Environmental Monitoring Management Council (EMMC) Methods Format

1.0 Scope and Application

Use a tabular format whenever possible for:

- Analyte list(s)
- Chemical Abstract Service (CAS) numbers
- Matrices
- Method Sensitivity (expressed as mass and as concentration with a specific sample size)

Include a list of analytes (by common name) and their CAS registry numbers, the matrices to which the method applies, a generic description of method sensitivity (expressed both as the mass of analyte that can be quantified and as the concentration for a specific sample volume or size), and the data quality objectives which the method is designed to meet. Much of this material may be presented in a tabular format.

2.0 Summary of Method

Sample volume requirements

- Extraction
- Digestion
- Concentration, and other preparation steps employed
- Analytical instrumentation and detector system(s), and
- Techniques used for quantitative determinations

Summarize the method in a few paragraphs. The purpose of the summary is to provide a succinct overview of the technique to aid the reviewer or data user in evaluating the method and the data. List sample volume, extraction, digestion, concentration, other preparation steps employed, the analytical instrumentation and detector system(s), and the techniques used for quantitative determinations.

3.0 Definitions of Method

Include the definitions of all method-specific terms here. For extensive lists of definitions, this section may simply refer to a glossary attached at the end of the method document.

4.0 Interferences

This section should discuss any known interferences, especially those that are specific to the performance-based method. If know interferences in the reference method are not interferences in the performance-based method, this should be clearly stated.

5.0 Safety

- Above and beyond good laboratory practices
- Disclaimer statement (look at ASTM disclaimer)
- Special precautions
- Specific toxicity of target analytes or reagents
- Not appropriate for general safety statements

This section should discuss only those safety issues specific to the method and beyond the scope of routine laboratory practices. Target analytes or reagents that pose specific toxicity or safety issues should be addressed in this section.

6.0 Equipment and Supplies

Use generic language wherever possible. However, for specific equipment such as GC (gas chromatograph) columns, do not assume equivalency of equipment that was not specifically evaluated, and clearly state what equipment and supplies were tested.

7.0 Reagents and Standards

Provide sufficient details on the concentration and preparation of reagents and standards to allow the work to be duplicated, but avoid lengthy discussions of common procedures.

8.0 Sample Collection, Preservation and Storage

- Provide information on sample collection, preservation, shipment, and storage conditions

- Holding times, if evaluated

If effects of holding time were specifically evaluated, provide reference to relevant data, otherwise, do not establish specific holding times.

9.0 Quality Control

Describe specific quality control steps, including such procedures as method blanks, laboratory control samples, QC check samples, instrument checks, etc., defining all terms in Section 3.0. Include frequencies for each such QC operation.

10.0 Calibration and Standardization

Discuss initial calibration procedures here. Indicate frequency of such calibrations, refer to performance specifications, and indicate corrective actions that must be taken when performance specifications are not met. This Section may also include procedures for calibration verification or continuing calibration, or these steps may be included in Section 11.0.

11.0 Procedure

Provide a general description of the sample processing and instrumental analysis steps. Discuss those steps that are essential to the process, and avoid unnecessarily restrictive instructions.

12.0 Data Analysis and Calculations

Describe qualitative and quantitative aspects of the method. List identification criteria used. Provide equations used to derive final sample results from typical instrument data. Provide discussion of estimating detection limits, if appropriate.

13.0 Method Performance

A precision/bias statement should be incorporated in the Section, including:

- detection limits
- source/limitations of data

Provide detailed description of method performance, including data on precision, bias, detection limits (including the method by which they were determined and matrices to which they apply), statistical procedures used to develop performance specification, etc. Where performance is tested relative to the reference method, provide a side-by-side comparison of performance versus reference method specifications.

14.0 Pollution Prevention

Describe aspects of this method that minimize or prevent pollution that may be attributable to the reference method.

15.0 Waste Management

Cite how waste and samples are minimized and properly disposed.

16.0 References

- Source documents
- Publications

17.0 Tables, Diagrams, Flowcharts and Validation Data

Additional information may be presented at the end of the method. Lengthy tables may be included here and referred to elsewhere in the text by number. Diagrams should only include new or unusual equipment or aspects of the method.