9210000 PORTLAND CEMENT AND BLENDED CEMENT
COMMENTS AND RESPONSES FROM INDUSTRY REVIEW

****

Ghulam Mujtaba, P.E., C.P.M.
State Prestressed Concrete Engineer
Florida Department of Transportation
5007 N.E. 39th Avenue, Gainesville, Florida 32609
Phone: (352) 955-6685, Fax: (352) 955-6689

Comments (Internal Review):

The following are my comments:
1- Section 921-1.2
The proposed specification has mentioned that "the cement may be used". It should indicate that "is allowed as a materials ingredient of concrete". The cement has other uses, such as soil cement.
Response: No change made. This sentence has additional information about further testing that would be confusing with this change. Other uses for cement should indicate any portions of 921 that do not apply to that application.

2- Section 921-1.3 -Second line
Change environment to environments.
Response: Change made.

At the beginning of the paragraph, mention that this paragraph is applicable to Types II and IV cements and delete the last sentence "Do not apply these requirements to Type I or II cement".
Response: Change not made. The exclusion is for two types and the requirements apply to all others.

3- Section 921- 2 Last paragraph
Change "analysis" to analyses" . The nouns are plural.
Response: Change made.

4- Section 921-5.1 second paragraph
In the fifth line: our information has been mentioned. Delete "our".
Response: Change made.

In the Section sometimes the word "shall" has been used and other times, "will" has been used. Use one of them to be consistent.

Response: Reviewed use of shall and will. It is consistent in shall is used for actions required of the producer and will is used for FDOT maintained documentation.

****

Karen Byram
karen.byram@dot.state.fl.us
(850) 414-4353, FAX: (850) 414-4199

Comments:

Section 921-2 Under Terminology:
I am confused if the requirements are in addition to the SMO approval or they describe the SMO approval criteria. If they describe it, first part of the description should be removed. If it is in addition to SMO approval, SMO approval criteria needs to be defined and this section should be rewriten to include the word "and": Approved Laboratory - indicates a laboratory acceptable to the State Materials Office "and" which has been...
Response: The purpose of this subarticle to clarify AASHTO M85 for FDOT use.

921-5.4 Can the District withdraw QC Plan approval? If so, the wording should be changed from State Materials Office to Department.
Response: This should be the SMO. SMO is the only authorized entity that can approve or suspend cement producer qc plans. No change made.

****

Daniel F. Haldi
daniel.haldi@dot.state.fl.us
UserTel: 386-740-3516, UserFAX: 386-736-5178

Comments:
Section 1.3 Heat Hydration: Not sure when cement can be used for Extremely Aggresive Environment?
Response: Requirements for extremely aggressive environments are covered in 346.

Section -2 Terminology: Not sure about terminal or transfer facility between point of manufacture (ie overseas, out-of-state) and concrete producer., and,
Response: Language added to clarify.

Mill Test Report: From cement "supplier" not "producer" for terminology consistency.
Response: Agree. Change made.

Section -5.4, 2nd paragraph,1st sentence: ...failing cement sample taken "by" or "for" the department ...and
Response: Change not made. Samples are always taken by the department.

3rd paragraph: Split samples will be provided ... NOT "from the additional sample"; I think this is no longer true?
Response: Change made. Split samples are provided from the initial sample.

****

Sean P. Masters Sr., P.E.
District 1 & 7 Concrete Engineer

Florida Department of Transportation
801 N. Broadway, Bartow FL, 33830
(863) 519-4364 <voice> (863)519-5119 <fax>

Comments:

I have a comment regarding the changes to Spec 9210000

Under 921-1.3 Heat of Hydration: A caveat at the bottom of the section is added to exclude Type I cement along with Type III. I am having trouble reconciling the two. If the issue is checking Heat of Hydration, Type III is designed to react faster, so its Heat of Hydration will be higher compared to the others. Type I can only be used in slightly aggressive environments anyway without blending with fly ash, etc. Why is Type I being added to the exclusion? It seems a little unnecessary.

Response: Type I is excluded so that cement producers do not have to run the heat of hydration.

****

Clinton J. Shaw
Specifications Development Administrator
Florida Department of Transportation
(850) 414-4129
Clinton.Shaw@dot.state.fl.us

Comments:

Reference to Section 6-8 for quality control requirements, in 921-5.1 is to be deleted. Reference should be to 105-3.

Response: Correction has been made. Changed to reference 105 only.

****

Al Barenthin-Rinker Miami

Comment 1:
Section 921-5.1 General
In the second sentence “CCRL” should not be inserted.
Section 921-5.2 Acceptance of Portland Cement:
In the last sentence “CCRL” should not be inserted.

The reason for this is CCRL does not “approve” laboratories. The Terminology section defines the requirement that the laboratory be inspected by CCRL and an active participant in their proficiency program. To correctly reference the definition it may need to be changed to: Approved Laboratory.

Response: Approved Laboratory is defined in 921-2. CCRL is redundant and will not be added.

Comment 2:
Section 921-5.1 General
The other comment I have is in regard to Section 921-5.1 General and the sentence: "An approved laboratory shall perform one quality control test per 400 ton LOT and a copy of their mill certificates shall be sent to the State Materials Office when the material is in use on Department projects." The reference to "designated LOT of 400 ton" goes back to prior specifications and was in regards to the use of cement from sources without an approved quality control program. In my opinion this should be clarified as such if it is still the intent of the SMO to allow this, if not then, I feel this sentence should be eliminated since testing requirements are part of the quality control plan and its presence here adds confusion.

Response: The language has been revised to reflect actual QC requirements of one test per day. 400 ton lot is deleted. Change made.

****

Chris Wheeler-Rinker (FCS)

I reviewed the attached letter and have at least one comment. Section 921-2 reference to correcting all deficiencies after a CCRL inspection should allow some time period to correct deficiencies or you would not be an Approved Laboratory when the inspector walks out the door. All plants usually fail on some minor point that may require some time to correct.

Response: This language was not part of the proposed change. It does appear that the corrections must be made at the time of inspection. Change made to clarify intent.

****

Nick Ewing - Lafarge-Calera, Al. –
Steve Wilcox responded on behalf of Lafarge and as a plant our primary concern would be the mill test report for every 400t that goes to the DOT. Depending on what exactly you required, it could be very difficult to get the same cement test results after it goes through our 3 silos to a terminal.
Thanks for allowing our input.

Response: This is addressed in the change made to 400 ton language and mill cert requirement on a monthly basis.

****

Nick Popoff – Votorantim (Suwannee American)
921-1.2 Alkali Content
'Tests performed in accordance with ASTM C-33' is too vague. If it is reactivity with respect to ASR or ACR…then the section needs to be more specific. The Appendix X1 defines all of the tests but some of those are not commonly used to screen aggregates.

I would propose that the section reads…
Cements exceeding 0.60% alkali is permitted when an aggregate source has been shown to be non-reactive. The aggregates shall meet the requirements of ASTM C33, Appendix X1.3.4 and/or Appendix X1.3.5 when demonstrating non-reactivity. When cements containing greater than 0.60% alkali contents are proposed for use, supplementary cementing materials meeting the requirements of Section 929 shall be used.
I would also propose the following that demonstrates mitigation:
'Cements containing alkali contents greater than 0.60% may be used with reactive aggregates as defined in ASTM C33, Appendix X1, Sections X1.3.4 and/or X1.3.5 when mitigative measures using supplementary cementing materials have been demonstrated using ASTM C1567 and ASTM C1293 (at 2 years). The type and quantity of supplementary materials proposed for use with a source of aggregate shall be at least that quantity proven to mitigate deleterious expansion.'

Response: The intent is to apply the entire test method. The proposed language has been changed to reflect X1.3.

921-1.3 Heat of Hydration
I thought the Heat Equation is the mandatory part of both ASTM and AASHTO…why wouldn't FDOT make the changes in 921 to reflect that…and use the Heat Equation number as 100? We are all trying to get away from the C186 test…this is currently for reporting purposes only at AASHTO but appears to be the spec requirement at FDOT.

Response: The application these materials are used in require these limits. No change made.

921-2 Terminology
Mill Test Report- The 2nd last line isn't necessary…AASHTO and ASTM both cover the issue of limestone addition, the quantity and the quality.

Response: SMO has already received mill test reports for cement with limestone that did not identify limestone. This language was added to address this. This language may not be needed in future references. The identification on the mill certification aids the sampling personnel in identifying the correct material id for sampling, testing and reporting requirements.

****

Steve Wilcox – Lafarge – Ravena, NY

I will respond for Lafarge:
I believe all of the changes are understood and logical with the ASTM and AASHTO harmonization that has taken place....but I do have a couple of questions from the existing language:

921-1.3 Heat of Hydration:

Could you clarify the relationship between Heat of Hydration and the ability to resist moderately to slightly aggressive environments that you refer to. In other areas that I have worked, we looked at sulfate resistance with respect to the aggressive environment - vs heat of hydration.

Response: The specification does not imply that the material has the ability to resist. The Department isn't willing to chance materials outside these levels in these environments. The Department is more concerned with heat generation in mass footers more so than sulfate resistance.

A clarification on section 921 5.1:
...An approved laboratory shall perform one quality control test per 400 ton LOT and a copy of their mill certificates shall be sent to the State Materials Office when the material is in use on Department projects. The mill test report shall indicate that the cement meets the requirements of this Specification. Also, the corresponding samples along with mill test reports shall be submitted to the Department, upon request.

Is the 400 ton LOT you refer to, from the mill sampling (quality control) at the cement production facility and that these samples would go into a larger test lot that a mill certificate would be generated on with complete chemical and physical testing vs the 400 ton utilized by a customer?

Response: This is addressed in the change to the 400 lot requirement.