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Standard Guide for Core Sampling Submerged, Unconsolidated Sediments¹

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1. Scope

1.1 This guide covers core-sampling terminology, advantages and disadvantages of different types of core samplers, core-distortions that may occur during sampling, techniques for detecting and minimizing core distortions, and methods for dissecting and preserving sediment cores.

1.2 In this guide, sampling procedures and equipment are divided into the following categories based on water depth: sampling in depths shallower than 0.5 m, sampling in depths between 0.5 m and 10 m, and sampling in depths exceeding 10 m. Each category is divided into two sections: equipment for collecting short cores and equipment for collecting long cores.

1.3 This guide emphasizes general principles. Only in a few instances are step-by-step instructions given. Because core sampling is a field-based operation, methods and equipment must usually be modified to suit local conditions. This modification process requires two essential ingredients: operator skill and judgment. Neither can be replaced by written rules.

1.4 Drawings of samplers are included to show sizes and proportions. These samplers are offered primarily as examples (or generic representations) of equipment that can be purchased commercially or built from plans in technical journals.

1.5 This guide is a brief summary of published scientific articles and engineering reports. These references are listed in this guide. These documents provide operational details that are not given in this guide but are nevertheless essential to the successful planning and completion of core sampling projects.

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

1.7 *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.* For specific warning statements, see [6.3](#) and [11.5](#).

1.8 *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

D420 [Guide for Site Characterization for Engineering Design and Construction Purposes](#)

D1129 [Terminology Relating to Water](#)

D1452 [Practice for Soil Exploration and Sampling by Auger Borings](#)

D1586 [Test Method for Standard Penetration Test \(SPT\) and Split-Barrel Sampling of Soils](#)

D1587 [Practice for Thin-Walled Tube Sampling of Fine-Grained Soils for Geotechnical Purposes](#)

D4220 [Practices for Preserving and Transporting Soil Samples](#)

D4410 [Terminology for Fluvial Sediment](#)

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of terms used in this standard, refer to Terminologies [D1129](#) and [D4410](#).

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *check valve, n*—a device (see [Fig. 1](#))³ mounted atop an open-barrel core sampler. As the sampler moves down through water and sediment, the valve remains open to allow water to flow up through the barrel. When downward motion stops, the valve closes. During retrieval, the valve remains closed and creates suction that holds the core inside the barrel.

3.2.2 *core, n*—a vertical column of sediment cut from a parent deposit.

¹ This guide is under the jurisdiction of ASTM Committee D19 on Water and is the direct responsibility of Subcommittee D19.07 on Sediments, Geomorphology, and Open-Channel Flow.

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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 boldface numbers in parentheses refer to a list of references at the end of this standard.