Designation: D6568 – 25

Standard Guide for Planning, Carrying Out, and Reporting Traceable Chemical Analyses of Water Samples[1]

This standard is issued under the fixed designation D6568; 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 sets a protocol for generating and reporting chemical analyses that are traceable to the International System of Units (SI) or to certified reference materials, in laboratories that serve the water and environmental industry.

1.2 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.3 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D1129 Terminology Relating to Water

D6362 Practice for Certificates of Reference Materials for Water Analysis

2.2 *Other Documents:*

ISO/IEC 17025 General requirements for the competence of testing and calibration laboratories[3]

ISO Guide 30 Reference materials – Selected terms and definitions[3]

JCGM 100:2008 Evaluation of measurement data – Guide to the expression of uncertainty in measurement (GUM)[4]

JCGM 200:2012 International vocabulary of metrology – Basic and general concepts and associated terms (VIM), 3rd ed.[4]

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of terms used in this standard, refer to Terminology D1129, ISO Guide 30, and JCGM 200:2012 (VIM).

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *certified reference material, n*—reference material (RM) characterized by a metrologically valid procedure for one or more specified properties, accompanied by an RM certificate that provides the value of the specified property, its associated uncertainty, and a statement of metrological traceability. **ISO Guide 30**

3.2.1.1 *Discussion*—There is significant variation in the overall quality of commercially available certified reference materials, and caution should be used when choosing certified reference materials. Practice D6362 provides guidance as to what information needs to be included on the certificate for a certified reference material.

3.2.2 *traceability, n*—property of a measurement result whereby the result can be related to a reference through a documented unbroken chain of calibrations, each contributing to the measurement uncertainty. **JCGM 200:2012 (VIM)**

3.2.3 *uncertainty (of measurement), n*—parameter, associated with the result of a measurement, that characterizes the dispersion of the values that could reasonably be attributed to the measurand. **JCGM 100:2008 (GUM)**

3.2.4 *work plan, n*—a documented procedure intended for use by a laboratory to meet the measurement traceability requirements of a defined need.

4. Significance and Use

4.1 This guide establishes basic requirements for water and environmental laboratories that generate and report test chemical analyses that the laboratory client desires to be traceable to the SI or to certified reference materials traceable to the SI (Note 1). Traceability of chemical analyses is important because it provides a uniform basis for the comparison of results

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

[3] Available from American National Standards Institute (ANSI), 1180 Avenue of the Americas, 10th Floor, New York, NY 10036, http://www.ansi.org.

[4] Published by the Joint Committee for Guides in Metrology (JCGM) and available at https://www.bipm.org/en/committees/jc/jcgm/publications/.