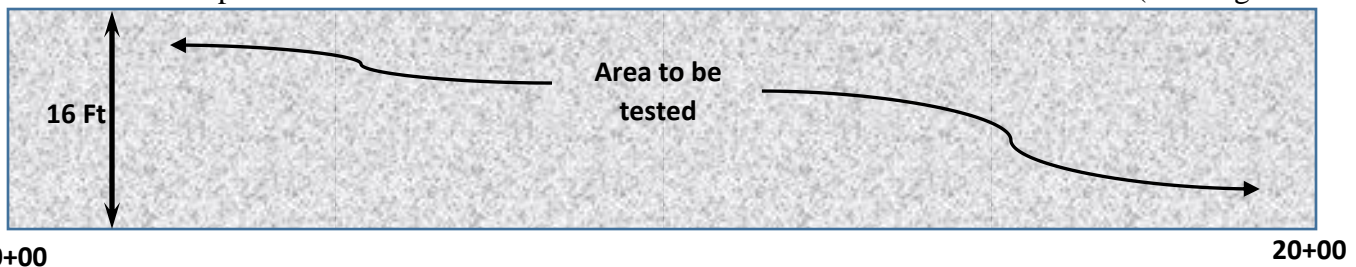


The State Auditor's Office conducted an audit of several DOT construction projects across the state and noted issues of concern or items of non-compliance regarding adherence to sampling or testing procedures. Following these procedures is critical to ensure compliance with the *Code of Federal Regulations* (C.F.R.) and help protect taxpayers' resources. Three items of non-compliance cited in the audit include:

- Nuclear density test sections exceeding maximum allowable lengths
- Technicians performing nuclear density acceptance tests with an expired or pending certification
- Failure to obtain aggregate Roadway Assurance (RA) samples to represent material delivered

Nuclear Density Test Section - Table 1 (page 13) of the *Nuclear Density Testing Manual – Base Course, FDR and Select Materials* lists criteria for test lengths. For example, how many test sections are needed if the Contractor has compacted an area from station 0+00 to station 20+00 at a width of 16 feet (see diagram below):



Due to a width of 16 feet, each test section must not exceed 1,500 feet. Therefore, a minimum of two test sections are needed to represent the area in this example. In this case, best practice procedures would involve dividing the 2,000 foot area into two 1,000 foot test sections. Web-link provided below to the *Nuclear Density Testing Manual*:

<https://connect.ncdot.gov/resources/Materials/MaterialsResources/Nuclear%20Density%20Testing%20-%20Base,%20FDR%20and%20Select%20Materials.pdf>

Technician Certification Status - C.F.R. requires technicians performing acceptance sampling or testing have a valid certification. Certification status for project personnel should be verified prior to performing any acceptance tests or obtaining acceptance samples. A technician must have an *Active* or *Provisional* status to have a valid certification (Vendor provides certification status).

Roadway Acceptance (RA) Sampling – As base course material is delivered to a construction project, it must be sampled. Currently one sample must be obtained for each 2,500 tons or fraction thereof. The *Aggregate Sampling Manual* provides detailed information regarding RA samples including sampling methods, data entry, sample submission, etc. Web-link provided below to the *Aggregate Sampling Manual*:

<https://connect.ncdot.gov/resources/Materials/MaterialsResources/ABC%20Sampling%20Manual.pdf>

Critical Misconception - One critical misconception regarding acceptance sampling or testing is the false idea that sampling or testing frequency can be increased late in a project to “catch up” for material which has not been properly represented. As an example, project personnel fail to obtain RA samples for 10,000 tons of base material delivered between May 1 and June 31 and then increase sampling frequency for the next 10,000 tons of base material delivered between July 1 and September 15 so that enough samples are taken to represent 20,000 tons of material. In this example the total quantity (20,000 tons) delivered has enough samples. However, the first 10,000 tons delivered does not have any samples representing the material. If cited by an auditor, the first 10,000 tons would not have the necessary representation and be reported as an item of non-compliance.

Additional Information – Please contact your Materials and Tests representative or visit our website for additional information.

Website: <https://connect.ncdot.gov/resources/materials/Pages/default.aspx>

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