SUMMARY OF THE
TNI CHEMISTRY EXPERT COMMITTEE MEETING

MARCH 20, 2015

The Committee held a conference call on Friday, March 20, 2015, at 2:00 pm EST. Chair Richard Burrows led the meeting.

1 – Roll call

Richard Burrows, Test America (Lab)	Present
Francoise Chauvin, NYC DEP (Lab)	Present
Brooke Connor (Other)	Absent
Gale Warren, NYSDOH (Accreditation Body)	Present
Colin Wright, Florida DEP (Lab)	Present
JD Gentry, ESC (Lab)	Absent
Nancy Grams, Advanced Earth Technologists, Inc. (Other)	Present
Anand Mudambi, USEPA (Other)	Absent
John Phillips, Ford Motor Co. (Other)	Absent
Scott Siders, IL DEP (Accreditation Body)	Absent
Gary Ward, OR DPH (Accreditation Body)	Absent
Ken Jackson, Program Administrator	Present

Associate Committee Members present: Reed Jeffery; Dixie Marlin;Valerie Slaven.

2 – Previous Minutes

In the absence of a quorum, the minutes from the previous call were not considered.

3 – Comments on the MDL Procedure

Richard, John and Nancy had prepared comments for the committee to consider for sending to EPA during its comment period on the revised MDL procedure. He said the committee should propose EPA adopt the proposed changes in full.

Richard's proposed modifications were as follows.

1. A minor clarification to the requirements when there are multiple instruments would be helpful. This could be added as a section (2)(b)(iii). "The same prepared sample extract may be analyzed on multiple instruments so long as the minimum requirement of 7 preparations in at least three separate batches is maintained."

This came from Richard's QA managers, asking if they have 5 instruments and they do 7 preps, could they run some of the preps on more than one instrument, or do they have to do more preps. Richard said that is acceptable as long as the laboratory has the minimum number of preps. Since this was in the initial section, the committee acted on Nancy's suggestion to have something similar in the on-going data collection section. Gale asked if it would bias the data having multiple numbers from one extraction. Francoise agreed and wondered if this allowance should be limited to those methods where the workload is high. Valerie said in their experience this would not cause much bias. Gale added that MDLs are instrument specific, and in her experience laboratories use the highest MDL they get. Richard's proposed language was added to the draft amended procedure.

2. The procedure does not discuss what actions should be performed by the laboratory if a new instrument is to be added to an existing group of instruments that have the same MDL. This is a common occurrence and guidance to the laboratories would be valuable. We propose adding the following language as a new section 3 (e)

   "If a new instrument is added to a group of instruments whose data is being pooled to create a single MDL, analyze a minimum of 2 spike replicates and 2 blank replicates on the new instrument. If both blank results are below the existing MDL then the existing MDL_b is validated. Combine the new spike sample results to the existing spike sample results and recalculate the MDL_s as in section 4. If the recalculated MDL_s is within a factor of 3 of the existing MDL_s then the existing MDL_s is validated. If either of these two conditions is not met, calculate a new MDL following the instructions in section 4."

Nancy said a common procedure is to conduct an MDL study for each new instrument. Richard replied that some states require that, and others require much less, so this language would provide a compromise. There was no further discussion, and the proposed language was added to the draft amended procedure.

3. For some tests the requirement to analyze 2 spike samples per quarter on each instrument (Section 3(a)) may add up to a large number of analyses if there are a large number of instruments. For example, method 608 will require separate analytical runs for 5 aroclors, the single component pesticides, toxaphene and technical chlordane. For the single component pesticides it may be necessary to analyze more than one run at different concentrations in order to obtain data at the correct spiking concentration for each pesticide. So, that adds up to 9 different spike samples, times 5 different instruments, times 2 replicates on each instrument, or 90 analytical runs per quarter. We suggest the requirement be reduced to a minimum of one spike if there is more than one instrument, since this would still result in a minimum of 8 replicates per year, and more than that if there were more than two instruments.

The committee had already discussed this at some length, so there was general agreement. Language was discussed and added to the draft amended procedure.

John Phillip's comment was discussed next.

Currently the proposed MDL revision specifies that when all method blanks give a numerical result the MDL_b will be calculated using the parametric statistical formula using the mean plus a

student's t value, with the assumption of a standard normal distribution of the blank results. This is found in section (2) (d) (iii) (C). Since the distribution of blank results if often non-normal we recommend the use of the same non-parametric statistical approach as used when some (but not all) of the method blanks give numerical results in section (2) (d) (iii) (B).

Therefore, John proposed the following revision. Move the following language from section (2) (d) (iii) (B) and make it a new section (2) (d) (iii) (D) as follows:

"(D) If more than 100 method blanks are available, set MDL_b to the level that is no less than the 99^{th} percentile of the blank results. For "n" method blanks where n>=100, sort the method blanks in rank order. The (n x 0.99) ranked method blank result (round to the nearest whole number) is the MDL_b. For example, to find MDL_b from a set of 164 method blanks where the highest ranked method blank results are… 1.5, 1.7, 1.9, 5.0, and 10, then 164x0.99 = 162.36 which rounds to the 162^{nd} method blank result. Therefore, MDL_b is 1.9 for n = 164 (10 is the 164^{th} result, 5.0 is the 163^{rd} result, and 1.9 is the 162^{nd} result). Alternatively, you may use spreadsheet algorithms to calculate the 99^{th} percentile to interpolate between the ranks more precisely."

Richard suggested, rather than write it all out, to just say in section C that the MDL_b is calculated using this formula, or if there are more than 100 method blanks the procedure in option B is used. Nancy thought it should be optional to use the 99th percentile. Richard agreed, saying several hundred method blanks are really needed before the non-parametric approach is theoretically better. After some discussion, it was agreed to add a note at the end of 2 d iii C that if there are more than 100 method blanks the laboratory may optionally calculate MDL_b using the procedure in 2.d.iii.B above.

Nancy had commented:

The proposed MDL procedure does not address methods for which it is not possible to perform a spiking study, but for which it is possible to test a method blank.

To address this issue it is recommended that the proposed language be modified as follows:

(2) Determine the Initial MDL

(a) Select a spiking level, typically 2–10 times the estimated MDL in section 1. Spiking levels in excess of 10 times the estimated detection limit may be required for analytes with very poor recovery (e.g., an analyte with 10% recovery, spiked at 100 micrograms/L, mean recovery, 10 micrograms/L; MDL may calculate at 3 micrograms /L. So, in this case the spiking level is 33×MDL, but spiking lower may result in no recovery at all).

"Note: For those methods where it is not possible to prepare as spiking solution or conduct a spiking study (e.g., ……..) use the MDL_b procedure to develop an MDL where (2)(d)(iii) produces a valid MDL_b."

(b) Process a minimum of 7 spiked blank samples and 7 method blank samples through all steps of the method, including any sample preservation. Both preparation and analysis of these samples must

include at least three batches on three separate calendar dates. Existing data may be used if compliant with the requirements for at least 3 batches and generated within the last 2 years.

Richard said it must be made clear how to distinguish between those tests where an MDL is not appropriate (e.g., pH), and where it is appropriate but only an MDL_b can be performed (e.g., TSS). Valerie thought it was as simple as saying if you can do a method blank you can do an MDL_b. Language was discussed and added to the draft amended procedure

Having considered all the comments, Richard said he would send out a draft document with the revisions along with the comments. He would then ask for an e-mail vote on each one individually. Any revision with at least 6 favorable votes would be submitted to EPA.

4 – Next Call

The committee would meet next on April 2.

5 – Adjournment

The meeting was adjourned at 3:05 pm EST.