



Designation: D7045 – 17

Standard Guide for Optimization of Groundwater Monitoring Constituents for Detection Monitoring Programs for Waste Disposal Facilities¹

This standard is issued under the fixed designation D7045; 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 standard provides a general method of selecting effective constituents for detection monitoring programs at Waste Disposal Facilities. The process described in this standard presents a methodology that takes into consideration physical and chemical characteristics of the source material(s), the surrounding hydrogeologic regime, and site-specific geochemistry to identify and select those parameters that provide most effective detection of a potential release from a waste management unit (WMU).

1.2 In the following sections, details of an evaluation of effective monitoring constituents for a groundwater detection-monitoring program were based on site-specific waste characterization.

1.3 The statistical methodology described in the following sections should be used as guidance. Other methods may also be appropriate based on site-specific conditions or for monitoring situations or media that are not presented in this standard.

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, experience and professional judgements. 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 without consideration of a project's many unique aspects. The word standard in the title of this document only means that the document has been approved through the ASTM consensus process.

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 appro-*

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

2. Referenced Documents

2.1 *ASTM Standards:*²

D653 Terminology Relating to Soil, Rock, and Contained Fluids

D5792 Practice for Generation of Environmental Data Related to Waste Management Activities: Development of Data Quality Objectives

D6312 Guide for Developing Appropriate Statistical Approaches for Groundwater Detection Monitoring Programs at Waste Disposal Facilities

3. Terminology

3.1 *Definitions*—For common definitions of technical terms used in this standard, refer to Terminology D653.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *leachate*—a liquid that has passed through or emerged from solid waste and contains soluble, suspended, or miscible materials removed from such waste.

3.2.2 *outlier*—a measurement that is statistically inconsistent with the distribution of other measurements from which it was drawn.

3.2.3 *practical quantitation limit (PQL)*—the lowest level that can reliably achieved with specified limits of precision and accuracy during routine laboratory operating conditions.

3.2.4 *qualified groundwater scientist (QGS)*—a scientist or engineer who has received a baccalaureate or postgraduate degree in the natural sciences or engineering and has sufficient training in groundwater hydrology and related fields as may be demonstrated by state registration, professional certifications, or completion of accredited university programs that enable the individual to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and corrective action.

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.

*A Summary of Changes section appears at the end of this standard