Changes to the CAEAL PT Program

There are several significant changes scheduled for the CAEAL PT program over the next few months. These have been due to a number of factors including feedback from members during the two PT workshops conducted in 2004 and new contracts with CAEAL's collaborator laboratories. The changes, and their implementation dates, are listed below.

New Prices:

C05 (microbiology): Effective immediately, C05 (microbiology) prices will be decreased to $315 from $445.

C21 (metals in air): Effective immediately, the price of C21 (metals in air) will be increased to $290 from $240.

Volume surcharges: Currently, laboratories requiring additional sets of PT samples because of the volume required for the method being used are charged 50% of the listed PT price. The intent of this charge was to cover the cost of the samples but not charge any additional administrative charge. Due to the model used to determine PT fees, this over-recovers cost for some test groups and under-recovers costs for others. In order to ensure that costs are being properly assigned, the fees will be changed such that laboratories will be charged the actual Collaborator laboratory fees. This change is effective immediately.

Modified Test Groups:

C04A (solids): Effective March 2006, C04A (solids) will be expanded to include total dissolved solids and volatile suspended solids. TDS and VSS will be in "pilot" status for the first two studies.

C06 (OC Pesticides/PCBs): Effective January 2006, test groups C06 and C23 will be combined in a new C06 test group. Laboratories registered for these test groups will be contacted to ensure that they continue to receive the number of sets needed to support their needs. Because these are both existing test groups, the January study will be considered "live" for all parameters.

C29 (Aldicarb): Effective January 2006, the sample container will be changed from plastic to glass.

C22, C23, C24, C25, C29: Effective January 2006, these test groups will be shipped with Teflon lined lids, replacing the foil lined lids that are currently used.

New Test Groups:

There are two new test groups being implemented in 2006. The members are asked to register for these parameters, as well as TDS and VSS (described above) if they desire to participate in PT.

C33 (phenolics in water): Effective March 2006, phenolics in water will be introduced to the CAEAL PT program. This test group is directed towards laboratories that perform the colorimetric test for total phenolics. The concentration range will be 0.005 to 0.5 mg/L.

C34 (oil and grease/hexane extractables in water): Effective January 2006, oil and grease in water will be introduced. This test group is aimed at laboratories performing gravimetric solvent extractables (hexane). The concentration range will be 10 – 500 mg/L.

New Evaluation Procedure: A significant change will be made to the PT evaluation procedure for the October 2005 study. Details of the changes will be uploaded to the CAEAL web site shortly (PT15 www.caeal.ca). In general, the changes are as follows,

Average z-score: CAEAL will be replacing the assigned point system (5, 4, 2, 0) with an average z-score. This will eliminate the discontinuous nature of the current system. The average z-score is determined by first calculating individual z scores, capping the maximum allowable z-score at 6.6 (or –6.6). The absolute values of the four z-scores for each test group/parameter combination is averaged, an average of ≤ 2 being required for a pass.

Non-detects: All accurately reported non-detect values are assigned a z-score of 2. This has the effect of assigning a neutral value to these results. This eliminates the preferential scoring currently awarded to laboratories that report non-detect values.

Flagging biases: Final reports will be modified to report z-score (rather than z-score/2) and will flag biases using the re-scaled z-score procedure. Biases will not be used in the determination of whether a score is acceptable or not acceptable.

Accounting for laboratory detection limit (optional): The current scheme calculates the z-scores as follows,

$$z = \frac{(x - \overline{X})}{s}$$

where x = reported value
$\overline{X}$ = inter-laboratory mean
s = inter-laboratory standard deviation

If a laboratory opts to report its detection limit when reporting PT results, the z-score will be estimated as

$$z = \frac{(x - \overline{X})}{\sqrt{s^2 + (RDL/3)^2}}$$

where RDL = the reporting detection limit documented in the analytical method.

At concentrations close to a laboratory's detection limit, this will result in a significant increase in the allowable deviation but at higher concentrations, the change will have minimal effect. The following table provides a real example of the impact of these changes for two concentrations, one that is > 10 times the RDL and one that is < five times the RDL.

Consensus	Reported	s	MDL	z-score	New z-score
0.715	0.75	0.0565	0.05	0.619	0.594
0.115	0.15	0.009	0.05	3.89	1.85

In order to qualify for this modified z-score, the laboratory must agree to have their detection limit posted on their scope of accreditation and proficiency testing directory. The posting will not be the actual detection limit but will be a range that the detection limit falls in. For example, a detection limit of 0.003 may be posted on the scope as follows.

Water (Inorganic)
Ammonia & Ammonium - Water (018)
SOP-NUTS; based on MOE E3366
AUTO ANALYSER
Ammonia+Ammonium (Detection level = 0.001 – 0.005 mg/L)

Because this procedure provides a more favourable score with higher detection limits, assessors will check to ensure that the detection limits reported with PT are the same as those reported to clients. Failure to do so will be considered a serious breach of the terms and conditions of accreditation and will be handled accordingly.

The detection level option will not be available for the following parameters,

pH
microbiology
toxicology
BOD
Total suspended solids

The impact and effectiveness of these changes will be monitored and reported to the membership after the October study.

Yours sincerely,

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