Minutes, PT Frequency Subcommittee
DATE: June 20, 2008 at 1:00 p.m. EDT

Subcommittee members in attendance (5): D Tholen (chair), M Karapondo, G. Dechant, J Morgan, C Wibby
Guest, ex officio: K McCracken: Chairman PT Committee
Associate member: S Kassner (for Jeff Lowry), J Flowers, K Jackson
Subcommittee members absent (3): R Kirimi, J Lowry, R Haynes

Dan Tholen opened the meeting and thanked the members for their time.

Five documents had been distributed prior to the meeting:

- Draft minutes from May 23 and June 6 teleconferences.
- Update to the study design from J Lowry (Annex 2).
- Study steps and progress from J Lowry (Annex 3)
- A preliminary analysis report showing the fields for summary statistics and presentation format.
- A proposed agenda (distributed by e-mail, Annex 1).

1. There were no changes to the proposed agenda.
2. Minutes from May 23 and June 6 meetings were approved without change. Dan will forward the final minutes to Kirstin for posting on the TNI website.
3. Comments were received on the study design and progress report from J Lowry; the comments are noted in the recommendations listed in the next item (4).
4. There was extensive discussion of the proposed analysis report format, and this led to recommendations for changes:
    a. We should investigate comparisons based only on the same PT studies rather than all studies conducted by laboratories in each group (if study numbers allow valid comparisons);
    b. Studies should be presented year-by-year, using the primary study required for all laboratories so that results will not include rework, and with notes on the assigned values and acceptance ranges for each study;
    c. The summary results should be presented with notes on the statistical significance of differences between groups;
    d. The merging of minerals sulfate and chloride should not be done;
    e. We should get clarification from New Jersey on the criteria for selection of laboratories that are used for the analysis in each group. [subsequent information from Rachel Ellis is "*The NELAP list of labs I gave you for the PT Frequency Committee is the list of all the New Jersey Primary NELAP laboratories. The second list is a list of all of the New Jersey state certified laboratories that are certified for more then just analyze immediately parameters[clarification… labs that are "certified for just analyze immediately parameters" are labs that only analyze pH and total residual chlorine (TRC) (i.e., field laboratories)]. That is, we are looking at all laboratories certified by New Jersey that have not opted out by of*

the NJ program, or are not field laboratories, there was no process to choose a subset of laboratories].

5. Judy Morgan has redistributed her Survey of State ABs, to those states that did not respond the first time, and she is in process of contacting some of the states that did respond, to clarify some responses. This survey might not be complete in time for the TNI meeting, but there will be progress on clarifying the current information, which is very useful.

6. There were no suggestions for changes to the proposed questions for the PT providers (Annex 4). Dan will call the 8 providers and see what information is available. It is possible that the information from these interviews will lead to questions to include in a planned survey of laboratories, conducted by ACIL. If necessary the PT providers can easily be resurveyed with different questions.

7. There was no Other Business

8. Next call July 11, 1:00pm EDT

9. Call adjourned at 2:25 pm EDT

Agenda, PT Frequency Subcommittee
June 20, 2008 1:00 EDT

1. Greetings, roll call

2. Approval of agenda

3. Approval of minutes for calls 2 and 3 (5/23/08 and 6/6/08)

4. Status of study of NJ data (Lowry/Tholen)

5. Review of survey of state ABs (Morgan):
    a. Revised questions from Dan (not distributed)
    b. Comments from Gary
    c. Next steps

6. Review of questions for PT providers

7. Next meeting, July 11, 1:00 EDT

8. Other business

9. Adjourn

ANNEX 2

Proposed Study Design for New Jersey PT data

Revision 6/18/08 - 6/20/08

I. Design for study of labs w/ requirement for 1 vs. requirement for 2 events per year for all analytes.

1. NJ labs only. Most recent 3 years of data.
2. List of labs with requirements for 1 event per year vs. requirements for 2 events per year for all NELAC analytes.
3. Look at only the primary study for each year separately (3 sets).
4. Look at the combination of the 3 primary studies (1 set)
5. Look at all PT samples in the study, as done initially (1 set).
6. List analytes according to number of labs in the smaller group (probably the group of laboratories where 2 events are required), by year, listing the number of labs that returned results for the analyte sometime each year.
7. Choose the analytes to study (to be agreed by subcommittee)
8. List percentage of unacceptable (Failure Rates) results by analyte, class, and overall for labs in each group.
9. Calculate ratio of unacceptable results for group with 1PT vs. 2PT.
10. List frequency of labs with repeated unacceptable results for an analyte (most recent 3 years).
11. Calculate average absolute z score (note, z>5 are transformed to z=5) by analyte, class, overall.
12. Calculate ratio of z score for group with 1PT vs. 2PT.
    a. Calculate average percent recovery (note, percent recovery < 10% are made 10%, percent recovery > two times upper acceptance limit are made two time upper acceptance limit.
    b. Examine outcome statistics in the two groups (PT mandated 1/year vs. 2/year). Calculate scores by analyte, by chemical class, and overall for each program.

        Percentage unacceptable
        Average absolute z score
        Average Percent Recovery
        Percentage repeated unacceptable

13. Perform a statistical test for significant differences in percentage unacceptable results between the 1PT vs 2PT per year group:
    a. 2-sample 2-tail z test for proportions at <.05 confidence for unacceptable scores for each analyte and class;
    b. 2-sample t test for average recovery for each analyte;
    c. 2-sample F test for recovery variance for each analyte;
    d. Sign test for relative z score for each class with 5 or more analytes *(note, the statistical standard error of the average absolute z score is complex and so statistical tests are complicated, and have low power for indicating significant differences. With the low numbers of scores in the*

averages for this study, few differences are likely to be significant at the .05 level, for specific analytes. The sign test is a nonparametric test equivalent to the 2-sample Wilcoxon test. It simply tests whether one group has consistently smaller or larger average z scores, and tests probability like a coin flip(for example, in a class of 8 analytes, if one group has smaller average z in 7 or more analytes, the difference is significant at p<.04).

ANNEX 3
TNI PT Frequency Subcommittee Update of NJDEP Study
June 18, 2008

Design Section 1 and 2 - List of laboratories directly from NJDEP – 5/22/08 *Complete.*
Chemistry and quantitative microbiology data pulled from PT system for the last 36 months – 6/11/08 *Complete*.
Data validations (missing data and format) – *In-progress*.
Qualitative WS Microbiology data pulled from system – *In-progress*
Laboratory identification information masked from database – In-progress. After completion raw data will be available to subcommittee.
Only data reported to NJDEP compiled – *In-progress*.
Design Section 4 – Most TNI FoPT accreditation table analytes have sufficient data to evaluate.
Design Section 5, 7 and 8 - Calculations added to database per study design. Comparison of 1PT to 2PT by analyte and class. Failure Rate, z score and percent recovery.– 6/16/08 *Complete.*
Design Section 6 - List frequency of labs with repeated unacceptable results – *In-progress.*
Design Section 9 - Selection of labs in 1PT group that participate in 2PT/year - *In-progress (A visual review is there are not many, but will program a database sweep).*
Design Section 10 - Example of Data Summary submitted to Dan Tholen (Subcommittee chair) – 6/12/08 Complete. Data Summary format to Subcommittee – 6/20/08.
Explanation of data and calculations: Not covered in Study Design.
z score mean and standard deviation
Analyte Acceptance Limits based on a, b, c and d factors – Estimated mean and estimated standard deviation imported from PT system.
Analyte Acceptance Limits based study mean and study standard deviation – Study mean and study standard deviation imported from PT system.
Analytes Acceptance Limits based on study mean plus c and d factor – Study Mean and estimated standard deviations imported from PT system.
Analytes not on TNI FoPT table where Acceptance Limits based on other methods – Mean and standard deviations calculated from imported acceptance limits from PT system.
Quantitative Microbiology z score calculations handle in Natural Log form. No percent recovery data displayed (Percent recovery in natural log vs. base ten are different and can be misleading).
Average Number of PT/year equals (Total Number of Data points/Total Number of Labs)/(Actual Number of years in dataset for analyte). This calculation is an indication that the laboratories are placed in the proper group (1PT vs. 2PT Groups). Interestingly, a general observation, the average Number of PT/year for the 2PT Group will exceed 2PT/year because laboratories report more than one method for some analytes/classes.

ANNEX 4
Proposed Study Design for Special Client PT Designs
Revision 6/20/08

I. Poll PT Providers

For programs that are mandated by clients other than states and are repeated more than once, please give the approximate numbers of programs that are in each of the cells for number of events per year and number of samples per event. For example: the PT programs of CAEAL (Canada) are 4 samples, two times a year.

Frequency	1 sample	2 samples	3+ samples	Total
≤1 per year				
2 per year				
≥3 per year				
Total				

a. Approximately how many laboratories are included in each of the client programs

b. Is the program an exclusive arrangement with your PT organization, or shared with others? If shared, please give the name of the client or specified program.

c. Are there states or clients with different monitoring procedures that might be of interest to the subcommittee?

II. Poll laboratories

Use results of the poll of PT providers to recommend questions to be asked of laboratories in the survey to be conducted by ACIL.