

1050302 CONTRACTOR QUALITY CONTROL GENERAL REQUIREMENTS –
COMPLIANCE WITH THE MATERIALS MANUAL - SECTION 92-61710
COMMENTS FROM INTERNAL/INDUSTRY REVIEW

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Comment: (9-28-10)

1. Page 9-2-2

Reword paragraph as follows:

Production facilities that are not currently producing for an FDOT contract and production facilities that have not been inspected within the last two inspection cycles may be designated as ‘Category B’ facilities on the Producers with Accepted Quality Control Programs list. ‘Category B’ signifies that the facility’s Quality Control Plan is accepted, but the facility is inactive. This status is for production facilities that are not currently producing for an FDOT contract, but wish to remain on the list of Producers with Accepted Quality Control Programs.

Response: Changes have been made to this paragraph to clarify the intent.

2. Page 9-2-14

Reword paragraphs as follows:

9.2.9.3.1 Automated Slump Monitoring System

The automated slump monitoring (ASM) system aboard a ready-mix truck includes as a minimum the following: 1) slump measuring, 2) slump adjusting and control, 3) water addition and slump adjustment recording.

Automated slump monitoring system information is to be included in the producer’s quality control plan. The quality control plan must also include provisions for training personnel to operate the proposed automated slump monitoring systems. As a minimum the producer shall train drivers, quality control personnel, and verification personnel to properly operate AMS systems.

*Automated slump monitoring systems must be calibrated annually and whenever a truck load is rejected to match slump measurements obtained in accordance with the **Florida Department of Transportation Specification, Section 346**. All system records including calibration records shall be maintained at the producing facility and available to the Department upon request.*

When water is added en route to the project site, mix concrete at speeds and number of revolutions recommended by the manufacturers of cement and admixtures. Automatic introduction of water is to be disabled upon arrival at the project site. Water shall not be added during the discharge of the batch.

Response: Changes have been made to this language based on other comments that address these comments.

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Comments: (10-1-10)

Redline at 9.2.4 seems to have some grammatical problems

Production facilities not producing for an FDOT contract and have not been inspected within the last two inspection cycles may be placed in a “B” category.....

This status is for production facilities currently not producing for an FDOT contract, but wish to remain on the list.....

Response: Changes have been made to this paragraph to clarify the intent.

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Comments: (10-01-10)

Suggested language for last paragraph in 9.2.4 GENERAL INFORMATION:

Production facilities that have not been inspected for the last two inspection cycles and are not currently producing for a Department contract may be placed in a “B” category on the Producers with Accepted Quality Control Programs list. Category “B” denotes the facility is inactive, but has an accepted Quality Control Plan. This status is granted to those facilities that, while not producing for a Department contract, wish to remain on the list of Producers with Accepted Quality Control Programs.

Response: Changes have been made to this paragraph to clarify the intent. These suggested changes have been adopted.

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Comments: (10-11-10)

1. Section 9.2.4 Last Paragraph: The requirements of inactive status are described in Section 5.6 QUALIFICATION STATUS CODES FOR QUALITY CONTROL PLANS. There is no need to repeat the information. Make necessary changes in Section 5.6.

Response: Change not made. Materials Manual 5.6 Volume I is addressed to FDOT personnel. The inclusion of the language here describes the process to Industry as well as defines criteria specific to structural concrete production facility.

2. Section 9.2.9.3.1: The producer should provide an ASTM Standard test method for Automated Slump Monitoring System or correlation data shall be provided to relate the standard slump test with this automated slump monitoring system.

Response: Change not made. There is currently no standard test method to correlate the standard slump test to the automated slump monitoring system.

3. Section 9.2.9.3.1 Last paragraph: This is in conflict with requirements of Section 9.2.10.3.

Response: Change not made. The manufacturer cannot recommend a higher number of revolutions. 10.3 is the governing factor with 9.3 allowing the manufacturer to determine the appropriate revolutions (as long as they do not violate 10.3.)

4. Section 9.2.10.3: The terminologies “specialty ingredients”, and “specialty ingredients supplier” should be defined.

Response: Definitions moved from 9.2.10.4 to 9.2.10.3 to clarify "specialty ingredients".

5. Section 9.2.11 (b): It has mentioned that action taken when batching high slump concrete to prevent lumps and balls shall also be addressed. Lumps and balls should be prevented in low and high slump concrete.

Response: Change not made. Lumps and balls do not occur in low slump concrete due to the nature of the mix.

6. Section 9.2.12 Last sentence: Change “qualification” to “qualification records”.

Response: Change made.

7. Section 9.2.12.3(8): Change “or always” to “and always”. Change four hours notice to “four-hour notice”.

Response: Change not made. It is not the intent that the QC Manager be required to be present on a daily basis. By changing to "and always" it would change to intent to require the QC Manager to be at the facility every day.

8. Section 9.2.12.4 Second paragraph: Change “will accept the following” to “will accept any of the following”.

Response: Change made.

9. Section 9.2.14.1.1.1: Provide applicable ASTM and AASHTO test methods.

Response: Test methods for applicable tests that are tested by the producer have been added in column 1 of the table.

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Comments: (10-20-10)

Section 9.2.1 PURPOSE

105-3.2 Compliance with the Materials Manual states the following: Producers of Portland Cement states, “Concrete shall meet the requirements of Section 9.2, Volume II of the Department’s Materials Manual.” I think this should specifically state what type of concrete production this Section applies to. 105-3.2 also states Producers of Precast/Prestressed Concrete Products shall meet the requirements of Sections 8.1 and 8.3 of the Department’s Materials Manual, Producers of Precast Prestressed Concrete Products using Self Consolidating Concrete shall meet the requirements of Section 8.4, and that Producers of Incidental Precast/Prestressed Concrete Products shall meet the requirements of Section 8.2. These producers also have to meet 9.2, but this isn’t very clear.

Response: Title of 9.2 changed to "STRUCTURAL CONCRETE PRODUCTION FACILITIES GUIDE". Added the term "structural" to 9.2.1.

Comments:

Section 9.2.3 SCOPE

This should also be more specific in terms of which Concrete Producers this Materials Manual Section is for.

Response: Added the term "structural" to 9.2.3.

Comments: (10-20-10)

9.2.6.1 Material Requirements

“Use materials containing no hard lumps, crusts, frozen matter, or that are not contaminated with dissimilar material.”

This should be “and” rather than “or.”

Response: Change not made. Change from or to and means that all the deficiencies would have to be present before the material could be rejected.

Comments: (10-20-10)

9.2.6.4.1 Water Measuring Devices

The following question and comments regard the paragraph that reads, “The following guidelines will apply when measuring devices are checked for conformity with accuracy requirements of the Specifications or as specified herein.”

Are these guidelines really just for water measuring devices? If not, this section needs to go somewhere else. I thought the four-step checks requirement was for all scales, but this was the only place that I saw it written.

Response: No change made. These steps only apply to water measuring devices. Other devices are verified according to FS 531.

Comments: (10-20-10)

9.2.6.8 Substitution of Materials

- 1) Change “assure” to “ensure” in the following sentence: “Perform testing for chlorides and assure compliance with Florida Department of Transportation Specifications, Section 346.”

Response: Change made.

- 2) “Approved adjusted mixes may be transferred.” The meaning of this sentence is vague. Does transferred mean that the adjusted mix will be given its own mix number? Would it then be allowed to be modified according to 9.2.6.6 Batch Adjustments for Materials?

Response: No change made. Substitutions of materials get a new mix design number. The new mix design number is subject to 9.2.6.6.

Comments: (10-20-10)

9.2.7 DESIGN MIXES

- 1) “If a plant is located out-of-state, submit the mix design to the DMRE with Quality Control Plan acceptance authority.” Where is this defined? It used to state, “If a plant is located out-of-state, submit the mix design to the nearest DMRE.”

Response: This is defined in 105-3.6.2.

- 2) “Ensure that preparation and testing of the trial mixes is performed by a laboratory that is inspected and meets the requirements of ASTM C1077. The testing laboratory shall be capable of performing the required ASTM test methods for laboratories testing concrete and concrete aggregates and may request evaluation for the optional methods.” In the Specifications Section 105-6 Lab Qualification Program, there are three options for getting a laboratory qualified. Why are we limiting these options in the Materials Manual?

Response: The intent is not to limit the options in 105-6. 105-6 applies to laboratories performing acceptance testing. In this case, the producer is not being required to be accredited by those agencies. The requirement is that they be inspected under test method ASTM C-1077. Any accrediting agency that includes ASTM C-1077 inspection would be sufficient.

Comments: (10-20-10)

9.2.9.3.1 Automated Slump Monitoring System

“Calibration of the automated slump monitoring system shall be done on an annual basis and in accordance with the Florida Department of Transportation Specification, Section 346, when a truck is rejected.” Does this mean that the calibration will be done in accordance with 346 or will be done every time a truck does not meet 346 and is rejected?

Response: Language changed to clarify the intent. Changes to Section 346 address when a truck is rejected. New language clarifies that the truck has been rejected as described in 346.

Comments: (10-20-10)

9.2.10.3 Transit Mixing

“The number of initial mixing revolutions may be modified when using specialty ingredients, as recommended by the specialty ingredients supplier.” Is this something the admixture company should decide? Should the Department have any say in this allowance?

Response: No change made. The specialty ingredient supplier would provide this information to the Producer who would include it as part of the Producer QC Plan which is reviewed and approved by the District Materials Office.

Comments: (10-20-10)

9.2.12.2 Certified Technicians

Should the qualification be ACI or CTQP? The CTQP qualifications would include the ACI qualifications, but without the CTQP qualifications, technicians wouldn't have a TIN and couldn't input data into LIMS.

Response: No change made. The technicians performing QC testing at concrete production facilities are not required to have CTQP qualifications. If the technician is at a prestressed facility, those MM sections govern. A technician holding CTQP qualifications would meet 9.2 requirements since ACI certification is part of the CTQP qualification.

Comments: (10-20-10)

9.2.12.3 Concrete Production Facility Manager of Quality Control

- 1) In Materials Manual 8.2.7.2, the Quality Control Manager is required to “be present at all times during the production of the Structures that will be shipped to Department projects.” There was no mention of a requirement for the Quality Control Manager for 346 production facilities until this version of 9.2. It states, “Concrete Production Facility Manager of Quality Control must be onsite at the concrete production facility on a daily basis or always available upon four hours notice to administer the QCP.” Why is the requirement for incidental precast concrete production so much stricter than the ready mix concrete production facilities? I don't know how much control of quality can be administered upon four hours notice.

Response: No change made. 8.2.7.2 governs the requirements of incidental precast concrete production facilities. The Manager of Quality Control for the concrete production is not required to be present on a daily basis.

- 2) The current qualifications listed were taken from 105, but one alternative was not included. It stated in 105, “Precast Concrete Pipe, Box Culverts, Drainage Structures or Incidental Precast Concrete Plants Level II Quality Control Inspector Certifications meeting the requirements of 105-8.11.” For precast plants that have 346 production facilities meeting 9.2, this alternative needs to remain. Otherwise, we are once again requiring lots of doubling up of requirements for the precast producers.

Response: Change made. This one was missed when moving from Section 105 to Materials Manual 9.2 Volume II.

Comments: (10-20-10)

9.2.14.1.2 Chloride Testing

- 1) “Chloride test results shall be obtained within 14 calendar days of sampling from a laboratory acceptable to the State Corrosion Engineer.” Will this be listed somewhere? How will producers and DOT personnel know which laboratories are acceptable and if

there is ever a change in a laboratories status?

Response: There is no published list. The Corrosion Section keeps a list of acceptable labs.

2) Materials Manual 9.2.14.1.2 Chloride Testing states, “It is the responsibility of the concrete producer to make sure chloride content of all reinforced concrete produced for the Department does not exceed the maximum allowable limits indicated in Florida Department of Transportation Specifications, Section 346.” MM 9.2 and 346 require that chlorides be tested at a certain frequency. The corrective actions are given if the chloride result exceeds the maximum allowed. The time frame requirement for obtaining the results from the testing lab is also given as well as the corrective action for not complying. Although these corrective actions are well defined, the Specification or Materials Manual doesn’t indicate what should take place for missing a chloride sample.

Response: This item was discussed at the CM-TAG meeting and the SMO and SCO are addressing it. No change made at this time.

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Comments: (10-22-10)

1) 9.2.6.8 Substitution of Materials (1st paragraph, last sentence)

A delivery ticket for the new material used in the substitution shall be submitted with the request to substitute material.

Comment-This could result in delays with the mix design approval process. We are still restricted from shipping the approved new design until the contractors have updated their QCP. In the event the aggregate substitution is based on a lab trial batch, the specific plant may not have a delivery ticket at the time the new mix is submitted, as the material used could well have originated from sampling at the quarry. The plant may not need to produce the concrete requested for a significant period of time after the aggregate substitution is submitted for approval.

Response: The language has been modified to include a purchase order or delivery ticket. Substitutions do not require a new trial batch. The purpose of this change is to align the substitution of materials with the mix design assignment process.

2) 9.2.9.3 Truck Mixers (5th paragraph, last two sentences)

The Contractor may (DW) will remove the identification cards when a truck mixer is discovered to be in noncompliance. When the identification card is removed for noncompliance, the Contractor shall note the deficiency on the identification card and forward the identification card to the DMRE in the District with Quality Control Plan acceptance authority.

Comment- The change from “may” to “will” does not allow latitude for any issue other than a non-working counter. This may result in project delays and in additional demand on FDOT personnel to visit the assigned plant to re-inspect the truck. With the current method of noting deficiencies on the DOT card the FDOT inspector can allow a minor repair without need to mail the card off, such as if a rating plate became unattached from the vehicle, a pinched water sight

tube, other minor, easily repairable issue that, after repair, does not affect the quality of the concrete on subsequent deliveries.

Response: No change made. The minor repairs would not require the mixer identification card to be removed. This change aligns Materials Manual 9.2 Volume II with current 346 requirements the contractor to remove the card and contact the appropriate DMRE.

3) 9.2.9.3.1 Automated Slump Monitoring System

(9.2.9.3.1, 1st paragraph)

The automated slump monitoring system includes the following new technology: 1) Slump is measured by the ready mix truck, 2) Slump is adjusted and controlled by the ready mix truck via water additions controlled by the system, 3) All water additions and slump adjustments are recorded.

Comment: (add #4) 4) System must disable water add function when Max W/C is reached. (suggested addition of #4- there should be a provision to prevent the system from exceeding the design w/c ratio)

Response: Change made to fourth paragraph that describes when the water must be disabled.

(9.2.9.3.1, 2nd paragraph)

Training: Automated slump monitoring system information shall be included in the producer's quality control plan. The quality control plan shall also include provisions for training on the proposed automated slump monitoring systems. As a minimum the producer shall provide training on the automated slump monitoring system for drivers, quality control personnel, and verification personnel.

Question- What extent of training? Would this require a class, or will a booklet on the system suffice? Suggest clarification.

Response: No change made. It is the intent of the Department that the producer determine the level of training necessary and describe it in the QC plan. The extent of the training needed is to be determined by the production facility using the equipment.

(9.2.9.3.1, 3rd paragraph)

Current-Calibration of the automated slump monitoring system shall be done on an annual basis and in accordance with the Florida Department of Transportation Specification, Section 346, when a truck is rejected.

Suggested-Calibration of the automated slump monitoring system's WATER MTERING DEVICE shall be performed in accordance WITH THE READY-MIX PRODUCER'S SOP. This shall be done on an annual basis and in accordance with the Florida Department of Transportation Specification, Section 346, when a truck is rejected.

Response: Changes made to this paragraph based on other comments address this comment.

(9.2.9.3.1, 3rd paragraph)

Records; All system records including calibration records shall be maintained at the production facility and available to the Department upon request.

Comment- these records will be mostly electronic data, and would technically may not be maintained at the plant level, but available upon request. Omission of "maintained at the production facility" and leaving "available upon request" may be more accurate.

Response: Change made to language. The words "maintained at the production facility" have been stricken. The data will be made available at the production facility upon the Department's request. The producer may maintain the data off-site, for example, the company home office, or at the facility, but when the Department requests that the data be made available, it will be generated and sent to the appropriate facility for the Department's review.

(9.2.9.3.1, 4th paragraph)

Mixing in Transit; "Mix concrete at speeds and number of revolutions as recommended by the manufacturer, when water is added enroute to the project site."

Comment-If the system adds water in transit, the concrete should be re-mixed at mixing speed upon arrival to the project. This allows for safe mixing not while in traffic/transit, as well as the ability to document the number of revolutions at mixing speed are not exceeded.(Exceptions could be taken when special mixing sequences are required due to special ingredients.)

Response: Change made.

4) 9.2.10.1 General Requirements

All water entering the drum shall be accounted for as batch water. The saddle tanks on the truck shall be filled after reporting all water used and the delivery ticket is printed, before leaving for the project site. Water missing from the saddle tanks upon arrival at the project site shall be included in the jobsite water added.

Comment- This should allow for consistent practice across the state. Currently about half the state refills the water tank, and adds that water used as batch water (and subtracts from the AJSW). The other half of the state leaves the water tank down and does not adjust the batch water. The missing water is deducted from the AJSW at the site. We endorse the idea of one suggested standard, since the two different techniques have caused confusion (and rejected loads) in areas where one method is preferred over another. This would require education at the plants that currently do not refill the tanks and the inspectors and contractors that are not used to this procedure, but it will be one method statewide.

Suggestion- With the addition of the automated slump system, and the possible water additions in transit, using the method of not refilling the water tank after slumping would allow consistent verification the water used. Any water missing from the tank would be water added to the load of concrete.

Response: No change made. The purpose of this language is to standardize the practice statewide for all truck mixers whether or not the automated slump monitoring system is utilized.

5) 9.2.11 Quality Control Program

c. Action taken when batching high slump concrete to prevent lumps and balls shall also be addressed. Comment- This issue has been discussed at great length, and it is unlikely that ALL lumps and balls can be completely eliminated.

Comment: Suggest substituting "minimize" for "prevent", such as; c. Action taken when batching high slump concrete to MINIMIZE lumps and balls shall also be addressed.

Response: No change made. The goal is not to minimize lumps and balls. The goal is to prevent them.

6) 9.2.12.3 Concrete Production Facility Manager of Quality Control

(4) Experience and certification in performance of required QC tests and statistical evaluation of QC test results.

Comment- Based on the certification requirements of a QC manager, this requirement seems redundant.

Response: No change made. This is an existing requirement moved from Section 105 to Materials Manual 9.2 Volume II.

(8) Concrete Production Facility Manager of Quality Control must be onsite at the concrete production facility on a daily basis or always available upon four hours notice to administer the QCP.

Question- Is it intended that the "four hours notice" would be four hours notice to appear in person at the production facility, or merely a response via phone or e-mail within 4 hours notice?

Comment- In a small company with only one QC manager, the statement "four hours notice" would not be practical (ex.-vacation days, etc.- - covering night placements, weekend placements) Companies with multiple QC managers could simply list additional certified personnel on the QCP. Once the QC Plan has been implemented for a plant, it is the responsibility of the certified batch plant operator to follow the QCP to produce concrete (as required to be able to sign the D-1 document containing the compliance statement). To require that it be established that one individual (certified batch plant operator) at a location be responsible to ensure compliance to the QCP may have the desired effect, but we do not see the need to require this person be certified as a manager of quality control.

Response: The intent is that the Manager of Quality Control would appear in person within 4 hours notification. No change made.

7) 4. 9.2.13 Records

All system records including calibration records shall be maintained at the production facility and available to the Department upon request.

These records will be mostly electronic data, and would technically may not be maintained at the plant level, but available upon request. Omission of "maintained at the production facility" and leaving "available upon request" may be more accurate.

Response: Change made.

8) 9.2.14.1.1 General

(Table 1, note)

Materials Certification and Delivery Tickets must be kept on file for three years from date of "~~materials receipt at the plant~~" (revised to) "final acceptance" of the project.

Comment- The plants/concrete producers do not always know when the final acceptance is. If this is implemented, a system to inform the ready-mix suppliers as to when the final acceptance of a project occurred would need to be established. Using the date of materials receipt is much easier to manage by the producer, and verify by plant inspectors, even if the duration was extended by a few months or more to simulate a final acceptance date.

Response: Changed from final acceptance five years from date of material receipt....
