Radiochemistry Expert Committee (REC)
Meeting Summary

September 26, 2018

1. Roll Call and Minutes:

Bob Shannon, Chair, called the meeting to order at 1:05 pm Eastern on September 26, 2018 by teleconference. Attendance is recorded in Attachment A – there were 10 members present. Associates: Robert Aullman, Sherry Faye, Keith McCroan, Jim Chambers, Carl Kircher, Greg Raspanti, Pepa Sassin, and Stan Stevens.

Meeting minutes are distributed by email for comment/revision for a week and then posted on the TNI website.

2. Intent of Changing the Standard

Vas asked about what is meant by ANSI and wondered if the TNI Standard was not an ISO standard. Bob and Ilona clarified that ANSI is the *American National Standards Institute* and the TNI Standard is not an ISO/IEC Standard. We use the language and pay ISO for that benefit. This is why there is a charge for the TNI Standard.

The committee reviewed the DRAFT Intent to Change the Standard document. Terry made a motion to submit the document as sent by email (Attachment D) and the motion was seconded by Tom. There was no further discussion. The motion was approved unanimously. This will be sent to CSDP.

3. Standard

Bob reminded everyone to keep sending items for consideration for the revision of the Standard. The committee has not started this effort yet, but Bob has been keeping track of suggestions being made for the next update (Attachment E).

4. PT Acceptance Criteria

Bob sent a note to Carl with an update on the status of the PT Acceptance Criteria. Carl has not had a chance to review the information yet. This was sent 9/5/18 and a copy of the letter is in Attachment F of the August 22, 2018 minutes.

Bob and Keith identified the issues and interesting results in reviewing the data and discussed their proposal.

Bob and Keith spoke with Glenda Smith at EPA. She works with Radiochemistry and she is interested in the process. She said she doesn't have authority to make decisions. This is done within PTPEC and Michella is the EPA contact on that committee.

Carl quickly reviewed the information. It appears that the proposal is to set limits that are specific and not necessarily calculated from historical PTs. The Radiochemistry Expert Committee wants to set specific limits around the assigned value.

Bob noted that that is the Cliff Notes version but there are more details. They want to meet the Measurement Quality Objectives (MQO) for the SDWA program but it is not just as simple as setting the limits to something like 70-130 because the limits will generally broaden at lower activities.

Carl commented that if you are going to have different limits at different activities then is there a segmented fixed limit or are the a, b, c &d's going to be used as currently done.

Keith responded that we would keep from current SOP is the c & d, but not the a & b. Targeting the mean and standard deviation of historical data essentially means you are trying to meet objective criteria. We are proposing that the target value be the assigned value. This does nothing to encourage labs to minimize measurement bias in their processes.

The slope of the equation would be related to MQOs. We are proposing use of the Office of Water QC Acceptance Criteria published in the Certification Manual. The offset of the equation is related to the required detection limit since that places a limit on method performance at low levels. Both are important. The proposed approach will accommodate the variation of expected results at the different activity levels measured by labs performing SDWA compliance testing.

Carl – Since you talk about negative and positive activities. Now the tables are defined in terms of a range of assigned values that are formulated for the activities. Would that now include zero and negative assigned values?

Keith noted you could never have a negative assigned value. If you extend the range from the PTRL down to zero, however, you would expect to see some negative measurement results but not negative assigned values.

Carl will continue to review the information and be back in contact. Ilona will work with the subcommittee and Bob and Keith to find a meeting date.

It was asked how these relate to MAPEP PTs. Bob noted that this discussion is for TNI and it is not related to MAPEP. Jim asked about ABs doing DOECAP assessments per TNI Standards; could there be some crossover? The DoE and DoD need to decide what acceptable PTs are. What this Committee is proposing could open the door for PTs with other matrices. The TNI FoPT table, however, could be expanded beyond DW but that would require additional consideration.

5. Checklists

Bob has more comments than he expected, so it is taking him longer to get through the information. He hopes to have it as soon as he can spend some more time with it.

6. Training on Alpha Spec Methods at Winter Meeting

Sherry mentioned she can still help with this, but she won't be at the meeting. The meeting is the week of 1/28/19. Bob asked if anyone could help develop and be present. Terry can help, but needs to look into whether presenting is possible.

Ilona reminded Bob that the plan is to do the Intro material by Webcast. He'll start pulling together material. He'll have it out by 9/30/18.

7. New Membership

There will be 4 people rotating off: Bob, Vas, Tom and Marty.

There are 4 applications to look at today and each candidate is on today's call. Candidates were given an opportunity to introduce themselves.

Robert Aulman – Utah AB. Was in a production lab and has been with Utah for 8+ years. He has a degree in Physics and is the current Radiochemistry assessor in Utah.

Sherry Faye – PhD in 2014 in Nevada. Post Doc was done at Lawrence Livermore lab in California. She is now a NY AB. She works with PTs. She strongly believes in sharing knowledge and so she would like to work with the committee to continues to share information.

Greg Respanti - He is a NJ AB and works in the Office of Quality Assurance. He worked with Vas before he retired and he has taken over as Radiochemistry assessor in NJ office. He has been with NJ for a year. His PhD is from the University of Maryland and is in toxicology. He took radiochemistry classes during his graduate work.

Peppa Sassin – Region 3 EPA. She has 20 years experience. She is the DW certification officer for Inorganic and works with Glenda Smith and Michella Karaponda. She helped prepare the Radiochemistry checklist and is helping to update the Radiochemistry chapter in the DW Manual. She has MS degree in Chemistry.

The committee then closed the session meeting to associates and all associate members left the call.

The committee further reviewed the candidates. Balance was also looked at.

Vote:

A motion was made by Marty to add all four candidates (Sherry, Robert, Greg, Pepa) to the committee. Sherry will not become a member until Tom's term is complete at the end of December. The motion was seconded by Terry. There was no further discussion. The motion was unanimously approved.

Ilona will forward the resumes and candidate info to Bob Wyeth and Ken Jackson for approval.

8. New Business

None.

9. Action Items

A summary of action items can be found in Attachment B.

10. Next Meeting and Close

The next meeting is scheduled for November 28, 2018 at 1pm Eastern by teleconference.

A summary of action items and backburner/reminder items can be found in Attachment B and C.

The meeting was adjourned at 2:35pm Eastern.

Attachment A
Participants
Radiochemistry Expert Committee

Members	Affiliation		Contact Information
Bob Shannon (Chair) (2019) **Present**	QRS, LLC Grand Marais, MN	Other	BobShannon@boreal.org
Tom Semkow (Vice Chair) (2019) **Present**	Wadsworth Center, NY State DOH Albany, NY	AB	thomas.semkow@health.ny.gov
Sreenivas (Vas) Komanduri (2019) **Present**	State of NJ Department of Environmental Protection Trenton, NJ	Other	Sreenivas.Komanduri@dep.state.nj.us
Marty Johnson (2019) **Present**	US Army Aviation and Missile Command Nuclear Counting Redstone Arsenal, AL	Lab	Mjohnson@tSC-tn.com
Velinda Herbert (2021*) **Present**	National Analytical Environmental Laboratory	Lab	Herbert.velinda@epa.gov
Brian Miller (2021*) **Present**	ERA	Other	bmiller@eraqc.com
Terry Romanko (2021*) **Present**	TestAmerica Laboratories, Inc.	Lab	Terry.romanko@testamericainc.com
Ron Houck (2018*) **Present**	PA DEP/Bureau of Laboratories	AB	rhouck@pa.gov
Yoon Cha (2020) **Present**	Eurofins Eaton Analytical	Lab	YoonCha@eurofinsUS.com
Candy Friday (2020) **Present**	CdFriday Environmental, Inc.	Lab	candy@fridayllc.com
Ilona Taunton (Program Administrator) **Present**	The NELAC Institute	n/a	Ilona.taunton@nelac-institute.org

Attachment B

Action Items – REC

	Action Item	Who	Target Completion	Completed
90	Send note about method codes and concerns to the PT Expert Committee. Is there a way to limit the codes a lab can use to report PT data?	Bob	TBD	
91	Compile information about new PT Limit Process and discuss with EPA and send to the Chemistry FoPT Subcommittee Chair – Carl Kircher.	Bob and Keith	9/25/18	Complete
92	Forward new membership candidates to Bob Wyeth for approval.	Ilona	11/28/18	
93				

Attachment C – Back Burner / Reminders

	Item	Meeting Reference	Comments
5	Form subcommittee of experts in MS and other atom counting techniques to see that these techniques are adequately addressed in the radiochemistry module.	9/24/14	
6	From Action Item # 75: Prepare copy of Standard annotated with summary document language.		This is a project Carolyn was working on, but the committee decided it may duplicate the Small Lab Handbook. This project has been put on Hold.

Attachment D. Notice of Intent

NOTICE OF INTENT TO ESTABLISH OR MODIFY A TNI STANDARD

Expert Committee or group requesting the establishment or change to the Standard	Radiochemistry Expert Committee	Proposal Date	9/26/18	CSDEC Approval	

TNI Volume	Module	Sections(s)
ELV1	6	All sections

Nature of the standard to be established or the change to the existing standard proposed:

Pursuant to the NELAC Institute's SOP 2-100 on consensus standard development, notice is hereby given that the Radiochemistry Expert Committee (REC) seeks to review and update Module 6 of the Environmental Laboratory Standard. Any person objecting and believing there is not a compelling need for the proposed modifications should contact the NELAC Institute Consensus Standards Development Program Administrator, ken.jackson@nelac-institute.org,

Justification or need for the standard or the change in the standard:

Module 6 will be updated to clarify minor issues identified by the committee since the 2016 revision of the standard and will consider any items presented to it by stakeholders.

How is the proposal an improvement over the existing standard:

The Radiochemistry Expert Committee will revise and clarify existing items in the standard. This is not an exhaustive list of potential changes.

Any potential conflicts developed upon development of the standard or the proposed change to the standard?	None known
Any potential obstacles to implementation by ABs?	None known

Signature of proposal representative - Bob Shannon - Chair	**Date**

Attachment E. Summary of Recommended Changes to the 2016 Standard

Suggestions for Changes, Clarifications, and Improvements to 2016 V1M6 – Radiochemistry

1. Tom
    a. Section 1.7.1.5.c.ii)
        i. Physical impossibility of measurement of Lucas Cell background per day of use after it has been filled with radon.
    b. Sections 1.6.2.2.b) and 1.7.2.3.e.iii)
        i. Three gamma energy ranges for DOC and two ranges for LCS are specified. Since LCSs are often used for DOC, it is inconsistent.
    c. Section 1.7.1.4.a.iii)
        i. No guidance is provided what to do if the instrument performance check source is compromised.
    d. Sections 1.7.3.5.b) and 1.7.3.5.f)
        i. Contradiction and a lack of logic in saying that "shall be reported directly as obtained" and then that specific requirements can take precedence over "shall". Then it should not be "shall".
    e. Question: why does Module 6 have only one Section 1.0?
    f. Page 3, Uncertainty, Counting
        Change "…often estimated as the square root…" to "…often estimated as Standard Uncertainty by means of the square root…"
    g. Page 3, Section 1.3.2, 1-st paragraph
        Change "(e.g., calibrations,…)" to "(see Section 1.2)"
    h. Page 4, Section 1.5.1.g NOTE
        Change "The use…" to "For TNI accreditation, the use…"
    i. Page 5, Section 1.5.2.1
        Change "Minimal" to "Minimum"
    j. Page 6, Section 1.5.4.c
        The Section is out of alignment.
    k. Page 6, Section 1.5.4.c.i
        Change "If the experimentally-observed standard deviation at each testing level statistically exceeds the Standard Uncertainty, then the uncertainty estimate should be re-evaluated." to "If the experimentally-observed standard deviation from the precision evaluation statistically exceeds the Standard Uncertainty evaluation at each testing level, then the uncertainty estimate should be re-evaluated."
        Or even better to "Otherwise, the uncertainty estimate should be re-evaluated."
    l. Page 7, Section 1.5.4.c.ii
        Note, however, that the new EPA procedure in EPA 815-B-17-003 requires a chi-square test at DL, which is a kind of precision evaluation.
    m. Page 7, Section 1.5.5.b
        The font for "b)" is too large.

n. Page 9, Section 1.6.3.2.c
   Change "…each with activity consistent method…" to "…each containing activity consistent with method…"
o. Page 10, Section 1.7.1.2.a.i
   Change "following" to "after"
p. Page 16, Section 1.7.1.6.e
   Perhaps for gas proportional detectors also?
q. Page 17, Section 1.7.1.7
   Change "1.7.2.3" to "1.7.2.2"
r. Page 19, Section 1.7.2.3.d
   Change "Decision Level (Critical Value)" to "MDA"
   There are problems, in my opinion with the whole sentence "When practical…". It leaves the reader wondering what should be the spiking level when sample activities are less than 10 times the Decision Level. In addition, the action levels by some agencies are [unreasonably] high, which would imply high LCS, which is not practical.
s. Page 19, Section 1.7.2.3.e
   Change "The final…" to "The final prepared LCS needs to have the activity and its uncertainty known, however, it need not be strictly traceable to a national standard organization."
t. Page 20, Section 1.7.2.3.g; Page 24, Section 1.7.3.1.b; Page 24, Section 1.7.3.2.b; Page 24, Section 1.7.3.3.a.ii; Page 25, Section 1.7.3.3.b.iii
   Delete "above"
u. Page 20, Section 1.7.2.4.a.iii
   Change "1.7.2.3.e and 1.7.2.3.7.f" to "…d and …e"
v. Page 21, Section 1.7.2.4.a.viii
   Change "The final…" to "The final prepared MS needs to have the activity and its uncertainty known, however, it need not be strictly traceable to a national standard organization."
w. Page 22, Section 1.7.2.6.c.i
   Insert a comma after "e.g."
x. Page 25, Section 1.7.3.5.b
   More on reporting as is, even if negative. In addition to my questioning this as a requirement, there are practical problems. It is easy to calculate for paired counting. Gamma spectrometry has a complicated series of criteria which determine if the radionuclide is identified. For Canberra software these include peak sensitivity: it cannot be lowered below the minimum value; critical level test: the user can disable it; peak tolerance in keV; and nuclide identification threshold. The NID threshold involves self-absorption in the sample, presence of corroborating peak (e.g., in Co-60), decay correction, and other factors. Even if set low, the nuclide may not be detected.
y. . Are there any auditable requirements for items such as:
   i. the sample has to be analyzed as a whole
   ii. only a single measurement is required
   iii. no repeated measurements are allowed
   iv. aliquoting is allowed or not allowed
   v. sample can/cannot be split into sub-samples analyzed separately

2. Vas

a. Consider whether existing issues would benefit from being addressed as SIRs

3. Keith
   a. 1.7.2.3(d)
      i. It makes a lot more sense to talk about activities x times the MDC than x times the critical level. The critical level isn't really a well-defined measurable quantity. As we ordinarily define and use it, it's just a statistic that can vary with each measurement. The MDC is the a priori concept, whose value we can estimate.
      When we calculate the a priori MDC, we actually do calculate an a priori critical value, too, but that value is never recorded or used for anything else.
4. Bob
   a. Explicitly clarify that QC data can by used as performance data for validation
   b. The original intent to the introductory language in each section was to frame the requirements that follow - not to establish requirements. The original intent was to number all requirements to facilitate writing findings. Review all sections. Add any clarifying language needed to intro and move requirements to numbered sections.
   c. Consider removing DOC requirements that are already addressed in Module 2. Include only the differences specific to radchem.
   d. 1.7.1.2 a) ii., iii., and iv. all describe the same situation – instrument response has changed. Would it not be good enough to put these together or even just to leave it be with iv.?
   e. Consider updating requirements for RMBs – it may be appropriate to explicitly state that blanks should be set up along with samples - samples are handled and could become contaminated.
   f. Consider updating requirements for standards. ISO requirements for standards are vague and make no distinction in requirements for reference materials used for calibration and QC/PT standards. One might consider uncertainty as a criterion although how does one evaluate the uncertainty of the material.
      Right now, ISO providers are not required to intercompare . One might say that study performance will show problems (i.e., compare grand mean to true values) but that is putting the cart is before the horse. Round robin/consensus studies with labs of untested capability provide little in the way of confidence. Many people feel that the approach in ANSI N42.22, which requires providers to participate in a Measurements Assurance Program (MAP) where the RM provider intercompares with an NMI, is the minimum that should be requires for calibration.
5. Define independent source – what is there is only one source - can procure two sources and handle differently.
6. Section 1.5.4 sets out requirements for reporting uncertainty. Is this just for the validation or for all results?
7. Add more sample specific QC criteria – FWHM, Quench or mass within range, etc.
8. In training session, someone brought up the issue of deleting points from calibration curves. Should we add something to the extent of saying that any measured data needs to be used unless there is a known and clearly documented reason why it is invalid, or why its deletion is not targeted at "cooking" the data?