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Standard Guide for Displaying the Results of Chemical Analyses of Ground Water for Major Ions and Trace Elements—Use of Maps[1]

This standard is issued under the fixed designation D 6036; 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 offers 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 judgment.

1.2 This guide covers methods that display, as mapped information, the chemical constituents of ground-water samples. Details required by the investigator to use fully the methods are found in the listed references.

1.2.1 The use of maps to display water-quality data are a common technique to assist in the interpretation of the chemistry of water in aquifers, as the areally distributed values can be easily related to the physical locality by the investigator.

1.2.2 The distribution in an aquifer of chemical constituents from two water sources or of liquids of different densities may be difficult to illustrate explicitly on a two-dimensional map because of stratification in the third dimension. Also, the addition of a vertical cross section may be required (see 4.4).

1.3 Many graphic techniques have been developed by investigators to assist in summarizing and interpreting related data sets. This guide is the fourth document to inform the hydrologists and geochemists about traditional methods for displaying ground-water chemical data.

1.3.1 The initial guide (Guide D 5738) described the category of water-analysis diagrams that use pattern and pictorial methods as a basis for displaying each of the individual chemical components determined from the analysis of a single sample of natural ground water.

1.3.2 The second guide (Guide D 5754) described the category of water-analysis diagrams that use two-dimensional trilinear graphs to display, on a single diagram, the common chemical components from two or more analyses of natural ground water.

1.3.3 The third guide (Guide D 5877) presented methods that graphically display chemical analyses of multiple ground-water samples, discrete values, as well as those reduced to comprehensive summaries or parameters.

1.4 Notations have been incorporated within the illustrations of this guide to assist the user in understanding how the maps are constructed. These notations would not be required on a map designed for inclusion in a project document.

NOTE 1—Use of trade names in this guide is for identification purposes only and does not constitute endorsement by ASTM.

1.5 *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:*

D 596 Guide for Reporting Results of Analysis of Water[2]

D 653 Terminology Relating to Soil, Rock, and Contained Fluids[3]

D 1129 Terminology Relating to Water[2]

D 5254 Practice for Minimum Set of Data Elements to Identify a Ground-Water Site[3]

D 5408 Guide for the Set of Data Elements to Describe a Ground-Water Site; Part One—Additional Identification Descriptors[3]

D 5409 Guide for the Set of Data Elements to Describe a Ground-Water Site; Part Two—Physical Descriptors[3]

D 5410 Guide for the Set of Data Elements to Describe a Ground-Water Site; Part Three—Usage Descriptors[3]

D 5474 Guide for Selection of Data Elements for Ground-Water Investigations[3]

D 5717 Guide forDesign of Ground-Water Monitoring Systems in Karst and Fractured Rock Aquifers[3]

D 5738 Guide for Displaying the Results of Chemical Analyses of Ground Water for Major Ions and Trace Elements—Diagrams for Single Analyses[3]

D 5754 Guide for Displaying the Displaying the Results of

[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 Ground Water and Vadose Zone Investigations.

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[2] *Annual Book of ASTM Standards*, Vol 11.01.

[3] *Annual Book of ASTM Standards*, Vol 04.08.

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