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Standard Guide for Sampling Ground-Water Monitoring Wells¹

This standard is issued under the fixed designation D4448; 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 sampling equipment and procedures and “in the field” preservation, and it does not include well location, depth, well development, design and construction, screening, or analytical procedures that also have a significant bearing on sampling results. This guide is intended to assist a knowledgeable professional in the selection of equipment for obtaining representative samples from ground-water monitoring wells that are compatible with the formations being sampled, the site hydrogeology, and the end use of the data.

1.2 This guide is only intended to provide a review of many of the most commonly used methods for collecting ground-water quality samples from monitoring wells and is not intended to serve as a ground-water monitoring plan for any specific application. Because of the large and ever increasing number of options available, no single guide can be viewed as comprehensive. The practitioner must make every effort to ensure that the methods used, whether or not they are addressed in this guide, are adequate to satisfy the monitoring objectives at each site.

1.3 The values stated in SI units are to be regarded as standard. The values given in parentheses are provided for information only.

1.4 *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.*

1.5 *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.*

¹ This guide is under the jurisdiction of ASTM Committee D34 on Waste Management and is the direct responsibility of Subcommittee D34.01.02 on Sampling Techniques.

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2. Referenced Documents

2.1 ASTM Standards:²

D4750 Test Method for Determining Subsurface Liquid Levels in a Borehole or Monitoring Well (Observation Well) (Withdrawn 2010)³

D5088 Practice for Decontamination of Field Equipment Used at Waste Sites

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

D5903 Guide for Planning and Preparing for a Groundwater Sampling Event

D6089 Guide for Documenting a Groundwater Sampling Event

D6452 Guide for Purging Methods for Wells Used for Ground Water Quality Investigations

D6517 Guide for Field Preservation of Ground Water Samples

2.2 EPA Standards:⁴

EPA Method 9020A

EPA Method 9022

3. Terminology

3.1 Definitions:

3.1.1 *low-flow sampling*—a ground-water sampling technique where the purge and sampling rates do not result in significant changes in formation seepage velocity.

3.1.2 *minimal purge sampling*—the collection of ground water that is representative of the formation by purging only the volume of water contained by the sampling equipment (that is, tubing, pump bladder).

3.1.2.1 *Discussion*—This sampling method should be considered in situations where very low yield is a consideration

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 United States Environmental Protection Agency (EPA), William Jefferson Clinton Bldg., 1200 Pennsylvania Ave., NW, Washington, DC 20460, <http://www.epa.gov>.