FLORIDA DEPARTMENT OF TRANSPORTATION
State Materials Office
5007 NE 39th Avenue
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Florida Method of Test for Sampling Aggregates

Designation: FM 1-R 090

FM 1-R 090 is identical to AASHTO R 90-18 except for the following provisions:

1. Delete Section 4.3 and replace with:

   "4.3. Sampling Tube-Plastic, aluminum or similar tube, six-feet long with a 1 1/4-inch diameter."

2. Change Section 5.8 header to "Sampling from Aggregate Stockpiles"

3. Delete Section 5.8.1 and replace with:

   "5.8.1. Sampling from Stockpiles with a Front-End Loader

   Power equipment (generally a rubber wheeled front-end loader) should be used to remove material from the bottom of the stockpile, at three locations across the entire cross-sectional face of the stockpile. Production should not be occurring on the face during sampling. The loader should operate in a direction perpendicular to the conveyor or to the direction in which the stockpile was created. The face should be opened as many times as required to make material cascade from the top to bottom of the stockpile. Material removed by opening the face should be placed away from the area to be sampled. With the bucket about 18 inches above the base of the stockpile, one loader bucket of material should be collected from the middle of the face. The loader should be directed straight into the face and the bucket scooped upwards parallel to the slope. Care should be taken to keep the loader wheels off the pile. After backing from the pile, the bucket should be lowered to about 3 to 4 ft above the surface and the material allowed to slowly roll out with a downward tilt of the bucket. The loader should pull forward to allow the material to cascade out at all times on to the crest of the mini stockpile being formed, breaking to either side . When the bucket is empty, the loader should then be driven forward past the edge of the mini stockpile, and the blade rotated down. The loader is then reversed so that the blade edge can be back dragged across the upper 1/2 to 1/3 of the mini stockpile, creating a flat surface at least 18 inches high, to expose the center of mass to be sampled. Avoid sampling within one foot of the edge of the mini stockpile. Samples are taken, by pushing a square tipped shovel inserted vertically to its full depth in at least 3 points on the flattened stockpile, along the line of the original crest Ensure that the sample is representative of the mini stockpile and the face sampled. Repeat the process with the collection of two more buckets across the entire cross-sectional face of the stockpile. Composite material from the three mini stockpiles to form the sample."

4. Change Section 5.8.2 header to: “Sampling Fine Aggregate from a Horizontal Surface on the Stockpile Face Using a Board and Shovel”

5. Add Section “5.8.2.6. This method can be used only on windrows or truck-dumped stockpiles”

6. Delete Section 5.9 and replace with:

   “5.9. Sampling from a Stockpile of Fine Aggregate Using a Sampling Tube (Alternate Method)

   Samples should be taken at random locations in the stockpile: three in the lower third, two in the middle, and one just below the upper third. (See Note 3) Overlying material on the sampling area should be cleared. The sampling personnel should push the tube horizontally into the face of the stockpile until the material plugs the tube. Jamming the tube its entire length with one thrust should be avoided. After the tube plugs, it should be removed, and the tube surface wiped clean. The tube should be emptied into a portable sample container. The tube should be reinserted into the same hole location until resistance is encountered. The tube should then be pushed horizontally into the face of the stockpile until the material plugs again. The procedure should be repeated as many times as necessary until the entire length of the tube has been inserted into the stockpile.

   Note 3 - This method is referred to as the 3-2-1 technique. The top third of the stockpile contains 11 percent of the material by volume and is likely to be segregated. Thus, the last sample taken may be just below this area. When an aggregate producer does not permit personnel to climb a stockpile, this method may not be used.”