



Standard Guide for the Selection of Purging and Sampling Devices for Ground- Water Monitoring Wells¹

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1. Scope

1.1 This guide describes the characteristics and operating principles of purging and sampling devices available for use in ground-water 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 ground water and any 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 ground-water monitoring wells. The practitioner must make every effort to 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 document cannot replace education or experience and should be used in conjunction with professional judgement. Not all aspects of this guide may be applicable in all circumstances. This ASTM standard 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 *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:

D 653 Terminology Relating to Soil, Rock, and Contained Fluids²

D 4448 Guide for Sampling Ground Water Monitoring Wells²

D 5088 Practice for Decontamination of Field Equipment Used at Non-Radioactive Waste Sites²

D 5092 Practice for Design and Installation of Ground-Water Monitoring Wells in Aquifers²

D 5903 Guide for Planning and Preparing for a Ground-Water Sampling Event³

D 6089 Guide for Documenting a Ground-Water Sampling Event³

D 6452 Guide for Purging Methods for Wells Used for Ground-Water Quality Investigations³

3. Summary of Guide

3.1 The primary objective of ground-water sampling programs is to collect representative samples of ground water. Depending on the purging and sampling protocol, this may require that the well is purged of all stagnant water, or until pre-determined purging criteria are met. Therefore, device(s) selected for use in ground-water sampling programs must be capable of purging the well as needed and/or delivering to the surface, a sample representative of in-situ ground-water conditions. A number of factors can influence whether or not a particular sample or set of samples is representative, and one of the significant elements of sample collection protocols is the sampling mechanism (1, 2, 3).

3.2 In selecting a purging and/or sampling device for use in a ground-water monitoring well, a number of factors must be considered. Among these are 1) outside diameter of the device; 2) materials from which the device and associated equipment are made; 3) overall impact of the device on ground-water sample integrity with respect to the analytes of interest; 4) ability to control the discharge rate of the device; 5) depth to water; 6) ease of operation and servicing; 7) reliability and durability of the device; 8) portability of the device and required accessory equipment, if applicable; 9) other operational limitations of the device; and 10) initial and operating cost of the device and accessory equipment. Based on these considerations, each of the devices available for purging and/or

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² *Annual Book of ASTM Standards*, Vol 04.08.

³ *Annual Book of ASTM Standards*, Vol 04.09.