METHODS OF SAMPLING AND TESTING
MT 114-10
METHOD OF SAMPLING FOR CHLORIDE CONTENT OF BRIDGE DECK CONCRETE

1 Scope

1.1 This is a method of sampling bridge deck concrete for chloride content.

1.2 See MDT Safety Policies and Procedures Manual.

2 Apparatus

2.1 *Coring Machine*

2.2 *Pachometer* - A pachometer is available upon request from the Materials Bureau

2.3 *Gas powered (110-115 Volt A.C.) Generator* with transport cart for operating drill

2.4 *Rotary Impact Drill* of heavy duty construction

2.5 *Bit* - 3/4 inch (19mm) diameter carbide steel bit

2.6 *Vacuum cleaner*

2.7 *Pliable sampling spoon* – Copper or flexible spoon 3 inches (7.5mm) in length and less than 3/4 inch (19mm) in width

2.8 *Plastic bottles* - Approximately 2 inches (50mm) tall and 1 inch diameter with sealable caps

2.9 *Ruler* with 0.10" increments and millimeters

2.10 *Paper labels*

2.11 *Fast Setting Grout* – "Set 45", "Rockite" or other fast setting grout

2.11 *Personal Protective Equipment* - Plastic goggles, hearing protection, gloves

2.12 *Plastic bottle* containing one of the following: distilled water, deionized water, ethanol (denatured) or methanol (technical grade)

3 Sampling

3.1 Chloride samples shall be taken before coring and in an area as close as possible and with the same types of distress (i.e. delaminations or cracking) as that intended for coring.

3.2 When coring or sampling for chlorides extreme caution will be required due to traffic hazards and use of power equipment. For standard safety practices refer to the MDT Safety Policies and Procedures Manual.

4 Procedure

4.1 The Bridge Plans are used to find approximate rebar location, cover over rebar, and thickness of concrete.

4.2 The pachometer is used to locate top layer of reinforcing steel and its depth.

4.3 Drill a hole 1/4 inch (6mm) deep and discard this portion of the sample by using the Vacuum cleaner. (See Note 1)

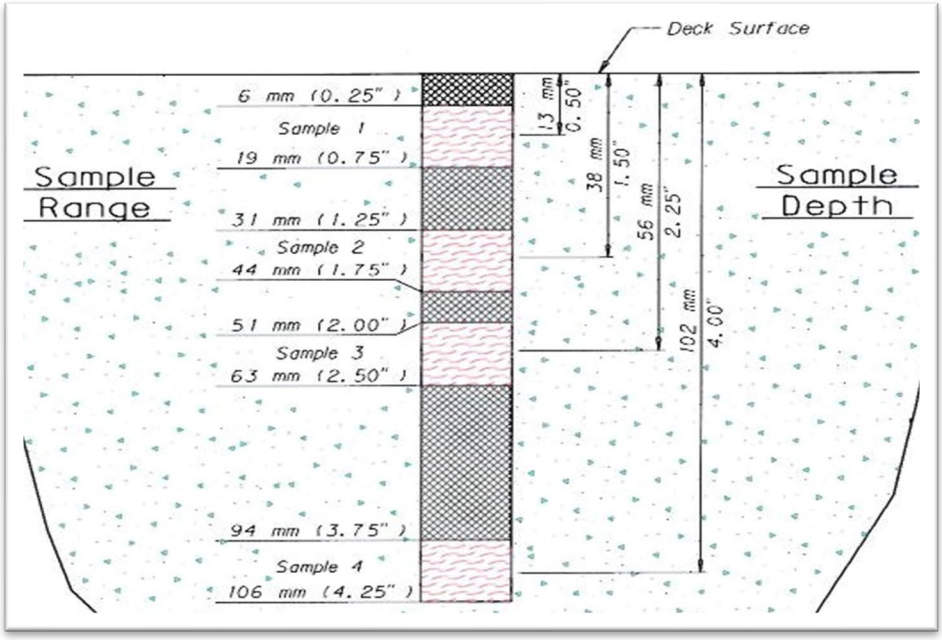
4.4 Drill the hole to a depth corresponding to the top of the rebar (see Note 1 and 2) and use copper or plastic spoon to collect minimum 10 g sample in plastic bottle labeled "A".

4.5 Clean the hole out with the Vacuum cleaner.

4.6 Drill hole to a depth of one inch below the top layer of reinforcing steel. Secure minimum 10 g sample of pulverized concrete with copper or plastic spoon and place into plastic bottle labeled as "B". (See Note 1 and 2)

4.7 Clean holes and fill with high strength epoxy grout patching compound such as "Set 45" or "Rockite".

Note 1 - The sketch as shown below defines the drilling depth for sampling:



Cross Section Through Slab

Note 2 -During sample collection and pulverizing, personnel shall use caution to prevent contact of the sample with hands or other sources of body perspiration or contamination. Further, all sampling tools (drill bits, spoons, bottles, sieves, etc.) shall be washed with alcohol or distilled water and shall be dry prior to use on each separate sample. Alcohol is normally preferred for washing because of the rapid drying which naturally occurs.

5 Labeling

5.1 The following data will be written on each label and attached to each sample bottle:

Project number and termini
E.B. or W.B. lane
Position in lane measured from curb
Depth range of sample measured from top of deck and labeled as "A" or "B"; (See Note 1)
Depth of reinforcing steel
Core number cross reference
Brief description of condition of area (i.e., delaminations, cracks).

6 Submittal

6.1 Cores with chloride samples will be submitted to the Materials Bureau.

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