Radiochemistry Expert Committee (REC)
Meeting Summary

February 3, 2015

1. Roll Call and Minutes:

Bob Shannon, Chair, called the meeting to order in Crystal City, VA at 8 am EST on February 3, 2015. Attendance is recorded in Attachment A – there were 10 members present in the morning and 8 members present in the afternoon.

Minutes for the January 21, 2015 were distributed for review. A motion was made by Nile to approve the January 21, 2015 minutes. The motion was seconded by Larry and unanimously approved. The minutes will be forwarded for posting to the TNI website.

Associate members need to let Bob and Ilona know they own a copy of ISO 17025 so they can be included in distributions of the draft working standard updates.

2. Review of Comments

Bob noted that the only formal comments the committee received during the input period were from PCI labs. These will be dealt with formally. All the other comments were received after the comment period and the committee still wants to take them into consideration, but it will done in a less formal nature. Most were editorial in nature and non-controversial. The resolution on any comments that were controversial will be voted on by the committee.

Tom provided comments directly in the copy of the Standard that Bob distributed prior to the meeting. The review of these comments started at the previous meeting. Bob reviewed these comments and edited the standard as needed. They will be identified in the minutes with TS before the comment.

<u>TS Comment 8 – Section 1.5.4 and Comment #5</u>
The committee thought Tom had a valid comment and modified the language in this section. After much discussion, the following changes were made to incorporate Tom's suggestions and address Mike's Comment #5. It is now clear what precision is being discussed in the text below.

1.5.4 Measurement Uncertainty

a) All radiochemical measurement results shall be reported with an estimate of Total Uncertainty expressed either as an estimated standard deviation (i.e., a Standard Uncertainty) or a multiple thereof (i.e., an Expanded Uncertainty).

i) Total Uncertainty shall be documented by the laboratory's quality system consistent with BIPM JCGM 100:2008*: Guide to the Expression of Uncertainty in Measurement (GUM)*, the recommendations in the Multi-Agency Radiological Laboratory Analytical Protocols Manual Chapter 19 (MARLAP, Volume II, EPA 402-B-04-001B, July 2004), or other equivalent approaches.

ii) For purposes of compliance with the Safe Drinking Water Act, or in order to comply with specific requirements established by method, regulation, or contract, or as established by the laboratory's quality system (if there are no established mandatory criteria), laboratories may report the Counting Uncertainty in lieu of the Total Uncertainty as specified in the appropriate method, regulation or contract, and as documented in the laboratory SOP.

b) The report shall clearly specify the type of uncertainty reported. The report shall:

i) express the uncertainty in the same unit of measurement as the measurement result unless the report clearly states otherwise;
ii) indicate whether the uncertainty is a Total Uncertainty or Counting Uncertainty;
iii) indicate whether the uncertainty is the Standard Uncertainty (i.e., "one-sigma") or an Expanded Uncertainty (e.g., "k-sigma"); and
iv) for Expanded Uncertainties, indicate the coverage factor (k) or the level of confidence.

c) The results of the precision evaluation in Section 1.5.3 shall be compared to the uncertainty estimates as a check on the validity of the uncertainty evaluation procedures.

i) The experimentally-observed standard deviation from the initial precision evaluation at any testing level shall not be statistically greater than the maximum Standard Uncertainty of the measurement results at that level, although it may be somewhat less. If the experimentally-observed standard deviation at each testing level statistically exceeds the Standard Uncertainty, then the uncertainty estimate should be re-evaluated.

ii) A comparison of the experimentally-observed precision evaluation need not be performed for measurements that are required to be reported only with Counting Uncertainty per 1.5.4 a) ii).

Bob confirmed that all were in favor of this change. A motion was made by Marty to amend Section 1.5.4 as above. The motion was seconded by Tom. Vote: For – 8, Against – 0, Abstain – 1 (Vas missed most of the discussion before he joined the call.)

TS Comment 9 – Section 1.7.1.2 b) (See Comment 7 in Comment Summary)

The last sentence in Section b) was changed to: Some techniques require multiple-point calibration curves to correlate a number of parameters other than activity. For example:

There were also changes made to i) and iv):

i) channel-energy calibration of alpha or gamma spectrometers;
iv) quench-crosstalk calibration of liquid scintillation detectors.

TS Comment 10 – Section 1.7.1.2 e) iii)

The last sentence was deleted. The language is awkward and irrelevant. If the first sentence is followed – there is no need for the second.

Comment 42 and 43

Tom made a general comment that there is not consistency when using the term "size". In some cases it is referred to as "aliquot", "volume" or "quantity". Tom would prefer not to use "size". (Examples: 1.7.2.2 b) ii), 1.7.2.3 b) iii) and 1.7.2.4 a) iv)) The committee's preference was to use "quantity". This substitution was made into the three example sections.

A motion was made by Marty to make the changes in the language described above. The motion was seconded by Richard and unanimously approved.

Modified Working Draft Standard (MWDS) Comment Summary

Comment 1:

Bob asked Paul Junio to comment on Carl's comment.

Paul noted that the ISO language was initially stricken from 5.4.4, but has been restored. A note has been added to the end of 5.4.4 that restores the eleven items that need to be considered per ISO. Larry made a motion that the comment was Non-Persuasive. The motion was seconded by Richard and unanimously approved.

Comment 2:

Paul commented that the term *Quality Management Plan* is not used. Paul would recommend this language be changed to *Quality System*. There are instances where the Standard is referring to a document and in these situations the reference would be to the *Quality Manual*.

Bob will read through the Standard and update these references.

Comment 4:

There was disagreement with Carl's comment. Larry commented that the section addresses method validation and not ongoing PTs. The standards used to validate methods may not always be available from a TNI PT Provider. Larry motioned that the comment be Non-Persuasive. The motion was seconded by Richard and unanimously approved.

(Carolyn joined in – 9:40am)

Bob asked Paul Junio about the batch definition the committee developed. Paul did not see any problem using it because it is a term not used elsewhere. Richard is concerned that the committee eliminated the term analytical batch. There is no mechanism for counting the samples for more than 24 hours. He thinks it needs to be kept for those times when a lab has both an analytical batch and a preparation batch. Richard thinks the note for preparation batch should be kept where it is stated that a preparation batch is only applicable for tests that require chemical or physical preparation.

It was pointed out that the language does not mean that the batch must be completed within 24 hours, only initiated. The language in 1.7.1.4 c) ii) may take care of Richard's issue. Richard disagrees. He thinks the current language requires that the instrument be stopped after every preparation batch because instrument QC would need to be run. Need to consider some samples do not need any preparation and others do have a chemical or physical preparation.

Larry pointed out that in Chemistry, preparation batches can be counted on multiple instruments and analytical batches are only counted on one instrument. Richard wants to know why this is being eliminated in this standard. Paul noted that Module 2 does not have a time limit in the definition of Analytical Batch.

The committee purposely needed the Radiation Measurement Batch to be different than the Analytical Batch.

BREAK (10-10:30am)

The previous discussion centered around Preparation Batches and counting samples for longer than 24 hours. There was also discussion on how the definition of a Preparation Batch might impact this.

There was discussion to take "and/or analyzed" out of the Preparation Batch definition or delete the definition all together and then use the definition in Module 2.

Paul commented that if a definition is left out of this module and it does not state the definition can't be used … the definition in Module 2 is still applicable.

After discussion, the committee decided to remove "and/or analyzed" from the Preparation Batch definition. The note will be left in. (Paul asked Bob to send him a copy of the note. He would like to see this added to Module 2.)

A motion was made by Tom to remove "and/or analyzed" from the definition of Preparation Batch. The motion was seconded by Nile and unanimously approved.

The committee turned back to the Comment Summary to review Carl Kircher's comments:

<u>Comment 6:</u>
This comment is viewed as an editorial comment. Bob noted that this language is common in other modules of the standard. Richard asked why a new analyst can't reanalyze a set of samples run by an experienced analyst? It was noted that they can.

There was discussion of whether it is acceptable for the sample or PT to have a null value. Bob thinks this is a bigger discussion for all modules, but Paul thinks it is OK for this committee to clarify it in this module.

There was also discussion on whether PT samples are blind. Vas thinks it can be an open process and still document capabilities. Others were concerned that an analyst might analyze a sample repeatedly to get an idea of reproducible but by reporting a single result, it would not be apparent that they had nto treated the PT the same as they would a routine sampleIt was decided to leave “single blind” in the sentence.

Nile made a motion to add language to clarify a) as follows: "and sample(s) that have known, accepted value(s), single blind to the analyst". Marty seconded the motion and it was unanimously approved.

Comment 8:
Bob noted that this is not QC – it is validation. Validation is a one time activity and does not need to be repeated unless there are technical changes to the procedure. There is no action required to this comment. In answer to the commenter's question: this refers to method validation and not calibration. As long as the lab has documented validation, and the method itself has not changed, a second validation is not required.

Carl asked if this was in the correct section. Should it be in the method validation section (1.5.1)? Larry did not think it was a problem where it was. In 1.5.1 it would not be appropriate to discuss calibration. There was agreement.

Comment 9:
No action is needed. The interpretations are correct and all is good-to-go.

Comment 11:
There are no changes needed. The observations are correct.

Tom commented that the Radiation Measurement Batch is not related to a particular program (DW, etc.). It is related to whether the method used has a preparation or not.

Comment 12:

Richard asked what an appropriate matrix is for metals – it was suggested that glass beads have been used. Others commented that a number of radionuclides such as isotopes of U, Th, Ra, and K, would be readily detectable, as would particular metals, in glass beads. You should use the same matrix whenever it is possible for blank and LCS, but sometimes it is not possible.

Carl requested that this comment be tabled until the next Standard Review process so they can see if it is still an issue. He is withdrawing the comment. The committee feels it is adequately addressed in the standard.

Comment 14:
The answer to the question is that they are two different things. No changes are needed.

Comment 15:
Carl suggests that the use of *surrogate matrix* might cause confusion with Module 4.

Larry noted that Chemistry refers to a "*Surrogate Spike*" which is different enough that it will not be an issue.

The dictionary definition was consulted: Replacement (adj); Substitute (n).

Keith does not have a problem with the term *surrogate* – but the sentence doesn't might not make sense as written. The first *surrogate* will be deleted. Although it was suggested that the second use of *surrogate* could be changed to *substitute*, Bob Wyeth didn't think this was necessary. The second *surrogate* was retained.

Comment 17:
Change made.

Comment 18:
The performance checks have nothing to do with batch QC samples.

1.7.2.3.e is Richard's concern. Richard is confirming that requiring the LCS and MS to be from a second source from the calibration is a new requirement. Normally there is a second source calibration check, but second source LCS and MS is new. The committee thinks this is generally being done and that since labs must have a second source available for verification of calibrations there would not have to be extra cost.

Richard and Tom do not think it should be a new requirement. It should be written so it can be a second source – not required to be a second source. Bob noted that the calibration verification was an opportunity to use the second source to obtain independent verification with higher precision than is possible with batch QC samples.

Bob asked if the language should remain as-is or be changed? Marty likes the language. Others were concerned a new requirement is being added.

Larry suggested removing the language about "independent".

Richard pointed out that the LCS discussion in the Standard does not require anything about a second source.

The following language was removed:

"… shall be from a source independent of the laboratory standard used for instrument calibration and …"

"If an independent source is not available, a second source shall be procured and prepared independently of the calibration source."

Larry made the motion to strike the language suggested for removal above and strike similar language in the matrix spike section. The motion was seconded by Tom and unanimously approved.

(Addition: While updating the Standard, Bob noticed that the final sentence in 1.7.2.3 c) was also affected by the same concern and he deleted this as well.)

LUNCH (12-1pm)

Richard noted that most of his comments have been addressed through addressing Carl's comments. Continuing with Carl's comments:

Comment 19:
The comment is correct and the reference numbering will be corrected. The correct reference is 1.7.2.3 d).

Comment 20:
Carl's language was not used, but the committee did decide to incorporate Richard and Tom's suggested addition to 1.7.2.4 a) v): When a matrix spike is required, the …

Larry noted that Comment 21 should be considered in this discussion. He thinks the suggestion is that if there is insufficient sample, a duplicate LCS should be analyzed. He doesn't think there is anything about this in the standard, but Tom pointed out there is in Section 1.7.2.4 b) v).

Comment 21:
Bob noted that this is outside of the committee's scope.

Marty motioned that this comment is outside of the committee's and TNI's scope and thus is Non-Persuasive. The motion was seconded by Larry and was unanimously approved.

Comment 25:
This has already been corrected.

Comment 26:
This has already been corrected.

The committee went back to the beginning of the summary document to review comments that had not yet been discussed.

Comment 3:
The concern raised relates to concerns about requirement specific to the State of NJ and their implementation of the SDWA. The scope of the TNI standard does not impact regulatory requirements. It was noted that the standard does require that labs review the requirements for work and only accept work where they can comply with requirements.

A motion was made by Nile that this comment is Non-Persuasive and outside of the scope of this committee. The motion was seconded by Marty and unanimously approved.

Comment 7:
This was addressed earlier. See TS Comment 9 above.

Comment 10:
Richard commented that we should not be referring to MARLAP where a requirement is needed. There was discussion about how to interpret MARLAP requirements when MARLAP is a guidance document?

Nile moved to change to "*Where there are no established requirements, the laboratory may reference guidelines consistent with MARLAP or other consensus standard organizations in its quality management system.*" The motion was seconded by Vas. There was one abstention and all others voted "For". The motion passed.

Bob will look for similar wording in the standard and make similar changes.

Comment 22:
After discussion, Marty moved to make an editorial change to the last sentence of this section which would read as "*Alternatively, reference standards may be obtained from an ISO/IEC Guide 34 accredited provider or an ANSI N42.22 reference material provider.*" The motion was seconded by Nile and was unanimously passed.

Comment 23:
This is a duplicate of 22.

Comment 24:
Marty commented that changing from *5-times* the blank is just picking a number out of the air. The "5 times" may have come out of Functional Guidelines. Lacking a better requirement, the text will be left as is.

Comment 27:
Richard thinks f) is out of order. Richard's suggestion was to move the exception in f) to the first bullet. The committee thinks they have clearly allowed project or client specific requirements to override the requirement to report net results. There is no impact. Richard was satisfied that a change would not be necessary.

Comment 28:
Need to include the date because some states require it in their regulations (example: Florida). This correction will be made.

Comment 29:
This was discussed about when discussing Carl's comment. The committee felt no need to further discuss this.

Comment 30:
See Comment 18 - This was discussed in Comment #18. It is not necessary to require batch QC samples to be prepared from standards independent from those used in calibration. The calibration verification is made from a standard independent from the calibration standard.

Comment 31:
This was already discussed. No action required.

Comment 32:
No action needed. The definition of batch, the note after the preparation batch definition, and Section 1.7.2.1 all address this. If the transfer affects the outcome of the test, the batch would be considered to be a preparation batch.

Comment 33:
No action needed. The terms are not used in the standard.

Comment 34:
No action needed. It is not in our control – this is under the purview of the Quality Systems Expert Committee.

Comment 35:
No action needed. There is not a prescribed method, but labs do need to comply with Section 1.7.1.2 d).

Comment 36:
No action needed. This is defined in the LSC section.

Comment 37:
No action needed. This was addressed above when the committee reviewed Tom and Mike's comments.

Comment 38:
No action needed.

Comment 39:
No action needed. This was a note made during general discussion at the RRMC and it was not clear enough to reconstruct what the concern was.

Comment 40:
No action needed. The Standard requires that contractual, regulatory or client concerns be taken into account by the lab.

Comment 41:
No action needed. Marty did not think this has anything to do with the lab. Bob noted that "zero activity" would have to be defined, and could be defined in many different ways. The module addresses requirements for validation and no one thought this needed further work.

Bob will go through the comments, but he feels all have been addressed. A copy of this summary will be distributed back to the group – along with an updated copy of the Standard. He will do a final read through and look for consistency too.

SRC is supposed to get final comments to the committee by this Friday.

The next step will be to review the changes and vote to approve the Voting Draft Standard (VDS). Making changes after this becomes more difficult, so now is the time to do a complete review before it is forwarded. Bob hopes to have the VDS ready to go by the end of February or early March.

Bob reminded everyone that the entire committee has to electronically vote on the VDS when it is up for voting. The committee then has to formally address all comments.

Bob opened the meeting for discussion to the audience. There were no comments.

3. Update from Bob – Meeting with EPA's Office of Water

Bob was involved in a meeting with the EPA's Office of Water in Cincinnati to look at the potential for updating DW regulations and DW methods. The workshop was organized by WEF with the Office of Water.

Almost all of the DW methodology goes back to the 1970's (EPA 900 series was published in 1980). It has been difficult to make any changes to date. In the workshop, the EPA and participants discussed the general statistics of method performance and what they mean when making DW compliance decisions. The methods are less precise than what is stated in the method performance sections, and even that level of performance is concerning. They then focused on gross-alpha (radium 226 and 228) methods. EPA was impressed with the information provided that showed the strong and weak aspects of the methods. They also presented suggestions for improvements to the methods. They also recommended changes to the methods to make them more consistent between labs, PTs, QC samples, etc. There was also discussion about standardizing matrix.

BREAK

Another topic of discussion with a huge impact on gross alpha is the timing of the count and decay. The methods have different wait periods. EPA may be willing to let the states set the timing requirements. This would remove the 72 hour in-growth requirement in method 900 that could lead to more false positives.

They talked about harmonizing PTs. EPA is interested in going towards Strontium-90. Cesium-137 is currently required. It probably began with EPA's QAP program in Las Vegas. Intercomparability of results (the whole point of PT studies) is questionable if PTs

are not made with the same nuclide the method required for calibration. Bob thought the FoPT table should be updated. Richard confirmed these requirements were in the EPA Criteria document.

Bob got a call from Glenda the day before letting him know that she just finished re-writing Method 900. EPA had also indicated that they planned to use the Method Update Rule (MUR) to eliminate methods that delivered questionable performance, did not address QC, etc. They need to have good new methods in place before they start taking out old methods. This is a great opportunity. The hurdle is that EPA does not fund ATPs. ATP "requirements" have also scared people off in the past, although EPA has stressed the need to have data to make decisions on, applicants for ATP process should feel free to look at the ATP as guidance and should be concerned about asking for reasonable variance from the process described in the ATP guidance. Bob mentioned that ASTM D19 and Standard Methods committees are looking at getting new methods in place.

This was further informal discussion, but it is important that people are aware of these developments.

4. Laboratory and AB Standard Implementation Tools

Bob asked people to brainstorm a list of possible tools the committee should consider preparing to help laboratories and ABs implement the new Standard:

- Audit Checklist
- Practical working examples of new concepts
- Training for Assessors – ½ day or 1 day class
- Comparison to DW Requirements to help them sort things out between our Standard and DW. Bob thought it would be great to get EPA staff involved in this.

The committee won't get started on any of this until the VDS has gone through the vote and the committee has addressed the comments.

5. New Business

Bob Wyeth noted that some of Carl's comments as a member of SRC are actually standard comments and not what the SRC normally reviews. He pointed out that the committee can decide to take some of the comments and table them to the next update of the Standard (the committee only tabled one comment). Bob Shannon reviewed the process to finalize the Standard and hopes to have VDS ready for voting in the next 3-4 weeks.

Bob Wyeth will work with Bob Shannon (when the Standard is approved) to prepare a summary of the changes between the 2009 and 2015 Standards. This will help LASEC and the NELAP AC review the new Standard. Bob commented that it is a major rewrite and many things have been changed and added. It might be difficult to put such a paper together.

Richard asked if it would be simpler to explain the issues with the 2009 Standard and then present what was changed in the 2015 to correct the issues. Richard also thought the ABs will likely share the Standard with their state lab people to get recommendations.

6. Action Items

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

7. Next Meeting and Close

   The next meeting should be the regular meeting on the 4th Wednesday of the month, March 25, 2015 at 1 pm Eastern.

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

   The meeting was adjourned 4:25 pm EST.

Attachment A
Participants
Radiochemistry Expert Committee

Members	Affiliation		Contact Information	
			Phone	Email
Bob Shannon (Chair) **Present – am,pm**	QRS, LLC Grand Marais, MN	Other	218-387-1100	BobShannon@boreal.org
Tom Semkow (Vice Chair) **Present – am,pm**	Wadsworth Center, NY State DOH Albany, NY	AB	518-474-6071	tms15@health.state.ny.us
Sreenivas (Vas) Komanduri **Phone Present – am,pm**	State of NJ Department of Environmental Protection Trenton, NJ	AB	609-984-0855	Sreenivas.Komanduri@dep.state.nj.us
Marty Johnson **Absent**	US Army Aviation and Missile Command Nuclear Counting Redstone Arsenal, AL	Lab	865-712-0275	Mjohnson@tSC-tn.com
Dave Fauth **Phone Present – am,pm**	Consultant Aiken, SC	Other	803-649-5268	dj1fauth@bellsouth.net
Carolyn Wong **Present – am, pm**	Lawrence Livermore National Laboratory Livermore, CA	Lab	925-422-0398	wong65@llnl.gov
Keith McCroan **Phone Present – 8-10am**	US EPA ORIA NAREL, Montgomery AL	Lab	334-270-3418	mccroan.keith@epa.gov
Nile Ludtke **Present – am,pm**	Dade-Moeller and Associates Oak Ridge, TN	Other	865-481-6050	nile.luedtke@moellerinc.com
Larry Penfold **Present – am,pm**	Test America Laboratories, Inc; Arvada, CO	Lab	303-736-0119	larry.penfold@testamericainc.com
Richard Sheibley **Present – am,pm**	Sheibley Consulting, LLC	Other (Former AB)	651-485-1875	RHSHEIB111@yahoo.com
Ilona Taunton (Program Administrator) **Present**	The NELAC Institute	n/a	828-712-9242	Ilona.taunton@nelac-institute.org

Attachment B

Action Items – REC

	Action Item	Who	Target Completion	Completed
58	Review and update Standard and Summary.	Bob	2/10/15	

Attachment C – Back Burner / Reminders

	Item	Meeting Reference	Comments
1	Update charter in October 2015	n/a	Complete – 1/21/2015
2	Issue of noting modifications to methods.	1/16/13	
3	Look at batching when QC is looked at.	1/16/13	Complete
4	Look at need to reference year for any standard references– which version is being referenced. Is this necessary?	5/22/13	
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	