



Standard Guide for Accountability and Quality Control in the Chemical Analysis Laboratory¹

This standard is issued under the fixed designation E 882; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This guide covers the essential aspects of an accountability and quality control program for a chemical analysis laboratory. The reasons for establishing and operating such a program are discussed.

2. Referenced Documents

2.1 ASTM Standards:

MNL 7 Manual on Presentation of Data and Control Chart Analysis²

2.2 ANSI Document:

ANSI/ASQC A1 Definitions, Symbols, Formulas, and Tables for Control Charts³

3. Significance and Use

3.1 An accountability and quality control system is established by laboratory management to improve the quality of its results. It provides documented records which serve to assure users of the laboratory's services that a specified level of precision is achieved in the routine performance of its measurements and that the data reported were obtained from the samples submitted. The system also provides for: early warning to analysts when methods or equipment begin to develop a bias or show deterioration of precision; the protection and retrievability of data (results); traceability and control of samples as they are processed through the laboratory; good communication of sample information between submitters, analysts, and supervision; and information on sample processing history. This guide describes such a system. Other accountability and quality control programs can be developed. Such programs can be equivalent to the program in this guide if they provide all of the benefits mentioned above.

4. Accountability

4.1 Accountability means assurance that the results reported refer directly to the samples submitted.

4.2 Prior to submitting samples to the laboratory, the prospective user should consult with laboratory personnel concerning his needs and the capability of the laboratory to satisfy them. It is the responsibility of the originator of the samples to select and identify proper samples for submission to the laboratory, to decide what information is required (especially, to define the use to be made of the information), and, after consulting with laboratory personnel, to submit the samples in suitable containers, properly labeled, and accompanied by written instructions identifying the samples, their nature, and the information sought through chemical analysis. This should be done formally, using a well-defined document for information transfer to initiate work in the laboratory.

4.3 Laboratory management establishes a written accountability system to be used throughout the laboratory at all times. This implies traceability and documentation of all reported results through the laboratory back to the submitted sample. This system should have the following general characteristics:

4.3.1 Each nonroutine job submitted by a user of the laboratory's services is assigned an internal laboratory identification number (ID), which is used to correlate all samples, work, time and cost accounting, consultation, and reports and other paperwork associated with that job. The final report that is returned to the originator will always bear the number (ID) for future reference. Moreover, it is convenient for laboratory data to be filed according to sequential ID numbers. For example, "86/0428" might identify the associated work as the 428th request submitted in the year 1986. The *Data Record* should provide all data generated during the analyses, names of persons performing the analyses, dates the analyses were performed, and any unusual occurrences that happened during the analyses. Accountability for production control samples is normally maintained separately from the nonroutine records because results from production control samples are usually reported on routine report forms, the samples being identified with the day, shift, run, or lot from which they were taken.

¹ This guide is under the jurisdiction of ASTM Committee E01 on Analytical Chemistry for Metals, Ores, and Related Materials and is the direct responsibility of Subcommittee E01.22 on Statistics and Quality Control.

Current edition approved Oct. 1, 2003. Published November 2003. Originally approved in 1982. Last previous edition approved in 1998 as E 882 – 98.

² ASTM Manual Series, ASTM, 6th Edition, 1990.

³ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036.