**Concrete Technician Assessment & IA Split Sampling**

**Summary Sheet**

Technician Name: Click or tap here to enter text. Technician ID#: Click or tap here to enter text.

Technician Assessor Name: Click or tap here to enter text. Assessment Date: Click or tap to enter a date.

IA Sampling Assessor Name: Click or tap here to enter text. IA Sampling Date: Click or tap to enter a date.

HiCAMS #: Click or tap here to enter text.

**Technician Assessment Results**

|  |  |  |
| --- | --- | --- |
| **Test Procedure** | **Assessment Results** | **Investigation Notes (Required if Un-Acceptable)** |
| Slump | Choose an item. | Click or tap here to enter text. |
| Air-Pressure Meter | Choose an item. | Click or tap here to enter text. |
| Temperature | Choose an item. | Click or tap here to enter text. |
| Test Specimens | Choose an item. | Click or tap here to enter text. |

**IA Split Sampling Results**

|  |  |  |
| --- | --- | --- |
| **Test Procedure** | **Sampling Results** | **Investigation Notes (Required if Un-Acceptable)** |
| Slump | Choose an item. | Click or tap here to enter text. |
| Air-Pressure Meter | Choose an item. | Click or tap here to enter text. |
| Temperature | Choose an item. | Click or tap here to enter text. |
| Test Specimens | Choose an item. | Click or tap here to enter text. |

Notes:

Click or tap here to enter text.

**Test Method For Slump Of Hydraulic-Cement Concrete**

**ASTM C143**

**NCDOT IA Assessment and Split Sampling**

Technician Name: Click or tap here to enter text. Technician ID#: Click or tap here to enter text.

**Procedure**  **1st Trial** **2nd Trial**

1. Verify equipment meets all requirements per ASTM Standard.
2. Dampen the interior of the slump mold.
3. Place the mold on a rigid, flat, level, moist, nonabsorbent surface, free

of vibration, that is large enough to contain all of the slumped concrete.

1. Hold the mold firmly in place during filling and cleaning by standing on the

two foot pieces on either side of the mold. A base plate with clamps is

also acceptable.

1. Using a scoop, fill the mold in three layers, moving the scoop around the

perimeter of the mold opening to ensure an even distribution of the

concrete. For the first layer:

1. Fill the mold to approximately 1/3 of its volume (2-5/8”).
2. Rod the layer 25 times throughout its depth with the rounded

end of the tamping rod. Uniformly distribute the strokes over

the cross section of the layer. Incline the rod slightly, starting

near the perimeter, and progress with vertical strokes spirally

toward the center.

1. For the second layer:
2. Fill the mold to approximately 2/3 of its volume (6-1/8”).
3. Rod the layer 25 times uniformly over the cross section,

with the rounded end of the rod. Rod through the layer

and into the layer below approximately 1 inch. Uniformly

distribute the strokes over the cross section of the layer.

1. For the third layer:
2. Heap concrete above the top of the mold.
3. Rod the layer 25 times uniformly over the cross section,

with the rounded end of the rod. Rod through the layer

and into the layer below approximately 1 inch. Uniformly

distribute the strokes over the cross section of the layer.

1. Should rodding the layer result in the concrete falling below

the top of the mold, add concrete to keep an excess above the

mold. Continue the rodding count from the value reached

before concrete was added to the mold.

1. Strike off the top surface of concrete with the tamping rod in a screeding

and rolling motion.

1. While maintaining downward pressure, remove any concrete which collected

around the base of the mold during strike off.

1. Immediately remove the mold by raising it in a steady, vertical direction.

There should ne no lateral or torsional motion of the mold while lifting. Lift

the mold off the concrete, a distance of 12 inches, in 5 + 2 seconds.

1. Complete the slump test, from the start of filling the mold through the

removal of the mold, in 2-1/2 minutes.

1. If a decided falling away or shearing off of concrete from one side or

portion of the mass occurs, disregard the test and make a new test on

another portion of the sample.

1. Immediately measure the slump. This is the vertical distance between

the top of the mold and the displaced original center of the top surface

of the specimen.

1. Report the slump to the nearest ¼ inch.

Technician Assessor Name: Click or tap here to enter text. Assessment Date: Click or tap to enter a date.

IA Sampling Assessor Name: Click or tap here to enter text. IA Sampling Date: Click or tap to enter a date.

**Technician Assessment Requirements**

|  |
| --- |
| **To successfully complete each step in the above procedure within two trials.** |

**Technician Assessment Results**

|  |  |  |
| --- | --- | --- |
| **Technician Assessment** | **Results** | **Investigation Notes (Required if Un-Acceptable)** |
| Trial 1 | Choose an item. | Click or tap here to enter text. |
| Trial 2 | Choose an item. | Click or tap here to enter text. |

­

**IA Split Sampling Requirements**

|  |  |  |  |
| --- | --- | --- | --- |
| **Correlation** | **Acceptable**  **(<= 1.0”)** | **Un-Acceptable**  **(> 1.0”)** | **Investigation Notes**  **(Required if Un-Acceptable)** |

**IA Split Sampling Results**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Technician Results (“)** | **IA Assessor Results (“)** | **Correlation Results** | **Investigation Notes** |
| Trial 1 |  |  | Choose an item. | Click or tap here to enter text. |
| Trial 2 |  |  | Choose an item. | Click or tap here to enter text. |

**Test Method For Air Content of Freshly Mixed Concrete by the Pressure Method**

**ASTM C231**

**NCDOT IA Assessment and Split Sampling**

Technician Name: Click or tap here to enter text. Technician ID#:Click or tap here to enter text.

**Procedure**  **1st Trial** **2nd Trial**

1. Verify equipment meets all requirements per ASTM Standard.
2. Dampen the interior of the measuring bowl.
3. Using a scoop, place the concrete in the measuring bowl in the required

number of layers, moving the scoop around the perimeter of the measuring

bowl opening to ensure an even distribution of the concrete.

For the first layer:

1. Fill the measuring bowl approximately 1/3 of its volume.
2. Rod the layer 25 times, uniformly over the cross section, with the

rounded end of the rod. Rod the layer throughout its depth using

care not to damage the bottom of the measuring bowl.

1. Tap the sides of the measuring bowl smartly 10 to 15 times with

the mallet to close any voids left by the tamping rod and to release

any large bubbles of air.

1. For the second layer:
2. Fill the measuring bowl to approximately 2/3 of its volume.
3. Rod the layer 25 times, uniformly over the cross section, with the

rounded end of the rod. Rod through the layer and into the layer

below approximately 1 inch.

1. Tap the sides of the measuring bowl smartly 10 to 15 times with

the mallet to close any voids left by the tamping rod and to release

any large bubbles of air.

1. For the third layer:
2. Add concrete in a manner to avoid excessive overfilling.
3. Rod the layer 25 times, uniformly over the cross section, with the

rounded end of the rod. Rod through the layer and into the layer

below approximately 1 inch.

1. Tap the sides of the measuring bowl smartly 10 to 15 times with

the mallet to close any voids left by the tamping rod and to release

any large bubbles of air.

1. Using a strike off bar, strike off the top surface by sliding the strike off bar

across the top flange or rim of the measuring bowl with a sawing motion

until the bowl is just level full.

1. Thoroughly clean the flange/rim of the measuring bowl and cover assembly.
2. Clamp the cover assembly to the measuring bowl ensuring a pressure-tight seal.
3. Close the main air valve between the air chamber and measuring bowl. Open

both petcocks on the cover.

1. Use a syringe to inject water through one petcock until water emerges from

the opposite petcock. Jar the meter gently until all air is expelled from the

opposite petcock.

1. Close the air bleeder valve and pump air into the chamber until the hand on

the dial gauge is on the initial pressure line. Allow a few seconds for the

compressed air to cool.

1. Stabilize the gauge hand at the initial pressure line by bleeding, pumping,

and lightly tapping the gauge by hand.

1. Close both petcocks.
2. Open the main air valve between the air chamber and measuring bowl. Tap

the sides of the measuring bowl smartly with the mallet. Lightly tap the

pressure gauge by hand to stabilize the gauge hand.

1. Read the percentage of air on the dial of the pressure gauge.
2. Release the main air valve. Release the pressure in the bowl by opening

both petcocks before removing the cover.

1. Report the air content to the nearest 0.1% using the aggregate correction

factor (if applies).

Technician Assessor Name: Click or tap here to enter text. Assessment Date: Click or tap to enter a date.

IA Sampling Assessor Name: Click or tap here to enter text. IA Sampling Date: Click or tap to enter a date.

**Technician Assessment Requirements**

|  |
| --- |
| **To successfully complete each step in the above procedure within two trials.** |

**Technician Assessment Results**

|  |  |  |
| --- | --- | --- |
| **Technician Assessment** | **Results** | **Investigation Notes (Required if Un-Acceptable)** |
| Trial 1 | Choose an item. | Click or tap here to enter text. |
| Trial 2 | Choose an item. | Click or tap here to enter text. |

­

**IA Split Sampling Requirements**

|  |  |  |  |
| --- | --- | --- | --- |
| **Correlation** | **Acceptable**  **(<= 1.0 %)** | **Un-Acceptable**  **(> 1.0 %)** | **Investigation Notes**  **(Required if Un-Acceptable)** |

**IA Split Sampling Results**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Technician Results (%)** | **IA Assessor Results (%)** | **Correlation Results** | **Investigation Notes** |
| Trial 1 |  |  | Choose an item. | Click or tap here to enter text. |
| Trial 2 |  |  | Choose an item. | Click or tap here to enter text. |

**Temperature of Freshly Mixed Hydraulic-Cement Concrete**

**ASTM C1064**

**NCDOT IA Assessment and Split Sampling**

Technician Name: Click or tap here to enter text. Technician ID#: Click or tap here to enter text.

**Procedure**  **1st Trial** **2nd Trial**

1. Verify equipment meets all requirements per ASTM Standard. \_\_\_\_\_\_\_ \_\_\_\_\_\_\_
2. Place the temperature measuring device in the concrete so the sensing

Portion is submerged a minimum of 75mm (3in) \_\_\_\_\_\_\_ \_\_\_\_\_\_\_

1. Gently press concrete around the TMD so that ambient (outside) air

Temperature does not influence the measured temperature. \_\_\_\_\_\_\_ \_\_\_\_\_\_\_

1. Leave the TMD in the concrete for at least 2 minutes but not more than

5 minutes. \_\_\_\_\_\_\_ \_\_\_\_\_\_\_

1. Read and record the fresh concrete temperature to the nearest 0.50 C (10F).

Do not remove the TMD from the concrete when reading the temperature. \_\_\_\_\_\_\_ \_\_\_\_\_\_\_

1. Report the measured temperature of the freshly mixed concrete to the nearest

0.50C (10F). \_\_\_\_\_\_\_ \_\_\_\_\_\_\_

Technician Assessor Name: Click or tap here to enter text. Assessment Date: Click or tap to enter a date.

IA Sampling Assessor Name: Click or tap here to enter text. IA Sampling Date: Click or tap to enter a date.

**Technician Assessment Requirements**

|  |
| --- |
| **To successfully complete each step in the above procedure within two trials.** |

**Technician Assessment Results**

|  |  |  |
| --- | --- | --- |
| **Technician Assessment** | **Results** | **Investigation Notes (Required if Un-Acceptable)** |
| Trial 1 | Choose an item. | Click or tap here to enter text. |
| Trial 2 | Choose an item. | Click or tap here to enter text. |

­

**IA Split Sampling Requirements**

|  |  |  |  |
| --- | --- | --- | --- |
| **Correlation** | **Acceptable**  **(<= 30)** | **Un-Acceptable**  **(> 30)** | **Investigation Notes**  **(Required if Un-Acceptable)** |

**IA Split Sampling Results**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Technician Results (0F)** | **IA Assessor Results (0F)** | **Correlation Results** | **Investigation Notes** |
| Trial 1 |  |  | Choose an item. | Click or tap here to enter text. |
| Trial 2 |  |  | Choose an item. | Click or tap here to enter text. |

**Test Method For Making and Curing Concrete Test Specimens (4”X8”) in the Field**

**ASTM C31**

**NCDOT IA Assessment and Split Sampling**

Technician Name: Click or tap here to enter text. Technician ID#: Click or tap here to enter text.

**Procedure**  **1st Trial** **2nd Trial**

1. Verify test specimen molds meet all requirements per ASTM Standard.
2. Use a scoop to place concrete in the mold. Use care to distribute the material

evenly around the perimeter of the mold.

1. For the first layer:
2. Fill the mold with the appropriate quantity of concrete: approximately ½

the volume for a 4”X8” mold.

1. Rod the layer 25 times, uniformly over the cross section, with the rounded

end of the rod. Rod the layer throughout its depth using care not to damage

the bottom of the mold.

1. Use an open hand to tap cylinder molds that are susceptible to denting or

other permanent distortion if tapped with a mallet.

1. For the second layer:
2. Fill the mold with the appropriate quantity of concrete: fill a 4”X8” mold

to the top.

1. Rod the layer 25 times, uniformly over the cross section, with the rounded

end of the rod. Rod through the layer and into the layer below

approximately 1 inch.

1. Use an open hand to tap cylinder molds that are susceptible to denting or

other permanent distortion if tapped with a mallet.

1. During the consolidation of the top layer, adjust the concrete level of underfilled

and overfilled molds, if necessary.

1. Strike off any excess concrete with the tamping rod, or with a handheld float

or trowel if appropriate, to produce a flat even surface.

1. Provide protection to prevent sample moisture loss.
2. Mark the specimen to identify the concrete it represents, and move the

Specimens to an initial curing place for storage.

Technician Assessor Name: Click or tap here to enter text. Assessment Date: Click or tap to enter a date.

IA Sampling Assessor Name: Click or tap here to enter text. IA Sampling Date: Click or tap to enter a date.

**Technician Assessment Requirements**

|  |
| --- |
| **To successfully complete each step in the above procedure within two trials.** |

**Technician Assessment Results**

|  |  |  |
| --- | --- | --- |
| **Technician Assessment** | **Results** | **Investigation Notes (Required if Un-Acceptable)** |
| Trial 1 | Choose an item. | Click or tap here to enter text. |
| Trial 2 | Choose an item. | Click or tap here to enter text. |

­

**IA Split Sampling Requirements**

|  |  |  |  |
| --- | --- | --- | --- |
| **Correlation** | **Acceptable**  **(<= 500 psi)** | **Un-Acceptable**  **(> 500 psi)** | **Investigation Notes**  **(Required if Un-Acceptable)** |

**IA Split Sampling Results**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Technician Results (psi)** | **IA Assessor Results (psi)** | **Correlation Results** | **Investigation Notes** |
| Trial 1 |  |  | Choose an item. | Click or tap here to enter text. |
| Trial 2 |  |  | Choose an item. | Click or tap here to enter text. |