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Standard Guide for Sampling of Drums and Similar Containers by Field Personnel¹

This standard is issued under the fixed designation D6063; 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 information, including flow charts, for field personnel to follow in order to collect samples from drums and similar containers.

1.2 The purpose of this guide is to help field personnel in planning and obtaining samples from drums and similar containers, using equipment and techniques that will ensure that the objectives of the sampling activity will be met. It can also be used as a training tool.

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 appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.* See specific warnings in 7.4.3 and 7.4.4.

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

- D783 Practice for Core Sampling of Graphite Electrodes
- D1452/D1452M Practice for Soil Exploration and Sampling by Auger Borings
- D1586 Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils
- D1587/D1587M Practice for Thin-Walled Tube Sampling of Fine-Grained Soils for Geotechnical Purposes
- D2113 Practice for Rock Core Drilling and Sampling of

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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.

Rock for Site Exploration

- D4448 Guide for Sampling Ground-Water Monitoring Wells
- D4687 Guide for General Planning of Waste Sampling
- D4700 Guide for Soil Sampling from the Vadose Zone
- D4823 Guide for Core Sampling Submerged, Unconsolidated Sediments
- D4840 Guide for Sample Chain-of-Custody Procedures
- D5088 Practice for Decontamination of Field Equipment Used at Waste Sites
- D5283 Practice for Generation of Environmental Data Related to Waste Management Activities: Quality Assurance and Quality Control Planning and Implementation
- D5358 Practice for Sampling with a Dipper or Pond Sampler
- D5451 Practice for Sampling Using a Trier Sampler
- D5495 Practice for Sampling With a Composite Liquid Waste Sampler (COLIWASA)

3. Terminology

3.1 *Definitions:*

3.1.1 *bung, n*—usually a 2-in. (5-cm) or 3/4-in. (1.3-cm) diameter threaded plug, specifically designed to close a bung hole.

3.1.2 *bung hole, n*—an opening in a barrel or drum through which it can be filled, emptied, or vented.

3.1.3 *consolidated solid, n*—as used in this guide, a compact solid not easily compressed or broken into smaller portions.

3.1.4 *drum, n*—implies any drum, barrel, or non-bulk container of 5 to 110 gal (19 to 400 L) capacity.

3.1.5 *representative sample, n*—a sample collected such that it reflects one or more characteristics of interest (as defined by the project objectives) of the population from which it was collected.

3.1.6 *sample, n*—one or more items or portions collected from a lot or population.

3.1.7 *sampler, n*—the device used to obtain a sample.

3.1.8 *sludge, n*—as used in this guide, any mixture of solids that settles out of solution; sludges contain liquids that are not apparent as free liquids.

3.1.9 *unconsolidated solid, n*—as used in this guide, uncemented or uncompacted material that is easily separated into smaller portions.

3.1.10 *workplans, n*—plans that are specific to sampling at a particular site; examples are health and safety plans, and sampling and analysis plans.

4. Summary of Guide

4.1 This guide uses a decision-tree format to lead persons intending to sample waste materials from drums and similar containers through a series of questions. The answers to the questions result in recommended actions, including the selection of appropriate sampling equipment. Brief instructions on the use of the equipment are included.

4.2 This guide addresses commonly used sampling equipment and devices; it is not intended to cover all that might be purchased or custom made.

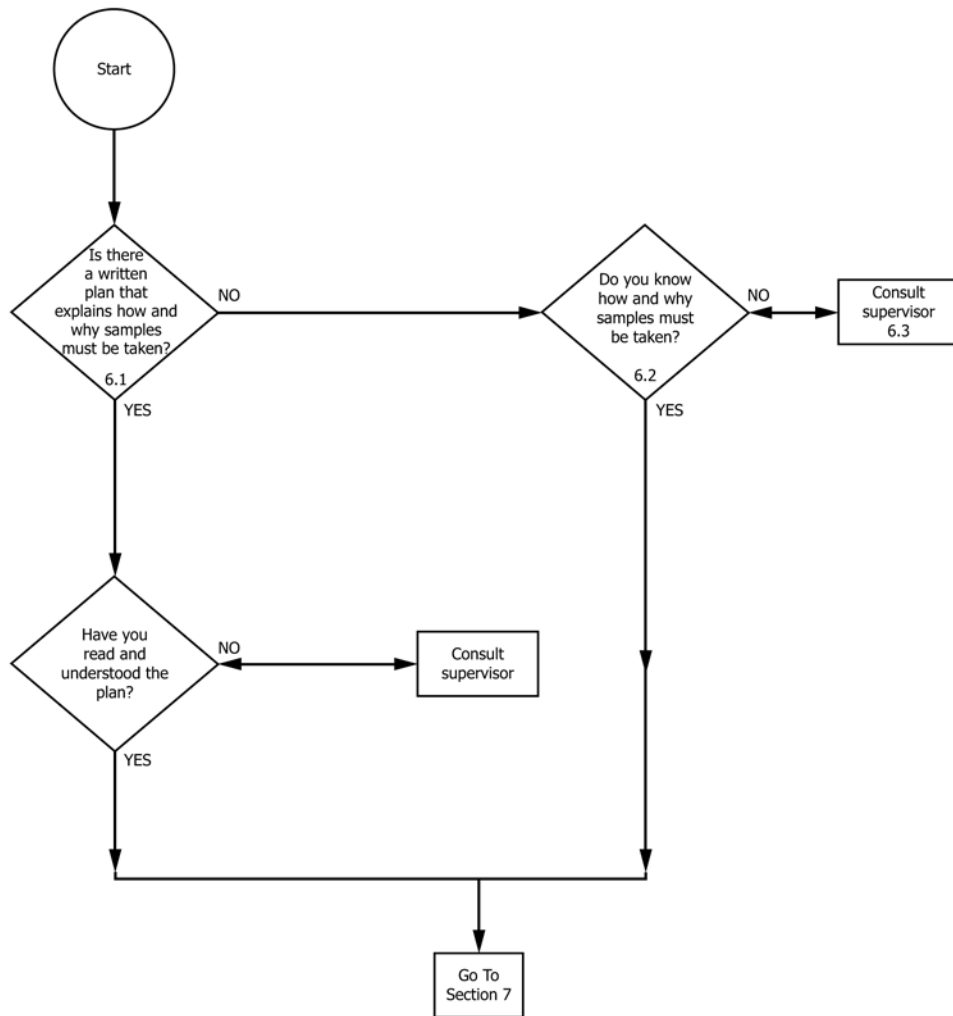
5. Significance and Use

5.1 This guide is intended to assist field personnel in obtaining samples from drums and similar containers for field and laboratory analysis. The need for accurate data, and the costs associated with sampling and analysis, make it essential

that samples be taken correctly before submitting them for chemical analysis or physical testing, or both. Incorrect sampling can invalidate resulting data.

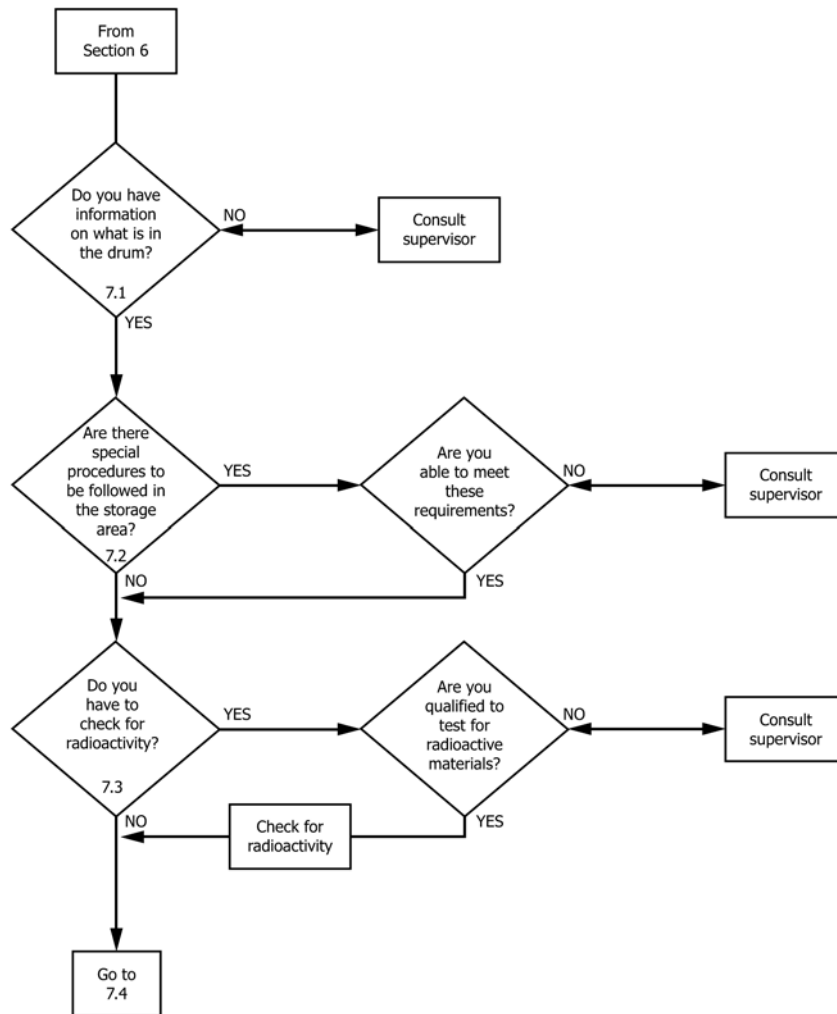
5.2 This guide may be used by personnel who have no formal workplan. It draws their attention to issues that must be addressed before, during, and after taking a sample. It provides guidance in choosing the sampling technique and equipment suitable for specific situations. It can serve as a training tool for those who are unfamiliar with sampling. It is recommended that this guide be used as a supplement to a written workplan.

5.3 Some sections of this guide contain flow charts (see Figs. 1-5) that must be worked through, starting from the top of each page. By answering the questions in the diamond-shaped boxes, and following the appropriate arrows, the person planning to sample will be guided toward the most suitable procedures and equipment. The numbers at the bottom of some boxes refer to corresponding paragraphs in the text, which provide information to help the person sampling answer the questions.



NOTE 1—This flow chart should be used with Section 6 in the text.

FIG. 1 Objectives of Sampling



NOTE 1—This flow chart should be used with 7.1 – 7.3 in the text.

FIG. 2 Pre-Sampling Inspection

5.4 Figs. 6-15 are examples of types of equipment. Similar devices that do the same job in the same way are not intended to be excluded.

6. Objectives of Sampling

6.1 The purpose of sampling is to collect a representative sample of all or part of the contents of the drum or similar container, to determine the physical and chemical characteristics of those contents (see Fig. 1). This information may then be used to:

- 6.1.1 Select suitable methods of treatment and disposal of the contents,
- 6.1.2 Provide evidence for use in a court of law,
- 6.1.3 Comply with regulations, such as those for the transportation of hazardous materials,
- 6.1.4 Confirm that the drums contain what is written on the label, manifest, or other type of documentation, and
- 6.1.5 Find out if any drums in a lot contain different materials from the majority.

6.2 In most cases, there is a written plan that describes the work to be done (Guide D4687). In other cases, there is no written plan and the instructions are only verbal.

6.3 If the objectives of sampling are unclear or unknown to the field personnel, they should question their supervisor or project manager about the objectives. Well-informed field personnel are then alert to unforeseen circumstances or events that might invalidate the samples.

7. Pre-Sampling Inspection

7.1 Information about the contents of the drums may be available from (see Fig. 2):

- 7.1.1 Previous analysis of drum contents from the same source,
- 7.1.2 The supplier/source of the material in the drums,
- 7.1.3 Manifest (shipping) documents,
- 7.1.4 Labels and other markings on the drums, or
- 7.1.5 Knowledge of the waste-generating process.