

## **BENEFICIAL RE-USE SAMPLE ESTIMATION**

### Sample Collection

To adequately characterize soil proposed for use as beneficial fill the number of samples needed are provided in the table below:

Proposed Beneficial Fill Volume (Cubic Yards)	Number of Discrete Samples for Lab Analysis
0-60	1
60-240	2
240-480	3
480-720	4
720-1000	6
1000-2000	8
2000-3000	10
3000-4000	12
4000-5000	14

\* With volumes greater than 5,000 cubic yards, a sampling rate of 1 per additional 1,000 cubic yards is required. Additional samples may also be requested above and beyond the outlined approach if determined necessary by TDEC-DoR.

The table above is for discrete samples. Composite samples maybe used to reduce the number of discrete samples needed, if the following conditions are met:

- 1) If previous characterization information indicates there are no VOCs present in the soil. This is primarily due to the VOC loss that occurs during the homogenization of composite samples.
- 2) Volumes are large (i.e. greater than 10,000 cubic yards) and the soil proposed for use as beneficial fill is relatively homogeneous in nature.

Potential beneficial fill should be sampled in-situ or when it is staged in piles before it leaves the site. For delineating proposed beneficial fill in-situ, which is the more common scenario, the same volume sampling requirements outlined above will apply. The following equation can be used to determine how many samples to collect based on the area and depth of soil that may leaving the site as beneficial fill:

Acres (in yards) x (depth (ft)/3) = Total cubic yards

1 acre to a depth of 3 feet = 4,840 cubic yards. 14 discrete samples would be needed.

Examples:

½-acre site to a depth of 10 feet.  $(4,840/2) \times (10/3) = 8,066.67$  cubic yards – 18 samples needed.

3-acre site to a depth of 5 feet.  $(3 \times 4,840) \times (5/3) = 24,000$  cubic yards – 33 samples needed.

The goal for delineating and adequately characterizing soil that may be used at an off-site location as beneficial fill is to be protective of human health and the environment.