Methods Format
EPA Office of Air Quality Planning and Standards Stationary Source Program[1]

1.0 Scope and Application

This section should include the following items:

- Target analyte(s) and/or parameter(s)
- Chemical Abstract Service (CAS) numbers
- Matrices
- Method Sensitivity (expressed as concentration or a mass with a specific sample size or other appropriate units)

Include a list of analytes (by common name) and their CAS registry numbers, the matrices and source categories 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/size or in other appropriate units), and the data quality objectives which the method is designed to meet. This material may be presented in a tabular format.

2.0 Summary of Method

Summarize the method in a few paragraphs. The purpose of the summary is to provide a succinct overview of the technique to aid the method user, data reviewer, or data user in understanding the method and evaluating the data. The summary should address, as appropriate:

- Sample collection procedures
- Extraction, digestion, concentration and other sample preparation steps employed
- Analytical instrumentation and detector system(s)
- Techniques used for quantitative determinations

3.0 Definitions

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.

[1] This general format was originally developed by the Environmental Monitoring Management Council or EMMC and later adopted by the Forum on Environmental Measurements (FEM) and EPA's Science Technology and Policy Council. This version has been adapted for the method needs of the Stationary Source Regulatory Program in the EPA Office of Air and Radiation, Office of Air Quality Planning and Standards.

4.0 Interferences

This section should discuss any known interferences to the method. For performance-based methods, it is especially important to identify interferences that are not detected by the performance criteria of the method.

5.0 Safety

- Above and beyond good laboratory practices
- Disclaimer statement
- 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, unless performance-based criteria for evaluating such equipment and supplies can be provided. Where performance-based requirements are not possible, clearly state what equipment and supplies were tested.

7.0 Reagents and Standards

Provide sufficient detail on the required quality (e.g., NIST-traceability), 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

Include a detailed description of procedures and/or performance criteria and performance test procedures necessary to collect a representative sample.

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

- Specify 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 (QC) steps, including such procedures as method blanks, reagent blanks, laboratory control samples, QC check samples, matrix spikes, proof blank sampling trains instrument checks, etc., defining all terms in Section 3.0. Include acceptance frequencies for each such QC operation and indicate corrective or other actions that must be taken when performance specifications are not met. It may be useful to also summarize this information in a tabular format.

10.0 Calibration and Standardization

Discuss 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 Analytical Procedures

Provide a general description of the sample preparation and analytical steps. Discuss those steps that are essential to the process, and avoid unnecessarily restrictive instructions; use performance-based criteria and procedures, if appropriate.

12.0 Data Analysis and Calculations

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

13.0 Method Performance

A precision/bias statement should be incorporated in this 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. Where the method incorporates performance criteria to be met when the method is applied, also include these criteria.

14.0 Pollution Prevention

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

15.0 Waste Management

Cite how waste and samples are minimized and properly disposed.

16.0 References

Include:

- Source documents
- Relevant 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 include the sampling train, if used, as well as new or unusual equipment or aspects of the method.