



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

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1. Scope

1.1 This standard provides a general method of selecting effective constituents for detection monitoring programs at RCRA 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, complete details of 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 document.

1.4 This practice 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 practice 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

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](#)

3. Terminology

3.1 Definitions:

3.1.1 *detection monitoring program*—a program of monitoring for the expressed purpose of determining whether or not there has been a release of contaminant to groundwater. Under RCRA, Detection Monitoring involves collection of groundwater samples from compliance point and upgradient monitoring wells on a semi-annual basis for analysis of hazardous constituents of concern, as specified under 40 CFR 264.98. Results are evaluated to determine if there is a statistically significant exceedance of the groundwater protection criteria and/or background. At non-RCRA sites, monitoring is conducted in a similar manner and results are compared to criteria to determine if there is a statistically significant exceedance.

3.1.2 *indicator constituents*—a class of analytes that, when detected in significant concentrations, provide an indication of a change in organic or inorganic geochemistry that may be from a waste source and supports further characterization.

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

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.