

Attachment VIII

*Finished Compost Batch Pile
Sampling Procedure*

Peninsula Compost Company

Finished Compost Batch Pile Sampling Procedure

1.0 PURPOSE

The purpose of this Finished Compost Batch Pile Sampling Procedure is to establish an appropriate sampling method that will be utilized by Peninsula to collect representative samples from their finished compost batches for analysis. The samples collected from each batch will be tested to ensure the compost material meets the end product performance criteria specified by the Department of Natural Resources and Environmental Control (DNREC) in Peninsula's Beneficial Used Determination (BUD) Approval (No. 29 dated September 26, 2013). The sampling procedures specified here are intended to ensure facility personnel employ proper collection and compositing techniques when obtaining the finished compost. The procedure specified here utilizes the general principles and practices outlined in the Test Methods for the Examination of Composting and Compost (TMECC).

2.0 SAMPLING EQUIPMENT AND MATERIALS

5 – 5 gallon High Density Polypropylene (HDPP)

1 – Shovel or other device for collecting initial samples

1 – Rake for compositing/mixing sample

1 – HDPP trowel for packaging composite samples

Varies – Sample containers (provided by Laboratory)

1 Pair - Nitrile Disposable Gloves

Rubber-tired loader for making cuts into finished compost pile

10 x 10 Plastic or canvas tarp

Cold Packs and cooler for shipping samples to Laboratory (provided by Laboratory)

Chain of Custody Form – (provided by Laboratory)

Site required personal safety equipment – e.g., hard hat, safety vest, work boots, etc.

3.0 SAMPLE TYPE

The finished compost material products by the facility has undergone four (4) phases of the compost operation, including, composting, stabilization and primary and secondary curing, in addition to final screening to ½” minus. At each phase the material is moved with large loaders and mixed. Consequently, by the time the finished compost is placed into a batch pile for sampling, it has been moved, mixed and screened multiple times which results in a rather homogenous mixture. Accordingly, composite sampling has been selected for the sampling methodology. Composite sampling provides a more representative sampling method than batch or group samples. The final composite sample that is analyzed will be comprised of randomly collected individual or point samples collected from the batch pile.

4.0 SAMPLE COLLECTION PROCEDURE

4.1 Selection of Random Locations

For the purposes of establishing the random sample locations the batch pile to be sampled will be divided into 20 imaginary equidistant sections as depicted in Figure 1, Sampling Locations for Windrows. Five locations or numbers that are represented by the 20 equidistant sections are randomly selected. Each sample location 1 - 20 must have a front and rear designation thus the selection is from 40 different possible locations (1F – 20F on the front side of the pile and 1B – 20B on the back side of the pile).

Once the random locations have been selected a loader is used to cut into the windrow at each of the random sample locations. The cut should be made as deep as possible into the pile so that the sampler has safe access to the center of the windrow.

4.2 Individual or Grab Samples

From each of the random sample locations a minimum of three (3) individual or grab samples must be obtained from three (3) different heights throughout the pile. Accordingly, one grab sample will be collected from the upper 1/3 of the pile, the middle 1/3 of the pile and the bottom 1/3 of the pile in each sampling section (this is depicted in Figure 1 individual sample locations). The individual samples from each height level are obtained using a clean shovel, or similar acceptable equipment, and placed into one of the 5 gallon buckets. Additional grab samples maybe be taken if deemed appropriate to obtain a representative sample, however if additional grab samples are taken they should all be of equal volume. Once the individual samples are placed into the plastic 5 gallon bucket the lid is placed on the bucket and the material is mixed thoroughly by shaking and turning the pail.

The above individual sampling process is repeated at each of the five (5) random sample section locations. The sampler will end the sampling event with 5 -5 gallon pails filled with mixed samples of compost, one from each random cut out location.

4.3 Preparation of Final Compost Sample

Once the five pails are filled they need to be composited. Compositing is accomplished by dumping all 5 pails onto a clean tarp. Using a clean shovel or rake mix the 5 samples into one homogenous mix that represents the entire windrow. Quarter the composite sample and mix the selected quarter completely. Continue quartering and mixing the material until approximately three (3) gallons of the material remains. This is the randomly selected composite sample.

4.4 Packaging and Shipment of Samples for Analysis

The composite sample must then be transferred into the sample containers provided by the laboratory. This can be accomplished by hand using the nitrile gloves or with a hand trowel. Once the sample containers have been filled they need to be properly labelled with the sampling information which will include the date and time the sample was taken, the proper sample designation, samplers name and each analysis to be performed (see Table 1). Sample containers can then be placed into the sample cooler. Cold packs should be packaged with the sample containers to help control the sample temperature during shipment. The chain of custody provided by the laboratory should be completed with all the required information. The sample cooler and chain of custody should be shipped to the Laboratory via overnight delivery to ensure the applicable analyte holding times are met.

Table 1

Analytical Testing for Final Batch Piles	
Maturity	Cadmium
Soluble Salts (Conductivity)	Chromium
Salmonella	Copper
Fecal Coliform	Lead
pH	Mercury
Manmade Inerts	Molybdenum
Plastic	Nickel
Moisture Content	Selenium
Carbon to Nitrogen Ration	Zinc
Arsenic	

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Figure 1: Random Sample Locations For Windrows

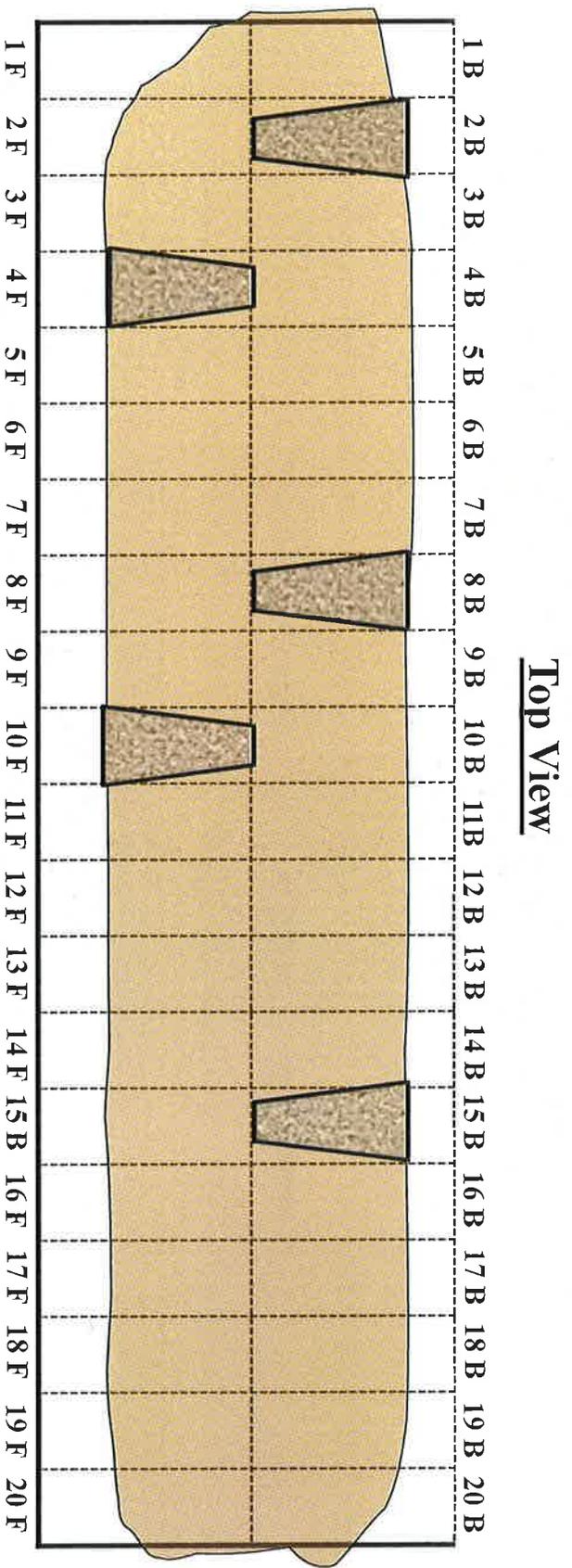


Figure 2: Individual Sample Locations

