Designation: D6956 – 11

# Standard Guide for Demonstrating and Assessing Whether a Chemical Analytical Measurement System Provides Analytical Results Consistent with Their Intended Use[1]

This standard is issued under the fixed designation D6956; 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 describes an approach for demonstrating the quality of analytical chemical measurement results from the application of a measurement system (that is, method or sequence of methods) to the analysis of environmental samples of soil, water, air, or waste. The purpose of such measurements can include demonstrating compliance with a regulatory limit, determining whether a site is contaminated above some specified level, or determining treatment process efficacy.

1.2 This guide describes a procedure that can be used to assess a measurement system used to generate analytical results for a specific purpose. Users and reviewers of the analytical results can determine, with a known level of confidence, if they meet the quality requirements and are suitable for the intended use.

1.3 This protocol does not address the general components of laboratory quality systems necessary to ensure the overall quality of laboratory operations. For such systems, the user is referred to International Standards Organization (ISO) Standard 17025 or the National Environmental Laboratory Accreditation Conference (NELAC) laboratory accreditation standards.

1.4 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory requirements prior to use.*

## 2. Referenced Documents

2.1 *ASTM Standards:*[2]

D4687 Guide for General Planning of Waste Sampling

D5283 Practice for Generation of Environmental Data Related to Waste Management Activities: Quality Assurance and Quality Control Planning and Implementation

D5681 Terminology for Waste and Waste Management

D5792 Practice for Generation of Environmental Data Related to Waste Management Activities: Development of Data Quality Objectives

D5956 Guide for Sampling Strategies for Heterogeneous Wastes

D6044 Guide for Representative Sampling for Management of Waste and Contaminated Media

D6233 Guide for Data Assessment for Environmental Waste Management Activities

D6250 Practice for Derivation of Decision Point and Confidence Limit for Statistical Testing of Mean Concentration in Waste Management Decisions

D6311 Guide for Generation of Environmental Data Related to Waste Management Activities: Selection and Optimization of Sampling Design

D6582 Guide for Ranked Set Sampling: Efficient Estimation of a Mean Concentration in Environmental Sampling (Withdrawn 2012)[3]

D6597 Practice for Assessment of Attaining Clean Up Level for Site Closure

2.2 *Other Documents:*

*Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results*, National Institute of Standard Technology Technical Note 1297, 1994 [4]

[1] This guide is under the jurisdiction of ASTM Committee D34 on Waste Management and is the direct responsibility of Subcommittee D34.01.01 on Planning for Sampling.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] The last approved version of this historical standard is referenced on www.astm.org.

[4] Available from National Institute of Standards and Technology (NIST), 100 Bureau Dr., Stop 1070, Gaithersburg, MD 20899-1070, http://www.nist.gov.

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