



Standard Guide for Selection of Purging and Sampling Devices for Groundwater Monitoring Wells¹

This standard is issued under the fixed designation D6634/D6634M; 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 the characteristics and operating principles of purging and sampling devices available for use in groundwater monitoring wells and provides criteria for selecting appropriate devices for specific applications. The selected device(s) should be capable of purging the well and providing valid representative samples of groundwater and included dissolved constituents. The scope does not include procedures for purging or collecting samples from monitoring wells, sampling devices for non-aqueous phase liquids, diffusion-type sampling devices or sampling from devices other than monitoring wells.

1.2 This guide reviews many of the most commonly used devices for purging and sampling groundwater monitoring wells. The practitioner should ensure that the purging and sampling methods used, whether or not they are addressed in this guide, are adequate to satisfy the monitoring objectives at each site.

1.3 This guide offers an organized collection of information or a series of options and does not recommend a specific course of action. This guide cannot replace education or experience and should be used in conjunction with professional judgment. Not all aspects of this guide may be applicable in all circumstances. This ASTM guide is not intended to represent or replace the standard of care by which the adequacy of a given professional service must be judged, nor should this document be applied without consideration of the many unique aspects of a project. The word “Standard” in the title of this document means only that the document has been approved through the ASTM consensus process.

1.4 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining

values from the two systems may result in non-conformance with the standard. Dimensions provided are typical.

1.5 *This standard does not purport to address all of the safety problems, 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 limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

D653 Terminology Relating to Soil, Rock, and Contained Fluids

D3740 Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

D5088 Practice for Decontamination of Field Equipment Used at Waste Sites

D6452 Guide for Purging Methods for Wells Used for Groundwater Quality Investigations

3. Terminology

3.1 *Definitions:* For definitions of general terms used within this guide, refer to Terminology **D653**.

4. Summary of Guide

4.1 The primary objective of groundwater sampling programs is to obtain samples that are representative of existing groundwater conditions retaining the physical and chemical properties of the groundwater in a specific water-bearing zone.³ Depending on the purging and sampling protocol, this may require that the well is purged of stagnant water, or until

¹ This guide is under the jurisdiction of ASTM Committee **D18** on Soil and Rock and is the direct responsibility of Subcommittee **D18.21** on Groundwater and Vadose Zone Investigations.

Current edition approved Feb. 1, 2014. Published February 2014. Originally approved in 2001. Last previous edition approved in 2006 as D6634 – 01 (2006). DOI: 10.1520/D6634_D6634M-14.

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 For example, the plasticizers in flexible PVC can contaminate samples with phthalate esters. The use of silicone rubber tubing, which contains no plasticizers, can obviate this problem; however, the potential for sample bias due to sorption/desorption exists with both materials (**1**). These pumps can be used with the intermediate vessel system described above, so that the sample contacts only the intake tubing and vessel avoiding contact with the pump mechanism tubing. Alternatively, using silicone rubber tubing at the pump head only can minimize this problem (**2**, **3**).