Whole Effluent Toxicity Testing Expert Committee Meeting Summary
Forum on Laboratory Accreditation, Washington, DC
August 9, 2017 1:00 pm Eastern

1. Welcome and Announcements

Pete welcomed everyone to the meeting and provided some general information about the committee and WET testing. The PowerPoint is distributed to committee members with these minutes, and will be posted to the conference presentations site for future reference. Attendance is recorded in Attachment 1, below.

Pete mentioned that the committee representatives and other TNI representatives had earlier met with representatives of the Environmental Laboratory Advisory Board and representatives from EPA's Office of Water (both Science & Technology and Wastewater Management) and Office of Enforcement and Compliance Assistance (OECA, where the DMR-QA program is located) to discuss ELAB's correspondence with EPA about our committee's white paper from the year 2015. The summary of that meeting was distributed to all attendees and all WET committee members. We hope that working with these groups may help further the committee's goal of improving the quality and utility of proficiency testing results.

The rest of the session was devoted to interactive discussion of revising particular parts of the WET module of the TNI standard.

2. Revising V1M7 – Randomization

Participants discussed the importance of randomization of testing containers, and the various ways in which randomization occurs. While WET methods require "randomization," there seems to be no basic parameters for doing so. Points made during the discussion follow:

- Some randomize on some days
- Why randomize before putting trays into the incubator?
- Should a different "random" template be used on different days of the test
- Limit bias by removing positional bias
- Often controls will be on one side with high concentrations on the other, but randomized within columns on the tray
- Temperature affects reproduction, so location within temperature control chamber matters
- Distribution of light and temperature within chamber is not random
- In one instance, a tech would un-randomize, feed the organisms, then re-randomize. This led to systematic variation in food quantities as feeding progressed – source of bias was difficult to identify
- Methods recommend randomizing the location of trays within the chamber after daily checks

3. Revising V1M7 – Testing of Food Sources for Organisms

While conceptually important, it is difficult to know for what testing should look, how often it should be done, and especially how to test live food sources. Points made are listed below:

- Some labs do not test at all
- If artemia are the food source, how should those be tested? Using reference toxicants adequate for live and freshly hatched organisms but what about frozen ones?
- For non-WET testing, labs are not allowed to "trust" vendor measurements
- WET food suppliers are not accredited because there is no mechanism to do so

- Cannot require labs growing their own food organisms to do more testing than vendors are required to do (or more than is required to test vendor-supplied foods)
- How often should testing be performer – every can, every batch, every time the frozen source is thawed to remove a portion?
- Need some mechanism for testing the food

4. Revising V1M7 – Sediments and Soils

A few NELAP ABs (LA and FL) accredit sediment testing. Should the WET module be expanded to include sediments and soils more explicitly than just naming them (as is done in the 2009 version?) Comments made during this discussion are noted below:

- How should samples be prepared for such testing?
- There is an EPA method for testing sediments and soils
- One assessor thinks that sediment testing is mentioned elsewhere in the standard – this is a follow-up item, to identify the location

5. Revising V1M7 – Demonstration of Competency

In the 2012 revision to the WET module, the demonstration of competency (DOC) requirements were written for individuals, while WET testing is normally performed by teams, since some tests take over a week or longer. This and the 2012 chemistry testing requirements (see #6, below) were the reason that the WET Expert Committee recommended retaining the 2009 version of the WET module in the 2016 standard. This committee was not formed in time to complete a revision of the module for incorporation into the 2016 standard.

Upgrading and finding a suitable way to explain DOCs for WET testing will be perhaps the major portion of the V1M7 revision. This concept was discussed at conference in Houston and again during the session in Washington, DC. Several assessors joined the discussion as the DOC part began, after break. Points made during the Washington discussion are captured here:

- WET testing is normally performed by teams instead of by single individuals, and one test may cover several days or occasionally, several weeks, so that it is impractical for one individual to perform all tasks of one test to demonstrate competency
- Getting staff to work multiple weekends in a row is difficult if not impossible
- Other TNI standard modules seem to blur the distinction(s) between training and DOC
- Many tasks are identical across different tests – dilutions, weighing animals, water quality measurements, essentially identical protocols using different species, for some examples
- Typically an assessor wants to see a DOC for each method
- The person signing the final report “should” have DOC for every task in the test (this is typically a principal of the lab) with subordinate staff being trained on specific tasks of the test – opinion of one assessor
- For a new lab, the principal may document DOC in his/her personnel file by reference to past positions, since that person will be responsible for training new hires. Ideally, there will be a second high-level individual so that the two can sign off on each other’s competencies (from discussion about one particular lab’s situation)
- Suggest a checklist of functions: identify individual functions for each analyst then verify training for the individual analysts
- Can use an alternate procedure (for DOC) if it is documented
- Work cell concept applies – analyst is proficient for individual functions/parts of a test, then they learn additional functions over time
- A new analyst would never walk in and attempt to perform a complete test

- Lab should describe the structure and document training in its personnel files and in its quality system documentation
- An assessor will look for individuals performing particular tasks in the test report and then check training records for the individual, plus getting DOC for the individual from the person who signed the report
- For example, with SRT, how does one determine proficiency in statistics to maintain IC25/LC50 control charts? Is the question about whether the statistics support the data or whether the individual is performing correct statistical calculations?
- Or what if a statistical problem was data entry error – how identify those? (falls to tech director)
- Some secondary reviewer MUST have DOC for the test, even if the signer does not have a current DOC (it can be historical experience, possibly.)
- If person signing off on test report does the actual work, then those tasks must have documented training and DOC for signer
- Distinguish between DOC for the laboratory and for an individual
- Draw distinction between team concept and work cell concept – in a team, different people rotate among the tasks
- For small lab, the TD/QA person may have multiple roles. If so, deputy TD should sign TD's DOC
- Document procedure in SOP so that no one is signing off on their own work
- Consider reaching out to other accredited WET labs (identified thru LAMS) to get additional perspectives on DOCs
- If it's a lab DOC, then management needs to demonstrate that the staff are competent to perform all tasks across all staff (lab DOC and analyst training combined)

6. Revising V1M7 – QA/QC for Water Chemistry Testing

In the 2012 version of the WET module, there was a requirement that all chemistry testing be in full compliance with the Chemistry module (V1M4) of the then-expected 2012 TNI standard. As the Chemistry module was substantially upgraded for the 2016 standard, that requirement was deemed to be excessively stringent, and was part of the reason for the WET Expert Committee recommending that the 2009 version of V1M7 be carried forward into the 2016 standard. See discussion in #5 above, also.

Chemistry measurements for WET testing are not compliance measurements but rather used to verify that, essentially, the living conditions of the test organisms are appropriate for the species and that the water quality characteristics meet the specifications of the test method itself (temperature, pH, salt water, hard water, etc.) The question becomes then, what is reasonable quality control for such chemistry support measurements?

Discussion points for this topic are captured below:

- The test waters are consistently a clean matrix, except for the "test material" that is introduced in varying dilutions to the containers
- Every sixth measure is a control
- Typically, the same batch of synthetic water is used for multiple days
- Following manufacturer's directions for mixing synthetic water is inadequate. Accessory measures are needed to verify that the resulting product is within the range specified in the test method
- While this need not be an accredited measurement, a disclaimer is needed in the test report to note that fact

- Water testing instruments need to be calibrated with a daily check over the range of use: calibrate to NIST-traceable standard, account for drift, must be appropriate for the test matrix used
- There may be no LCS or CCD for these instruments
- Important to put limits on the extent of interpretation that an assessor can do in assessing these water quality measurements; minimize assessor discretion
- Check the QC requirements in the Quality Systems module (V1M2)
- Desire "reasonably scientific" data – data of known and documented quality, that can be reconstructed
- No need for "high-end" equipment, only equipment suitable to provide data of the desired quality
- Re frequency of reference tests, there is (somewhere) an exception for sediments, perhaps in the 2009 standard?
- For SRTs, if for instance, there are 5 in one day, must vary the batch of organisms.
- Define "batch" in lab documentation
- Sediment DOCs – when test organisms (amphipods?) are purchased, how do vendors specify the quality of the organisms? They don't
- Must run SRTs for permit conditions. Most states will refer to CFR methods, and a lab would typically run one SRT for each method, but if individual permits specify differently, then the lab might have to run one SRT for every variation

At this point, the formal session closed. Participants remained and continued discussions in small groups about varied topics of their own choosing.

7. Next Meeting

The next meeting of the WET Expert Committee will be **Wednesday, September 20, 2017**, at 1 pm Eastern. An agenda and any documents will be sent prior to the meeting.

Attachment 1

Committee Membership

Member	Affiliation	Email	Category	Term Expiration	Present
Rami Naddy (Chair)	TRE Env. Strat. LLC	naddyrb.tre@gmail.com	Lab	Feb. 2018	No
Ginger Briggs	Bio-Analytical Laboratories	bioanalytical@wildblue.net	Lab	Feb. 2018	No
Pete De Lisle (Vice Chair)	Coastal Bioanalysts Inc.	pfd@coastalbio.com	Lab	Feb. 2018	Yes
Steven Rewa	Environmental Resources Management	steven.rewa@erm.com	Lab	Feb. 2018	Yes
Chris Burbage	Hampton Roads Sanitation District	cburbage@hrsd.com	Lab	Feb. 2018	No
Chris Pasch	Alan Plummer Associates, Inc.	cpasch@apaienv.com	Other	Feb. 2018	No
Teresa Norberg-King	USEPA	norberg-king.teresa@epa.gov	Other (Affiliate)	Feb. 2018	No
Elizabeth West	LA DEQ LELAP	elizabeth.west@la.gov	AB	Feb. 2018	No
Amy Hackman	Penn. Dept. Environ. Protection	ahackman@pa.gov	AB	Feb. 2018	No
Michele Potter	New Jersey Dept of Environ Protect.	Michele.Potter@dep.nj.gov	AB	Feb. 2018	No
Michael Pfeil	Texas Comm. Environ. Quality	Michael.pfeil@tceq.texas.gov	AB	Feb. 2018	No
Kari Fleming	WI DNR	kari.fleming@wisconsin.gov	AB	Dec. 2017	No
Associate Members					
Grant Aucoin	LDEQ	grant.aucoin@la.gov	AB	--	No
Debmalya Bhattacharyya	NE Ohio Regional Sewer District	bhattacharyyad@neorsd.org	Lab (Assoc.)		Yes
Michael Chanov	EA Eng,, Sci. &Tech.	mchanov@eaest.com	Lab (Assoc.)	--	Yes

Kevin Dischler	Element Materials Technology	Kevin.dischler@element.com	Lab (Assoc.)	---	No
Monica Eues	CK Associates	Monica.eues@c-ka.com	Lab (Assoc.)		No
Joseph Faircloth	FL DEP	joseph.faircloth@dep.state.fl.us	Lab (Assoc.)		No
Christina Henderson	Bio-Aquatic Testing, Inc.	chenderson@bio-aquatic.com	Lab (Assoc.)		No
Vel Rey Lozano	USEPA Region 8	Lozano.VelRey@epa.gov	Other (EPA)	--	No
Linda Nemeth	Northwestern Aquatic Sciences	lnemeth@tds.net	Lab (Assoc.)		No
Mark O'Neil	Environmental Enterprises USA, Inc.	moneil@eeusa.com	Lab (Assoc.)	---	No
John Overbey	American Interplex Corp.	joverbey@americaninterplex.com	Lab (Assoc.)		No
Joe Pardue	Pro2Serve	Parduegjjr@oro.doe.gov	Other	---	No
Katie Payne	Nautilus Environmental	katie@ nautilusenvironmental.com	Lab (Assoc.)		No
Shain Schmitt	ESC Lab Sciences	sschmitt@esclabsciences.com	Lab (Assoc.)		No
Greg Savitske	US EPA OECA	Savitske.gregory@epa.gov	Other (EPA)		Yes
Thekkekalathil "Chandra" Chandrasekhar	FL DEP	Thekkekalathil.Chandrasekhar@ dep.state.fl.us	Other (Assoc.)		No
Beth Thompson	Shealy Consulting	bthompson@ shealyconsulting.net	Lab (Assoc.)		No
Jordan Thorngren	Eurofins (Horsham, PA)	jordanthorngren@eurofinsUS.com	Lab (Assoc.)		Yes
Karla Thurman	Los Angeles County Sanitation Districts	kthurman@lacsd.org	Lab (Assoc.)		No
Tom Widera	ERA	twidera@eraqc.com	Other		No
Program Administrator					
Lynn Bradley	TNI	Lynn.Bradley@nelac-institute.org			Yes

Attachment 2

Action Items

	Action/Activity	Responsible Person(s)	Anticipated Completion	Comments
10	~~Review 2009 and 2012 versions of V1M7~~	~~All members~~	~~Summer 2018~~	~~Be prepared to discuss DOC revisions~~
12	Finalize responses to second set of questions	Rami	Prior to July meeting	Final comments on revised draft due June 23
14	~~Consider ways to improve usefulness of PT testing for WET~~	~~All members send comments to Mark~~	~~July meeting?~~	~~Send to PTPEC before conference~~
15	~~Draft language about DOC requirements~~	~~Steve with selected reviewers~~	~~??~~	~~May meeting begins the review~~
16	Submit difficult questions from webinar to committee for response	Ginger, Elizabeth, et al	?	To be addressed after conference
17				