



Designation: D6568 – 00 (Reapproved 2018)

Standard Guide for Planning, Carrying Out, and Reporting Traceable Chemical Analyses of Water Samples¹

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1. Scope

1.1 This guide sets a protocol for generating and reporting chemical analyses that are traceable to SI units 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:

D1129 Terminology Relating to Water

D6362 Practice for Certificates of Reference Materials for Water Analysis

IEEE/ASTM SI 10–1997 Standard for Use of the International System of Units (SI): The Modern Metric System

2.2 Other Documents:

ISO Guide 17025 General Requirements for the Competence of Calibration and Testing Laboratories²

ISO Guide 30 Terms and Definitions Used in Connection with Reference Materials²

VIM International Vocabulary of Basic and General Terms in Metrology, ISO: 2nd ed., 1993²

¹ This guide is under the jurisdiction of ASTM Committee D19 on Water and is the direct responsibility of Subcommittee D19.02 on Quality Systems, Specification, and Statistics.

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² Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

3. Terminology

3.1 Definitions:

3.1.1 For definitions of terms used in this standard, refer to Terminology D1129.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *certified reference material, n*—reference material, accompanied by a certificate, one or more of whose property values are certified by a procedure which established its traceability to an accurate realization of the unit in which the property values are expressed, and for which each certified value is accompanied by an uncertainty at a stated level of confidence. **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. Use Practice D6362 to provide guidance as to what information needs to be included on Certificate of a certified reference material.

3.2.2 *SI units, n*—this is the International System of Units (SI) which is the modernized metric system as described in IEEE/ASTM SI 10–1997. A SI Quick Reference Guide is included in ASTM BOS Volumes 11.01 and 11.02.

3.2.3 *traceability, n*—property of the result of a measurement or the value of a standard whereby it can be related, with a stated uncertainty, to stated references, usually national or international standards, through an unbroken chain of comparisons. **ISO Guide 30**

3.2.4 *uncertainty (of measurement), n*—parameter, associated with the result of a measurement that characterizes the dispersion of values that could reasonably be attributed to the measured. **VIM**

3.2.5 *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 which should be met by water and environmental laboratories that generate and report test chemical analyses which the laboratory client desires to be traceable to SI units (Note 1) or certified reference