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Standard Guide for Establishing Nomenclature of Ground-Water Aquifers[1]

This standard is issued under the fixed designation D 6106; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This guide covers a series of options but does not specify a course of action. It should not be used as the sole criterion or basis of comparison and does not replace or relieve professional judgement.

1.2 This guide contains instructions and suggestions for authors of ground-water (hydrogeologic) reports in assigning appropriately derived and formatted aquifer nomenclature. Discussed are the water-bearing units that may require name identification, which are, ranked from largest to smallest, aquifer system, aquifer, and zone. Guidance is given on choosing the source of aquifer names, those are from lithologic terms, rock-stratigraphic units, and geographic names.

1.3 Included are examples of comparison charts and tables that can be used to define the hydrogeologic framework. Illustrations of eleven different hypothetical aquifer settings are presented to demonstrate the naming process.

1.4 Categories of items not suggested as a source of aquifer names are reviewed because, although they should be avoided, they occur in published documents. These categories are the following: time-stratigraphic names, relative position, alphanumeric designations, depositional environment, depth of occurrence, acronyms, and hydrologic conditions.

1.5 Confining units are discussed with the suggestion that these units should not be named unless doing so clearly promotes an understanding of a particular aquifer system. Suggested sources of names for confining units correspond to those for aquifer names, which are lithologic terms, rock-stratigraphic units, and geographic names.

1.6 It is suggested that in reports that involve hydrogeology, the author should consider first not naming aquifers (see 6.2).

1.7 Format and expression styles are assessed along with the general cautions related to name selection of aquifers and confining units.

1.8 This guide is a modification of a previously published report **(1)**.[2]

1.9 *This guide offers an organized collection of information or a series of options and does not recommend a specific course of action. This guide 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 guide 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 guide 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:* [3]

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

D 1129 Terminology Relating to Water

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

D 5434 Guide for Field Logging of Subsurface Explorations of Soil and Rock

D 5474 Guide for Selection of Data Elements for Ground-Water Investigations

3. Terminology

3.1 *Definitions:* Except as discussed as follows, all definitions are in accordance with Terminologies D 653 and D 1129. The following terms are examined in detail in order to clarify the method of assigning nomenclature to the aquifers and associated units:

3.2 *Introduction*—Aquifers do not lend themselves to brief, neat, and simple definitions; therefore, a flexible hierarchy of terms is used in these guidelines. The terms that are used for water-yielding rocks from largest to smallest are: aquifer system **(2)**, aquifer **(3)**, and zone **(4)**. Confining units **(3)** are discussed because of the stratigraphic relationship with the water-bearing units.

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

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[2] The boldface numbers in parentheses refer to the list of references at the end of this standard.

[3] 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.

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