



Standard Guide for Selection of Data Elements for Groundwater Investigations¹

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1. Scope

1.1 This guide covers the selection of data elements for the documentation of groundwater sites. The data elements are described in four ASTM standards outlining information that may be collected at groundwater sites. Examples of specific investigations are given with the logic of why to select individual and combinations of data elements to meet the requirements of the studies.

NOTE 1—A groundwater site is any source, location, or sampling station capable of producing water or hydrologic data from a natural stratum from below the surface of the earth. A source or facility can include a well, spring or seep, and drain or tunnel (nearly horizontal in orientation). Other sources, such as excavations, driven devices, bore holes, ponds, lakes, and sinkholes, that can be shown to be hydraulically connected to the groundwater, are appropriate for the use intended.

NOTE 2—The four ASTM standards that describe the data elements for groundwater are Practice D5254 and Guides D5408, D5409, and D5410.

1.2 Systematic and consistent data collection are necessary for the investigation of the availability and the protection or restoration of groundwater resources. The level of detail, precision and bias, and the type of data that need to be collected depend on the objective of the study, the expected complexity of the system, and the resources available for the investigation. This guide presents ideas on what information should be collected for specific studies, why certain data elements are mandatory, and the importance to current and future investigations of maintaining quality control on the collection and retention of these data. This guide focuses on those data elements that are gathered at the field-site location and are used to assist in interpreting the hydrology of the groundwater source and to meet regulatory requirements. Other analytical and quality assurance/quality control (QA/QC) considerations are addressed in other standards and beyond the scope of this guide.

1.3 *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 appro-*

priate safety and health practices and determine the applicability of regulatory limitations prior to use.

1.4 *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.*

2. Referenced Documents

2.1 ASTM Standards:²

D653 Terminology Relating to Soil, Rock, and Contained Fluids

D5254 Practice for Minimum Set of Data Elements to Identify a Ground-Water Site

D5408 Guide for Set of Data Elements to Describe a Groundwater Site; Part One—Additional Identification Descriptors

D5409 Guide for Set of Data Elements to Describe a Ground-Water Site; Part Two—Physical Descriptors

D5410 Guide for Set of Data Elements to Describe a Ground-Water Site; Part Three—Usage Descriptors

3. Terminology

3.1 Definitions:

3.1.1 Except as listed as follows, all definitions are in accordance with Terminology D653.

3.1.2 *code*—a suggested abbreviation for a component, for example, "G" is the code suggested for the galvanized iron component of data element casing material. The data element is in the "casing record" record.

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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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.