Radiochemistry Expert Committee (REC)
Meeting Summary
August 26, 2026

1. Call to Order

Amanda Fehr, Chair, called the meeting to order at 1pm Eastern on July 29, 2026, by teleconference/webinar. Attendance is recorded in Attachment A – there were 7 voting members present. Associate members in attendance: Joe Pardue, Carl Kircher, Elizabeth Hoerchler, Rhonda Ridenhower and Bob Shannon.

There were no changes to the agenda and it was approved by unanimous consent.

The July 29, 2026 minutes were reviewed. Mary Beth motioned to approve the minutes as written. The motion was seconded by Laura and unanimously approved.

2. Houston Meeting and TNI Conference Review

Ilona provided the Committee with a summary in Attachment B of the Houston meeting based on the meeting recording.

Overall, the conference was described as productive, with substantial participation in TNI and NEMC sessions, vendor exhibits, posters, and discussions regarding emerging technologies and issues affecting environmental laboratory accreditation.

The Radiochemistry Committee meeting was primarily informational because there was not a quorum. Approximately 13 people attended, which was considered a strong turnout given the meeting occurred concurrently with other sessions, including Quality Systems.

The Houston discussions included a review of the committee's activities during the previous year and its potential goals and priorities for 2027 – see Attachment 1.

One broader issue discussed at the conference was the terminology and expectations surrounding method validation and verification. There was discussion about establishing greater consistency regarding what laboratories are expected to do when implementing a method that has already undergone multi-laboratory validation. The Committee noted that this topic may continue to develop as TNI considers comments and works toward greater consistency in terminology and requirements.

3. Radiochemistry Training in Houston

The Committee reviewed the four-hour Radiochemistry training course presented on Friday morning. There were 19 students.

In addition to documenting attendance, students could complete a 30-question examination to demonstrate completion and understanding of the material. The course was successfully completed within the four-hour timeframe, even with discussion and questions.

Ilona Taunton reviewed the preliminary survey results from the training.
The survey responses were generally very positive. Students represented a range of laboratory and quality-related roles, including laboratory personnel, QA managers, and assessors. Many students had substantial environmental laboratory experience, including individuals with 11–20 years and more than 20 years of experience.

The primary reasons students reported taking the course included professional development and improving technical knowledge. Other reasons included preparing for accreditation or audits, increasing familiarity with the standard, and preparing for a badge or credential.

Students reported an increase in their understanding of the subject matter following the course. Survey responses indicated that the course objectives were clear, the material was generally appropriate for the participants' experience levels, and the instructors demonstrated strong knowledge of the subject. The instructors received particularly strong feedback, with the survey showing uniformly high ratings for instructor knowledge. The overall course rating was approximately 4.7 out of 5.

Students also indicated that they valued the practical aspects of the training and expressed interest in additional opportunities for training.

The most significant area identified for improvement was providing additional data review and practical examples. Students requested more detailed opportunities to work through data packages, including sample preparation, data capture, and interpretation of analytical data.

The Committee agreed that this feedback provides useful direction for future Radiochemistry training.

The possibility of developing additional or expanded training was discussed, potentially including a longer training series or additional in-person training.

The Committee also discussed the value of including practical data-review exercises in future training, particularly because participants appeared to want more hands-on examples than could be accommodated in the current four-hour format.

4. QMS Draft Standard – Module 2 and Annex C

Amanda reminded people that they can still turn in comments on the Draft Module 2 Standard. The updated wording for the Technical Specialist requirements and Annex C was discussed.

During the Houston meeting, it was identified that some of the links incorporated into Annex C may not be correct. The Committee characterized this primarily as an editorial issue rather than a substantive change to the concepts previously developed. The Committee intends to review and correct the links so that the references are accurate and useful to laboratories.

Another issue discussed was how training should be evaluated when a course does not include a test or quiz. The EPA training series was cited as an example of useful training that does not necessarily include a formal examination. The Committee discussed whether assessors should require a test, whether completion documentation or a certificate would be sufficient, or whether another method of demonstrating completion should be used.

The Committee will need to review the training resources identified in Annex C to determine which include formal assessments, certificates, or other documentation of completion.

5. Proficiency Testing and FoPT Tables

The Committee revisited proficiency testing activities, particularly the revised Radiochemistry FOPT tables and their relationship to EPA data quality objectives and measurement quality objectives (MQOs).

The revised drinking-water FOPT tables underwent their planned annual review through the PTPEC FOPT Subcommittee. Radiochemistry expertise was requested because of the differences between radiochemistry and more traditional chemistry proficiency testing. However, the available dataset did not contain enough data points to support a complete statistical evaluation. The dataset contained approximately 10–12 data points rather than the roughly 20 data points that would have provided a more sufficient basis for evaluation.

The Committee also discussed concerns that some EPA MQOs may be relatively stringent and that additional coordination with EPA may be necessary. The Committee's existing goal to continue working with the PTPEC FOPT Subcommittee and EPA therefore remains relevant.

Chad asked whether ERA had participated in the FOPT evaluation and noted that there had previously been discussion about ERA's potential involvement. Amanda explained that the PTPEC FOPT subcommittee had requested data and that the necessary data were believed to have been provided, although the overall dataset remained too small for a full evaluation.

6. Non-Drinking Water Matrices

The Committee discussed the longer-term goal of developing FOPT tables for non-drinking-water matrices.

At present, the principal challenge is the lack of defined MQOs for these matrices. Bob Shannon explained that efforts to obtain clearer direction from EPA have not yet resulted in EPA defining the performance objectives needed to move the work forward. The Committee therefore continues to list development of FOPT tables for non-drinking-water matrices as a goal, although progress depends in significant part on EPA establishing appropriate MQOs.

Chad noted that his organization produces proficiency testing samples for non-drinking-water matrices and asked whether historical information regarding the different matrices and approaches might be useful.

Bob cautioned that historical data would need to be evaluated carefully. In previous datasets, it was sometimes difficult to determine whether results came from methods being operated under drinking-water program requirements or from laboratories using proficiency testing materials for other purposes, such as method development or validation. This distinction could affect the usefulness of historical data for establishing FOPT criteria.

Bob offered to remain involved in future reviews and development of the non-drinking-water FOPT effort.

7. 2027 Committee Goals

The Committee reviewed the proposed 2027 goals that can be found in Attachment B.

The Committee noted that SIR activity was relatively quiet during the previous year.

The Committee also discussed the anticipated publication of the new Radiochemistry Standard. Although there was discussion that the new Standard could potentially be available around 2028–2029, the Committee recognized that the timing remains uncertain. Once the new Standard is available, a detailed crosswalk from the 2016 standard to the new requirements will likely be necessary.

8. Additional Discussion

The Committee discussed the upcoming winter meeting in California. There are expected to be presentations concerning California's progress toward becoming a NELAP AB, which may be relevant to Committee members and future discussions.

9. New Business

None.

10. Action Items

Previous:

1. Review QMS Draft Standard and provide comments as needed. - Complete
2. Finalize training material. – Complete

New Action Items:

1. Review and correct the links included in Annex C and ensure the references accurately direct users to the intended resources.
2. Review the training resources listed in Annex C to determine which include tests, quizzes, certificates, or other evidence of completion, and consider how training without formal testing should be evaluated by assessors.
3. Continue supporting TNI's credentialing initiative, including development and review of digital-badge examinations and related materials.
4. Begin looking at implementation tools for the new Standard.

11. Next Meeting and Close

The next meeting will be September 30, 2026, at 1pm Eastern by teleconference/Webinar.

Amanda adjourned the meeting at 1:35 pm Eastern.

Attachment A
Participants
Radiochemistry Expert Committee

Members	**Affiliation**		**Contact InAffirmativemation**
Amanda Fehr – Chair (2029) **Present**	GEL	Lab	amanda.fehr@gel.com
Abigail Africa (2027*) **Absent**	Oklahoma Department of Environmental Quality	Lab	Abigail.africa@deq.ok.gov
Laura Freeman (2027*) **Present**	New Jersey Department of Environmental Protection	AB	Laura.freeman@dep.nj.gov
Mark McNeal (2027*) **Present**	ACZ Laboratories, Inc.	Lab	markm@acz.com
Chrystal Sheaff (2027) **Absent**	Energy Laboratories, Inc.	Lab	csheaff@energylab.com
Mary Beth Gustafson Vice-Chair (2027) **Present**	Virginia	AB	mary.gustafson@dgs.virginia.gov
Hannah Vietor (2026*) **Present**	Eurofins	Lab	hannah.vietor@et.eurofinsus.com
Zeke Blain (2026*) **Present**	NY DOH	AB	ezekiel.blain@health.ny.gov
Joshua Pritchard (2026*) **Absent**	Illinois	AB	joshua.pritchard@illinois.gov
Chad Lane (2026*) **Present**	ERA, A Waters Company	Other	Chad_Lane@waters.com
Ilona Taunton (Program Administrator) **Present – 20 min. Review recording.**	The NELAC Institute	n/a	Ilona.taunton@nelac-institute.org

(* - eligible for another 3 year term)

Radiochemistry Expert Committee (REC)
Summary of Meeting in Houston, TX

August 6, 2026

Amanda reviewed the slides that can be found in Attachment 1.

Committee Members present: Amanda Fehr, Mary Beth Gustafson, Abigail Africa, Chrystal Sheaff, and Joshua Pritchard.

2026 Activities and 2027 Goals

Amanda reviewed the slides included in Attachment 1.

Quality Management Systems (QMS) / Module 2

TNI QMS Expert Committee has posted the proposed Volume 1, Module 2 for comment. Committee members were encouraged to review the draft and submit any comments where they see a conflict with the Radiochemistry Module (Module 6).

The Committee found no substantive technical conflict between the proposed Module 2 language and Module 6. As a result, Module 6 does not need to be reopened. Remaining issues include administrative cleanup, particularly:

- Udating obsolete cross-references to Module 2.
- Aligning terminology, including references to the Quality Systems Matrix.

Technical Specialist

The technical specialist requirements will remain in Module 2. Annex C will provide examples and guidance, rather than an exhaustive list of acceptable approaches. Amanda reviewed the language she added to the presentation in Attachment 1.

Highlights:

- Technical specialists can be organized according to the laboratory's needs—for example, by overall radiochemistry, sample preparation, specific technologies, counting, or data review. A laboratory may therefore have multiple technical specialists.
- A concern was raised regarding an accrediting-body practice of limiting which technical courses could be counted toward requirements.
- The discussion noted that where a finalized TNI SIR exists, accrediting bodies, assessors, and laboratories are expected to follow it. Participants discussed using the appropriate complaint/escalation process if an accrediting body does not follow an applicable finalized SIR

The committee reviewed the examples of radiochemistry training that could potentially satisfy the technical-course requirement. The examples are not intended to be all-inclusive (see Attachment 1).

The Committee discussed the importance of documenting outside training even when a formal certificate or examination is not provided. Demonstration of knowledge through assignments, quizzes, presentations, practical work, or other documented activities may also be relevant when evaluating training.

Experience may include technical oversight, data review, validation, QA activities, or related work rather than requiring every individual to have personally performed every method within the laboratory's scope.

Industry Updates

Several external standards and resources were discussed – see Attachment 1.

The committee also discussed the practical difficulty of implementing a new TNI standard when state regulations continue to reference an older edition. Some states may be able to transition relatively quickly, while others must complete regulatory or legislative changes first. Consequently, implementation timing will vary among states and accrediting bodies.

Training Initiative

Training remains a major focus for the committee. The committee is developing a progression of training that may eventually address:

- Gas-flow proportional counting.
- Liquid scintillation.
- Alpha spectroscopy.
- Gamma spectroscopy.
- Data quality objectives and interpretation.

The in-person training scheduled for the following day will provide a broader introduction across these areas. Future sessions may go substantially deeper into individual topics.

The Committee also discussed practical training requested by laboratories, including topics that go beyond the direct requirements of Module 6 but can be tied back to the Standard. Potential subjects include:

- Preparing for an assessment and explaining technical practices to an assessor.
- Interpretation of radiochemistry requirements.
- Measurement uncertainty and uncertainty budgets.
- Instrument troubleshooting.
- Common instrument/software problems and corrective approaches.
- Validation or verification of software calculations and spreadsheets.

- Practical examples of how instrument outputs become reportable results.

There was particular interest in practical, experience-based troubleshooting training. The Committee discussed the possibility of incorporating experienced laboratory personnel and vendors into future training where appropriate.

The committee also discussed recording training sessions. The next day's session will be recorded on a trial basis, with additional microphones being evaluated to better capture audience questions. If successful, the recording could support future on-demand training.

TNI Radiochemistry Expert Committee

2026 Environmental Measurement Symposium
Houston, TX
August 2026

Amanda Fehr
Chair

1

Committee Members

Amanda Fehr-GEL, Laboratories (Chair)
Mary Beth Gustafson-VADCLS (Vice Chair)
Abigail Africa-TXDSH
Laura Freeman-NJDEP
Mark McNeal-ACZ Laboratories
Chrystal Sheaff-Chrystal Quality Services
Chad Lane-ERA
Ezekiel Blain-NYDEH
Hannah Vietor-Eurofins Test America
Joshua Pritchard-Illinois EPA
Ilona Taunton, Program Administrator

With an additional 20 Associate Members

2

Radiochemistry Expert Committee

Our Mission

The Radiochemistry Expert Committee supports high-quality environmental radiochemistry through standards, guidance, and collaboration.

Maintain the Standard
Maintain the radiochemistry standard (TNI Environmental Sector Volume 1, Module 6) based on public input.

Provide Technical Assistance
Provide technical assistance on issues related to radiochemistry.

Develop Implementation Tools
Develop tools that facilitate the implementation of the standard.

Standard Status

The current draft standard was completed in 2023.

Pending consistency with other Modules, it will not need to be reopened.

3

Agenda

- ❑ 2026 Review and 2027 Goals
- ❑ Standard Interpretation Requests (SIR)
- ❑ Module 2-QMS
  - ❑ Technical Specialist and Annex C
  - ❑ Definitions
- ❑ Industry Updates
- ❑ Training

4

Radiochemistry Expert Committee

❑ **2026 Accomplishments**

- ➢ Explored options for FoPT tables for non-DW matrices.
- ➢ Continued to support QMS to finalize language for Technical Specialist.
- ➢ Evaluated definitions for potential removal from Module 2 and their impact to Module 6
- ➢ Provided structured information for Annex C for Technical Specialist guidance and examples.
- ➢ Developed an in-person training session for this conference.

5

Radiochemistry Expert Committee

❑ **2026/2027 Goals**

- ➢ Work with PTPEC Chemistry FoPT subcommittee and EPA to evaluate DW FoPT criteria.
- ➢ Continue to respond to Standard Interpretation Requests as needed
- ➢ Develop a new series of live training/webinars on radiochemical testing.
- ➢ Develop training to support credential initiative as needed.
- ➢ Continue exploring options for FoPT tables for non-DW matrices as requested.

6

Standard Interpretation Requests (SIR)

SIRs in the past year……

0

7

Draft Standard V1M2 Management and Testing Requirements for Laboratories Performing Environmental Analysis

- Quality Management Systems Expert Committee has posted V1M2 for comment!
  - On the main TNI page with instructions for submitting comments
- Consistency to the Rad standard
  - **no major technical conflict (great news!)**
  - Module 6 needs cross-reference cleanup and terminology alignment

8

Technical Specialist

- Requirements for Technical Specialist will remain in Mod 2 and will be generalized for all Analytical Disciplines (Technical Modules)
- There will be information included in Annex C as suggestions on how to demonstrate competency.

9

Technical Specialist

5.6.3 The laboratory must have a Technical Specialist(s) (however named) to provide technical guidance to laboratory personnel for all work associated with the laboratory's scope of accreditation. The laboratory must clearly define its technical structure and how Technical Specialist responsibilities align with the laboratory's scope. A laboratory may have one or more Technical Specialists that may also hold additional primary job responsibilities. Annex C provides examples of how a laboratory may define this structure.

5.6.3.1 Technical Specialist(s) must:

- a) ensure laboratory activities related to the generation of analytical data and test results, including but not limited to method development and validation, procedure development, sample preparation, instrument calibration, sample analysis, quality control, and data reduction, comply with the laboratory's quality management system and with relevant regulatory requirements for which the data will be used and
- b) have the authority to halt work, repeat work, withhold reports, and resume work as part of the management of nonconforming work, as defined in 7.10.

10

Technical Specialist

6.2.2.2 A Technical Specialist must meet one of the combinations of education and experience qualifications listed below. Experience must be in the area of responsibility for the Technical Specialist. If the Technical Specialist is responsible for Microbiology (TNI Volume 1 Module 5) or Radiochemistry (TNI Volume 1 Module 6), completion of a relevant technical course is required, which may or may not be part of the educational qualifications listed below. Further information and examples regarding appropriate courses and experience can be found in Annex C

- a) a master's or doctoral degree in a STEM (science, technology, engineering, or mathematics) field and one year of experience,
- b) a bachelor's degree in a STEM field and two years of experience,
- c) an associate's degree in a STEM field and three years of experience, or
- d) four college level STEM courses and four years of experience. A TNI credential applicable to the areas of the Technical Specialist responsibilities can be substituted for the college level STEM courses. Vendor courses with certificates and a minimum of 3 CEUs may be considered equivalent to a college level STEM course.

11

Technical Specialist

Technologies:

1. Gas Flow Proportional Counting
2. Liquid Scintillation Counting
3. Alpha Spectrometry
4. Gama Spectrometry
5. Radon Emanation

12

Annex C examples

C.3.2.2 Radiochemistry Examples include but are not limited to:

- TNI online Radiochemistry technical course series (Set of 5)
- APHL/CDC Radiochemistry Graduate Certificate Program
  https://chem.uiowa.edu/graduate/radiochemistry-certificate
- APHL Peer-to-Peer Program
  https://www.aphl.org/aboutAPHL/publications/Documents/QSAPeer-to-Peer-Learninig-Program.pdf
- Mirion Technologies, Inc. Connects Annual User Conference (instrument specific) and general training classes
  https://www.mirion.com/discover/training
- Ortec Training
  https://www.ortec-online.com/service-and-support/training
- Eastern Regional Radon Training Center at Rutgers:
  https://cpe.rutgers.edu/radon
- Provides radon measurement certification classes:
  https://cpe.rutgers.edu/radon/radonmeasurement-online
- Eichrom on-site trainings and workshops
  https://www.eichrom.com/

13

Annex C examples

Technical Specialist experience:

✓ What it can be
- Hands on analysis
- Data validation and review
- QA oversite
- Training classes
- Credentials
- Similar work in another industry

✓ What it should not be
- Requiring DOCs for every method on the scope
- Having previously run every method on the scope
- Experience does not have to be at the bench level

14

Annex C examples C.3.1.1

Example 1 – Laboratory A with One Technical Specialist
- One Technical Specialist responsible for the laboratory's entire accredited scope

Example 4 – Laboratory D with Multiple Technical Specialists
- One Technical Specialist responsible for Inorganic Chemistry – Manual Methods
- One Technical Specialist responsible for Inorganic Chemistry – Instrumental Methods
- One Technical Specialist responsible for Metals
- One Technical Specialist responsible for Organic Chemistry
- One Technical Specialist responsible for Radiochemistry – Sample Preparation
- One Technical Specialist responsible for Radiochemistry – Counting
- One Technical Specialist responsible for Microbiology

Example 5 – Laboratory E with Technical Specialists Responsible for Each Volume 1 Modules 3-7
- One Technical Specialist responsible for Module 3 - Asbestos
- One Technical Specialist responsible for Module 4 - Chemistry
- One Technical Specialist responsible for Module 5 - Microbiology
- One Technical Specialist responsible for Module 6 - Radiochemistry
- One Technical Specialist responsible for Module 7 - Whole Effluent Toxicity

Example 6 – Laboratory F with Multiple Technical Specialists
- One Technical Specialist responsible for Air Testing
- One Technical Specialist responsible for Microbiology
- One Technical Specialist responsible for all other testing

15

Definitions from Module 2

The QSM Committee reviewed the definition list in the Module for consistency and continued inclusion in Module 2 vs in the technical modules. The following were of concern for Module 6:

1. Calibration Curve-The mathematical relationship between the known values, such as concentrations, of a series of calibration standards and their instrument response.
2. Data Reduction-The process of transforming the number of data items by arithmetic or statistical calculation, standard curves, and concentration factors, and collating them into a more useful form.

These are used frequently in Module 6. The committee voted that because they are common, understood terms, they do not need to be defined in the Radiochemistry Module.

16

Industry Updates

- **SM 7020** Quality Systems: Radionuclide Determinations
  - Under review by a JTG
  - May be out for ballot by the end of the year
- ANSI/IEEE Standards:
  - Under review in assigned workgroups
  - Standard **N42.22,** Traceability of Radioactive Sources to the National Institute of Standards and Technology (NIST) and Associated Instrument Quality Control.
  - Standard **N42.23,** Measurement and Associated Instrument Quality Assurance for Radioassay Laboratories

17

WHAT THEY HAVE IN COMMON

SAME FUNDAMENTAL PRINCIPLES	CHEMICAL REACTIONS & EQUILIBRIA	EXPERIMENTATION & ANALYSIS	COMPOUND FORMATION	PROBLEM SOLVING & INNOVATION
Both are based on the periodic table, atomic structure, chemical bonding, and the principles of thermodynamics and kinetics.	Both study reaction mechanisms, rates, equilibria, and how conditions affect chemical processes.	Both use systematic experimentation, separation techniques, and analytical methods to identify and quantify substances.	Both involve synthesis, structure determination, and studying the properties of compounds.	Both fields apply creativity and critical thinking to solve real-world scientific and technological challenges.

IN SHORT: Radiochemistry applies the tools and principles of chemistry to radioactive materials, with additional consideration of nuclear behavior and radiation safety.

18

Evaluation of Online Training

Current initiative of the Training Committee to review the online trainings to ensure up to date and accurate

- **The New TNI Radiochemistry Standard**

Synopsis

The 2016 Radiochemistry Standard (Module 6 of the TNI standard) has been extensively rewritten. This course is designed to discuss in detail all the changes made to the standard and why. The course is designed for laboratories performing radiochemical testing and laboratory assessors.

Learning Objectives

Understand the changes to the TNI Radiochemistry Standard from 2009 to 2016.

- TNI Training Committee reviewed and provided suggestions for updates
- REC Member Bob Shannon volunteered to review the suggestions

This will be redone for the transition to the NEW standard once it is finalized in 2028 (goal)

19

Radiochemistry Training

Future Topics for Webinars:

- **Methodology/Instrumentation for:**
  - Gas Flow Proportional counting (GAB, Sr, Ra, etc)
  - Liquid Scintillation (H3, C-14, Tc-99, etc)
- **Methodology/Instrumentation for:**
  - Alpha Spectroscopy (Am, Pu, U, Th, etc)
  - Gamma Spectroscopy
- **Data Quality Objectives-Reporting, usability, and interpreting results**
  - QC types
  - MDC, critical level, decision level
  - RPD vs RER
  - Uncertainty

20

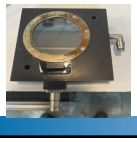
Inside the Count

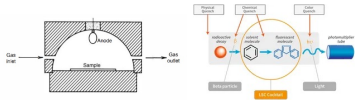
Gas Flow & Liquid Scintillation Instrumentation Training

Learn how radiation becomes a number you can trust

Key Topics

•What gas flow counters and liquid scintillation instruments do
•Why counting processes matter and how to chose the right one
•How instruments turn radiation into measurable signals





21

Radiochemistry Training

Requested Future Topics:

- **Practical Workshops/Webinars**
  - Interpreting difficult spectra
  - MDC and uncertainty calculations (hands-on)
  - Building a complete uncertainty budget
  - Common radiochemistry calculation exercises
  - Defensible laboratory reports
  - Data Review
  - Preparing for Assessments
  - Responding to assessor findings

22

Open Discussion

23

Thank you!

Amanda Fehr, Committee Chair
Amanda.Fehr@gel.com

Mary Beth Gustafson, Committee Vice-Chair
marybeth.gustafson@dgs.virginia.gov

Ilona Taunton
•Program Administrator
Ilona.Taunton@nelac-institute.org

24