



RAILROAD COMMISSION OF TEXAS
SURFACE MINING AND RECLAMATION DIVISION

ADVISORY ID:
AG-RP-145

REVISION NO:

EFFECTIVE DATE:
January 1, 1996

ADVISORY NOTICE

SUBJECT: Overburden and Minesoil Samples - Preparation Procedure for Large and Small Volume Samples

APPROVAL

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TITLE: Director

I. PURPOSE

This Advisory Notice provides guidance for soil sample-preparation procedure to obtain a manageable sample size for a quantitative analysis that is representative of the volume of the material collected. Analytical results from samples prepared according to the procedure described will be more reproducible and representative of the soil sample collected.

II. REGULATION REFERENCE

Regulations 771.107, 779.127, 780.145(b)(4), 780.145.(5)(vii), and 816.335(e)

III. SUMMARY

The largest source of variability in analytical results is associated with the sample preparation procedure. To keep the degree of variability to a minimum, consistent sample preparation and volume reduction protocol should be strictly observed. The following sample-preparation procedure consists of a description of drying, grinding, mixing, sieving, and volume-reduction steps to obtain samples representative of the material received by the laboratory.

IV. SAMPLE PREPARATION PROCEDURE

The SMRD will assess all soil sample analytical data submitted, as if they were prepared for analysis according to the procedure outlined in this advisory. If another sample procedure is used, it must be provided and described in sufficient detail for evaluation, with the submission of the analytical data.

- A. All soil/overburden material collected as representing one sample, is air-dried on plastic trays or other non-metallic surfaces.
- B. Large clods are broken up with a blunt wooden object to sizes acceptable to a Chipmunk crusher.
- C. The air-dry material is weighed and then ground as follows:
 1. Air-dry samples of large volume are ground in a Chipmunk crusher with plates set at a distance of 1/4-inch.
 2. Air-dry samples of small volume are ground directly in a rotary hammer/flailer-type grinder.
- D. The ground material is passed through a 2-mm stainless-steel sieve.
- E. If the material passing through a 2-mm sieve is clayey, that is, if a moistened sample of this material forms a ribbon when worked between the thumb and forefinger, the material that remains on the 2-mm sieve (particles in the size range of less than 1/4 inch to 2 mm) are again passed through a Chipmunk crusher and sieved through a 2-mm sieve.
- F. The material remaining on the 2-mm sieve, that is, the particles in the size range of less than 1/4 inch to 2 mm, are weighed. The Percent Coarse Fraction is calculated according to the following formula:

$$\text{Percent Coarse Fraction} = \frac{(\text{weight material less than } 1/4 \text{ inch to } 2 \text{ mm})}{\text{total weight of air-dry sample}} 100$$

- G. All material passing through a 2-mm sieve is **repeatedly** passed through a splitter until a manageable volume of material is obtained. Samples for analysis are drawn from this volume.