it during your visit.

World-famous entertainment options, highlighted by the 'Happiest Place on Earth', [Disneyland](#), make Orange County one of the top travel destinations in the country. While that may be a bit much to pack into your visit, you can still 'wish upon a star' and immerse yourself in the magic at the [Downtown Disney](#) district, offering a variety of Disney-themed shopping, dining, and entertainment choices. If you're a sports fan, grab some peanuts and cracker jack while catching a [Los Angeles Angels](#) baseball game in Anaheim. Despite the name, they are Orange County's home team!

Garden Grove, California, along with the surrounding communities within Orange County, is a destination sure to provide you with many lasting memories, a full and satisfied appetite, and even possibly a bit of a suntan. With so much to do, it won't be long before you're beginning to plan out a jam-packed itinerary for your return visit.

Bring the family, pack your sunscreen, and be sure to enjoy your stay!

Check out the laid-back charm of old town Seal Beach.



Ride the powerful shore break waves at "The Wedge" on the Balboa Peninsula of Newport.

Or, visit "The Happiest Place on Earth"



Grab some peanuts and cracker jack at a Los Angeles Angels baseball game!

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Summary of the 2024 Forum on Laboratory Accreditation

Lynn Bradley, TNI



The 2024 Winter Forum on Environmental Accreditation was held January 22-25, 2024 in Columbus, OH. The special sessions at this meeting on a variety of topics were quite successful. The Advocacy committee is considering a similar structure for future meetings with reduced time for TNI committee meetings. In addition to TNI committee meetings, the following other sessions were held:

- Resources for Implementing the 2016 Standard,
- TNI Annual Report,
- Mentor Session on Back to the Basics (for a better future),
- Assessment Forum focusing on Critical Findings Re-Observed,
- Small Laboratory Open Forum, and
- A special session on Improving Operations of TNI Committees.

Presentations from all of these sessions are on the TNI website under Training and Meetings/Past Conferences. Below is a summary of committee activities during the public meeting sessions.

Advocacy Committee

The committee reviewed the State of National Accreditation report developed in late 2023; presented a plan of outreach to data users; reviewed the new White Paper *"Having a Strong Quality Management System Prevents Faulty Results"*; discussed the sessions at Columbus that might need Advocacy involvement; discussed the spring newsletter; and discussed expanding the TNI Ambassador effort to other states.

Chemistry Expert Committee

The committee reviewed the 7 Standard Interpretation Requests (SIRs) that were processed in 2023 and discussed the 4 workgroups created to revise language related to 1) method selection, validation, and verification; 2) demonstration of capability; 3) calibration; and 4) quality control, data acceptance, and sample handling.

Credentials Committee

The committee provided an update on the effort to establish a credential for a Certified Quality Management System Environmental Laboratory Professional. The committee then passed out an exam of 20 questions to review typical questions that would be on the exam. After

the break, TNI's Information Technology manager provided a demonstration of the online software to be used to manage this process, which was well received by the audience. TNI indicated they planned to launch this initial effort in the spring of 2024.

Field Activities Expert Committee

The committee is very close to publishing the revisions to both Volume 1 and Volume 2 of the FSMO Standard. The changes include incorporating language from the 2017 versions of ISO/IEC Standards 17011 and 17025 as well as adding in more specificity to the FSMO requirements in Volume 1. The entire meeting was dedicated to presenting these changes.

Laboratory Accreditation Systems Executive Committee

The Committee Chair presented the mission and objectives of the committee, then discussed the Mentor Session and Assessment Forum. The Mentor Session's interactive game was "Who Wants to be a Millionaire?" The Chair also explained that both the Mentor Session and the Assessment Forum will be transferred to the Training Committee in the coming weeks, although LASEC will continue to provide support and speaker participation as requested. The Chair then discussed SIR management aspects, including the requirements to be a valid SIR, and went into some detail about implementation guidance as well.

The Chair noted that LASEC has provided recommendations to the NELAP Accreditation Council for the Asbestos module, V1M3, and that due to an unresolved issue, the committee declined to provide a recommendation about the V2M1 Revision 1 Draft Standard. A question was raised about the unresolved issue, with a strong suggestion that not explaining the reason for declining a recommendation was a failure of transparency. However, the comments on that module are not within LASEC's purview, and the Laboratory Accreditation Body (LAB) Committee did not meet in Columbus; it would have been inappropriate for LASEC to discuss it when LAB has reached no decisions yet. The Chair stated that for the coming year, LASEC will continue its role in SIR management and review of draft and final standards as they are produced.

Microbiology Expert Committee

The committee reviewed the SIR they processed in 2023; discussed the “Understanding Microbiology” training courses presented in 2023; discussed proposed changes to the microbiology module; and provided information on two guidance documents in development — one on temperature distribution and the other on equilibrium testing.

NEFAP Executive Committee

The committee reviewed their accomplishments in 2023, including the first ever Field Measurement and Sampling Conclave.

NELAP Accreditation Council

A few states provided updates to their program.

Florida is now offering Draft 4 of EPA Method 1633, and they are updating laboratories as the drafts are published. Laboratories must sign attestations to acknowledge that after obtaining certification for a draft, they must change to the updated draft method as it changes. After a request from EPA Region 4, Florida is not offering the older draft versions of this method. They continue to update Scopes of Accreditation to comply with MUR 2021.

Illinois explained that state legislation to adopt the draft solid waste and wastewater methods is under consideration and that the state is hiring assessors due to losing all three staff positions due to retirements in the past year.

Kansas noted that their regulation to update to the 2016 Standard is in the state Attorney General’s office and that Kansas is now using the generic application.

Minnesota explained that they are working with the state legislature to secure funds for hiring additional personnel to assist with database updates and Contaminants of Emerging Concern (CEC) such as PFAS.

Oregon explained that Travis Bartholomew is leaving ORELAP and his replacement will be Steve Jetter.

The LAB Expert Committee and NELAP Evaluators groups are both contributing to the development of what will become a proposal to the Council for revising both the evaluation process for renewals and the current evaluation schedule. As the only member of both groups present at this session, Cathy Westerman gave an update

on what changes are under consideration for AB evaluations. She explained the scheduling issues for evaluations and consideration of how to adjust the schedule. This likely will be based on the most recent previous evaluation date rather than the current renewal schedule of one application requested every two months starting at the beginning of the cycle (October of every third year).

Cathy then explained how the LAB is trying to make the evaluation process more efficient to alleviate backlogs in the future and to reduce duplicate reviews of AB documentation (statutes, regulations, SOPs, and quality system documentation). Evaluators would then need only to review documents that have been revised, while focusing more on the implementation of the processes documented. For new AB applicants — or if a new AB operations module (Volume 2) is implemented — all documentation would be thoroughly reviewed, as is done now. Some of the possible options under consideration are:

- revise checklist for our renewals;
- key performance indicators;
- possibly standardizing an internal audit format;
- more extensive interviews with staff; and
- focus on outcomes rather than procedures.

Minnesota expressed support for the changes being considered, and Oklahoma favors standardizing requirements as well as streamlining the renewal process to be more effective. One participant asked about considering a risk-based approach for different types of lab audits, but the Council Chair clarified that this is for AB evaluations, not laboratory assessments. That participant then suggested another approach to doing spot audits to look at all aspects of operations over 3 years instead of one large audit once every three years — so everything is reviewed over 3 years.

Another participant asked if the changes to the evaluation process would be part of the Standard and would they be voted on, as the changes discussed seem to be less restrictive. This commenter questioned why the ABs are allowed to change how they are evaluated, and pointed out that we must be careful about how proposed changes are presented so that they don’t appear to be less stringent than before.

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Summary of the 2024 Forum on Laboratory Accreditation cont.



There was no response to possibly expanding the evaluation teams to include other outside groups, except for Minnesota's comment that the Region 5 Certification Officer will now be joining the evaluation teams for that region.

The LAB Expert Committee did not meet during this conference. They are voting on persuasiveness of comments received on the V2M1 Draft Standard Revision 1, but no decisions have yet been made about revisions to the draft language. LAB is looking for additional committee members if anyone is interested, as there are several openings on that committee.

EPA has raised its concerns about identifying the primary AB for each method/matrix/analyte combination, as not all ABs' certificates differentiate primary from secondary accreditations. Additionally, there are concerns that a scope could be mistaken for a primary scope when it is actually secondary accreditation, and thus passed along to a non-NELAP certification body as a primary accreditation when the laboratory's certificate is presented. The discussion revolved around what information is specifically part of the laboratory certificate, and the apparent request from EPA to have the primary AB identified on the certificate for each method/matrix/analyte combination, including all that are "secondary" accreditations in the state issuing the certificate.

Michella Karapondo, EPA Liaison to the Council, stated the problem goes beyond the NELAP ABs, and that non-NELAP ABs are granting certifications based on NELAP certificates. EPA wishes to have those non-NELAP certifications traceable in case of "problems," so they know which state was the assessing organization. Several possible "fixes" were discussed:

- List the primary state or just list that the accreditation is based on another other state's assessment.
- Not listing the state doesn't show who did the audit; it would still be needed to contact the lab to determine which AB did the audit.
- It is easier to get such a change to the certificates implemented if it's required in the Standard rather than just as a NELAP policy.
- LAMS has the ability to identify the primary and secondary ABs.
- LAMS is not easy to sort through, but it is easy to download the LAMS file for a lab into an Excel spreadsheet and then do a sort of the data.
- There's nothing in the Standard that requires this, presently.
- We should also consider requiring the certificate to state what version of the Standard is being implemented for traceability.

One participant stated that it makes sense for us in the TNI community, but for laboratories, it may be difficult to explain to customers that primary and secondary accreditations are no different. This individual does not want a distinction between primary and secondary accreditations on certificates and prefers just stating the AB that performed the assessment. This individual also commented that putting the Standard version on the certificate would lead to laboratories having to explain the differences in the Standards and that there is a "rolling implementation" when a new Standard is implemented.

Another participant suggested stating that the assessment was performed by XXX/AB instead of listing primary/secondary would be clearer, while yet another proposed listing the state, but not list primary/secondary. Michella recommended that putting such a requirement in the Standard would be preferable to policy, as that would have more weight for implementation and would be subject to public comment prior to actual implementation. Minnesota asked how EPA plans to address non-NELAP labs. EPA responded that it could be included in their Certification Manual revision and also be included in the regions' evaluations for state primacy. Michella would also include the requirement in their training materials.

PT Expert Committee

The committee reviewed the Standard Interpretation Requests (SIR) they processed in 2022, discussed the workgroups created to revise language in all four PT modules and volumes, and presented draft language for Volumes 3 and 4.

PT Program Executive Committee

The committee discussed a proposed Field of Proficiency Testing for PFAS in drinking water. They also provided information on revised limits for radiochemistry and

discussed the response to three complaints about these new limits. The committee presented a revised Position Statement relating to the value of proficiency testing and discussed changes to some of the procedures the committee uses. The committee discussed their efforts to work with the WET committee on PT limits for that testing and provided an update on their plans for 2024 which include:

- Begin 10-year review of FoPT limits.
- Implement PFAS DW FoPT limits.
- Develop recommendations to resolve problems with variability of testing conditions.
- Continue working to resolve reporting of uncertainty with Radiochemistry PT results.
- Conduct Proficiency Testing Provider Accreditor (PTPA) evaluations.
- Continue working with Advocacy to be inclusive of non-TNI ABs.
- Support the NELAP AC in resolving method codes in LAMS.

Quality Systems Expert Committee

The committee first reviewed all of the actions since August 2023 to change Technical Manager to Technical Specialist. Then, six workgroups presented their progress on these topics:

- Data Integrity
- Calibration
- Measurement Traceability
- Subcontract Work
- Handling Test Items
- Technical Records

Radiochemistry Expert Committee

This was not a working meeting, but rather a review of a proposed training course on simplifying the radiochemistry testing.

Training Committee

The committee summarized courses held in 2023 as well as those planned for 2024; discussed a new consistent format for displaying information about recorded webinars; and provided information about new procedures for developing exam questions and ensuring a consistent content for information about training courses. They also

discussed the proposed transfer of the Mentor Session and Assessment Forum from LASEC to Training.

WET Expert Committee

The committee chair led a discussion on the committee's efforts to achieve data comparability with DMR-QA studies, to have PT samples run with consistent conditions and with calculated rather than hypothetical endpoints reported. He then moved into discussing the two major issues that the committee resolved before undertaking a revision of the full module. First, clarification was made that accreditation is not necessary for supporting chemistry measurements, as these measurements just need to show that the test conditions are within a range that does not harm the test organisms. Proper calibration of the test instruments (pH meter, etc.) is truly all that is necessary.

Second, negotiating agreement on the requirements for an individual analyst's initial demonstration of competency (DOC) was discussed. The current module addresses only lab initial DOC, and some ABs have been requiring the same five repetitions of a method for an analyst initial DOC. With some methods requiring multiple days, if not weeks, the analyst is unable to work without close supervision for an unreasonably long time period - up to a year in some cases. The negotiated agreement is that performance of one successful standard reference test after training in all tasks to be performed is completed.

As the Chair talked through the language of the draft revised module, several points arose that the committee may wish to address before finalizing the module. General comments were that the module needs to include a better definition of the term "team" as differentiated from work cell, and that we could require a higher grade of chemicals than "reagent grade."

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TNI Ambassador Opportunities

Paul Junio, TNI



TNI is looking for volunteers for our Ambassador program. TNI has a goal of having designated Ambassadors to all non-NELAP state environmental laboratory certification programs. Ambassadors are individuals willing to represent TNI to the non-NELAP state to which they are appointed (typically, but not necessarily where they are physically located). They are asked to form or expand on a relationship with the assigned state program(s) and any laboratory association(s).

The goal is to ensure that the non-NELAP state certification program and the laboratories it serves are aware of both TNI's ongoing activities and any new TNI programs. Ambassadors are also asked to inform TNI of any changes in the state certification program.

Ambassadors are invited to the monthly Advocacy Committee meetings. There is also a quarterly meeting of the Ambassadors where we can share any updates. We currently have Ambassadors for the following: CA, KY, KS, MO, NV, OH, TN, WI, and EPA Region I. If you are interested, please contact Steve Arms, Chair of the Advocacy Committee (arms.steve@comcast.net), or Lynn Bradley, Program Administrator of the Advocacy Committee (lynn.bradley@nelac-institute.org).

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TNI Expert Committee Openings

Paul Junio, TNI



TNI is a volunteer organization. Among the things that we do as volunteers is to serve on committees. Some of these committees are Standards Development Committees, while others are Administrative Committees. All are important to the overall success of the organization.

TNI's "Procedures for Expert Committee Operations" (SOP 2-101) requires that we annually post the number of openings available for Committee Members for each of our Expert Committees. Regardless of when committee membership changes, members who are interested in participating on committees are encouraged to submit an application. Membership on an Expert Committee can be time-consuming, but also very rewarding. If you feel that you are able to provide input on the basis of your Stakeholder Group (Accreditation Body, Laboratory, or Other), and have an interest in joining a committee, the table below shows the number of committee members present on each Expert Committee, along with the interest category that they represent.

Committees may have from 5 to 15 members and must maintain balance among the different stakeholder groups. Balance means that no one stakeholder group represents more than 50% of committee membership. Laboratory Stakeholders should keep this in mind, as that group frequently is the highest represented group on a committee, and may not be able to be added to without resulting in imbalance. Also, Committee membership is limited to no more than two members of the same organization sitting on a particular Expert Committee, unless approved by the TNI Board of Directors. While TNI members are allowed to serve on more than one expert committee at a time, keep in mind the time commitment hoped for among our volunteers. In other words, if you don't believe that you can contribute as a full-time member of a committee, it might be best to let someone else serve.

All TNI members are welcome to apply by filling out an application. We've recently removed the link to Join a Committee from the TNI tab on the homepage of the website. The application now is only found on the [TNI](#)

[Member Page](#) (that little button in the upper right corner of the TNI website's homepage). From there, there is a link to 'Join a Committee' under the Member Benefits listing. In order to help us track our associate committee members (since Associate Members are frequently targeted to become voting Committee members), we have added the ability to choose to be an Associate Member at that link. Any TNI Member can request to become an Associate Member of any Expert Committee, by submitting an application. There is no limit on the number of Associate members that an Expert Committee may have, nor is there a limit to the number of committees on which a TNI member may join as an Associate. Associate Members are frequently targeted to become full Committee members.

These committee numbers are subject to change. With all of that said, if you are interested and still have questions,

Committee	Lab	AB	Other
Asbestos	3	2	2
Chemistry	6	4	3
Field Activities	4	4	5
Laboratory Accreditation Body	4	3	2
LASEC	3	3	4
Microbiology	7	3	5
PT Expert	5	5	5
PTP Executive Committee	2	4	3
Quality Management Systems	7	6	2
Radiochemistry	4	3	2
Whole Effluent Toxicity	5	3	3

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TNI Consensus Standards Development

Paul Junio, TNI



All of the TNI Environmental Laboratory Standards are in some state of revision. An important point to make is that, as each committee does its review of their draft standard in total, there are times when language in one section can cause issues for language in another section. As each part is worked on individually, the connections among all of the parts may not align. This can delay the process as we develop the best standards that we can. With that said, what follows is a brief summary of where each stands:

Volume 1: Management and Technical Requirements for Laboratories Performing Environmental Analysis

Module 1 Proficiency Testing is under development within the Proficiency Testing Expert Committee. This is one of four modules that the committee has in revision, and is expected to be the last or next to last of the four to be completed.

Module 2 Quality Systems General Requirements draft standard is not yet complete for publishing as a Draft Standard. The Expert Committee has taken all language of ISO 17025:2017 and included any text in ISO 17025:2005 and TNI Module 2 2016 that is deemed worth keeping. Review has included removing duplicative requirements from either ISO 17025:2005 or TNI Module 2 2016. The Committee has begun a review of the entirety of this potential draft and also taken previous suggestions into consideration. In addition to the work on the draft as a whole, requirements for Technical Specialists are being developed by each of the Technical Modules (3 through 7) for inclusion in Module 2. The hope is to have an overview of the changes for presentation in Garden Center, and then a draft standard in Jacksonville

Module 3 Quality Systems for Asbestos Testing has a finalized Module 3 effective July, 2023. This revision was re-written from a technology standpoint, and will still be reviewed as additional modules are completed to assure that no issues of implementation arise.

Module 4 Quality Systems for Chemistry Testing is undergoing work by multiple work groups of the Expert Committee. Progress toward new language has been

made on Calibration, Relative Error, and DOCs. The Committee will have a presentation on its status at NEMC in August, as they are doing their complete review of the work done via various workgroups. A draft standard won't be ready before the next Forum in Jacksonville next January.

Module 5 Quality Systems for Microbiology Testing has begun a review of their potential draft of Module 5, specifically looking for duplicative language (requirements that appear in Module 2, specific methods, or the Drinking Water Manual) that are strictly redundant and not something that the Committee feels must be a requirement, save for their existence elsewhere. A draft module could be available by NEMC

Module 6 Quality Systems for Radiochemistry has a finalized module effective January, 2023. It also will be subject to a review to assure that there are no issues with implementation.

Module 7 Quality Systems for Whole Effluent Toxicity is nearing completion. The remaining items under discussion are the Technical Requirements. The Expert Committee anticipates that this draft will be ready for the January Forum in Jacksonville.

Volume 2: General Requirements for Accreditation Bodies Accrediting Environmental Laboratories

Modules 1 & 3 will be combined into a new Module 1.

The Laboratory Accreditation Body Expert Committee is discussing the last few comments on their Draft Standard that were received at the June 2023 close of the comment period. There have been revisions made based on these comments, so a Draft Revision 1 will still be published, possibly in time for NEMC this August .

Module 2 Proficiency Testing Requirements for Accreditation Bodies is among the four modules previously mentioned under the purview of the Proficiency Testing Expert Committee. No substantive changes are anticipated in this module, but (like Volume 1 Module 1) it is of a lower priority for the Committee.

Volume 3: General Requirements for Environmental Proficiency Test Providers and Volume 4: General Requirements for an Accreditor of Environmental Proficiency Test Providers were taken back to Committee following comments that were made at the Forum in Columbus in January, 2024. A draft of both Volume 3 and Volume 4 is anticipated to be posted in time for NEMC in August.

Field Sampling and Measurement Organizations Standards

Volume 1: General Requirements for Field Sampling and Measurement Organizations and Volume 2: General Requirements for Accreditation Bodies Accrediting Field Sampling and Measurement Organizations are both nearly ready to be posted in draft format (they are currently undergoing formatting to meet the requirements of how our standards are presented). Both are expected to be posted in advance of NEMC in August.

As always, check for updates on these Modules by keeping an eye on the News section on the TNI website. You can also subscribe to any announcements of Standard activity [here](#).

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Revamping the Training Webpage and Course Descriptors

Elizabeth Turner; Vice Chair, Training Committee



In addition to courses offered at its national meetings, TNI has been offering various webinars and webcasts since 2011 when the Educational Delivery System was introduced. As part of the strategic plan for 2020, TNI developed several training objectives:

- Develop a comprehensive plan for training;
- Explore development of training tracks for quality managers, technical managers, and other similar groups;
- Expand use of technology to administer and automatically grade tests and provide certificates and digital badges; and
- Increase the use of available training materials already developed.

The Training Committee and the Competency Task Force were formed in 2020 with the missions to develop a comprehensive plan for training and to explore and make recommendations regarding programs to document competencies for Quality Managers, Technical Managers, Assessors, Samplers and others, as appropriate. Such documentation could include credentialing and/or digital badges. The Training Committee and the Competency Task Force worked in tandem developing and evaluating courses. As the concept of digital badges and credentialing has matured, the Competency Task Force evolved into the Credentialing Committee.

A critical component in the educational delivery system is the information provided to the public on the content of the training courses. A review of the TNI Training Webpage demonstrated inconsistencies in the type and amount of information provided. Some course descriptions included learning objects while others did not. Some course descriptions included intended audience while others did not. In 2021, it was decided that TNI would provide a course catalogue, organized by course category and digital badge, which mandated consistency in the format of the course descriptions and content. SOP 1-128, Content of TNI Training Courses, was developed. The minimum details, as applicable, for webinars and webcasts have been standardized to include:

- Name of course and number of training hours;
- Information about presenter;
- Synopsis of the course including fees;
- Learning objectives;
- Intended audience;
- Associated digital badge;
- CEUs and certificate options; and
- Agenda for courses longer than 4 hours.

The content and format of a course catalog was discussed at several committee meetings during the Environmental Measurement Symposium and during the Forum on Environmental Accreditation. The course catalog morphed from a pdf or Excel file that could be downloaded to a search engine filter similar to the logic used in LAMS. William Daystrom, TNI's IT Administrator, has worked hard to program a training webpage that will allow for the searching for digital badge information and course registration. The beta site was demonstrated during the Training Committee and Credentialing Committee sessions at the January 2024 Forum on Environmental Accreditation. The revised website is expected to roll out in the next few months.

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Update on TNI's Credentialing Initiative

Kenneth Brown; City of Escondido, CA



As reported in the June 2023 edition of *The Institute Review*, TNI is setting up a credentialing initiative to certify individuals such as a Quality Manager, a Laboratory Assessor, or a Technical Specialist. In all cases, the initiative would have to contain these key elements:

- Awarding the certificate with minimum requirements for education and/or experience and for passing a comprehensive exam;
- Periodic recertification based on continued employment in the field and some minimum number of professional development hours annually;
- Training courses made available, but not required, to assist with the initial certification and/or recertification; and
- Professional development hours awarded for such activities as participation in a professional society, preparing publications and/or presentations, attending training courses, or attending meetings.

A key component of this initiative is establishing KSAs (Knowledge, Skills, and Abilities) for each category. An example of KSAs can be found [here](#).

An alternative pathway for credentialing is the “digital badge” approach. Under this option, individuals would take specific courses and then earn a digital badge after passing an exam. An example would be a Data Integrity Specialist, who would be awarded the badge after taking a TNI course such as Ethics Training for the Environmental Professional. If the individual earns enough digital badges, the individual could be credentialed.

The Credentials Committee has completed its efforts for the Certified Environmental Laboratory Quality Management Systems Professional and this initial phase should launch in June. The Committee is now beginning efforts to develop KSAs for Technical Specialists.

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NEW FSMO Standard

Katie Strothman, FAC Chair



As spring is in full effect so is the time for new beginnings. The Field Sampling and Measurement Organization (FSMO) Standard just finished getting a refreshing glow up. I know all my fellow FSMOs are looking forward to updating all procedures and processes, but do not get pitchforks out just yet - these updates are beneficial to the field services community. The update brings the standard to the most current ISO/IEC 17025:2017 standard, which increases cohesivity in the community and overall reproducibility amongst organizations. I will not get into every change in the standard. Everyone can

review the change summary that will be released with the standard to see what may impact their organization when it goes out for public comment.

The main change is the addition of the ISO 17025:2017 language and the layout that has been incorporated throughout the standard. This change from the 2005 to the 2017 version affects a lot of quality systems. Section 8 is one to keep a close eye on.

Below is a table listing the larger ISO 17025:2017 changes.

Section	Section Name where Additions Occur	Change
3	New definitions	(3.1) Impartiality (3.2) Complaint (3.3) Interlaboratory comparison (3.4) Intra-laboratory Comparison (3.5) Proficiency Testing (3.6) Laboratory (3.7) Decision Rule
4	Impartiality / Confidentiality	Requires Procedure and Specific Criteria
5	Conformity	The laboratory shall define and document the range of laboratory activities for which it conforms with this document.
6	Equipment Records	Documentation of reference materials, results, acceptance criteria, relevant dates, and the period of validity.
6	External Services	The laboratory shall have a procedure and records for: (a) defining, reviewing, and approving the laboratory's requirements for externally provided products and services. (d) taking any actions arising from evaluations, monitoring of performance and re-evaluations of the external providers.
7	Review of Request and Tenders	Added conformity and decision rule, client communication, and contract lab notifications.
7	Sampling	Sample plan and documentation additions added.
7	Technical Records	Amendment requirements.
7	Ensuring Validity Results	Review requirements increased and PT added as part of validity.
7	Reporting	Statement Conformity and more criteria added.
7	Complaints	New procedure and criteria required.
8	Management system	Addition Option A and B and all new requirements.
8	Risk Opportunities	New requirements.
8	Corrective Action	Root Cause.
8	Management Review	New criteria to address.

CONT >

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NEW FSMO Standard cont.

The Field Activities Committee (FAC) spent years balancing requirements in the standard for better field quality and increased sample representativeness, while supporting enough flexibility to pertain to all field organizations. They have done a fantastic job! Some may want to see more guidance and regulation and others may want more flexibility. While we can't please everyone, this standard increases field quality without limiting the FSMO's capabilities. A big shout out to the FAC and NEFAP Executive Committee for making this happen! These are volunteers who dedicated time to create an excellent product that will have a positive impact on our industry.

As a foundational principle, the data integrity section has become more robust, which aligns with TNI's principles. In response to the new requirement for a sampling plan in ISO 17025:2017, we added Appendix A to clarify typical items found in a sampling plan. The updated standard has an increase of specificity in the calibration section, increased control of equipment, and addresses personnel training as well as specific documentation retention requirements.

Below is a table featuring the larger TNI changes.

Section	Section Name where Additions Occur	Change
3	Definitions	FSMO Environmental Sampling Data Mobile Lab Field Activity Field Equipment Representative Sample
4	Data Integrity	Increased criteria.
5	Personnel	Training and authorization task.
6	Facilities and Environmental Conditions/ Equipment/ Calibration/ Decontamina- tion/ Communication to Client	Minor language changes. Increase calibration requirements.
7	Sample Plan/ Sample Method/ Record Retention	Other requirements added, must address risk. Retain minimum 5 years.
Appendix A	Clarification for Data Integrity/ DOC/ Sample Plan	Guidance to Clarify.

The importance of using a good field standard cannot be understated. Everything starts with sampling, and the impacts of poor sampling techniques can ruin so much progress. It diminishes faith from our community, puts questions on long term-data, affects process control, and so much more.

Accreditation to the standard ensures an FSMOs competence not only in collecting quality field data and samples, but also in quality management systems, which ensures the continuity of the organization. I hope everyone will take the time to read the updated standard and

implement it to the best of their ability. Better field data means better community health safety, better environmental impact, and better processes to reduce contamination. So, grab your PPE, get out there, and create the change in everyday events. Cheers to being a part of impacting lives in a positive way!

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Summary of EPA's Regulation of PFAS in Drinking Water

Jerry Parr, TNI



On April 26, EPA published a rule to regulate perfluorooctanoic acid (PFOA), perfluorooctane sulfonic acid (PFOS) perfluorohexane sulfonic acid (PFHxS), hexafluoropropylene oxide dimer acid (HFPO-DA) and its ammonium salt (also known as a GenX chemicals), perfluorononanoic acid (PFNA), and perfluorobutane sulfonic acid (PFBS), and mixtures of these PFAS as contaminants in drinking water. The rule is effective June 25, 2024, but water systems have until April 26, 2027 to conduct the initial monitoring.

Maximum Contaminant Levels (MCL) for PFOA and PFOS are set at 4 ng/L (ppt) while a "Hazard Index" MCL for 3 of the other 4 PFAS are set at 10 ng/L. An MCL of 1 (unitless) is set for the other 4 and calculated by dividing the measured concentration by a health-based value as shown in the equation below.

Hazard Index MCL = (HFPO-DA ng/L / 10 ng/L) + (PFBS ng/L / 2000 ng/L) + (PFNA ng/L / 10 ng/L) + (PFHxS ng/L / 10 ng/L) = 1

Note this equation was revised from the proposed rule changing the denominator for PFHxS from 9 to 10 due to an error.

From reading the preamble, the regulation, the methods, and other sources, the following definitions were found:

- Maximum Contaminant Level (MCL) = the maximum permissible level of a contaminant in water which is delivered to any user of a public water system/ (Regulation)
- Practical Quantitation Limits (PQL) - the lowest levels at which contaminants can be reliably quantified within specific limits of precision and accuracy during routine laboratory operating conditions. / (Regulation)
- Minimum Reporting Level (MRL - UCMR 5) = a minimum quantitation level that, with 95 percent confidence, can be achieved by capable lab analysts at 75 percent or more of the laboratories using a specified analytical method. 47 of 53 laboratories generated a MRL at 2 ng/L. (Preamble)
- MRL (Method) = The minimum concentration that can be reported as a quantitated value for a method analyte in a sample following analysis. This defined

concentration can be no lower than the concentration of the lowest calibration standard for that analyte. (Methods 533 and 537.1)

- Lowest Concentration Minimum Reporting Level (LCMRL) = the lowest true concentration for which future analyte recovery is predicted with 99% confidence to fall between 50 and 150% recovery. (Methods 533 and 537.1)
- Detection Limit (DL) = The minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from 0. (Method 537.1)
- Method Detection Limit (MDL) = The minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results. (40 CFR Part 136 Appendix B)
- 1/3 MRL or 1/3 PQL = A value laboratories must achieve in order to demonstrate clean Laboratory Reagent Blanks. The 1/3 PQL is discussed in the preamble, but not the regulation, since this requirement is in the methods. The methods use MRL, established by each laboratory.
- Trigger Level (TL) = ½ the MCL; used for reduced monitoring. (Preamble)

The table below summarizes the values from some of these terms, in ng/L, from the sources reviewed (see next page).

Contaminant	PQL	TL	MCL	1/3 PQL	533 LCMRL	537.1 LCMRL	537.1 DL
HFPO-DA	5.0	5.0	10	1.7	3.7	4.3	1.9
PFBS	3.0			1.0	3.5	3.0	1.8
PFHxS	3.0	5.0	10	1	3.7	2.4	1.4
PFNA	4.0	5.0	10	1.3	5.8	0.83	0.53
PFOA	4.0	2.0	4.0	1.3	3.4	0.82	0.53
PFOS	4.0	2.0	4.0	1.3	4.4	2.7	1.1

Of all the terms above, the MCL is the most important. It is the regulated limit and values above this limit are considered a violation, subject to the calculations described later. Note there is no MCL for PFBS. That is because the Health Based Water Concentration is 2000 ng/L.

The PQL are in Table 4 of 40 CFR 141.903 and these values are very important for reporting data as discussed below. The LRB must be < 1/3 the PQL in the regulation or < 1/3 the laboratory-derived MRL, if the laboratory MRL is lower.

Systems are required to report all values for all samples analyzed, and in addition, report a running annual average (RAA). This RAA is calculated by using 0 as the value for any result below the PQL. See the examples below for PFOA that EPA provided in the preamble.

	Measured	Reported	Measured	Reported
Sample 1	2.0	2.0	2.0	2.0
Sample 2	1.5	0	3.5	3.5
Sample 3	5.0	5.0	2.5	2.5
Sample 4	1.5	0	1.5	0
RAA		1.9		2.0

Neither the regulation, the preamble, or the methods discuss reporting results below the PQL, but EPA has confirmed that results below the PQL and above the trigger level should be reported as estimated values and results below the Trigger Level can be reported as an estimated value or Not Detected.

As discussed in 40 CFR 902, a system may reduce monitoring frequency if all results are below the trigger levels.

In responding to concerns about laboratory capacity, EPA indicated 53 laboratories participated in UCMR 5 and another 25 laboratories are accredited to analyze for PFAS. A search of TNI's laboratory database found 65 accredited laboratories.

Groundwater systems serving greater than 10,000, and all surface water systems, would be required to monitor quarterly within a 12-month period, for the 6 regulated PFAS using EPA methods 533 and 537.1, Revision 2. The proposed rule states "EPA has sufficient confidence that while measurements below the PQL may be slightly less precise and accurate, they are achievable by individual laboratories and appropriate for this intended purpose." The rule would require laboratories to analyze "Performance Evaluation" samples for all six compounds with limits of 70-130%.

Neither the regulation, the preamble, or the methods discuss reporting results below the PQL, but EPA has confirmed that results below the PQL and above the trigger level should be reported as estimated values and results below the Trigger Level can be reported as an estimated value or Not Detected.

As discussed in 40 CFR 902, a system may reduce monitoring frequency if all results are below the trigger levels.

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EPA Clean Water Act Methods Update Rule (MUR) for the Analysis of Effluent

Jerry Parr, TNI



On April 15, 2024 (89 FR 27288), EPA finalized changes to its test procedures required to be used by industries and municipalities when analyzing the chemical, physical, and biological properties of wastewater and other environmental samples for reporting under the EPA's [National Pollutant Discharge Elimination System permit program](#). The changes included:

1. Revisions to four current EPA methods;
2. 50 revised methods (97 techniques) published by Standard Methods;
3. Five new and eight revised methods (18 techniques) published by ASTM International;
4. Two new methods approved by EPA under the alternate test procedures (ATP) program; and
5. Other minor technical corrections.

This rule is effective June 17, 2024

Note: Copies of some of the methods can be found in the Docket: EPA-HQ-OW-2022-0901 at www.regulations.gov.

1. Revised EPA Methods in Table 1A and/or 1H

The revisions include standardizing language between the related methods, updating to reflect current lab practices and clarifying edits.

Section 1. Table 1A and/or 1H

Method	Analyte	Technique	Approved
1103.2	<i>E. coli</i> .	membrane filter (MF) two-step	1H
1106.2	<i>Enterococci</i>	MF two step	1H
1600.1	<i>Enterococci</i>	MF single-step	1A and 1H
1603.1	<i>E. coli</i>	single	1A and 1H

2. Revised ASTM Methods in Table 1A

These changes to currently approved ASTM methods include minor clarifications and editorial changes. As an example, ASTM added text to the appropriate method scope sections to indicate that the method was developed in accordance with the "Decision on Principles for the Development of International Standards, Guides and Recommendations" issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee. None of these proposed changes will affect the performance of the method. A brief description of any minor procedural changes (if there are any) in this revision from the last approved version of the method are shown in Notes following the table. Method revisions that are only formatting in nature will have no description of the changes.

Section 2. Revised ASTM Methods in Table 1A

Method	Analyte	Technique	Change
D888-18 (A, B, C)	Dissolved Oxygen	Winkler, Electrode, Luminescent-based Sensor	
D1293-18 (A, B)	Hydrogen Ion (pH)	Electrometric	
D1976-20	Metals	ICP-AES	change the initial instrument calibration from four standards to using only one and a calibration blank
D2330-20	Surfactants	Colorimetric (Methylene Blue)	
D5907-18 (A and B)	Filterable Matter (TDS) and Nonfilterable Matter (TSS)	Gravimetric	
D7237-18	Free Cyanide	Flow Injection, followed by Gas Diffusion Amperometry	added new information about sulfide interferences and potential mitigation strategies
D7284-20	Total Cyanide	Flow Injection, Gas Diffusion Amperometry	
D7573-18a ^{e1}	Total Organic Carbon	Combustion	adds data from a validation study and new MDL values

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EPA Clean Water Act Methods Update Rule (MUR)
for the Analysis of Effluent cont.



3. Revised Standard Methods in Table 1B

The newer versions provide clarifications and make editorial corrections. These edits include removal of reference to specific brand names and trademarks, incorporation of footnotes into the text, a reformatting of figures, tables and reference lists, removal of bibliographical references that are no longer available, small editorial changes based on current style guides and changes to scientific publishing standards, and minor clarifications to procedures based on input from users. For example, the revisions replace distilled water with reagent water in all methods. EPA generally proposes to approve and include only the most recent version of a method published by the Standard Methods Committee. EPA is

proposing to list only one version of the method with the year of publication designated by the last four digits in the method number (*e.g.*, 3111 C-2019). The date indicates the date of the specific revision to the method. This allows use of a specific method in any edition of the hard copy publication of “Standard Methods for the Examination of Water & Wastewater” that includes a method with the same method number and year of publication. The revisions to methods previously approved will not affect the performance of the method.

The preamble contained supplemental information that does not appear in the regulation, but is shown in Notes at the bottom of the table.

Section 3. Revised ASTM Methods in Table 1B

Method	Analyte	Technique
2120 B-2021	Color	Visual Comparison
2120 F-2021	Color	Weighted-Ordinate Spectrophotometric
2130 B-2020	Turbidity	Nephelometric
2310 B-2020	Acidity	Titration
2320 B-202	Alkalinity	Titration
2340 B-2021	Hardness	Hardness by Calculation
2510 B-2021	Specific Conductance.	Wheatstone bridge
2540 B-2020	Residue—Total.	Gravimetric, 103-105°
2540 C-2020	Total Dissolved Solids (TDS)	Gravimetric, 180°
2540D-2020	Total Suspended Solids (TSS)	Gravimetric, 103-105° post washing of residue
2540 E-2020	Fixed and Volatile Solids	Gravimetric, 550°
2540 F-2020	Settleable Solids	Volumetric, (Imhoff cone), or gravimetric
3111 B-2019	Metals	AA direct aspiration
3111 C-2019 ¹	Metals	AA direct aspiration
3111 D-2019 ²	Metals	AA direct aspiration
3111 E-2019	Metals	AA direct aspiration
3112 B-2020	Mercury	Cold-Vapor AA
3113 B-2020 ³	Metals	AA Furnace
3114 B-2020	Arsenic and Selenium	AA Hydride, Manual
3114 C-2020	Arsenic and Selenium	AA Hydride, Continuous
3120 B-2020 ⁴	Metals	Inductively Coupled Plasma Plasma Emission Spectroscopy (ICP/AES)
3125 B-2020 ⁵	Metals	Inductively Coupled Plasma-Mass Spectrometry (ICP-MS)

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Section 3. Revised ASTM Methods in Table 1B cont.

Method	Analyte	Technique
3500-Al B-2020	Aluminum	Eriochrome Cyanine R
3500-As B-2020	Arsenic	Silver Diethyldithiocarbamate
3500-Ca B-2020	Calcium	EDTA Titrimetric
3500-Cr B-2020	Chromium	Colorimetric
3500-Cr C-2020	Chromium	Ion Chromatographic
3500-Cu B-2020	Copper	Colorimetric, Neocuproine
3500-K B-2020	Potassium	Flame Photometric
3500-Mn B-2020	Manganese	Colorimetric (Persulfate)
3500-Na B-2020	Sodium	Flame Emission Photometric
3500-Pb B-2020	Lead	Dithizone
4110 B-2020	Inorganic Anions	Ion Chromatography
4110 C-2020	Inorganic Anions	Ion Chromatography
4110 D-2020	Inorganic Anions	Ion Chromatography
4140 B-2020	Inorganic Anions	CIE/UV (Capillary Ion Electrophoresis)
4500-Cl ⁻ B-2021 ⁶	Chloride	Titrimetric
4500-Cl ⁻ C-2021	Chloride	Mercuric Nitrate
4500-Cl ⁻ D-2021	Chloride	Potentiometric
4500-Cl ⁻ E-2021	Chloride	Automated Ferricyanide
4500-CN ⁻ B-2021	Cyanide, Total	Manual Distillation
4500-CN ⁻ C-2021	Cyanide, Total	Manual Distillation
4500-CN ⁻ D-2021	Cyanide, Total	Titrimetric
4500-CN ⁻ E-2021	Cyanide, Total	Spectrophotometric
4500-CN ⁻ F-2021	Cyanide, Total	Ion Selective Electrode
4500-CN ⁻ G-2021	Cyanide, Available	Manual distillation with MgCl ₂ followed by titrimetric or spectrophotometric
4500-CN ⁻ N-2021	Cyanide, Total	Flow Injection Analysis
4500-F ⁻ B-2021	Fluoride	Preliminary Distillation Step
4500-F ⁻ C-2021	Fluoride	Ion-Selective Electrode
4500-F ⁻ E-2021	Fluoride	Complexone
4500-H ⁺ B-2021 ⁷	Hydrogen ion (pH)	Electrometric
4500-NorgB-2021	Kjeldahl Nitrogen (TKN)	Macro-Kjeldahl
4500-NorgC-2021	Kjeldahl Nitrogen (TKN)	Semi-Micro-Kjeldahl
4500-NorgD-2021	Kjeldahl Nitrogen (TKN)	Block Digestion and Flow Injection Analysis
4500-NH3B-2021 ⁸	Ammonia (as N)	Preliminary Manual Distillation Step

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EPA Clean Water Act Methods Update Rule (MUR)
for the Analysis of Effluent cont.



Section 3. Revised ASTM Methods in Table 1B cont.

Method	Analyte	Technique
4500-NH3C-2021	Ammonia (as N)	Titration
4500-NH3D-2021	Ammonia (as N)	Electrode
4500-NH3E-2021	Ammonia (as N)	Electrode
4500-NH3F-2021	Ammonia (as N)	Phenate
4500-NH3G-2021	Ammonia (as N)	Semi-Automated Phenate
4500-NH3H-2021	Ammonia (as N)	Semi-Automated Phenate
4500-NO ₂ ⁻ B-2021	Nitrite	Spectrophotometric, Manual
4500-NO3-D-2019	Nitrate	Electrode
4500-NO3-E-2019	Nitrate	Cadmium Reduction
4500-NO3-F-2019	Nitrate	Automated Cadmium Reduction
4500-NO3-H-2019	Nitrate	Automated Hydrazine Reduction
4500-NO3-I-2019,	Nitrate	Cadmium Reduction Flow Injection
4500-O B-2021	Oxygen (Dissolved)	Iodometric
4500-O C-2021	Oxygen (Dissolved)	Winkler (Azide Modification)
4500-O D-2021	Oxygen (Dissolved)	Winkler (Azide Modification)
4500-O E-2021	Oxygen (Dissolved)	Winkler (Azide Modification)
4500-O F-2021	Oxygen (Dissolved)	Winkler (Azide Modification)
4500-O G-2021	Oxygen (Dissolved)	Electrode
4500-O H-2021	Oxygen (Dissolved)	Luminescence
4500-P B-2021	Phosphorus Total and Ortho Phosphorus	Digestion Sample Preparation
4500-P E-2021	Phosphorus Total and Ortho Phosphorus	Manual
4500-P F-2021	Phosphorus Total and Ortho Phosphorus	Automated Ascorbic Acid Reduction Method
4500-P G-2021	Phosphorus Total and Ortho Phosphorus	Automated
4500-S2 ⁻ B-2021	Sulfide	Sample Pretreatment
4500-S2 ⁻ C-2021	Sulfide	Sample Pretreatment
4500-S2 ⁻ D-2021	Sulfide	Colorimetric
4500-S2 ⁻ F-2021	Sulfide	Titrimetric
4500-S2 ⁻ G-2021	Sulfide	Ion-Selective Electrode
4500-SiO2C-2021	Silica	Colorimetric
4500-SiO2E-2021	Silica	Automated Molybdate-Reactive Silica
4500-SiO2F-2021	Silica	Automated Molybdate-Reactive Silicate
4500-SO42-C-2021	Sulfate	Gravimetric with Ignition of Residue
4500-SO42-D-2021	Sulfate	Gravimetric with Drying of Residue

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Section 3. Revised ASTM Methods in Table 1B cont.

Method	Analyte	Technique
4500-SO42-E-2021	Sulfate	Turbidimetric
4500-SO42-F-2021	Sulfate	Automated Colorimetric
4500-SO42-G-2021	Sulfate	Automated Colorimetric
4500-SO32-B-2021	Sulfite	Titrimetric Iodometric
5520 B-2021	Oil and Grease	Liquid-Liquid, Partition-Gravimetric
5520 F-2021	Oil and Grease	Silica gel treatment and gravimetry
5530 B-2021	Phenols	Manual Distillation
5530 D-2021 ⁹	Phenols	Colorimetric
5540 C-2021	Surfactants	Colorimetric (methylene blue)

Notes:

1. Manganese was inadvertently left off in an earlier rulemaking approving method 3111 C.
2. Calcium was inadvertently left off in an earlier rulemaking approving method 3111 D.
3. Although not specifically listed as target analytes in 3113 B, the method is also approved in Table 1B for determination of gold, thallium, and vanadium, as these elements may also be determined using the method.
4. Although not specifically listed as a target analyte in method 3120 B, the method is also approved in Table 1B for determination of phosphorus because this element may also be determined using the method.
5. Although not specifically listed as a target analyte in method 3125 B, the method is also approved in Table 1B for determination of boron, calcium, gold, iridium, iron, magnesium, palladium, platinum, potassium, rhodium, ruthenium, silica, sodium, tin, and titanium as these elements may also be determined using the method.
6. A reference has been added to 4500-Cl⁻ B for the Standard Methods Joint Task Group validation report titled: "Interlaboratory validation study for the use of H₂O₂ with boiling for determining Cl⁻."
7. This version of 4500-H⁺ B adds information to Section 2—Apparatus, regarding equipment that may be used for manual or automatic temperature compensation.
8. This version of 4500-NH₃B replaces instructions for storage of ammonia-free water with instructions for preparation of ammonia-free water using an ion exchange resin and simply says that if high blank values are produced, the analyst should prepare fresh ammonia-free water.
9. For regulatory compliance monitoring for 5530-D, the colorimetric reaction must be performed at a pH of 10.0 ± 0.2 as stated in footnote 27.

4. Revised Standard Methods in Tables 1C and 1D

Method	Analyte	Technique
6200 B-2021	Volatile Organic Compounds	Purge and Trap Capillary-Column GC/MS ¹
6200 C-2020	Volatile Organic Compounds	Purge and Trap Capillary-Column GC
6410 B-2020	Extractable Base/Neutrals and Acids	Liquid-Liquid Extraction GC/MS ²
6420 B-2020	Phenols	Liquid-Liquid Extraction GC
6440 B-2021	Polynuclear Aromatic Hydrocarbons	Liquid-Liquid Extraction Chromatographic ³
6630 B and C-2021	Organochlorine Pesticides	Liquid-Liquid Extraction GC ⁴
6640 B-2021	Acidic Herbicide Compounds	Micro Liquid-Liquid Extraction GC

Notes:

1. This method is approved for dichlorodifluoromethane but 6200C is not.
2. This revision adds a note that although the method was validated extracting base neutrals first and then acids, performance may be improved by extracting acids first and then base neutrals. In addition, EPA proposes to approve method 6410-B for endrin aldehyde in Table 1D. This parameter was inadvertently left off the 2000 MUR rulemaking.
3. This revision of the method replaces distilled, deionized water with reagent water, adds that the packed columns used for validation of the method are no longer available or recommended, and includes information on alternative capillary columns that may be used.
4. The analyte lists are comparable, but 6330B contains captan, carbophenothion, dichloran, malathion, parathion methyl, parathion ethyl, and trifluralin and 6630 C contains endosulfan sulfate and endrin aldehyde.

5. New Alternate Test Procedures in Table 1C

Method Number	Title
SGS AXYS Method ATM 16130	Determination of 2,3,7,8-Substituted Tetra- through Octa-Chlorinated Dibenzo- <i>p</i> -Dioxins and Dibenzofurans (CDDs/CDFs) Using Waters and Agilent Gas Chromatography-Tandem-Mass
Pace Analytical Method PAM-16130-SSI	Determination of 2,3,7,8-Substituted Tetra- through Octa-Chlorinated Dibenzo- <i>p</i> -Dioxins and Dibenzofurans (CDDs/CDFs) Using Shimadzu Gas Chromatography Mass Spectrometry (GC-MS/

6. New Standard Methods in Table 1B

Method	Analyte	Technique
4500-CN ⁻ P-2021	Cyanide, Total	Segmented Flow Injection, In-Line Ultraviolet Digestion followed
4500-CN-Q-2021	Weak and Dissociable Cyanide	Flow Injection, Gas Diffusion, followed by amperometry
4500-CN-R-2021	Free Cyanide	Flow Injection, followed by Gas Diffusion amperometry.
4500-F-G-2021	Fluoride	Ion-Selective Electrode Flow Injection Analysis
5520 G-2021	Oil and Grease	Solid-Phase, Partition-Gravimetric

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7. Other Technical Corrections and Changes

1. *Table IA.* Removing the units of “number per 100 mL” under parameter 1. Coliform (fecal), because parameter 1 is specifically for biosolids that are reported as “number per gram dry weight”.
2. *Table IA.* Moving USGS Method “B-0050-85” from parameter 1. Coliform (fecal) number per gram dry weight to parameter 2. Coliform (fecal) number per 100 mL, to address an error from the previous rulemaking when Parameter 1 Coliform (fecal) was split into two parameters to eliminate confusion as to which methods were approved for biosolids.
3. *Table IA.* Moving the phrase “two-step” in parameter 3, in the “Method” column from the second to the third line which returns the phrase to the proper line after having been inadvertently moved.
4. *Table IB.* Revising footnote 85 to remove bullet formatting.
5. *Table IB.* Adding footnote 86 to Method 419D, listed as an approved method for determination nitrate using Colorimetric (Brucine sulfate) methodology. This addition corrects a long-standing typographical error regarding the appropriate footnote for this method in Table IB.
6. *Table IB.* Correcting an inadvertent error to footnote 57. The reference number was incorrectly changed to 335.4-1. The correct number is 335.4.
7. *Table IB.* Updating the year of the current references to the general quality control sections of Standard Methods (2020, 3020, 4020 and 5020) footnote 84.
8. *Tables IC and ID.* Adding footnote 15 to the Standard Method Column header and adding footnote 15 to refer to Quality Control Section: Part 6000 Individual Organic Compounds, 6020 (2019).
9. *Table IC.* The parameter 39, dichlorodifluoromethane, should refer to Method 6200 B rather than 6200 C for the GC/MS method.
10. *Table IC.* Parameters 66-72, 95, 96 and 97 are missing footnote 10 that was inadvertently dropped in an earlier rulemaking. Footnote 10 to table IC applies to all of the 17 dioxin and furan congeners.
11. *Table IH.* Parameter 2 has method B-0025-85 is moved down one row because it was inadvertently moved. This method is a one-step membrane filtration (MF) method rather than a most probable number (MPN) method.
12. Footnote 5 to Table II for the preservation and holding time requirements for cyanide to add the year (2015) of the ASTM method D7365-09a.

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Methods 608.3, 624.1, and 625.1 — Quality Control Acceptance Criteria Update: A Cooperative Effort Among ACIL, APHL, TNI, and WEF

Jerry Parr, TNI



On September 27, 2017, three new EPA methods were approved, 608.3, 624.1 and 625.1. These are updates of methods developed in the 1970s. While the technology has changed a lot since then, the method performance data and quality control criteria in these new methods are what existed at the time of their validation, and likely do not represent what is now achievable.

As EPA stated in the preamble to the final rule published on August 28:

“Although EPA received comments about updating the QC acceptance criteria, EPA did not adopt such changes because EPA lacks data from a multi-laboratory validation study from which to develop such criteria.”

In response to concerns expressed by TNI members about these methods, TNI contacted several other organizations that had expressed similar concerns and proposed a partnership which includes TNI, the Water Environment Federation (WEF), the Association of Public Health Laboratories (APHL), and the American Council of Independent Laboratories (ACIL). We have discussed with these organizations the potential for providing data that could be used by EPA to update the old QC acceptance criteria. In a letter to EPA on January 26, 2018, we noted that our organizations represent a significant number of the commercial, state, and municipal laboratories that will be using these updated methods in the future. We stated that we would very much appreciate the opportunity to collaborate with the Agency and its staff in addressing this important issue.

In response to the letter, EPA expressed interest in pursuing this project with the partner organizations. EPA has noted that this is a secondary data collection effort and no “new” (primary) data are being generated. EPA has approved a Study Plan for secondary data collection that would outline what data deliverables will be required and what data review will take place.

In order to ensure representative datasets are used to update the QC criteria, we are attempting to provide EPA

data from a representative cross section of the laboratory community: large commercial laboratory chains, small independent laboratories, and publicly owned treatment works (POTW) laboratories.

If your laboratory is interested in participating in this effort, please Jerry Parr at jerry.parr@nelac-institute.org. We will then send you the Study Plan along with the options for how to provide the data. This is a unique opportunity for laboratories across all sectors to work with EPA to solve a common concern.

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Member Spotlight: September Scheldrup

Stephanie Drier and September Scheldrup



The Cause and Effect

“The bounty (or disappointment) of a harvest is a great way to learn about cause and effect”, and from an early age September Scheldrup began to recognize cause and effect as she plucked raspberries, peas, and tomatoes from her parent’s organic garden in a really small northern city of about 200 people in North Dakota. She graduated from University and took off for Austin, Texas as soon as possible to explore the culture, food, diversity, and opportunities of a big city with warm winters. Her path to environmental science was founded on the combination of being nurtured from a young age about the importance of being a good steward of the earth, and serving in the National Guard where she learned the values of attention to detail, accountability, and dependability.



September is a Water Quality Senior Scientist with Austin Water’s Laboratory Services Division and has been with the City of Austin for 30 years. The laboratory she has worked in for three decades generates data in support of engineering projects for:

- future capacity and wastewater/biosolid treatment
- innovation,
- permit renewal,
- land application,
- monitoring wells,
- stormwater,
- plant process control,
- the conversion of methane gas into electrical power, and
- regulatory compliance.

For the last 18 years, September has been and continues to serve as a technical resource to execute the directives of the quality system, train staff, manage resources, review records, perform analyses, implement CAPA, and manage day-to-day, short- and long-term projects. September never gets bored, because as she states, “her

work is a dynamic space of problem solving, raising awareness, cultivating curiosity, and growing my emotional intelligence running right alongside the routine space.”

Her laboratory has been seeking out and maintaining TNI environmental laboratory accreditation with the Texas Commission of Environmental Quality (TCEQ) since 2008. September states that the value of accreditation makes the quality of one’s work better. She states that, “everyone has blind spots. Assessments shine a light on those blind spots so you can continuously improve and do better.” September sees the value of building networks, having resources and using the Standard, the networks and resources within the TNI community to help her solve problems. A standard vetted by hundreds of brilliant people provides a level of trust and legitimacy. She prides herself on working with and in an accredited laboratory that ensures problem solving and transparency in her work and in the laboratory results.

When not at work, September enjoys the company of her wife Rhonda and relaxing with their rescued canine companions, PJ and Duncan. She is a lifelong learner and is willing to pick up tools and watch videos on how to repair her older Toyota Tacoma. September is also very passionate about cyber hygiene; most people have about 100-200 online accounts and manage the complexity of all those passwords by keeping them simple or re-using passwords. September would advocate that everyone uses complex and diverse passwords, and that a password manager app is an essential tool to manage the growing sophistication of the online world. “It was scary to make the leap from a handwritten notebook, but the change was revolutionary!!” She says this is the first step into securing your accounts along with the need to explore and use 2-factor authentication, hard key devices like YubiKey, and other multiple authentication protocols to stop account takeovers. It's easy to start with the free version of a password manager application, add a couple of accounts, practice, add more accounts as you get comfortable, get rid of the notebook, help your family make the upgrade — just like our work, it's a process of improvement and learning. You can do it!!

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Member Spotlight: September Scheldrup cont.

September attended her first in-person Forum on Environmental Accreditation in January 2024 in Columbus, Ohio. She was able to attend due to some changes in personnel, and some routine TNI meeting participants not being able to make the meeting. As a result of her meeting attendance and networking, she is seeking out opportunities to continue to contribute to TNI in various avenues. September states, "If you can go to a conference, go!! I had the best time in Columbus. It was cool to see the consensus process in action and how TNI aligns to its values. You haven't lived until you have hung out at the bar with Jerry and Alfredo."

Please welcome September into the TNI Forum Community as she begins plans to contribute her valuable insights and information to our environmental laboratory and accreditation community at the national level.

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Chair Speaks: Musings from the TNI Chair

Alfredo Sotomayor, TNI Chair



I was in Florida on April 8. Months before, I had made plans to be in Sarasota for a ballet fix and never thought about the upcoming celestial event. On Monday, I was very happy not to be in the path of totality. We had lunch at a favorite bistro in St. Armand's Circle. Later, driving around Anna Maria Island, I was barely aware that a phenomenal event was taking place. Traffic was light. No one was acting up. A slow day on Earth, and no darkness.

In the afternoon, the beach was not overly crowded, and we took a nice, leisurely stroll, enjoying the rays and the breeze, shedding our Wisconsin blues behind sunglasses and sunscreen.

And then it happened. A man on a beach chair said, "Hey guys, would you like to borrow our glasses and look at the Sun?" It was so sunny at the beach that I thought the whole event surely was over and done. When we put on the borrowed glasses and looked up, we saw, incredibly, a black circle with a sliver of an orange, new moon shape on the upper left part. A spontaneous, generous act, and the right tool, gave us a unique, magical moment. For me, no day at the beach is ever ordinary, but that Monday I experienced something beyond extraordinary.

Now You See It...

In ancient times, eclipses were often thought to be portents of doom. This total solar eclipse was an economic boon for the cities along its observable path. The camaraderie and the goodwill of those that witnessed was palpable. During a few minutes of wonder, peace and love reigned while millions shared the same focal point.

My brief experience made me think about appearances, hidden meanings, and the frequent disconnection between perception and reality. One can go on routinely about without noticing something remarkable above or below. You can miss the exceptional for not having the right instrument. One can get hurt for being foolishly reckless. Two orbs of very different sizes form intercepting circles of equal diameter. Your point of view fabricates a plausible, yet inaccurate scene. We witnessed a cosmic coincidence that recurs with astonishing regularity.

Back on Earth

Eighteen years ago, I experienced a similar singular event. At the Chesapeake Summit, after a lot of work, some compromising, and a lot of diplomacy, NELAC and INELA became one as The NELAC Institute. Unlike in an eclipse, our conjunction remains permanent and is poised to continue to be. When the TNI logo was first unveiled, a member of the then Partnership Planning Team thought it resembled a sinking Sun. We have proven it is a consistently rising Star. After the signing ceremony of a Memorandum of Understanding formalizing the Institute's creation, we gathered and celebrated as if witnessing the merging of the Sun and the Moon. I had S'mores for the first time.

And now, the TNI Board of Directors wants to verify perceptions of why laboratories, assessors, ABs, and the Institute receive infrequent feedback. A group of Directors is crafting a survey, a tool to tease perception from reality, to be distributed to all TNI members later this year. The survey should illuminate hidden meanings. The Institute will use the information gathered to calibrate and refine its Quality Management System.

I may not be around to witness the next total solar eclipse visible from North America. I am more confident that TNI will continue to exist for the next 20 years, and I hope beyond, just as the Sun also rises.

Only connect.

Alfredo

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