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Standard Guide for Environmental Site Characterization in Cold Regions¹

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INTRODUCTION

Understanding environmental processes that occur in soil and rock systems in cold regions of the world depends on adequate characterization of not only the physical, chemical, and biological properties of soil and rock but also the climatic factors under which they exist. Processes of interest may include, but are not limited to, surface and subsurface hydrology, contaminant mobilization, distribution, fate and transport, chemical and biological degradation of wastes, geomorphological, and ecological processes in general.

1. Scope

1.1 Use this guide in conjunction with Guide D 5730.

1.2 This guide describes special problems to be considered when planning field investigations in cold regions. The primary focus of this guide is presenting the special problems and concerns of site characterization in the cold regions of the world.

1.3 Laboratory testing of soil, rock, and ground-water samples is specified by other ASTM standards that are not specifically discussed in this guide. Laboratory methods for measurement of physical properties relevant to environmental investigations are included in Guide D 5730.

1.4 The values stated in SI units are to be regarded as the standard.

1.5 This guide emphasizes the care that must be taken by all field personnel during operations in tundra and permafrost areas of the world.

1.6 *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 unique aspects. The word "Standard" in the title of this document means only that the document has been approved through the ASTM consensus process.*

1.7 *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.*

2. Referenced Documents

2.1 ASTM Standards:

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

D 4083 Practice for Description of Frozen Soils (Visual-Manual Procedure)²

D 5254 Practice for the Minimum Set of Data Elements to Identify a Ground-Water Site²

D 5408 Guide for Set of Data Elements to Describe a Ground-Water Site; Part One—Additional Identification Descriptors²

D 5409 Guide for Set of Data Elements to Describe a Ground-Water Site; Part Two—Physical Descriptors²

D 5410 Guide for Set of Data Elements to Describe a Ground-Water Site; Part Three—Usage Descriptors²

D 5730 Guide to Site Characterization for Environmental Purposes with Emphasis on Soil, Rock, the Vadose Zone and Ground Water³

D 5781 Guide for Use of Dual-Wall Reverse-Circulation Drilling for Geoenvironmental Exploration and Installation of Subsurface Water-Quality Monitoring Devices³

D 5783 Guide for Use of Direct Rotary Drilling with Water-Based Drilling Fluid for Geoenvironmental Exploration and Installation of Subsurface Water-Quality Monitoring Devices³

¹ This guide is under the jurisdiction of ASTM Committee D-18 on Soil and Rock and is the direct responsibility of Subcommittee D18.01 on Surface and Subsurface Characterization.

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

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