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Standard Practice for Sampling with a Scoop[1]

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1. Scope

1.1 This procedure covers the method and equipment used to collect surface and near-surface samples of soils and physically similar materials using a scoop.

1.2 *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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:* [2]

D 4687 Guide for General Planning of Waste Sampling

D 5088 Practice for Decontamination of Field Equipment Used at Nonradioactive Waste Sites

D 5283 Practice for Generation of Environmental Data Related to Waste Management Activities: Quality Assurance and Quality Control Planning and Implementation

D 5792 Practice for Generation of Environmental Data Related to Waste Management Activities: Development of Data Quality Objectives

D 6044 Guide for Representative Sampling for Management of Waste and Contaminated Media

D 6232 Guide for Selection of Sampling Equipment for Waste and Contaminated Media Data Collection Activities

2.2 *Other Documents:*

Pierre Gy's Sampling Theory and Sampling Practice, Francis F. Pitard[3]

3. Summary of Practice

3.1 The top layers of material are removed down to the required sample depth using a shovel or other suitable equipment. A clean scoop is then used to collect the actual sample, which is placed in a sample container.

4. Significance and Use

4.1 This practice is intended for use in collecting samples of contaminated soils and similar materials.

4.2 Scoops are used primarily for collecting samples near the surface. Subsurface samples can be obtained by first removing higher layers using a shovel or other suitable equipment and collecting the sample with the scoop.

4.3 Because of their simplicity, scoops are useful in taking samples of waste materials where decontamination or disposal is a problem with other types of sampling equipment. Scoops are also suitable for use in rapid screening programs, pilot studies, and other semi-quantitative investigations.

4.4 Samples should be collected in accordance with an appropriate work plan (see Practice D 5283 and Guide D 4687).

5. Sampling Equipment

5.1 A shovel or other suitable equipment can be used for the initial removal of overburden material. This equipment should be manufactured from material that is compatible with the soil or waste to be sampled. The scoop must be manufactured from material that is compatible with the soil or waste to be sampled and the required test or analysis to be performed. For most hazardous waste sampling, either a disposable plastic scoop or a reusable stainless steel or polytetrafluoroethylene-coated scoop is suitable (see Guide 6232 and Practice 5792).

5.2 The design of the scoop is important to minimize sampling error, that is, all the material intended as the sample can be collected and placed in the sample container and is not lost as the scoop is systematically lifted from the source to the sample container (see Guide D 6044, Pierre Gy's Sampling Theory and Sampling Practice and Fig. 1).

5.3 For measurement of sample depth, a ruler or tape measure can be used.

5.4 The advantages of sampling with a scoop are that the scoops are:

5.4.1 inexpensive,

5.4.2 easy to use, and

5.4.3 easy to clean.

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[1] This practice is under the jurisdiction of ASTM Committee D34 on Waste Management and is the direct responsibility of Subcommittee D34.01.03 on Sample Preservation.

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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.

[3] Available from CRC Press, Inc., 2000 Corporate Blvd., NW, Boca Raton, FL 33431.

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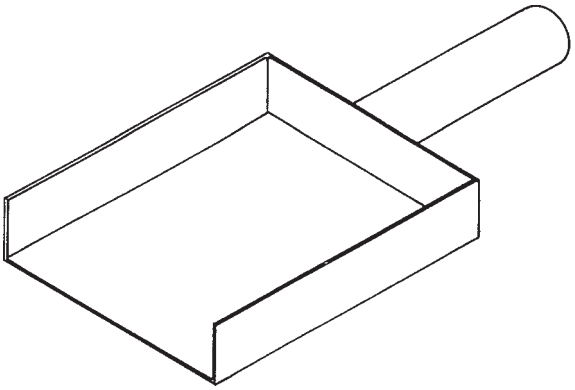

FIG. 1 Example of a Scoop

5.5 The limitations associated with sampling with a scoop are that the scoop may:

5.5.1 affect the matrix during sample collection by selecting certain particle sizes,

5.5.2 not be constructed in a shape that is compatible with the dimensions of the matrix, and

5.5.3 may exacerbate the loss of volatile organic compounds by distrubance of the sample.

6. Sample Containers

6.1 Plastic, glass, or other nonreactive containers should be used. Refer to Guide D 4687 for information on sample containers.

7. Procedure

7.1 Record all relevant information and observations about the sample location.

7.2 Use a shovel or other suitable equipment to remove any overburden material down to the level specified in the work plan.

7.3 Measure to the depth at which the sample will be collected with a ruler or tape measure. Record this information in the field log book.

7.4 Remove the thin layer of material that was in contact with the overburden removal equipment and discard it using a clean scoop. The work plan will define if the scoop may or may not be reused to collect the actual sample.

7.5 To collect a representative sample, the scoop should be pushed through the material with its base parallel to the material's surface. The scoop should enter one side of the material and completely exit the other side, where possible. Once the sample is in the scoop, the scoop should be lifted vertically taking care not to lose any sample out the front or over the sides and back of the scoop.

7.6 Collect a suitable volume of sample with the scoop (the same scoop can be used to collect multiple scoopfuls to obtain sufficient volume to fill the container). Use a new (or decontaiminated) scoop for each sample. Transfer the sample into the suitable container. Close the sample and complete and attach the sample label.

7.7 Complete the field log book and chain-of-custody form.

7.8 Decontaminate the reusable equipment in accordance with the protocol specified in the work plan (see Practice D 5088).

8. Keywords

8.1 sampling; scoop; soil sampling; waste

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