# Radiochemistry Expert Committee (REC)
# Meeting Summary

## March 27, 2019

1. Roll Call and Minutes:

   Terry Romanko, Chair, called the meeting to order at 1pm Eastern on March 27, 2019 by teleconference. Attendance is recorded in Attachment A – there were 8 members present. Associate members in attendance: Bob Shannon, Joe Pardue, Carl Kircher (until 1:15pm), and Keith McCroan.

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

2. Committee Vice-Chair

   Robert Aullman has volunteered to fill the Vice-Chair roll. Terry presented his resume on Webex. He has been the Technical Expert in Radiochemistry for the Utah program.

   There were no topics for discussion, so Terry requested a vote to add Robert Aullman as the Vice-Chair. The Committee unanimously approved.

   *(Addition: A motion and second were needed for the vote. This vote will be redone during a future meeting.)*

3. PT Acceptance Criteria

   Discuss next month.

4. Radiochemistry Checklist

   Terry got through most of the checklist to harmonize the Excel version with the Word version. Candy is still working on it. The checklist is probably 75% done.

5. Technical Manager

   Terry noted that he did receive some comments by email. Ilona passed the current DRAFT to the Chair and Vice-Chair of Quality Systems. The DRAFT was well received. They liked the concept that someone can grow into a Technical Manager. Terry was invited to the next QS meeting to discuss the DRAFT with the entire committee.

6. Summer Meeting

The training being planned for the summer meeting in Jacksonville, FL will be Gamma Spectrometry. Bob sent Terry lots of information from other trainings. Terry now needs to sift through all the information and start formatting the training. Terry asked for volunteers to go through the information or help review what gets put together. Terry is also looking for examples for the data package from different software.

Yoon is willing to help pull data for the data package. Robert is willing to help as needed. He may call a few others for more help as needed.

7. Update to Standard

The committee will begin reviewing suggested revisions to the Standard. Terry sent out the most recent version prior to the call (Attachment D in the 2/27/19 minutes).

Terry took notes as the Committee reviewed the suggested changes. These notes can be found in Attachment D. The Committee will pick-up the review in April at Section s in Tom's comments (Page 19, Section 1.7.2.3.e).

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 April 24, 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 2:30pm 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*) **Present** | Wadsworth Center, NY State DOH Albany, NY | AB | sherry.faye@health.ny.gov |
| Velinda Herbert (2021*) **Present** | National Analytical Environmental Laboratory | Lab | Herbert.velinda@epa.gov |
| Brian Miller (2021*) **Present** | ERA | Other | bmiller@eraqc.com |
| Ron Houck (2021) **Present** | PA DEP/Bureau of Laboratories | AB | rhouck@pa.gov |
| Yoon Cha (2020) **Present** | Eurofins Eaton Analytical | Lab | YoonCha@eurofinsUS.com |
| Candy Friday (2020) **Absent** | CdFriday Environmental, Inc. | Lab | candy@fridayllc.com |
| Greg Raspanti (2022*) **Absent** | New Jersey Department of Environmental Protection | AB | Greg.Raspanti@dep.nj.gov |
| Pepa Sassin (2022*) **Present** | EPA - Region 3 | Other | Sassin.Pepa@epa.gov |
| Robert Aullman (2022*) **Present** | Utah Department of Health | AB | aullman77@gmail.com |
| Ilona Taunton (Program Administrator) **Recording** | 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 | |
| 93 | Discuss new PT criteria at next FoPT Chemistry subcommittee meeting | Bob and Keith | 3/21/19 | |
| 94 | Harmonize Excel Checklist with Word Checklist | Terry and Candy | 3/27/2019 | In progress. |
| 95 | Provide information for training data package to Terry. | Yoon | TBD | |
| 96 | | | | |
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**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. Suggestions for Changes, Clarifications, and Improvements to 2016 V1M6 - Radiochemistry

1. Tom
    a. Section 1.7.1.5.c.ii)e)
        i. Physical impossibility of measurement of Lucas Cell background per day of use after it has been filled with radon. No one on the call spoke up and felt this was a serious concern. This would, however, result in long counts (e.g. 24 hours) for which a background could not be counted the same day as the sample and therefore might not technically meet the requirement. Do we need to address that we don't require some sort of a purging process. Language "Before each use" instead of "Day of Use"

Start – March 27, 2019

    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. Propose 2 nuclides (one above knee one below knee) be used for DOC.
    c. Section 1.7.1.4.a.iii)
        i. No guidance is provided what to do if the instrument performance check source is compromised. ANSI N42.23 seems to state that if the instrument performance check is compromised, the detector "shall" be recalibrated.
    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". This is not truly inconsistent – TNI requirements can always be abrogated for client specific requirements.
    e. Question: why does Module 6 have only one Section 1.0? No issue here.
    f. Page 3, Uncertainty, Counting
        Change "…often estimated from 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" – suggest change to "Minimum"
    j. Page 6, Section 1.5.4.c
        The Section is out of alignment. – formatting can be fixed.
    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

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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."

- does not improve or change the meaning.

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. Add something like "except as required by program/project specific requirements or regulations". Use language similar as in other places this type of language is used.

m. Page 7, Section 1.5.5.b

The font for "b)" is too large. - formatting

n. Page 9, Section 1.6.3.2.c

Change "…each with activity consistent method…" to "…each containing activity consistent with method…" – would clarify to include this

o. Page 10, Section 1.7.1.2.a.i

Change "following" to "after" – no distinct benefit

p. Page 16, Section 1.7.1.6.e

Perhaps for gas proportional detectors also? – leave as is.

q. Page 17, Section 1.7.1.7

Change "1.7.2.3" to "1.7.2.2" – yes, should be 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. – do not change the "when practical" maybe change from 10x DLC to 5x MDC.

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. If a lab processes a single PT sample, the program involves reporting only a single result, which is what the lab does. 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

z. Section 1.6.3.2 Ongoing DOC, subsections a, d, e.
   i. It is not clear how many samples are required, whereas for subsections b and c it is clear. According to subsection a, only one spiked and one blank would be sufficient and I suspect many labs would take this shortcut.

aa. I have one more item for a consideration. Module 6 says that for uninterrupted GP or LCS measurement sequence, the detector performance can be done at the beginning and the end, not per day of use. This is good for non-decaying source. There is one problem with this for Sr/Y analysis, where decay is followed every other day. One needs to measure a batch say on Friday, and Sunday, with other samples or spacers in between. It is not possible to verify performance on Sunday. However, that measurement is interrupted. Another possible but wasteful way would be to keep repeating measurements in a loop to be uninterrupted, and reject those that are not needed.

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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 if 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?
9.