Trace Metals Certification Guidance Document

The Office of Environmental Laboratory Certification certifies laboratories reporting trace metals determinations under the Safe Drinking Water, Clean Water Act, and Solid and Hazardous Waste Programs. Certification is mandated by State Regulation 61-81 for regulatory compliance analyses reported to the Department. Certification is limited to the methods cited and approved by the EPA for regulatory monitoring. The procedural, quality control, and technical guidance contained in these method references and regulations are considered "minimum requirements" for certification. The approved method references are cited in the Code of Federal Regulations (CFR).

Each laboratory is required to maintain a customized Standard Operating Procedure (SOP) for each digestion and analytical procedure describing use of the equipment, reagents, calibration, procedure, and applicable QA/QC. Refer to *EPA's Guidance for Preparing Standard Operating Procedures (SOPs) QA/G-6*, April 2007. A Quality Assurance Plan describing the QA/QC protocols and data acceptance criteria used for compliance monitoring must be maintained. Separate analysis records, supporting QC data, and summaries must be maintained for each program area, matrix type, analytical procedure, and analysis batch. The applicable method file must be maintained to document the instrument set-up, calibration protocol, auto-sampler report, analytical test sequence, and method quality control requirements.

The concentrations of the calibration standards and continuing calibration standards must be selected to bracket the concentration range of samples being processed. Practical Quantitation Limit (PQL) and/or Lower Limit of Quantitation (LLOQ) standards must be analyzed routinely during each analysis sequence to verify method accuracy and precision at the regulatory threshold. The continuing calibration verifications and continuing calibration blanks must be analyzed at the beginning and end of each analysis batch and after every 10 samples.

The following records must be maintained with each sample to document the quality of the data:

1) Sample custody records, sample preservation notations, and sample discrepancy, corrective action, and client notification reports.
2) Sample digestion logs and QC data including: "traceable" method blank ID#, spike blank, sample ID#s and spiking information.
3) Instrument brand/model, "software" version, file name, last update, date/time of analysis, matrix type and analyst initials. The software operational files (containing all information necessary to reconstruct the analysis) must be maintained on file.
4) Primary standards receipt log and standards preparation workbooks complete with a traceable standard ID# system.
5) Multi-point calibration entries, alternate source calibration check, continuing calibration verifications, and continuing calibration blank checks.
6) Matrix accuracy and precision checks, spike material I.D., data summaries for each program area and matrix type.
7) Problem matrix identification criteria, sample screening protocols, problem matrix evaluation procedures (spectral interference checks, alternate wavelength, matrix matching, alternate modifiers, serial dilution, and/or standard addition).
8) In-house data review, validation, and sign-off protocols.
9) Instrument maintenance log book.
10) Method Detection Limit Studies (Required annually and performed over at least three days)
11) Linear Range Evaluation.
12) LLOQ Verifications.