



Standard Guide for Selection of Drilling Methods for Environmental Site Characterization¹

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1. Scope

1.1 This guide provides descriptions of various drilling methods for environmental site characterization along with advantages and disadvantages associated with each method discussed. A comprehensive description of these drilling methods can be found in individual ASTM standards, see Section 2. This guide is intended to aid in the selection of drilling method(s) for environmental soil and rock borings and the installation of monitoring wells and other water-quality monitoring devices.

1.2 This guide does not address methods of well construction, well development, or well completion. These topics are covered in other ASTM documents, see Section 2.

1.3 This guide cannot address all possible subsurface conditions that may occur such as, geologic, topographic, climatic, or anthropogenic. Site evaluation for engineering, design, and construction purposes is addressed in Guide D 420.

1.4 The values stated in SI units are to be regarded as the standard. Because dimensions of materials used in the drilling industry are given in inch-pound units by convention, inch-pound units also are used in this guide.

1.5 *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.*

1.6 This guide does not specifically address methods of lithologic sample collection, such as coring, that may require the use of a specific drilling method. Other ASTM guides should be consulted for sampling methods (see Guide D 6169) and equipment necessary for specific projects.

1.7 *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 and 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 a project's many unique aspects. The word "Standard" in the title of this document means only that the document has been approved through the ASTM consensus process.

1.8 This guide does not purport to comprehensively address all of the methods and the issues associated with drilling for environmental purposes. Users should seek qualified professionals for decisions as to the proper equipment and methods that would be most successful for their site investigation. Other methods may be available for drilling and qualified professionals should have flexibility to exercise judgment as to possible alternatives not covered in this guide. The guide is current at the time of issue, but new alternative methods may become available prior to revisions; therefore, users should consult with manufacturers or producers prior to specifying program requirements.

1.9 Pertinent guides addressing specific drilling methods, equipment and procedures are listed in 2.1. A comprehensive list of guides, methods, practices, and terminology for drilling is contained in Guide D 5730. Other documents covering procedures for environmental site investigations with specific objectives or in particular geographic settings may be available from federal, state, and other agencies or organizations. The appropriate agency or organization should be contacted to determine the availability and most current edition of such documents.

2. Referenced Documents

2.1 ASTM Standards:

- C 294 Descriptive Nomenclature of Constituents of Natural Mineral Aggregates²
- D 420 Guide to Site Characterization for Engineering Design and Construction Purposes³
- D 653 Terminology Relating to Soil, Rock, and Contained Fluids³
- D 1452 Practice for Soil Investigation and Sampling by Auger Borings³
- D 1586 Test Method for Penetration Test and Split-Barrel Sampling of Soils³
- D 1587 Practice for Thin-Walled Tube Geotechnical Sampling of Soils³

¹ This guide is under the jurisdiction of ASTM Committee D-18 on Soil and Rock and is the direct responsibility of Subcommittee D18.21 on Ground Water and Vadose Zone Investigations.

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² Annual Book of ASTM Standards, Vol 04.02.

³ Annual Book of ASTM Standards, Vol 04.08.