

CHAPTER 6

RESPONSIBILITIES OF PRODUCER TECHNICIAN AND VDOT MATERIALS TECHNICIAN

The goal of each of these technicians is to insure that concrete delivered to the project site complies with the specifications for the concrete being produced. He/she should also study all facets of the plant operation, so as to recognize and anticipate critical periods for quality control.

Each technician is to take the time to keep accurate and complete records. These records will be necessary in evaluating the performance of the concrete in the years to come. A record must be made of all tests, calibrations, and quantities used. Any changes in the plant operation should also be documented.

Perhaps the best way for production personnel to have a complete understanding of the responsibilities of quality control, would be to list the responsibilities of the Producer's Certified Concrete Technician and the Virginia Department of Transportation District Materials Technician. Listed below is an outline of the duties and responsibilities of each of the aforementioned technicians.

DUTIES OF THE PRODUCER CERTIFIED CONCRETE TECHNICIAN

- I. **Concrete Mix Design:** Designs and submits the proposed mix design to the Department of Transportation for approval. It is his/her responsibility to see that all information contained in the proposed design is accurate and that the most current data has been used in the design calculations.
- II. **Communication:** Make sure good communication exists between the batching plant and the project site in the interest of quality control. Corrections to the batch may be performed much sooner if good communication exist.
- III. **Plant Materials:**
 - A. **Cement:** Assure that the cement is represented by a certification. He should make periodic checks of the storage compartment to insure that the cement is maintained in a dry condition and that the cement is stored so as to avoid contamination with a different type of cement or other materials. Assurance must also be made that enough cement is on hand for completing one day of concreting operation.
 - B. **Aggregate:** Check to insure that all aggregates which are to be used have been previously tested. He should see that the aggregates are stored in the proper manner so that intermingling is avoided and that segregation is minimized. He should see that the aggregates are maintained in moist condition (at least at saturated surface-dry, (SSD) condition). Also to make sure there is enough for one day's output.
 - C. **Admixtures:** See that the admixtures proposed for use have been approved and that the admixtures are stored properly. Admixtures are to be stored in a place where they will not become frozen and to prevent contamination and deterioration. The technician should also see that the admixtures are dispensed into the mix in an approved manner.

IV. Plant Equipment:

- A. **Scales:** Responsible for seeing that all weighing devices are properly inspected and have been serviced and certified within the past 6 months by a private scale service company. He should see that the weighing devices are in good operating and clean condition. He should also see that the required test weights are properly certified and maintained.
- B. **Bins and Weigh Hoppers:** Responsible for proper maintenance and repair of all storage bins and weigh hoppers and that the storage bins are arranged in a manner so as to avoid intermingling of the material.
- C. **Ready-Mix Trucks:** See that a sufficient number of trucks are available for each concreting operation and that the trucks are maintained and are in compliance with the Virginia Department of Transportation Specifications.

V. Plant Operations

- A. **Aggregate Moisture Checks:** Responsible for performing two (2) moisture tests daily, or as required, for aggregate prior to each day's concreting operation.
- B. **Batch Weight Adjustments:** Responsible for adjusting the design weights to the corrected pull weights, based on the moisture content of the representative aggregate moisture test as noted above.
- C. **Batching of Concrete:** Based on the moisture test and the calculated adjusted batch weights, the Producer's Certified Concrete Technician, or his/her designated Batchers, will weigh the ingredients and they will then be properly discharged into the mixer or ready-mix truck.

DUTIES OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION MATERIALS TECHNICIAN

I. **Mix Designs:**

- A. Checks the items listed on the mix design as submitted by the Producer's Certified Concrete Technician.
- B. Works closely with the field and the producer to insure that the designed concrete is giving the desired results.
- C. Responsible for conducting the performance tests, such as yield tests.

II. **Sampling of Materials:**

- A. **Cement, fly ash and slag** - Obtains samples from the plant if there is a problem. These materials are accepted on certification.
- B. **Aggregates** - Obtains samples from the plant if there is a problem. Plant should have shipping documentation verifying material is from an approved source.
- C. **Water** - Samples and tests the water which will be used in the concrete mixture in the initial plant inspection and periodically thereafter.

III. **Plant Inspections:** Inspects plants periodically for specification compliance. Following is a list of items which are inspected:

- A. **Aggregates** - Checks stockpiles to see that they are maintained properly and that shipping documentation verifies material is from an approved source.
- B. **Cement** - Checks to see that the cement, fly ash, and slag are stored in weatherproof compartments and that the cement is properly represented by mill certifications.
- C. **Admixtures** - Checks to see that admixtures are handled in a manner to prevent contamination, dispensed accurately and properly, and stored properly. Checks shipping documentation to verify that admixtures are from an approved source.
- D. **Water** - Checks the water dispensing device for accuracy and also checks and approves the water heating system for cold weather concrete.
- E. **Weighing Devices** - Checks all scales for accuracy and for compliance with specifications. A specific check is made to see that the certification on each weighing device is current.
- F. **Bins and Weigh Hoppers** - Inspects all bins and weight hoppers for compliance with specifications.
- G. **Mixers** - Inspects all mixing units for compliance with specifications. Items checked are revolution counters, timing devices, water gauges, and mixing blades.

- H. **Testing Equipment** - Assures that the following testing equipment is available at the concrete plant: ten (10) certified 50 pound (22.5 kg) weights, moisture determination devices, air meter, and consistency testing device (slump cone).
 - I. **Plant Personnel** - Checks to see that qualified personnel are available for concrete mixing operations and that required records are maintained.
- IV. **Project Site** - Assists the Project Inspector by performing the following duties:
- A. Assists in the training of new personnel
 - B. Checks the adequacy of mixing trucks
 - C. Assists in performing various tests at the job site
 - D. Investigates the cause of test failures
 - E. Observes the placing of concrete to see that the mix design is giving the desired results
 - F. Assists and observes bridge deck placements
- V. **Concrete School and Examination** - Assists the Central Office and District Personnel in the teaching of the Hydraulic Cement Concrete Certification School. He/she assists in the conducting of special schools as required by the District. He/she also assists in administering the certification examination throughout the state.

Chapter 6

Study Questions

1. _____ is responsible for designing the Concrete Mix.
2. _____ is responsible for assuring that concrete components are certified or approved.
3. _____ is responsible for conducting the performance tests, such as yield tests.
4. Making the moisture correction for aggregate is the responsibility of the _____.
5. Setting all the dials, gauges, scales, and meters at the batch plant is the responsibility of the _____.

