

# *NCASI Methods Manual*

## **Introduction**

As part of the NCASI Technical Studies Program it is often necessary to develop methods for analytical parameters for which no rigorously tested or validated methods are available. Once developed, these methods are frequently used for other program applications and to respond to regulatory and member company requests. Previously, these methods have been made available to member companies in the form of technical bulletins or special reports. More recently, NCASI member companies requested that these methods be compiled into a single manual to facilitate their distribution and use.

This manual contains three main sections: (1) water, wastewater, and process liquid methods; (2) air methods; and (3) workplace methods. The terminology, acronyms and abbreviations are similar in many of the methods. Therefore, a compilation of them and definitions of commonly used analytical terms appears in Appendix A. Definitions specific to a particular method are included in the glossary of that method.

In selecting the format for each section, consideration was given to various formats commonly used for US Environmental Protection Agency (EPA) trace environmental water, wastewater, and air monitoring procedures and the National Institute of Occupational Safety and Health (NIOSH) workplace measurement procedures. Utilizing a standardized format familiar to analysts should facilitate implementation of these procedures in the laboratory, workplace, or field.

In selecting the format for water, wastewater, and process liquid methods, consideration was also given to activities taking place at EPA. As part of the Agency's efforts to harmonize analytical methods, the Environmental Methods Monitoring Council (EMMC) has developed a guideline and format for preparing analytical procedures. In Fall 1995 EPA's Office of Water announced plans to "streamline" the 304(h) approval process and indicated that it would adopt the EMMC format for that purpose. In July 1996 EPA published *Guidelines and Format for Methods to be Proposed at 40 CFR Part 136 or Part 141*.

Given EPA's efforts to standardize with a single format, it was logical for NCASI to adopt those guidelines and format to the maximum extent possible consistent with NCASI standards of quality. Furthermore, adopting that format facilitates submitting wastewater and solids methods developed by NCASI for approval under the streamlined 304(h) process when the industry finds that to be of benefit.

The guidelines and format presented in Appendix B for the analysis of water, wastewater, and process liquid matrices closely follow EPA's EMMC format. Some sections have been modified to reflect the different intent of the NCASI Methods Manual and to reflect standards of quality and scientific principles which NCASI advocates. Otherwise, efforts have been made to stay as close to the EMMC format as possible. If changes in the EPA recommended method format

occur, those changes will only be incorporated in new methods or when existing methods are updated.

The format used for air methods is given in Appendix C. The components of typical air testing methods are outlined and a copy of EPA Method 6, *Determination of Sulfur Dioxide Emissions from Stationary Sources*, is presented as an example.

The format used for workplace monitoring methods is given in Appendix D. The components and validation criteria of a typical workplace monitoring method are outlined and a copy of NIOSH Method 5500, *Ethylene Glycol*, is presented as an example.

NCASI's methods were originally coded using a system that incorporated an alpha prefix that signifies information about the test method or analyte list followed by a numeric code (e.g., RA/FA-85.02). The last four digits of the numeric code (e.g., 85.02) signified year of publication and revision number. Because many of these methods have been cited in EPA regulatory documents, previous method codes will not change. To avoid confusion between methods developed for different program areas in the same year, more recent methods will incorporate a letter code signifying the program area (A = air; IH = industrial hygiene; S = solids; W = water) followed by a sequence number. For example, method ISS/FP-A105.01 is an impinger source sampling (ISS) method for forest products companies (FP), is the first NCASI method published in 2005 (105), and is the first version of the method (01). This system was selected to avoid confusion with other methods published by various branches of EPA, *Standard Methods for the Examination of Waters and Wastewaters*, or ASTM methods.

Technical bulletins and special reports are issued describing the research and development of methods as part of the NCASI research program. Typically, the methods generated through this research are contained in the appendices of these publications. To assist members in referencing the methods in this manual with existing publications, a cross reference guide is included in Appendix E.

NCASI methods incorporated into the Methods Manual will be revised as modifications or additional technical information become available. The revision or issue date of the method appears on the title page and at the bottom of each page of the method. As NCASI Technical Studies Programs provide a need for new methods, they will be added to the manual when they are developed. Occasionally, there may be a need to provide information on a method before it has been rigorously tested. In that event, methods will be identified as "proposed." Methods that have been validated in-house as part of a study but have not been subjected to interlaboratory evaluation or were not validated for other matrices will be identified as "draft." Comments and method validation data on proposed and draft methods are welcome and should be addressed to the originating center.

Any questions regarding the content of the Methods Manual should be directed to Terry Bousquet at the West Coast Regional Center. Questions regarding specific method content should be directed to the originating NCASI Center presented on the cover page of each method.