



Standard Guide for Soil Sampling from the Vadose Zone¹

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INTRODUCTION

This standard was developed in 1991 and has not undergone a technical revision. Since that time, many other guides and practices were developed in the response to the need for improved environmental exploration methods. There are new guides for Soil and Rock sampling and Mechanical Drilling. New Direct Push and Sonic methods were developed. The revision of this standard will add all the new related standards but there will not be significant additions or deletions to the original content. The user will be directed to the related standards.

1. Scope

1.1 This guide covers procedures that may be used for obtaining soil samples from the vadose zone (unsaturated zone). Samples can be collected for a variety of reasons including the following:

- 1.1.1 Stratigraphic description,
- 1.1.2 Hydraulic conductivity testing,
- 1.1.3 Moisture content measurement,
- 1.1.4 Moisture release curve construction,
- 1.1.5 Geotechnical testing,
- 1.1.6 Soil gas analyses,
- 1.1.7 Microorganism extraction,
- 1.1.8 Pore liquid evaluation, or
- 1.1.9 Laboratory chemical analysis identifying contaminant types and concentrations within soils.

1.2 Guides D6169 on Selection of Soil and Rock Sampling Devices and D6282 on Drilling methods for Environmental Site Characterization provide subsequent supplemental information to the contents of this standard.

1.2.1 Direct Push Soil Sampling (Guide D6282) and Sonic Drilling for Site Characterization (Practice D6914) are used extensively for environmental soil sampling in the Vadose zone.

1.3 Subsurface explorations are documented in accordance with D5434 on Logging of Subsurface Explorations.

1.4 Soil core may require processing using Practice D6640 on Collection and Handling of Soil Cores for Environmental Explorations.

1.5 This guide focuses on methods that provide soil samples for chemical analyses of the soil or contained liquids or contaminants. However, comments on how methods may be modified for other objectives are included.

1.6 This guide does not describe sampling methods for lithified deposits and rocks (for example, sandstone, shale, tuff, granite).

1.7 In general, it is prudent to perform all field work with at least two people present. This increases safety and facilitates efficient data collection.

1.8 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.9 *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 and health practices and determine the applicability of regulatory limitations prior to use.*

1.10 *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 judgment. 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 a project's many*

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.

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