

ALDOT-407-01
VERIFICATION OF WATER-MEASUREMENT DEVICES FOR CONCRETE DELIVERY VEHICLES

1. Scope

- 1.1. This procedure outlines the requirements necessary to verify the calibration of truck mounted water meters, and truck-mounted sight gauges used in all Alabama Department of Transportation, herein referred to as ALDOT or as the Department, projects.
- 1.2. This procedure also establishes the verification frequency for truck mounted water meters and truck mounted sight gauges.

2. Required Equipment

- 2.1. The concrete producer shall provide the following equipment:
 - 2.1.1. Digital scale with a capacity of at least 50 lbs {23 kg} and a scale surface area of at least 144 in² {930 cm²}, calibrated within the last 6 months.
 - 2.1.2. Standard test weights to verify scale accuracy.
 - 2.1.3. A water-proof container capable of holding at least 5 gallons of water.

3. Verification Procedure

- 3.1. The concrete producer's Concrete Technician, certified by the Department, shall perform the verification in the presence of an ALDOT Area Materials representative.
- 3.2. Verify that the calibration of the scale does not exceed six months.
- 3.3. *Water Meters*
 - 3.3.1. Place the empty water-proof container on the scale, and record the weight [1]*.
 - 3.3.2. Deposit a volume of water specified by the ALDOT inspector in the container. Record the number of gallons indicated on the water meter [5].
 - 3.3.3. Record the weight of the container and the water [2].
 - 3.3.4. Subtract the weight of the empty container to determine the weight of water [3].
 - 3.3.5. Divide the weight of the water by 8.34 pounds/gallon to determine the actual number of gallons provided [4].
 - 3.3.6. Determine the allowable tolerances of the water meter as follows:
 - Negative tolerance [6] = weight of the water [4] x 0.99
 - Positive tolerance [7] = weight of the water [4] x 1.01
- 3.4. *Truck-mounted Sight Gauge*
 - 3.4.1. Place the empty water-proof container on the scale, and record the weight [1].
 - 3.4.2. Deposit a volume of water specified by the ALDOT inspector in the container. Record the number of gallons indicated on the sight gauge [5].
 - 3.4.3. Record the weight of the container and the water [2].

*=The numbers in brackets correspond to the numbered fields of the BMT-172.

- 3.4.4. Subtract the weight of the empty container to determine the weight of water [3].
- 3.4.5. Divide the weight of the water by 8.34 pounds/gallon to determine the actual number of gallons provided [4].
- 3.4.6. Subtract 1 gal from [4] to determine the negative tolerance [6]. Add 1 gal to [4] to determine the positive tolerance [7].

4. Verification Frequency & Documentation

- 4.1. Verification shall be performed every six months.
- 4.2. Any time the Engineer suspects inaccuracy in the equipment, he/she may request an on-site verification. Whenever this occurs, the verification shall be performed by the producer's Concrete Technician, certified by the Department, and witnessed by an ALDOT project inspector possessing a valid ALDOT Concrete Technician certification.
 - 4.2.1. When field verification is ordered, it is imperative that the verification of sight gauges take place on flat, level terrain.
- 4.3. A record of the verification will be maintained by the Department on BMT-172, "*Record of Verification of Truck Mounted Water Measuring Devices*".