9230302 WATER FOR CONCRETE
COMMENTS FROM INTERNAL/INDUSTRY REVIEW

David Sadler
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Comments: (3-2-12, Internal)
What are the consequences if the water were to fail?

Response: (by Michael Bergin, 3-6-12)
We've been running the test using the Ion chromatograph for the last 2 years. The limit for equivalent alkalis based on the current specification for this value is 0.06. When we look at all of the data recorded for this test method, the highest value we've recorded is 0.012. The water is being used for sprinkling of aggregate stock piles and for non-structural concrete. It is not approved as a source for structural concrete. (see 923-1 General Requirements)

That said; Alkalis do several things in concrete. The alkali environment passivates steel and provides the steel with a protective layer that extends its service life. Alkalis also have a very strong influence on the hydration process of cementitious materials and so they influence things like set time and early strength. However at some point (approximately >0.6% alkalis in cement, anyway) the alkalis may develop compatibility issues with reactive aggregates. Reactive aggregates are typically a siliceous type rock like granites. Not all granites are reactive and it appears the granites that we're using in Florida are not reactive. We have yet to find reactive aggregates in our structures and have performed testing on samples from our bridges from all corners of our state.
I believe that alkalis are an important component of durability that we need to monitor. But, it is clear from the testing to date that the value based on national experience is not an issue in Florida.

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Comments: (3-16-12)
I applaud Ms. Blazo for both recognizing the fruitless nature of the required test and taking action to have it eliminated. We need more watchers like her in our industry in both the Public and Private Sectors.

Response:
Actually it was one of our chemists at SMO; Barbara Beatty, that came up with the suggestion. I was just the drafter. I'll pass on the good word to her. Thanks!

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Comments: (4-9-12)
We agree and endorse this proposed specification change based on the reasons provided in by Tim Reulke in the origination form dated 3/2/2012.

Response:

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