



THE INSTITUTE REVIEW

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ChairSpeaks — *Musings from the TNI Chair*

By Alfredo Sotomayor

Disasters

The year is not over, but I cannot imagine any miraculous act that can redeem this annus horribilis. If anything, I am convinced that additional catastrophes will complete this year's catalogue, an extensive collection of nameless and first name disasters, and those perpetrated by agents with a first and last name. No one thinks this is over.

The fury of and the damage inflicted by Harvey, Irma, Maria, and Nate, and the vast and complete destruction caused by the wild fires in California, are so unprecedented that it is easy to succumb to thoughts of Armageddon and karmic retribution. Some of our TNI members have been directly affected by the disasters. All of us know at least someone struggling with the aftermath.

And to this mix, we must add what to me is more horrific: global terrorism, and specifically in America, an epidemic of mass shootings that cannot be contained. The Las Vegas shooting became the 273rd of its kind this year, a daunting statistic no matter the definition used to arrive at the ranking.

Many natural disasters are predictable. Some can be tracked; many give warning signs. But there is no radar that can detect the sociopath that will turn into a sniper. Mother nature can be brutal, but is not senseless. A hurricane has no intention and a tornado has no intrinsic purpose, but disasters committed by those with last names are planned and delivered, following a motive, even if the latter remains hidden. Force majeure we decry, but understand. Mass shootings are incomprehensible. Environmental scientists are in the business of quantifying uncertainty to arrive at a measure of certainty. Our inability to predict human-induced massacres offends our sense of control and our vocation to predict and advise.

What blindness afflicts those that cannot see the humanity of who they target and brings a conviction that they must all perish for a cause, or lack of one? What individual pathology drives those that commit these atrocities and what collective impotence prevents us from finding a solution? We would all choose to live without electricity than without a loved one. It is easier to remedy the environment than to tend to the landscapes of grieving souls.

These disasters do test us, but bring out the best in all of us. They become opportunities for unity, reflection, remediation, rebuilding, sharing, and caring. They reaffirm our humanity and as we process what we have lost, gives us a moment to treasure what we have not. As sure as I know that we will witness or suffer more future calamities, I am also certain that others will come to the rescue with unselfish generosity.

If you or those you know have suffered harm or loss by any of these terrible events, my heart goes out to you and them.

Only connect...

Alfredo

A Note about this Newsletter:

You will see some new items in this issue: a recipe, a gardening article, and an article about visiting New Mexico. Let us know what you think about these additions, and contact the Chair of the Advocacy Committee, Steve Arms at arms.steve@comcast.net if you have an article you would like to submit for the next issue.

Registration is Open for the 2018 Forum on Environmental Accreditation

By Jerry Parr, TNI

Registration is open for the **2018 Forum on Environmental Accreditation** to be held at the Hyatt Regency in Albuquerque, NM from **January 22-25, 2018**. The Forum will feature open public meetings of all 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 accreditation issues to review what has been done and participate in the efforts to establish a national environmental accreditation program. The 2018 Forum will include:



- Meetings of all TNI committees;
- A mentor session focused on small laboratory challenges in implementing the TNI Standard;
- An Assessment Forum;
- A meeting of the EPA's Environmental Laboratory Advisory Board (ELAB);
- A general session with updates about TNI programs; and
- A training course on assessing radiochemistry laboratories.

For more information, go to the 2018 conference website at <http://www.nelac-institute.org/meetings.php>.



Report From Washington, DC

By Lara Phelps, USEPA and Jerry Parr, TNI

The Environmental Measurement Symposium, which represents the combined meetings of the National Environmental Monitoring Conference (NEMC) and the Forum on Environmental Accreditation (the Forum), occurred in Washington, DC this summer from August 7 – 11, 2017. This was the 11th combined meeting of the Forum and NEMC, which has only continued to grow.

Over 600 attendees participated in a week full of engaging technical presentations, thoughtful committee meetings of The NELAC Institute (TNI), special workshops, and technology innovation displays, among many other opportunities. The technical presentations from the NEMC meeting can be found at <http://www.nemc.us>. Minutes from TNI committee meetings and presentations from the Forum can be found at <http://www.nelac-institute.org>.



Summary of the 2017 Forum on Environmental Accreditation August 7-11, 2017

By Jerry Parr, TNI

- The brief **Proficiency Testing (PT) Expert Committee** meeting noted that the PT modules of the 2016 Standard are all complete. They reviewed the PT portion of the checklist, as well as the PT portion of the Small Lab Handbook, and discussed planned activities for the rest of the year.
- Since the last meeting, the **Laboratory Accreditation Body Expert Committee** has considered comments on TNI language that will need to be transferred from Modules 1 and 3 of Volume 2 into the new module in development, but realized that most comments cannot be addressed until the language of the revised ISO 17011 is available. Discussion during the session focused on topics that were dropped from the Standard, going from 2003 NELAC to 2009 TNI, and whether they should be addressed in the upcoming revision of Volume 2, or in some other fashion (perhaps as a policy).
- The **Quality Systems Expert Committee** noted that the Small Lab Handbook is in final editing stages. When the guidance about implementing the 2016 Chemistry module is received for incorporation, some additional changes may be needed, so the handbook completion date remains uncertain. The Quality Systems (QS) module part of the checklist is completed. The committee awaits the final version of revised ISO 17025, which will require major revision of the QS module.
- The **Microbiology Expert Committee** completed the checklist for the 2016 Standard, as well as the microbiology portion of the Small Laboratory Handbook.
- The **Radiochemistry Expert Committee** meeting included an overview of the past six month's activities. The radiochemistry portion of the checklist is "friendlier" now than before, and the radiochemistry portion of the Small Lab Handbook was reviewed. This committee is contemplating creating training for radiochemistry assessors, to be offered at the winter meeting in Albuquerque.
- This abbreviated **Field Activities Committee** session was a public meeting to discuss the Field Activities standard review schedule and assignment of sections to various committee members, as well as which areas of the standard require greater attention. Several public comments on the revision were discussed and a webinar is planned later this fall.
- In May, the **Whole Effluent Toxicity Expert Committee (WET)** presented a successful webinar, *Understanding WET Testing*. The public session at conference summarized the recent communication with the PT Executive Committee about ways to enhance data comparability of WET PT/DMR-QA results. Also summarized was the meeting of WET committee members with representatives from the Environmental Laboratory Advisory Board (ELAB) and EPA representatives, to discuss ELAB's communications with EPA about the 2015 white paper that WET sent to the EPA DMR-QA coordinator. Then, session participants discussed in detail four (4) issues needing to be addressed during revision of the WET module of the 2016 TNI Standard, but focused on requirements for demonstrations of competency and appropriate QA/QC for water chemistry measurements in WET testing that ensure suitable habitats for test organisms.



- The **Chemistry Expert Committee** held a working session where Chair Val Slaven led the committee in finalizing the chemistry portion of the checklist and then reviewing comments received on the “outline” version (pre-voting draft) of the revised Chemistry module. The committee will begin revisions to the draft guidance documents, as requested by the NELAP Accreditation Council (AC), as time permits and then will devote full time to that, once the revised module is final.
- The **Consensus Standards Development Executive Committee (CSDEC)** worked on its glossary, which now has almost 400 entries. They identified combinations and cleaned up details. Plans are to publish the draft document for comment, and then discuss the comments in Albuquerque.
- Participants at the **Stationary Source Audit Sample Committee (SSAS)** discussed the latest module, that people still have questions about, making some progress. The unresolved audit sample issues still continue, with every audit seemingly different.
- During the **Proficiency Testing Program Executive Committee (PTPEC)** meeting, the PT Provider Accreditors (PTPAs) made their reports, and PTPA educational training was discussed. The TNI PT database is now “live” on the TNI website, so that PT providers (PTPs) can populate it and PTPAs may also participate. The database is only accessible to those groups. William Daystrom, TNI webmaster, will provide introductory training for PTPs using the database. PTPEC has compared the fields of proficiency testing (FoPT) analyte names with the analyte names in the Laboratory Accreditation Management System (LAMS) and found some inconsistencies; they hope to standardize the names between the two resources. PTPEC will ask the AC to agree to the changes; there are fewer than fifty (50) corrections that need to be made.
- The **National Environmental Field Activities Program** session was a good interactive discussion where participants looked at how to improve the program, examining obstacles and issues to address as the program grows, with some ideas and actions identified for committee focus.
- During the **National Environmental Laboratory Accreditation Program Accreditation Council** meeting the status of evaluations in the current (new) cycle was discussed. Scheduling is problematic, as are the remote document reviews. Paul Bergeron, Vice Chair, will review the active issues and make recommendations about possible revisions to the NELAP Evaluation SOP 3-102. As for the LAMS database, nearly all accreditation bodies (ABs) are committed to providing updates to the database, with automatic uploads being planned for most. NY will not have resources to upload its fields of accreditation (FoA) in the foreseeable future, but has offered to provide *.csv files from its existing database to any NELAP AB requesting them (which is, unfortunately, not compatible with LAMS). The Council is considering separating its AB recognition and renewal cycle from the triennial evaluation cycle, in order to spread out the evaluation timing more smoothly across the three (3) years. The 3-year interval for evaluations will remain unchanged, however this process is accomplished. Standard Interpretation Requests (SIRs) are no longer backlogged, but the slowest part of their processing seems to be getting through the Council’s voting procedure. A draft policy addressing method selection for lab assessments is still in development. The need to specify how to choose methods and what constitutes “review”, while factoring in the drinking water program’s expectation that all methods will be fully reviewed, makes this a complex process. Hopefully, a review draft will be available in time for discussion in Albuquerque.

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Summary of the 2017 Forum on Environmental
Accreditation August 7-11, 2017



- Participants at the **Laboratory Accreditation Systems Executive Committee (LASEC)** received an update on LASEC activities since the Orange County meeting, the status of SIRs, and also of review of the 2016 Standard. An open discussion of “lessons learned” from the 2016 TNI Standard’s review process took place, and audience feedback will be included in the final compilation. Action items will be incorporated into the LASEC Standards Review SOP and shared with CSDEC. The Mentor Session was successful, thanks to Dorothy Love’s efforts (along with the workgroup). The format of small groups working together to develop implementation guidance for various areas of the 2016 Standard was well received, and provided unexpected networking and idea-sharing benefits for participants. Those new to TNI seemed to find that format especially valuable.

Call for Abstracts for the 34th National Environmental Monitoring Conference

By Earl Hansen, TNI

Organized jointly by the U.S. Environmental Protection Agency (EPA) and The NELAC Institute (TNI), the 2018 Environmental Measurement Symposium is a combined meeting of the National Environmental Monitoring Conference (NEMC) and the Forum on Environmental Accreditation. The meeting will occur August 6-10, 2018 in New Orleans, LA. It is the largest conference focused on environmental measurements in North America. The theme for the 2018 NEMC meeting will be *“The Future Landscape for Science”*, including the role of science and how the scientific workforce is changing. The NEMC Steering Committee is inviting abstracts for oral or poster presentations in these specific topic areas:

- Academic Research Topics in Environmental Measurement and Monitoring
- Advances in Monitoring Persistent, Bioaccumulating and Toxic (PBT) Compounds
- Advances in Sample Preparation and Clean-up
- Air Methods, Monitoring and Technology
- Challenges and Considerations of Producers of Certified Reference Materials and Proficiency Test Samples with Emerging Contaminants
- Changing the Paradigm for Water Pollution Monitoring
- Characterization of Perfluoroalkyl Substances in the Environment
- Citizen Science
- Collaborative Efforts to Improve Environmental Monitoring
- Data Quality, Management, and Review
- Emerging Contaminant Analysis through Non-Targeted Screening Research
- Environmental Laboratory Operations During and After Disaster Events
- Field Sampling, Measurement & Sensor Technology
- Forensic Environmental Chemistry
- Laboratory Informatics
- Metals and Metals Speciation Analysis in Environmental Samples
- Method Update Rule - One Year Later
- Microbial Monitoring in Ambient Water
- Monitoring for Contaminants in Foods & Beverages
- New Environmental Monitoring Techniques for Organics
- Operational and Advocacy Issues Impacting the Environmental Laboratory Industry
- Overcoming Legacy Obstacles with Innovative Approaches
- Science Communication
- Spotlight on Method 6020 Instrumentation – ICP-MS Metals Analysis
- Topics in Drinking Water
- Topics in Shale Gas

Please provide your abstract by January 29, 2018. 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 NEMC website at www.nemc.us.

New ISO/IEC Standards

By Marlene Moore, Advanced Systems

In late 2017 the new ISO/IEC 17025 and ISO/IEC 17011 will be published, and the final versions made available. There are significant changes expected to these standards that form the basis for the TNI Environmental Laboratory (EL) and Field Sampling and Measurement Organization (FSMO) standards.

The purpose of this article is not to review all of the proposed changes. These will be extensive and not yet generally available for review. Warren Merkel, Co-convenor of ISO/CASCO WG44 presented an overview of the proposed revisions at the 22018 Environmental Measurement Symposium, which can be viewed at <http://nelac-institute.org/content/meeting-presentations.php>. Future articles will provide more details as well. For now, it is important that all members recognize that this revision is coming and with it will come subsequent revisions to select TNI standards. If you want to participate in this process, now is an excellent time to consider joining an expert committee to help with this.

The international community will have a three (3) year adoption period. All Laboratories and Accreditation Bodies (AB) will have until 2020 to implement the new standards. TNI will be considering the changes to the international standards in 2018 as part of the quality systems committee and the field activities committee as well as the respective accreditation body's committees.

As Warren Merkel stated in his presentation in August, "Relax, but get ready." As shown in the outlines of the new standards below, while there are a lot of organizational changes of where the language is provided, much of the content remains the same, and more flexibility for laboratories is provided.

The new ISO/IEC standards follow the new format.

ISO/IEC 17025 "General requirements for the competence of testing and calibration laboratories" contains the following sections.

Introduction

1 Scope

2 Normative references

3 Terms and definitions

4 General requirements

4.1 Impartiality

4.2 Confidentiality

5 Structural requirements

6 Resource requirements

6.1 General

6.2 Personnel

6.3 Facilities and environmental conditions

6.4 Equipment

6.5 Metrological traceability

6.6 Externally provided products and services



7 Process requirements

- 7.1 Review of requests, tenders and contracts
- 7.2 Selection, verification and validation of methods
 - 7.2.1 Selection and verification of methods
 - 7.2.2 Validation of methods
- 7.3 Sampling
- 7.4 Handling of test or calibration items
- 7.5 Technical records
- 7.6 Evaluation of measurement uncertainty
- 7.7 Ensuring the validity of results
- 7.8 Reporting of results
 - 7.8.1 General
 - 7.8.2 Common requirements for reports (test, calibration or sampling)
 - 7.8.3 Specific requirements for test reports
 - 7.8.4 Specific requirements for calibration certificates
 - 7.8.5 Reporting sampling – specific requirements
 - 7.8.6 Reporting statements of conformity
 - 7.8.7 Reporting opinions and interpretations
 - 7.8.8 Amendments to reports
- 7.9 Complaints
- 7.10 Nonconforming work
- 7.11 Control of data and information management

8 Management system requirements

- 8.1 Options
 - 8.1.1 General
 - 8.1.2 Option A.
 - 8.1.3 Option B.
- 8.2 Management system documentation (Option A)
- 8.3 Control of management system documents (Option A)
- 8.4 Control of records (Option A).
- 8.5 Actions to address risks and opportunities (Option A)
- 8.6 Improvement (Option A)
- 8.7 Corrective action (Option A)
- 8.8 Internal audits (Option A)
- 8.9 Management reviews (Option A)

Annex A (informative) Metrological traceability

Annex B (informative) Management System options



ISO/IEC 17011 “Conformity assessment — Requirements for accreditation bodies accrediting conformity assessment bodies” contains the following sections.

Introduction

1 Scope

2 Normative references

3 Terms and definitions

4 General requirements

- 4.1 Legal entity
- 4.2 Accreditation agreement
- 4.3 Use of accreditation symbols and other claims of accreditation
- 4.4 Impartiality requirements
- 4.5 Financing and liability
- 4.6 Establishing accreditation schemes

5 Structural requirements

6 Resource requirements

- 6.1 Competence of personnel
- 6.2 Personnel involved in the accreditation process
- 6.3 Personnel records
- 6.4 Outsourcing

7 Process requirements

- 7.1 Accreditation requirements
- 7.2 Application for accreditation
- 7.3 Resource review
- 7.4 Preparation for assessment
- 7.5 Review of documented information
- 7.6 Assessment
- 7.7 Accreditation decision-making
- 7.8 Accreditation information
- 7.9 Accreditation cycle
- 7.10 Extending accreditation
- 7.11 Suspending, withdrawing or reducing accreditation
- 7.12 Complaints
- 7.13 Appeals
- 7.14 Records on Conformity Assessment Bodies

8 Information requirements

- 8.1 Confidential information
- 8.2 Publicly available information

9 Management system requirements

- 9.1 General
- 9.2 Management system documentation
- 9.3 Document Control
- 9.4 Records Control



- 9.5 Nonconformities and corrective actions
- 9.6 Improvement
- 9.7 Internal audits
- 9.8 Management reviews

Annex A (Informative)

Required knowledge and skills for functions in the accreditation process

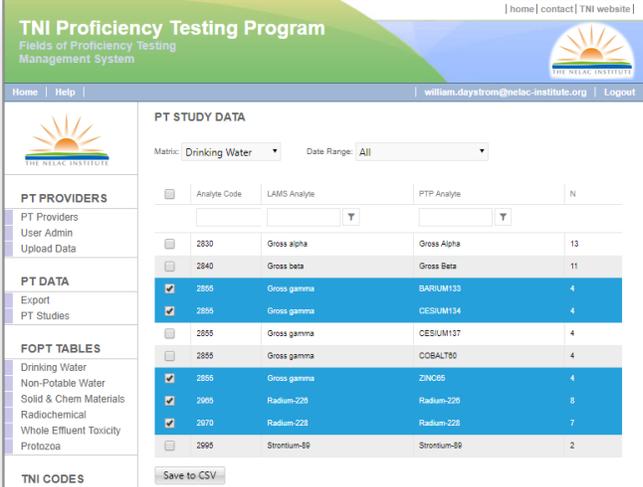
TNI will begin the process of integrating the new ISO language into the TNI standards at the January 2018 meeting in Albuquerque. If you want to be part of this process, come to the meeting and/or join one of these three committees that will be working on the changes:

- Field Activities Committee (Volumes 1 and 2 of the FSMO standard)
- Laboratory Accreditation Body Committee (Volume 2 of the EL standard)
- Laboratory Quality Systems Committee (Volume 1, Module 2 of the EL standard)

TNI PT Database...At Last!

By Maria Friedman, California ELAP

One of the core functions of the Proficiency Testing Program Executive Committee (PTPEC) is to ensure that Fields of Proficiency Testing (FoPT), consisting of analytes, concentrations, matrices, and acceptance limits, are appropriate for the scope of environmental monitoring performed in the United States. To help complete this task, the PTPEC forms subcommittees, with expertise in specific FoPTs, that periodically evaluate statistics from historical PT studies and determine what changes, in any, are needed. Key to this effort is the attainment of relevant and timely historical PT study data. With seven (7) accredited PT Providers from whom to collect data, this has never been an easy task. From the start, means were sought to streamline data collection, and as early as 2009, the TNI Standard required the PTPEC to develop and maintain a database that would receive PT summary data from PT Providers.



<input type="checkbox"/>	Analyte Code	LAMS Analyte	PTP Analyte	N
<input type="checkbox"/>	2830	Gross alpha	Gross Alpha	13
<input type="checkbox"/>	2840	Gross beta	Gross Beta	11
<input checked="" type="checkbox"/>	2855	Gross gamma	BARUM133	4
<input checked="" type="checkbox"/>	2855	Gross gamma	CESIUM134	4
<input type="checkbox"/>	2855	Gross gamma	CESIUM137	4
<input type="checkbox"/>	2855	Gross gamma	COBAL700	4
<input checked="" type="checkbox"/>	2855	Gross gamma	ZINC95	4
<input checked="" type="checkbox"/>	2965	Radium-226	Radium-226	8
<input checked="" type="checkbox"/>	2970	Radium-228	Radium-228	7
<input type="checkbox"/>	2995	Strontium-90	Strontium-90	2

The TNI PT Database

In 2015, talks between representatives of the PTPEC, PT Providers, and PT Provider Accreditors — to finally develop a PT Database — began in earnest. Details such as the PT information to be collected and the means of ensuring confidentiality were discussed and consensus was reached. By 2016, the framework for the PT Database had been established, and the project was handed off to TNI to be developed. Finally, last August, at the TNI Forum in Washington DC, TNI's IT Administrator, William Daystrom, announced that the PT Database had been completed.

The PT Database is accessed via a password-secured website and facilitates the transfer of PT study summary data from PT Providers to the PTPEC. PT Providers will upload data in a standard comma-separated-value (*.csv) format, and PTPEC designees will then be able to download anonymized data for FoPTs of interest.

In the coming weeks, TNI will be reaching out to PT Providers to set up their access to the TNI PT Database. Collection of data will commence shortly thereafter.

I would like to extend my thanks to the representatives of the PTPEC, PT Providers, PT Provider Accreditors, and TNI who came together to help make this longstanding project a reality!



Update from California ELAP

By Katelyn McCarthy, California ELAP

Over the summer, the California Environmental Laboratory Accreditation Program (CA ELAP) released a preliminary draft of text for new regulations that incorporates the 2016 TNI Standard by reference. The program accepted comments from the community through September 7, 2017. The next iteration is anticipated to be released prior to the next Environmental Laboratory Technical Advisory Committee meeting on December 6, 2017.

CA ELAP and the California State Water Board's Division of Administrative Services are working with a stakeholder group to revise the current fee structure in conjunction with the revision of the program's regulations.

CA ELAP has entered into a three-year contract with NV5/Dade Moeller, who will provide training and mentorship to ELAP staff during on-site assessments of accredited California drinking water laboratories. Classroom trainings on assessment skills and technical methods concluded in early October, and on-site assessments will begin in November.

In addition to assessing laboratories to current California regulations, NV5 assessors will perform a gap analysis of each laboratory to assist the laboratories with their implementation of the 2016 TNI Standard. As part of this contract, NV5 led four (4) educational public workshops in San Diego, Los Angeles, Oakland, and Sacramento for the laboratory community on implementation of the 2016 Standard. A video recording of the October 2nd workshop is posted on the Events Calendar on ELAP's webpage at www.waterboards.ca.gov/elap.

CA ELAP is developing a contract proposal for an early implementation project for six (6) California laboratories. The Invitation for Bids will seek a consultant to work with the six (6) laboratories over a period of one year to bring them into compliance with the 2016 Standard. The initial findings from the project will be used to inform the design of a small laboratory training contract. The request is expected to be released in early 2018.

CA ELAP is developing a contract proposal for a one-day small laboratory training focused on development of critical documentation for the TNI Standard. The proposal will seek a consultant to design and instruct approximately twenty (20) workshops throughout the state, to reach 500 laboratories. This contract will be informed by the preliminary findings from the early implementation project.

CA ELAP is developing criteria for a contract proposal to establish a pool of third-party assessment firms approved to perform assessments of California ELAP laboratories. The contract is expected to be released spring 2018.



Status of the 2016 TNI Standard

By Ken Jackson, TNI

All four (4) volumes of the 2016 Environmental Sector Standard were approved by the membership, and they are now available for use. However, on October 15, 2017, voting was completed on a Voting Draft Standard (VDS) that further revised Volume 1 Module 4 (Quality Systems for Chemical Testing). So here is the story:

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

Volume 1 consists of seven (7) modules. **Module 1 (Proficiency Testing)** underwent extensive revision from the pre-existing 2009 Standard. **Module 2 (Quality Systems General Requirements)** and **Module 3 (Quality Systems for Asbestos Testing)** were adopted by the membership in 2012, but were held back until they could be incorporated into the 2016 Standard. These revisions, though quite extensive, were mostly for improving the clarity of the Standard.

Module 4 (Quality Systems for Chemical Testing) has the most checkered history, having undergone several revisions resulting from feedback from the NELAP Accreditation Bodies and the Laboratory Accreditation System Executive Committee (LASEC). Then, after the membership voted to approve the module, there were further requests for revision. The only option then was for the Chemistry Expert Committee to initiate a new Module 4 and take it through the voting process. The VDS passed, with 125 votes, of which 113 were affirmative. There were fifteen (15) comments, which were reviewed by the Chemistry Committee. The Committee decided all the comments can be addressed through clarification of the language in the module, without the need for substantive changes. Thus only editorial changes were made and the module has been finalized.

Module 5 (Quality Systems for Microbiological Testing) and **Module 6 (Quality Systems for Radiochemical Testing)** were also revised from the 2009 Standard and passed the voting process. That just leaves **Module 7 (Quality Systems for Toxicity Testing)**, which was not revised; i.e., the 2009 version was carried through into the 2016 Standard. The Whole Effluent Toxicity Expert Committee is now initiating a revision of this module for the future.

Volume 2: General Requirements for Accreditation Bodies Accrediting Environmental Laboratories

Volume 2 consists of **Module 1: General Requirements**; **Module 2: Proficiency Testing**; and **Module 3: On-Site Assessment**. For the 2016 Standard, only Module 2 was revised, the other two modules being carried through from the 2009 Standard. A future standard to be presented to the membership will be a proposed merging of Modules 1 and 3.

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Status of the 2016 TNI Standard



**Volume 3: General Requirements for Environmental Proficiency Test Providers; and
Volume 4: General Requirements for an Accreditor of Environmental Proficiency Test Providers.**

Both of these volumes were revised from the 2009 Standard.

Summary and Conclusions

The revised Volume 1 Module 4 was adopted by the Chemistry Committee on November 1, 2017. The 2016 Standard thus consists of:

- Volume 1 Rev. 2.1 (replacing Rev. 2.01);
- Volume 2 Rev. 2.0;
- Volume 3 Rev. 2.0; and
- Volume 4 Rev. 2.0.

Final edits are being made and the revised standard should be available in 2–3 weeks, along with a Response to Comments document for the Chemistry module.



Integrated Pest Management

By Jerry Parr, Parker County Master Gardener

Do you like insects in your garden? No? But what about butterflies, dragonflies, honeybees, lightning bugs, and lady bird beetles? These are all insects.

In the 1970's, professors at the University of California, and others around the country, set out to find a better way of dealing with rampant overuse of pesticides. They felt that most diseases, weeds, insects, and other pests could be controlled by employing good crop management practices and maximizing the many controls already existing in nature. Integrated Pest Management (IPM) was developed to be an environmentally responsible and economically practical system for controlling pests.

A pest is defined as *any organism that interferes with growth of a plant and includes insects, diseases and weeds*, but there are many pests including nematodes, fungi and vertebrates such as moles. A pesticide is *anything that kills the problem pest*, and includes insecticides (kills insects), herbicides (kills weeds), and various products such as fungicides, that control plant diseases.

IPM is a nationally-accepted practice that reduces the impact on our environment, saves money and reduces pesticide use. The basic principles of IPM follow an orderly process:

1. **Identify the problem.**
2. **Determine the severity of the problem.**
3. **Use appropriate controls.**

Identify the Problem

Before deciding what type of control to use, first identify what's harming your plants. Many times, insect infestations and diseases are not the underlying problem, but rather, symptoms of stress caused by poor growing conditions. These include things like compacted soil, nutrient deficiencies, too much or too little moisture, or a poorly adapted plant species. Simply correcting these cultural conditions may eliminate the need for any further pest control.

Don't forget that many insects you see in your landscape are beneficial. Of the millions of insects in the world, less than 2 percent are considered harmful. Beneficial insects such as ground beetles, ladybugs, fireflies, green lacewings, praying mantis, spiders, and wasps keep harmful insects from devouring your plants. Indiscriminate use of chemical pesticides may harm beneficial insects more than unwanted pests.

Determine the Severity of the Problem

In some cases, the appropriate action may be to do nothing. The goal should be to control the pest, not totally eliminate it, which is probably impossible anyway, so treat only the effected plants. Remember, without a few bad guys, there would be no good guys – they wouldn't have anything to eat. The key is to achieve a reasonable balance.

Use Appropriate Controls

There are several control options that can be used, depending on the problem. These include non-toxic practices such as:

- good bed preparation
- proper pruning
- beneficial insects
- botanical pesticides derived from plants
- mineral pesticides such as horticultural oils
- synthetic pesticides

Always use the least toxic product or practice that will effectively control the problem. Remember to start by correcting any cultural problems, move on up to determine the severity, and finally, apply physical and biological controls if they are appropriate. Next, consider pesticides derived from natural sources. Generally, these tend to be less toxic, break down more rapidly, and are more environmentally friendly.

Examples are:

- Insecticidal soaps
- Horticultural oils
- Neem oil
- BT (*Bacillus thuringiensis*)
- Spinosad
- Pyrethrin

If, after all of the other steps are complete, it is necessary to use a synthetic (chemical) pesticide, choose the least toxic product that is targeted specifically to control the problem pest.

Examples are:

- Carbaryl (e.g., Sevin)
- Malathion
- Pyrethroid

Let's look at a few bugs. Should you kill it or leave it be?

Look at this ugly bug



This sure looks like something we should kill, but in fact, it is the larvae of the lady bird beetle and will eat hundreds of aphids a day.

What about this one? It looks like a very large wasp and can be up to 2 inches long. I have one or two every year and they are found in the eastern and Midwest US ranging down to Mexico.



It is a cicada killer, and as the name suggests, they catch and kill cicadas to use as food for their young. They live in holes in the ground, are almost impossible to kill because of their speed, and are not aggressive and rarely sting, so leave them alone.

Let's look at a bad bug.



This is a thrips (singular or plural) under a microscope. You can detect them by beating the flowers or leaves of a plant and look for tiny walking dashes. It feeds on many plants, including roses. The most common symptom is a bud that never blooms.

What about this parsleyworm? As the name suggest, it feeds on parsley, dill and fennel.



This larvae becomes the black swallowtail butterfly. Don't kill it. Plant more parsley.

One more. Is this a good bug or a bad bug?





This is the larvae of an ant lion. It lives in pits that trap ants and other prey. In East Texas where I grew up, we called these doodle-bugs.

I think these few examples show how hard it is to control an insect by looking at it. IPM teaches us to control the problem, not the insect.

Diagnosing Plant Problems

There are three things that create problems with plants: insects, diseases, and cultural problems. Cultural problems are 65-75% of the problems with home landscapes. So how do you know you have an insect problem?

1. You can see the insect.
2. You can see insect damage.
3. You can see or feel honeydew.

Insect damage is of two types:

1. from chewing insects (holes in leaves or plants cut at the base), or
2. from sucking insects (wilted or yellowing appearance).

For chewing insects, the remedies are to...

1. remove the insects by hand,
2. use BT (*Bacillus thuringiensis*) (for caterpillars), or
3. use carbaryl.

For sucking insects, the remedies are...

- 1) do nothing; allow natural predators to control,
- 2) spray with water,
- 3) coat insect with soapy water, or
- 4) use an insecticide such as pyrethrum

Avoid usage of broad-spectrum pesticides that kill everything, and follow label instructions carefully. Do not apply more than the label specifies. More is not better. Finally, dispose of any unused pesticides properly. Always read and follow the label.

Learn to live with insects. Most of them can be tolerated. If you do have a problem that requires use of an insecticide, use an arrow, not a bomb. In other words, treat only the effected plants with the least toxic solution.

Welcome to the Land of Enchantment

By Kay and Jerry Parr

We look forward to sharing time with you in New Mexico in January. Our recent visit to Albuquerque to make plans for the conference reminded us how much we enjoy visiting New Mexico.

New Mexico has a heritage of Indian, Anglo, and Hispanic cultures that cannot be found in any other state. These cultures are reflected in color and art, music and dance, and food. The desert and mountain landscape is spectacular.

While we typically think of the founding of America dating to the time of the Pilgrims, the Spanish were in New Mexico long before the Mayflower arrived. Santa Fe is not only the oldest European city west of the Mississippi; it is the oldest capital city in North America, dating to 1610.

Native American Culture

The primary attractions of New Mexico are its American Indian pueblos, reservations, artwork, and its people. There are about 20 active pueblos. The Navajo Nation in the northwest region is the largest Indian nation within the United States. The Mescalero Apache reservation is in the southeast region. We have personally visited two remarkable pueblos, Acoma and Taos.

Pueblos

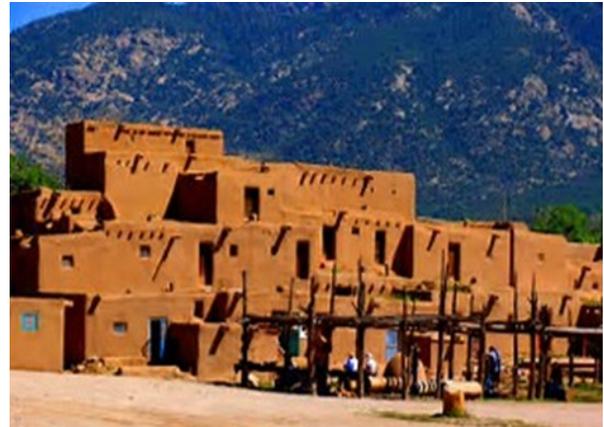
Acoma Sky City (about an hour drive west of Albuquerque), a walled adobe village perched atop a sheer rock mesa 367 feet above the valley floor, is said to have been inhabited at least since the 11th century – it is the longest continuously occupied community in the United States. Native history says it has been inhabited since before the time of Christ. Both the pueblo and its mission church San Esteban del Rey are National Historic Landmarks. When Coronado visited in 1540, he said that Acoma was "the greatest stronghold in the world." The only way to this pueblo, until the 1940's when a movie crew developed a road, was a cliffside footpath. Each pueblo has its unique style of pottery. Acoma pottery is known for its distinctive geometric designs. (We discovered that if you stay too long and purchase pottery, the tour leaves you and you get escorted down the cliff path!) <http://www.acomaskycity.org/home.html>





Taos Pueblo (132 miles north of Albuquerque) is the only living Native American community designated both a World Heritage Site and a National Historic Landmark. The multi-story adobe buildings have been continuously inhabited for over 1,000 years. Archaeologists say that ancestors of the Taos Indians lived in this valley long before Columbus discovered America and hundreds of years before Europe emerged from the Dark Ages. The main part of the present buildings was most likely constructed between 1000 and 1450 A.D. When the first Spanish explorers arrived in Northern New Mexico in 1540, they appeared much as they do today. It is believed that the Taos Pueblo was one of the fabled golden cities of Cibola.

<http://taospueblo.com/>



Archeological Sites

Another primary attraction of the state is its collection of major archeological sites from the Ancestral Puebloans who inhabited the area from roughly the 700s AD to the 1300s, when it is believed they migrated to more promising locales. Mesa Verde, the most famous of Pueblo ruins, is just to the north of New Mexico in Colorado. But New Mexico is home to many stunning collections of ruins in its own right. The most renown is Chaco Canyon in the northwest section of the state. It has remarkably well-preserved walls and pictographs. Near Los Alamos is Bandelier National Monument, with a superb collection of cliff dwellings in a scenic canyon. While Chaco Canyon and Bandelier are the most famous ruins, there are many other small ones.

<https://www.nps.gov/band/index.htm>



Food

New Mexican food is not the same as Mexican and "Tex-Mex" foods found in the rest of the US. New Mexico is the only state with an official question — "Red or green?" — referring to the choice of red or green chile. Dishes can be requested with both red and green chile (one side covered with green, the other with red) and is referred to as "Christmas". Other distinctive foods include blue corn enchiladas, and sopaillas — a pastry into which honey is added just before eating. Chile is one of the most definitive differences between New Mexican and other Mexican cuisines. A bowl of "chile" usually means green chile with pork roast. The green chile sauce is hotter than its red counterpart. Posole, one of our favorite dishes, is a stew made with hominy, simmered with pork and green chile, onions, and garlic. Mole (two syllables, mole lay') is a sauce with red chile, tomatoes, chocolate, and other spices served over meat.



Albuquerque and Neighboring Cities

Albuquerque was founded in 1706 as a small Spanish settlement on the banks of the Rio Grande and was named for the Duke of Albuquerque (the first "r" was later dropped). When the railroad arrived in the 1880s, a new city grew up around the train tracks a couple of miles away from the original settlement. This "New Town" became the hub of commerce for the state. Old Town is where the city was founded in 1706 and is a place where centuries of history and modern life merge; 18th century architecture with narrow brick paths is blended with adobe architecture, and there are lots of little nooks and crannies, small restaurants, and specialty shops with original art and jewelry. Old Town has a central plaza which is bordered on the north by the San Felipe de Neri Church, the oldest building in Albuquerque. Historic neon signs still glow on old Route 66 through Albuquerque, which is now Central Avenue, about a block from the Hyatt. Alongside the vintage signs, you'll see new versions put up by businesses that are continuing the aesthetic traditions of old Route 66.



Santa Fe (one hour drive north from Albuquerque) is the capital city of New Mexico. Prior to 1610, when the city of Santa Fe was established by Spanish colonists, the area was occupied by a succession of local tribes, which explains its rich cultural and historical heritage. You can visit literally dozens of museums, historical sites, and Indian pueblos before even touching on the extravagant list of cultural attractions, which is why the city has been voted the number one destination for culturephiles by USA Today. The historical district has over 6,000 structures, dozens of art museums, galleries, and markets. We know from personal experience that it is hard to visit Santa Fe and not become enamored with Southwest art and jewelry!

<https://santafe.org/>

Taos (a short distance from the Taos Pueblo, 132 miles north of Albuquerque) was founded as a Spanish outpost in 1540. An important trading post, the little town sitting at the base of the towering Sangre de Cristo Mountains became significant along the Santa Fe Trail, when American trade flourished between the Great Plains. In Taos, you can not only explore how Native Americans lived several centuries ago by visiting Taos Pueblo, but also by visiting Taos's long-time artist colony featuring many galleries, studios, and museums that showcase local artists.

<http://taos.org/>



Books and Movies

If you want to brush up on New Mexican culture before you arrive, we suggest the following:

- *Death Comes for the Archbishop*, by Willa Cather — In 1851 Father Jean Marie Latour comes as the Apostolic Vicar to New Mexico. What he finds is a vast territory of red hills and tortuous arroyos, American by law, but Mexican and Indian in custom and belief. In the almost forty years that follow, Latour spreads his faith in the only way he knows — gently, although he must contend with an unforgiving landscape, derelict and sometimes openly rebellious priests, and his own loneliness.
- The New Mexico Trilogy, by John Nichols — A series about the complex relationship between history, race and ethnicity, and land and water rights in the fictional Chamisaville County, New Mexico. The trilogy consists of *The Milagro Beanfield War* (which was adapted into the film, *The Milagro Beanfield War*, directed by Robert Redford), *The Magic Journey*, and *The Nirvana Blues*.
- Any of the mystery novels set in the Navajo nation by Tony Hillerman. Hillerman's writing is noted for the cultural details he provides about his subjects: Hopi, Zuni, federal agents, and especially Navajo Tribal Police. His works reflect his appreciation of the natural wonders of the American Southwest and his appreciation of its people, particularly the Navajo. His mystery novels are set in the Four Corners area of New Mexico and Arizona.
- And of course, *Breaking Bad*, which was filmed in Albuquerque. You can even go on a tour of some of the locations of the scenes such as Los Pollos Hermanos.



Recipe: Chicken Green Chili

By Robin Cook, City of Daytona Beach

You will need:

- 1 whole chicken, about 3.5 lbs (or a mix of thighs and breasts)
- 1 large onion, peeled
- 3 cloves of garlic, peeled
- ¼ bunch fresh thyme
- 1 bay leaf
- 4 poblano chiles (for more mild taste, use cubanelle or even a mix) you can always have more peppers as well. Use hotter peppers as well. This is where you can adjust for your personal taste. Sometimes, I use the mini sweets.
- 1 onion, chopped
- 4 cloves of garlic, minced
- 1 teaspoon ground cumin
- 1 teaspoon ground coriander
- 1 teaspoon oregano
- 1 cup finely ground tortilla chips, you can use more if you want it to be a bit thicker.
- Pinch of salt
- ½ bunch of fresh cilantro, chopped
- Optional, white beans to taste

How to make it:

- If using a whole chicken: Remove the giblets and set aside. Rinse the chicken with cool water and return the chicken, onion and giblets (except the liver as it makes a bitter broth) to a large stockpot.
- If using thighs and breasts, put chicken and onion in a large stockpot.
- Add enough water to cover the chicken by about 1 in. This is about 3 quarts. Throw in the garlic and herbs and bring to a boil on medium heat. Skim the foam, reduce the heat, and allow to simmer, uncovered, for about 1 hour. Add more water to keep chicken covered if needed. Any impurities that rise can be skimmed off along the way.
- Once the chicken is cooked through, set it aside and allow it to cool. Then remove the giblets and any other solids from the broth. Reserve this broth it will be the stock for the chili. Once the chicken is cool enough to handle, shred the meat by hand. Discard bones and skin.
- While the chicken is cooling, seed, core and slice the peppers. I really like to add more peppers, but again this is where you can get creative with it.



- Add a 2 count of olive oil in a medium saucepan over medium heat. Add chopped onion, minced garlic and cook for about 5 minutes. Dust the vegetables with the cumin, coriander and oregano and stir. Cook for another minute. Stir in the ground tortilla chips. Pour the reserved chicken broth, season with a pinch of salt the optional beans if you so desire. Then cook for about 20 minutes. Now add the shredded chicken and chilies and cook for about 5 more minutes. Here is where you can adjust any other the seasonings for taste.
- To serve, ladle into a large bowl, garnish with grated cheese of your choice and fresh cilantro.
- Enjoy!



Committee Membership

By Sharon Mertens, Milwaukee Metropolitan Sewerage District

TNI is an organization that relies upon membership participation for its continued success. One way to participate is by joining a committee as a Member or an Associate Member. As a committee member, you will have an opportunity to interact with your peers from throughout our community, learn new things, provide valuable input, make a difference, and have fun while doing it.

Each fall, committee membership is reviewed, expiring terms are identified, and members are renewed for an additional term or replaced by new members. If you would like to become involved by becoming a member of a committee, you should check the TNI website for information. The website home for TNI Committees is <http://www.nelac-institute.org/content/committees.php>.

At this site, you will find links to each committee and program of TNI. The link will lead you to the charter for the group, its current membership, and meeting minutes, as well as a link to contact the committee chair or TNI administrator for the program. We invite you to volunteer to participate on a TNI Committee. Speak up and make your opinions known!



2018 Board of Directors Election

By Sharon Mertens, Milwaukee Metropolitan Sewerage District

The election for new Directors to fill vacancies in the Board of Directors will begin soon. This year, we will be looking for up to eight (8) candidates to fill available slots. The duties of the Board include supervising, controlling and directing the business affairs of TNI, supporting its key programs, and reviewing policies for organizational impact.

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.

The Bylaws allocate a Board of 10-18 members, so not all vacant slots need to be filled, but the Nominating Committee always seeks nominations from as large and diverse a cross section of the TNI membership as possible. The election will also include the ratification of ex-officio directors, who represent federal agencies.

We need candidates who have a broad understanding of issues facing TNI and who are willing to uphold the organization's mission, goals, priorities and Code of Ethical Conduct. Directors must have strong interpersonal skills and the ability to objectively consider various perspectives while making policy decisions. If that is you, and you have a desire to serve in this capacity, or you know of someone that you'd like to see on the Board, now is the time to consider submitting a nomination. The process isn't complicated and the nomination form can be found on the website at <http://nelac-institute.org/board-nom.php>.

Terms are for three (3) years and are renewable. The Board generally meets monthly via phone conference call and in face to face meetings, as necessary.

Nominations will be accepted in December, and the actual election will coincide with the winter meeting to give the membership the opportunity to meet the candidates in-person and to vote at the meeting if they so choose. The schedule is as follows:

- December 1 – December 31, 2017: Nominations accepted
- January 1-15, 2018: 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
- January 22-24: Forum on Laboratory Accreditation, Albuquerque, NM – Candidates Meet and Greet
- February 12: Voting closes
- March 14: 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.

Member Spotlight

Nilda Cox: A Passion for Quality — in Life and at the Lab

By Stephanie Drier, Minnesota Department of Health

Nilda Cox has had a passion for science, quality, and education for the majority of her adult life. Growing up as a young girl in the Philippines she knew she had to follow her dreams of obtaining a degree in science to help herself and her siblings. She obtained a degree in Chemistry and began teaching at an all-girl's high school. Her goal was to inspire the younger generation of females to pursue Chemistry or other technical fields, because in the early 1970's there was a great deal of discrimination against females in her home country. Cox went on to state, *"I wanted to empower women with a technical degree rather than just being a housewife."* Over the course of her high school teaching career, she did inspire at least 10 young women to obtain degrees in Chemistry. Nilda continues to inspire others in different areas of chemistry, quality assurance, and with her involvement in TNI.



Nilda has worked very hard, has left her home country, and persevered through discrimination to further her love for chemistry, and continually shares her passion for quality assurance and data defensibility. Over the years, she has taught college courses, performed research with the International Rice Research Institute, worked in chemistry and microbiology laboratories, and currently is the Quality Manager of Eurofins Eaton Analytical – Monrovia (EEA-M) for over 20 years. *"It is a company that treats employees like family and I enjoy working with them,"* Nilda proudly states. The company also has a consulting department in which Nilda plays a major role: She assists and supports other smaller drinking water labs, helping them strengthen their Quality Systems, generate legally defensible data, promote public health and safety, and protect the environment.

This passion for life and for quality assurance in the laboratory led Nilda to be involved in The NELAC Institute (TNI). Since 1997, she has been commonly seen at the microphone voicing her concerns and passion for different parts of the NELAC/TNI standards. She currently is active on 2 TNI committees and serves on the Laboratory Accreditation Body Committee as the vice chair. She has attended over 20 national meetings and her favorite memory was in 1999, *"when I saw Washington DC for the very first time and when I received the Certificate of Award from the EPA for being a committee member on the Membership and Outreach Committee."*

She encourages all TNI members to participate in committees or other TNI communication forums, because there will be greater success if everyone is more involved in developing, reviewing, and approving the standards. At this time, we have still not been completely successful in minimizing the duplication of lab audits and have not reached the full cost savings value of the national accreditation requirements and scheme, as it is not fully implemented across the nation. However, the implementation of the standard requirements do promote accountability from all parties involved to consistently produce quality data.



She continues to mentor others in the quality assurance role, encourages new staff to find a mentor, and to ensure there is ongoing training on the regulatory and accreditation requirements, basic statistics, and method requirements. Reading the methods and regulations and obtaining bench experience is recommended to ensure the new quality assurance staff meets the challenges with the ever-changing technology, regulations, accreditation requirements, and client needs.

Nilda is thankful for the TNI Organization for many reasons, “As TNI is a forum that brings together all the intelligence and characters in the environmental industry. It is with great pride that I have the opportunity to be challenged and be heard by the group, who, over the years, have become professional and personal friends.”