QSM 6.0 Supplemental Information on Proficiency Testing (PT) Study Requirements

October 30, 2024

This memorandum provides supplemental information for the requirements in QSM 6.0, Module 1, Clauses 4.3.4 and 4.3.5.

Clause 4.3.4 allows a laboratory to analyze a PT using a single combination of preparation and/or analytical methods and report that result for multiple combinations of preparation and/or analytical methods that use the same "technology." QSM 6.0, Module 2 defines technology as "a specific arrangement of analytical instruments, detection systems, and/or preparation techniques." Differences in instrumentation, detection, and/or preparation require analysis of separate PT samples.

Examples of same and differing technologies include:

- SW-846 preparation methods within the same series are considered the same technology (e.g., Method 3540C and Method 3546 are the same technology). SW-846 preparation methods in different series are considered different technologies (e.g., Method 3510C and Method 5030B are different technologies).
- Selected Ion Monitoring is considered a different technology from full scan mass spectrometry because the detection approaches are different.
- For wet chemistry methods, if there are differences in instruments, detection systems, or preparation techniques, they are considered different technologies.
- Analytical and preparation processes that are the same across different programs (e.g., RCRA, CWA, SDWA) are considered the same technology.
- Cleanup steps (e.g., silica gel, acidification) are not considered different technologies; however, they have the potential to influence analytical outcomes. The laboratory shall incorporate any relevant cleanup steps that may be used on field samples into the PT study to ensure that any effects on the analytical sensitivity or accuracy are tested.

Rotation of Preparation/Analytical Method Combinations

QSM 6.0, Module 1, Clause 4.3.5 requires laboratories to rotate combinations of preparation and analytical methods for each technology, ensuring that every combination is used at least once every three years for each matrix. This rule was implemented to prevent the continuous use of any single combination. The PT Study cannot include a justification for selecting a single preparation/analytical method to represent all combinations within a technology (e.g., based on worst-case or most conservative QC). The requirement to rotate the combinations remains mandatory.

PT Failure and Corrective Action Proficiency Tests (CA PTs)

When a laboratory experiences a PT failure, the following rules apply for CA PTs in accordance with QSM 6.0, Module 1, Clause 4.3.4 and 4.3.5:

- If a laboratory chooses to analyze and report a single combination of preparation/analytical methods to represent a technology, and multiple combinations of preparation/analytical methods are used for analysis of field samples, a PT failure for that method results in a failure for all combinations. The PT Study schedule for rotating method combinations identified in QSM 6.0, Module 1, Clause 4.3.5 shall address how corrective action PTs are analyzed.

- If the PT Study was structured to represent only a single method combination, the failure applies solely to that method, and the corrective action PT shall be analyzed using the same method combination.