Radiochemistry Expert Committee (REC)
Meeting Summary

January 23, 2019

1. Roll Call and Minutes:

Bob Shannon, Chair, called the meeting to order at 1:05 pm Eastern on January 23, 2019 by teleconference. Attendance is recorded in Attachment A – there were 4 members present. Associates: Bob Shannon, Stan Stevens, Carl Kircher, and Joe Pardue.

There was no meeting in December.

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

2. Standard

Terry reminded everyone to keep sending items for consideration for the revision of the Standard. Terry brought up Attachment D on screen so people can see the items that have been identified to date. Ilona reminded everyone that this list is always a part of the minutes.

Terry has Ilona briefly describe the process for updating the Standard.

3. PT Acceptance Criteria

Bob hasn't been able to talk to Keith due to the EPA shutdown. They are ready to present the information to the Chemistry FoPT Subcommittee. They have concerns about using historical data – it is a poor data set and does nothing to link lab performance to MQOs. They are proposing an approach to link MQOs to PT criteria.

Carl crunched the summary PT data and has distributed PDF files with an email with a written summary.

Bob reminded everyone that there are only DW FoPTs at this time. Bob would like Michella Karapondo (EPA) on the Chemistry FoPT Subcommittee call too. Glenda Smith (EPA) liked the approach Bob talked about, but Michella would be the person to talk to.

4. Checklists

The Word version of the Radiochemistry 2016 Standard checklist is relatively complete. The Word and Excel version need to match. Ilona noted that she will need someone to mark clearly the changes made to the Excel document.

Terry asked for volunteers to bring the Excel version in line with the Word version. Terry will take a look at it and give an update on the next call. Candy may be able to help too.

5. Training on Alpha Spec Methods at Winter Meeting

Bob has been working with Sherry and Terry on the training. Bob has pre-recorded the first part of the training. People will need to have completed this training before they get to Milwaukee.

Bob just completed the second half slides and will send them to Ilona for review. He will also be sending the data packages for distribution to the registered attendees. There will also be 5 hard copy packages for use during the class.

6. Vice-Chair

The Committee needs a Vice-Chair. The Vice-Chair steps in when the Chair cannot step in. The Vice-Chair also steps in as a substitute on the CSDP Executive Committee calls. No one has volunteered yet. Please email Terry with interest.

7. Technical Manager Requirements

Ilona summarized what Quality Systems and Microbiology are looking at in reviewing these requirements.

Terry worked on some language this morning and shared it with the committee using Webex – Attachment E.

Unless you are going for a Radiochemistry Degree or going back for a Masters or PhD – you are not going to have those hours. Could be hands on experience that should make up for that? Combine ii and iii.

Terry would like everyone to be thinking about this and he encouraged people to send emails with their thoughts. This will be further discussed in Milwaukee.

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 will be in person in Milwaukee and the next conference call meeting will be on February 27, 2019 at 1pm Eastern.

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

The meeting was adjourned at 1:51pm Eastern.

Attachment A
Participants
Radiochemistry Expert Committee

Members	**Affiliation**		**Contact Information**
Terry Romanko Chair (2021*) **Present**	TestAmerica Laboratories, Inc.	Lab	Terry.romanko@testamericainc.com
Sherry Faye (2022*) **Absent**	Wadsworth Center, NY State DOH Albany, NY	AB	sherry.faye@health.ny.gov
Velinda Herbert (2021*) **Absent**	National Analytical Environmental Laboratory	Lab	Herbert.velinda@epa.gov
Brian Miller (2021*) **Present**	ERA	Other	bmiller@eraqc.com
Ron Houck (2021) **Absent**	PA DEP/Bureau of Laboratories	AB	rhouck@pa.gov
Yoon Cha (2020) **Absent**	Eurofins Eaton Analytical	Lab	YoonCha@eurofinsUS.com
Candy Friday (2020) **Present**	CdFriday Environmental, Inc.	Lab	candy@fridayllc.com
Greg Raspanti (2022*) **Present**	New Jersey Department of Environmental Protection	AB	Greg.Raspanti@dep.nj.gov
Pepa Sassin (2022*) **Absent**	EPA - Region 3	Other	Sassin.Pepa@epa.gov
Robert Aullman (2022*) **Absent**	Utah Department of Health	AB	aullman77@gmail.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	
92	Forward new membership candidates to Bob Wyeth for approval.	Ilona	11/28/18	Complete
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. Summary of Recommended Changes to the 2016 Standard

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

Tom

Section 1.7.1.5.c.ii)
Physical impossibility of measurement of Lucas Cell background per day of use after it has been filled with radon.
Sections 1.6.2.2.b) and 1.7.2.3.e.iii)
Three gamma energy ranges for DOC and two ranges for LCS are specified. Since LCSs are often used for DOC, it is inconsistent.
Section 1.7.1.4.a.iii)
No guidance is provided what to do if the instrument performance check source is compromised.
Sections 1.7.3.5.b) and 1.7.3.5.f)
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".
Question: why does Module 6 have only one Section 1.0?
Page 3, Uncertainty, Counting

Change "…often estimated as the square root…" to "…often estimated as Standard Uncertainty by means of the square root…"

Page 3, Section 1.3.2, 1-st paragraph

Change "(e.g., calibrations,…)" to "(see Section 1.2)"

Page 4, Section 1.5.1.g NOTE

Change "The use…" to "For TNI accreditation, the use…"

Page 5, Section 1.5.2.1

Change "Minimal" to "Minimum"

Page 6, Section 1.5.4.c

The Section is out of alignment.

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."

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.

Page 7, Section 1.5.5.b

The font for "b)" is too large.

Page 9, Section 1.6.3.2.c

Change "…each with activity consistent method…" to "…each containing activity consistent with method…"

Page 10, Section 1.7.1.2.a.i

Change "following" to "after"

Page 16, Section 1.7.1.6.e

Perhaps for gas proportional detectors also?

Page 17, Section 1.7.1.7

Change "1.7.2.3" to "1.7.2.2"

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.

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."

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"

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"

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."

Page 22, Section 1.7.2.6.c.i

Insert a comma after "e.g."

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.

. Are there any auditable requirements for items such as:
the sample has to be analyzed as a whole
only a single measurement is required
no repeated measurements are allowed
aliquoting is allowed or not allowed
sample can/cannot be split into sub-samples analyzed separately

Vas

Consider whether existing issues would benefit from being addressed as SIRs

Keith

1.7.2.3(d)

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.

Bob

Explicitly clarify that QC data can by used as performance data for validation

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.

Consider removing DOC requirements that are already addressed in Module 2. Include only the differences specific to radchem.

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.?

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.

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.

Define independent source – what is there is only one source - can procure two sources and handle differently.
Section 1.5.4 sets out requirements for reporting uncertainty. Is this just for the validation or for all results?
Add more sample specific QC criteria – FWHM, Quench or mass within range, etc.
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?

Attachment E – Technical Manager (from Terry Romanko)

The wording for technical manager requirements as it currently stands is:

a) Any technical manager of an accredited environmental laboratory engaged in radiological analysis shall be a person:
   i. with a bachelor's degree in chemistry, environmental, biological sciences, physical sciences or engineering; and
   ii. with twenty-four (24) college semester credit hours of chemistry; and
   iii. with two (2) or more years of experience in the radiological analysis of environmental samples. A master's or doctoral degree in one of the above disciplines may be substituted for one (1) year experience.

I might suggest 32 hours of chemistry and physics (equivalent to 8 semesters [4 years] of chemistry, 2 chem labs, and 2 semesters [1 year] of physics; or other combinations) with an additional 16 hours in analytical radiochemistry drives more toward the understanding of the chemistry and physics knowledge desirable for Radiochemistry. I think regardless of the degree, at least 2 years in the laboratory in addition would be needed to gain enough practical knowledge to be considered technically competent for such an important role.

I think 1 year of experience working in an environmental radiochemistry role substituting for 4 hours of the credits is reasonable. A master's degree could substitute for one year of experience, and doctoral degree as another.

Examples:

- Someone coming out with a Phd in Radiochemistry would then likely qualify as a TM directly (but will they really have enough practical experience? – my only hesitation).
- Someone coming out with a bachelors in chemistry with 30 hours of chem and phys would need 6 years of experience working in a radiochemistry lab.
- Someone with a bachelors in biology might need up to 10 or more years.

a) Any technical manager of an accredited environmental laboratory engaged in radiological analysis shall be a person:
   i. with a bachelor's degree; and
   ii. with thirty-two (32) college semester credit hours of chemistry and physics; and
   iii. with sixteen (16) college semester credit hours of radiochemistry; and
   iv. with two (2) or more years of experience in the radiological analysis of environmental samples.
   v. A master's or doctoral degree in one of the above disciplines may be substituted for one (1) year experience.
   vi. 1 year experience working in an environmental radioanalytical laboratory may be substituted for 4 credit hours.