Radiochemistry Expert Committee (REC)
Meeting Summary

April 9, 2014

1. Roll Call and Minutes:

Bob Shannon, Chair, called the meeting to order at 1:05pm EST on April 9, 2014. Attendance is recorded in Attachment A – there were 9 members present. Associate members: Brian Miller, Joe Pardue, and Terry Romanko.

The March 26, 2014 minutes were reviewed. A motion was made by Marty to accept the minutes. The motion was seconded by Larry. Vote: 9 – For, 0 – Against, 0 – Abstain. The motion was unanimously approved.

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. Washington, DC Meeting

Bob is looking at using Friday as an additional meeting day in DC. The committee is already meeting all day on Thursday. This will be confirmed within the next couple of months depending on progress on the standard.

3. Standard

Status 1.7.3 (Larry, Dave, Terry)

1.7.3.3 a. i) – 1 change made. No comments.

1.7.3.4 a. b. c. d. – This is all new text.

a. Should be "the" instead of "that".

c. MDC should be removed. The term being used in other parts of the standard is Minimum Detectable Activity.

Bob asked about whether resolution should be considered. Marty agreed something should be included.

It is possible to not have a tracer. It is a sample specific measure.

Bob thinks what is written is reasonable and the intent is clear. Larry asked that people look at this section and send any concerns by email.

1.7.3.5 a.b.c.d. – This text is also new.

Tom expressed a concern that it should be clear that client reporting requirements take precedence. Larry would rather see this higher up in the standard so that it is applicable to more of the standard. Carolyn thought something could be added to a). Larry will draft some language to add to 1.1 to address client specific reporting requirements.

The concern was raised that following client reporting requirements is not the same as following client requests. If they want you to drop a result – there could be an ethical issue.

Reference date and time for results. Add as e): Laboratories shall report the activity reference date in association with all radiochemical measurement results.

Tom commented on c). Change to: The number of significant figures in the result shall be commensurate with the reported uncertainty.

Total uncertainty should be getting reported.

Standard Comment:
See Section 1.5.1 f) in base document:

Larry asked to change the word "as" available to "whenever" available. Larry thought this language change would alleviate the concern that the text was a "get out of jail free" card.

Status 1.7.2.3 (Nile, Vas)

This was sent out by email. People are asked to carefully review it and comments to Bob by email before the next meeting.

Section 1.7.2 - Language about random processing of samples/QC Samples (Bob)

Bob offered the following language for consideration:

1.7.2 …The laboratory shall process all batch quality control samples together with, and under the same conditions as the associated samples, and shall use the same processes and procedures for preparation, analysis, data reduction and reporting of results.

Option 1

Samples shall be processed such that batch quality control results are representative of all results. Detectors, equipment, or glassware shall not be dedicated for, or excluded from processing batch quality controls.The order in which samples are processed shall minimize systematic or preferential use of detectors, equipment or glassware for analyzing QC samples.

~~Batch quality control samples need not be counted on every detector, rather, over several batches, they should be distributed amongst all detectors used for the analyses.~~

Option 2

Processing of batch quality control samples shall include all elements of the analytical system to ensure that batch quality control results are representative of sample results. Detectors, equipment, or glassware shall not be preferentially dedicated for, or excluded from, processing batch quality controls.The order in which samples are processed shall be managed to minimize systematic or preferential use of detectors, equipment or glassware.

Tom asked if he is talking about all samples or just QC samples. He responded that he is talking about all samples when he states "all samples".

The goal is to make sure labs handle QC samples randomly. The lab should be able to prepare their batch order in a manner that works for them and is compliant. A lab probably does not want to be counting the LCS and blank in the same position each time. It needs to rotate. The blank should not be run on the "cleanest" detector every time.

Bob didn't want to use the word random because people have different ways to define that. Don't always want to put the blank in the first position. This could be causing a bias. Don't want to get caught in position where the labs have to prove that it is random. Glassware cannot be specifically dedicated to QC samples. Blanks should not always be run in the same glassware.

It was commented that glassware is sometimes dedicated to low level samples vs. samples that have had higher levels but this is not preferential to QC samples.

Need to also make sure the same detector is not always be used for the LCS. Carolyn reminded everyone that sometimes there are given detectors that are only used for specific analyses.

The committee thought the language still needs work.

Vas suggested language such as: Randomization of laboratory resources such as equipment and glassware shall be done in a manner that will minimize bias in the measurement system. This language will be worked on by email and new language will be presented at the next meeting (Carolyn, Vas, Bob and Marty).

4. Discussion on Batches Following Louisville

Tom provided talking points to help with this discussion (Attachment E). He and Carolyn reviewed this information with the committee.

Possible definition of Batch:

3.1 Additional Terms and Definitions

Batch: Environmental samples that are prepared and/or analyzed together with the same process and personnel, using the same lot(s) of reagents. A **preparation batch** is composed of one (1) to twenty (20) environmental samples of the same quality systems matrix, meeting the above mentioned criteria and with a maximum time between the start of processing of the first and last sample in the batch to be twenty-four (24) hours. An **analytical batch** is composed of prepared environmental samples (extracts, digestates or concentrates) which are analyzed together as a group. An analytical batch can include prepared samples originating from various quality system matrices and can exceed twenty (20) samples.

This definition is important because Batch is consistently referenced.

The standard can't address lab resource issues in the standard.

She thinks there is a purpose to having an analytical batch vs. a preparation batch.

Others are seeing this information the first time and would like time to review it and discuss it at the next meeting. The discussion will be lead by Bob at the next meeting.

Carolyn commented this issue is not just a one-dimensional issue. Decisions made will impact multiple areas.

5. Collected Comments on Module 6 from Louisville Review

Bob emailed the collected comments to the committee (the sections reviewed in this meeting are included in Attachment B). Items marked in yellow are the items the committee looked at:

Section 1.5.3: Need a consistent term. Need to use it early in the document so it can be continually referred to. Should it be quality management plan? We need to use the same terms as Module 2. This is an action item to make sure Module 2 and 6 are using consistent terms. (Bob added action item to base document.)

Section 1.5.3 a): Bob did not agree it is redundant. The sections are not relevant to each other. This will not be changed.

1.5.3 d): See above.

1.5.4 b): Bob did some work on this section and presented it on screen to the group (see text below). Keith commented that he is unsure what the difference is between a) and b) – if it's a standard deviation its not an expanded uncertainty. Keith will look more closely at this section and provide feedback.

1.5.4 b):

b) The report shall clearly define the uncertainty. At a minimum the report shall:
   i) indicate whether the uncertainty is the combined standard uncertainty (CSU") or counting uncertainty; and
   ii) for expanded uncertainties, indicate the coverage factor (k) or the level of confidence.

1.6.2.1 g): Change will be made. "c" reference removed.

1.6.2.2 b): This will be taken care of.

1.6.2.2 b): This will also be taken care of.

1.6.2.2 d): Marty and Carolyn will work on this section and provide new language.

6. New Business

None.

7. Action Items

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

8. Next Meeting and Close

The next meeting will be scheduled by email.

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

The meeting was adjourned 12:58 pm EST. Motion: Vas Second: Dave Unanimously approved.

Attachment A
Participants
Radiochemistry Expert Committee

Members	Affiliation		Contact Information	
			Phone	Email
Bob Shannon (Chair) **Present**	QRS, LLC Grand Marais, MN	Other	218-387-1100	BobShannon@boreal.org
Tom Semkow (Vice Chair) **Present**	Wadsworth Center, NY State DOH Albany, NY	AB	518-474-6071	tms15@health.state.ny.us
Sreenivas (Vas) Komanduri **Present**	State of NJ Department of Environmental Protection Trenton, NJ	AB	609-984-0855	Sreenivas.Komanduri@dep.state.nj.us
Marty Johnson **Present**	US Army Aviation and Missile Command Nuclear Counting Redstone Arsenal, AL	Lab	865-712-0275	Mjohnson@tSC-tn.com
Dave Fauth **Present**	Consultant Aiken, SC	Other	803-649-5268	dj1fauth@bellsouth.net
Carolyn Wong **Present**	Lawrence Livermore National Laboratory Livermore, CA	Lab	925-422-0398	wong65@llnl.gov
Keith McCroan **Present**	US EPA ORIA NAREL, Montgomery AL	Lab	334-270-3418	mccroan.keith@epa.gov
Todd Hardt **Absent**	Pro2Serve, Inc. Oak Ridge, TN	Other	865-241-6780	HardtTL@oro.doe.gov
Nile Ludtke **Absent**	Dade-Moeller and Associates Oak Ridge, TN	Other	865-481-6050	nile.luedtke@moellerinc.com
Larry Penfold **Present**	Test America Laboratories, Inc; Arvada, CO	Lab	303-736-0119	larry.penfold@testamericainc.com
Richard Sheibley **Present**	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

Combined Comments Section 1.0-1.6

(con't)

Section 1.5.3, Lines 187-189: We need to ensure statements such as these are consistent throughout the document. Do we want to refer to the Laboratory Quality Program as we do in section 1.7.2?

Section 1.5.3.a, line 193. Volume I, Module 2. Section 4.4 does not seem to be related. **[RTS – corrected to Volume 1, Module 2, Section 4.4] Also need to consider if this needs to be added at other references to "intended use"]**

Section 1.5.3 a) Sentence beginning with "Precision and bias data…" is redundant with 1.5.1.a)

Section 1.5.3.b) insert "validation" ➔ "…process the validation samples…" **[RTS – done]**

Section 1.5.3 d): This section may be more prescriptive than is necessary. We should also refer to the Laboratory's Quality Program as we do in section 1.7.2.

Section 1.5.3.d, lines 209, 210. Include references. [**RTS – editorial]**

Section 1.5.3.d) fix footnotes [**RTS – editorial]**

[RTS – I reworked this entire section – see in base document]
Section 1.5.4 b): The requirement "The report shall clearly explain the uncertainty" is vague. Consider deleting.

Section 1.5.4 b)

- use abbreviation for CSU
- move c) and d) to be subparagraphs of a)

Section 1.5.4.c. Include appropriate document references. [**RTS – editorial]**

Section 1.5.4.d. References are there. Would it be better to list all references at the end? [**RTS – editorial]**

Section 1.6.1, Lines 264-265: Delete "as per the quality control requirements in Section 1.7.3 (such as laboratory control samples". **[RTS – done]**

Section 1.6.2.1.g, line 297. Section 1.6.2.2 instead of 1.6.2.2.c?

Section 1.6.2.2 b): This statement should be copied from 1.7.2.2 f) c.

Section 1.6.2.2.b, remove it, since it is already treated in 1.7.2.2. **[RTS – DOC is not LCS]**

Section 1.6.2.2 b) write this requirement so that the language parallels that for LCSs

Section 1.6.2.2 c) delete from "either" to the end of the sentence **[RTS – done]**

Section 1.6.2.2 d) this is the old language – needs updating. Use QC parameters, reference the LCS section, and assess uncertainty which should be consistent with that observed during method validation

Section 1.6.2.2 e) last sentence – replace "actual" with "field" **[RTS – done]**

Section 1.6.2.2 f) for gamma ray spectrometry need to make reference to LCS section or keep the analytes here parallel to those required for the LCS.

Section 1.6.2.2 – need to add that performance of DOC referenced in SOP

Attachment C
Action Items – REC

	Action Item	Who	Target Completion	Actual Completion
10	Prepare definition for "activity" based on today's conversation.	Bob	5/22/13	
23	Propose final language to define Test Source.	Bob, Tom, Vas	10/15/13	
24	Capture background averaging of counts discussion and attempt to add to standard. Send draft language before next meeting.	Keith	10/15/13	
31	Update language for e) 1) vi).	Keith	1/13/13	
33	Provide updates for sections reviewed in Louisville.	Section Authors	2/25/14	Complete
34	Distribute Drinking Water Certification Manual to committee.	Bob	1/31/14	
35	Review standard through Section 1.7 and get comments to Tom.	All	2/12/14	Complete
36	Prepare summary of comments on standard through Section 1.7.	Tom	2/25/14	Still waiting for input from committee members. Bob set 3/7/14 deadline.
37	Send January 28th meeting minutes out for an email vote.	Bob	2/27/14	
38	Send SOP 4-101 to committee members.	Ilona	3/25/14	Complete
39	Send updates from 2/26/14 meeting to Bob for incorporation into the standard base document.	Tom	3/14/14	Complete
40	Send updates from 2/26/14 meeting to Bob for incorporation into the standard base document.	Carolyn	3/14/14	Complete
41	Section 1.7.2.3: comment by email before the next meeting	All	4/22/14	

	Action Item	Who	Target Completion	Actual Completion
42	Update language in 1.7.2.	Carolyn, Vas, Bob and Marty	4/22/14	
43	Work on language in 1.5.4.	Keith/Tom/Bob	4/22/14	
44	Work on language in 1.6.2.2 d)	Marty, Carolyn	4/22/14	
45	1.7.5.3 - Draft language to add to 1.1 to address client specific reporting requirements.	Larry	4/22/14	

Attachment D – Back Burner / Reminders

	Item	Meeting Reference	Comments
1	Update charter in October 2014	n/a	
2	Issue of noting modifications to methods.	1/16/13	
3	Look at batching when QC is looked at.	1/16/13	
4	Look at need to reference year for any standard references– which version is being referenced. Is this necessary?	5/22/13	

Attachment E – Batch Talking Points

1. The key problem with the preparation batch is that it has to start in 24 hrs. It is documented to cause delays or requires too many QCs per sample in some cases.

2. This is not an attempt to change NELAC preparation or analytical batch definitions.

3. This is not an attempt to change QCs or bypass performance checks. With the proposed approach, we can maintain 20 samples per batch and maintain QC samples and performance checks as before.

4. Batch needs to be constrained by two out of three:
   i) number of samples
   ii) time
   iii) frequency

Examples of QC loopholes when batch is constrained by either number of samples or time only.

The best option for us is to constrain by number of samples and total time.

4. In Louisville, Paul gave us permission to explore analytical batch concept in case there is no chemical processing in order to address special problems mentioned in 1.

With this in mind, below is a proposal for an analytical batch (still maintaining the NELAC definition).

1) The laboratory shall process samples in the same quality system according to a preparation batch (Volume I, Module 2, Section 3.1).

2) For samples requiring only mounting and measurements, and not requiring any physical or chemical sample processing (e.g., non-destructive counting or spectrometry), the preparation batch can be substituted with an analytical batch (Volume I, Module 2, Section 3.1) having the following requirements:

i) Up to twenty (20) [?] environmental samples from different quality systems (e.g., different sample matrix, different counting geometry, or different detectors) shall be combined into a single analytical batch.

ii) The total time of the analytical batch processing (analytical batch period) is limited to three (3) [?] times the total time required to measure all samples in the batch.

iii) The samples can start at any time during the analytical batch period.

iv) At the minimum, one (1) LCS, one (1) MB, and one (1) MD (if available) shall be inserted randomly between the samples in analytical batch and measured once each on a randomly selected detector.

References to detector performances in Section 1.7.1 avoid potential loopholes in detector performance checks due to batching:

1.7.1.d.3. An individual test source, or a batch of sources not exceeding in size the preparation batch, analyzed using automated instruments such as liquid scintillation or gas proportional counters, may be uninterruptedly measured for a longer time than the routine interval between performance checks as long as the checks are done at the beginning and end of the test source or batch measurement and both checks meet all applicable acceptance criteria..

1.7.1.f.4. An individual test source, or a batch of sources not exceeding in size the preparation batch, analyzed using automated instruments such as liquid scintillation or gas proportional counters, may be uninterruptedly measured for a longer time than the routine interval between short-term background checks as long as the checks are done at the beginning and end of the test source or batch measurement and both checks meet all applicable acceptance criteria.