



# Background

- ❑ TNI 2020 Strategic Plan established a new goal:
  - Explore the feasibility of developing systems to document individual competency.
- ❑ This goal had the following objective:
  - Explore and make recommendations regarding systems to document competencies for Quality Managers, Technical Managers, Laboratory Assessors, Samplers and others as appropriate.
    - Note: Such documentation may involve credentialing.

**Competence:** ability to apply **knowledge** and **skills** to achieve the intended results.



# Process

- ❑ New Competency Task Force formed to address goal.
- ❑ New Training Committee took on a new role of ensure training courses to support the effort were available.
- ❑ Credentials subcommittee of both Training and Competency formed to specifically look at options for credentialing individuals.





# CTF Timeline

- ❑ 2020: Initial focus on laboratory assessors
  - First, developed Knowledge, Skills, and Abilities (KSAs).
  - Focus shifted to technical manager to allow standards development on Volume 2 to be completed.
  - Proposed language for technical ~~expert~~ specialist handed off to Quality Management Systems committee.
- ❑ 2021: Focus shifted to quality managers
  - Joint subcommittee with Training developed KSAs for Quality Managers.
- ❑ 2022: Development of the credentialing program
  - Subcommittee ceased operation; CTF continued to refine KSAs.





# Knowledge, Skills, and Abilities (KSAs)

## Knowledge – “know what”

- ❑ Knowledge focuses on the understanding of concepts. It is theoretical and not practical. An individual may have textbook knowledge of a topic but have no experience. For example, someone might have read hundreds of articles on health and nutrition, many of them in scientific journals, but that doesn't make that person qualified to dispense advice on nutrition.

## Skills – “know how”

- ❑ Skills are the capabilities developed through training or hands-on experience that lead to practical application of theoretical knowledge.

## Abilities – “know why”

- ❑ Often confused with skills, yet there is a subtle but important difference. Abilities are the innate talents a person brings to a task. Many people can learn to negotiate competently by acquiring knowledge about it and practicing the skills it requires. A few are brilliant negotiators because they have the innate ability to persuade.



# Achieving KSAs

- Knowledge
  - Read and comprehend the standard.
  - Take a Training Course.
  - Take a Training Course and earn a Badge.
- Skill
  - Learn from experience.



TNI has no plans to require laboratories, ABs, or individuals to take training courses, become certified, or earn digital badges. This program will be voluntary to allow individuals to demonstrate their competency. Any employer may require this of certain staff, but that is beyond the scope of TNI's role.





# Potential Benefits to the Individual

- Increased recognition by peers and respect of colleagues in the profession.
- Improved opportunities for employability and advancement.
- Greater confidence in their professional competence.
- Increased professional trust from employers or the public.
- Increased autonomy in the workplace.
- Better compensation and career longevity.





# Potential Benefits to Employers

- ❑ Qualified individuals for employment or advancement.
- ❑ Recertification requirements for continued or enhanced competence.
- ❑ Reduced risk of errors, accidents and/or legal liability.
- ❑ Reduced employee turnover and increased job satisfaction.
- ❑ Justification for potential compensation differential.







# Converting a TNI Requirement to a KSA

## Module 1: 4.3.5

The laboratory shall report chemistry PT study results to the PTRL as established by the TNI FoPT tables, or if the laboratory LOQ is below the PTRL, the laboratory may report results down to their normal LOQ, and as specified in Section 4.2.4.

## PT Specialist

Understands that chemistry PT study results are to be reported to the PTRL as established by the TNI FoPT tables, unless the laboratory LOQ is below the PTRL.





# Credentialing Overview

- ❑ Experience and Education Option
  - Minimum education and experience requirements
  - Comprehensive exam based on KSAs grouped into topics
  - Training Courses available, but not required
- ❑ Digital Badge Option
  - Training courses required, but some flexibility allowed
  - Pass exam for each badge based on KSAs for that badge
- ❑ Continuing Professional Development Hours for both options
- ❑ Certificate for a “Certified Professional” valid for 3 years





# TNI Certified Quality Management Systems Professional

- ❑ Individuals who want to become a certified Quality Management System Professional would need to use the education and experience option **OR** the digital badge option.
- ❑ TNI would provide a notice of recertification 6 months before expiration to allow the individual to collect the information required to recertify.
- ❑ Individual would be listed in the TNI database of Certified Professionals.



# The Education and Experience Option



# Education and Experience

EDUCATION	EXPERIENCE
High School	5 years working in a laboratory, including at least one year in position
Associate's, in related field	4 years in working in a laboratory, including at least one year in position
Bachelor's, in related field	3 years in working in a laboratory, including at least one year in position
Master's or higher degree in related field.	2 years in working in a laboratory, including at least one year in position



# Exam

- Open Book
- 3 hours
- 150-160 hard, but not “tricky” questions
- Must be proctored
- Require a score of 70 or greater to pass
- Areas of improvement identified for those that fail.





# Fees and Management

- ❑ Anticipate a \$325 application fee (TNI Member) that covers documenting the education and experience in TNI database, providing the exam, documenting the date of award, and providing a certificate valid for three years.
- ❑ Individual would be listed in the TNI database of Certified Professionals.
- ❑ TNI would provide a notice of recertification 6 months before expiration to allow individual to collect the information required to recertify.



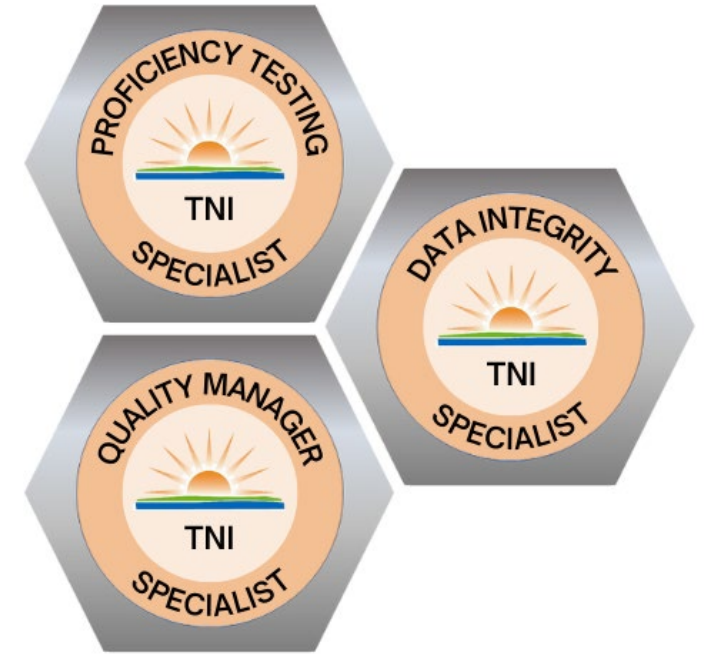
# The Digital Badge Option





# Digital Badging

- ❑ Digital Badge - an indicator of accomplishment or skill that can be displayed, accessed, and verified online.
- ❑ Examples
  - Data Integrity Specialist
  - Customer Service Specialist
- ❑ Would require passing test specific to the KSAs for that badge.
- ❑ Such person would be called a “Specialist.”



# Example KSA – PT Specialist

## § 2.2.1 KSAs from the TNI Standard

### Understands

- the requirement to participate in PT studies for each Field of Proficiency Testing (FoPT) adopted by TNI for which the laboratory seeks to obtain or maintain accreditation.
- how to schedule PT studies and how to use an accredited PT Provider accredited to Volume 3 of the TNI Environmental Laboratory Sector Standard.
- the requirements for analyzing PT samples.

And many more

## 2.2.2 KSAs from Volume 2

Understands the suspension, revocation, and reinstatement procedure employed by the AB for failures on PT samples.





# Specialists for QMS Professional

1. Quality Manager Specialist
2. Proficiency Testing (PT) Specialist
3. Data Integrity Specialist
4. Records and Document Control Specialist
5. Customer Service Specialist
6. Measurement Traceability Specialist
7. Internal Audit and Corrective Action Specialist
8. Method Validation Specialist
9. Laboratory Skills Specialist
10. Sample Handling Specialist
11. Quality Control Specialist
12. Data Handling and Management Specialist



# Required Training Courses

- ❑ An individual would have to earn 2-4 hours of training credits for each badge, but there would be some flexibility in selecting courses.
- ❑ Example – Data Integrity Specialist requires 4 hours.
- ❑ Any of these classes could be used:
  - Ethics Training for the Environmental Professional – 2 hours
  - Establishing a Data Integrity Plan – 2 hours
  - Small Laboratory Implementation: Management of Ethics – 2 hours
  - Small Laboratory Implementation: Personnel – 2 hours
  - Analyst Competency Beyond the Demonstration of Capability – 4 hours



# Training Courses

- ❑ 59 applicable webcasts available on TNI website with 190 hours of instruction.
- ❑ Each course description will soon show which digital badges are applicable.
- ❑ More in development

## Establishing a Data Integrity Plan

TNI Standard Volume 1, Module 2, Sections 4.1.5 (b), 4.1.5 (c), 4.1.5 (d), 4.1.5(k), 4.2.8.1, 4.2.8.2, 5.1.7, 4.16

Effective ethics and data integrity plans are becoming more and more important to consistently generating good data. The TNI Standard has a number of requirements for establishing an effective data integrity program to both protect the organizations reputation and help assure the quality and integrity of the data generated. What systems, practices, and procedures are needed to meet the current standards and more importantly to support an effective management system? What does management of a laboratory and field sample collection and measurement organizations need to do to ensure an effective program? How do you audit to this part of the standard?

## Learning Objectives

- ✓ Understand the TNI Standard contents and requirements for ethics and data integrity.
- ✓ Be familiar with some of the root causes and “cardinal sins” that can result in improper behaviors going undetected.
- ✓ Be able to evaluate key components of a detection and prevention plan.
- ✓ Be able to discuss and evaluate what your organization should consider in an effective data integrity program.
- ✓ Understand the benefits of continued implementation.

## Applicable Digital Badge(s)

- ❖ Data Integrity Specialist



# Course Hours per Specialist

Specialist	Minimum Hours of Education
Quality Systems	4
Proficiency Testing (PT)	4
Data Integrity	4
Document Control and Records	4
Customer Service	4
Measurement Traceability	4
Internal Audits and Corrective Action	4
Method Selection and Validation	4
Laboratory Skills	2
Sample Handling	4
Quality Control	4
Data Review and Reporting	4





# Digital Badge Exam

- Covers the KSAs need to earn the badge, **NOT** the content of any given course.
- Some allowable courses cover the KSAs in great detail; others just skim the surface.
- Each applicant must decide where they need to focus.
- Not Proctored





# Awarding of the Digital Badge

- ❑ Each badge awarded separately at the time of passing the badge exam.
- ❑ The badge would include metadata showing the date of the award and the applicable standard(s).
  - These data would be maintained in the TNI database.
- ❑ Individuals who are not seeking the full credential would not need to do anything more.





# Re-awarding of Badge

- ❑ If a new Standard significantly changes the KSAs for a given badge, the individual would need to take a refresher course and pass an exam for that course, to update the badge.





# Legacy Individuals

- ❑ Over 1000 individuals have already taken various TNI training courses.
- ❑ For example, over 100 individuals took the Small Laboratory Implementation classes in 2017 that included 10 hours of instruction.
- ❑ TNI has records of attendance for all webinars and webcasts.
- ❑ An individual could seek approval for the classes already taken and not have to retake them.
- ❑ Such individuals would need to pass the badge exam and pay the administrative fee.





# TNI Certified Quality Management Systems Professional

- ❑ Individuals who want to become a certified Quality Management System Professional would need to acquire all 12 badges.
- ❑ TNI would provide a notice of recertification 6 months before expiration to allow the individual to collect the information required to recertify.
- ❑ Individual would be listed in the TNI database of Certified Professionals.



# Fees and Management

- ❑ Certified Professional: Anticipate a \$125 application fee (TNI Member) that covers documenting the date of award and providing a certificate valid for three years.
  - Fee would also include listing the individual as a Certified Professional in the TNI database.
  
- ❑ Specialist: Anticipate a \$85 application fee per badge (TNI Member) that covers documenting the courses taken in the TNI database, providing the exam, documenting the date of award, and providing the digital badge.
  - Fee would also include listing the individual in the TNI Digital Badge database.
  - Fee would increase if exam must be proctored.



# Certificate



THE NELAC INSTITUTE  
IS HONORED TO CONFER UPON

**Jane Justice**

the designation of

**Certified Quality Management Systems Professional**

This designation is earned by demonstrating relevant knowledge, skills, and attributes through a comprehensive application and evaluation process designed to ensure high standards for the industry.

Awarded this day: January 11, 2023

Valid through: January 10, 2026

*Alfredo Sotomayor*

Alfredo Sotomayor, TNI Chair

*Jerry Parr*

Jerry Parr, TNI Executive Director





# Recertification for the Certified Professional



# Recertification

- Applies to either approach.
- Remain employed in the field.
- Accumulate 24 Professional Development Hours (PDH) over 3 years.
- Pay the triennial fee.



# PDH Options

Activity	PDH earned	Maximum Hours
<b>Training Course (Attendee)</b>	0.1/hour for each hour of course	No limit
<b>Training Course (Instructor)</b>	1/hour for each hour of course	No limit
<b>Continued Employment</b>	0.1/month	3.6
<b>College Course</b>	1/credit hour	No limit
<b>Meetings/Conferences</b>	1/day	15
<b>Committee Officer</b>	2/year	10
<b>Committee Member</b>	0.5/year	5
<b>Presentation at Conference</b>	1/presentation	6
<b>Membership in Professional Society</b>	0.5/year/society	6
<b>Proctor exam</b>	3 hours per exam	No limit





# Meetings/Conferences

## National Meetings

- TNI
- WEF
- ACIL
- ACS

## Regional Meetings

- CWEA
- FSEA
- OELa
- PAAEL
- TCEQ

## Local Meetings

- Bay Area Clean Water Authority
- North Texas Municipal Water District



# Society Participation

- TNI
- ACIL
- APHL
- WEF and state chapters
- ASTM
- Standard Methods
- OELA
- And many more





# Fees and Management

- ❑ Anticipate a \$225 fee (TNI Member) that covers documenting the professional development hours, the date of renewal, and providing the renewal certificate.
- ❑ TNI would continue to provide a notice of recertification 6 months before expiration to allow the individual to collect the information required to recertify.



# Implementation



# Next Steps

- ❑ Seek feedback on the initiative.
- ❑ Launch the program for QMS Professional in three phases.
  1. Digital Badges only
  2. QMS Expert via the Digital Badge option
  3. QMS Expert via the education and experience option
- ❑ Repeat for other Groups.
  1. Technical Experts
  2. Laboratory Assessors
  3. Others

