

# **WACA/WSDOT Meeting**

## **Minutes for Tuesday, September 22, 2009**

**Attendees:**

Dave Burg, Ashgrove	Tamson Omps, CalPortland	David Germer, CalPortland
Richard Halverson, Headwaters	Mike Tomlinson, American Rock Products	Neil Guptill, CalPortland
Scott DiLoreto, BASF	Louie Bayless, CalPortland	Kevin Wolf, CalPortland
Steve Ford, Miles Sand & Gravel	Rich Rietcheck, Boral	Craig Matteson, Central Pre- Mix
Jason Brewer, BASF	Robert Raynes, Cemex	Bruce Chattin, WACA
Kurt Williams, WSDOT	Maha Ablson, WSDOT	Mike Polodna, WSDOT
Dave Heizenrader, WSDOT	Rob Molohon, WSDOT	Tom Weist, Oldcastle
Anthony Sarhan, FHWA		

**Location:** WSDOT HQ Materials Lab, Tumwater, WA

**Next WACA Meeting Date:**

*Tuesday, December 8, 2009, at WACA's Office in Des Moines, 9:30 AM – 12:00 Noon*

**Future WACA Meetings Dates:**

*Thursday, March 4, 2010 at WSDOT HQ Mats Lab, Main Conf Room, 9:30 am to noon*

*Tuesday, June 22, 2010, at WACA's Office in Des Moines, 9:30 AM – 12:00 Noon*

*Wednesday, September 22, 2010, at WSDOT HQ Mats Lab, Main Conf Room, 9:30 AM – 12:00 Noon*

*Wednesday, December 8, 2009, at WACA's Office in Des Moines, 9:30 AM – 12:00 Noon*

**Meeting Minutes are available at: <http://www.wsdot.wa.gov/biz/mats/>**

**Issue: Performance Specifications for Concrete Mix Designs - Mo S.**

Develop performance specification parameters for concrete that can be developed into specifications.

*9/22/09 – Mo is not here today. Kurt reported that the performance spec will not be in the 2010 Standard Specifications. There are continuing discussions within WSDOT on the implementation of the performance concrete specifications.*

**Action Plan: Further discussion at December 2009 WACA meeting– Mo S.**

**Issue: Degradation for concrete Aggregate/Base Course – Kurt W.**

A research study is on-going to test the effect of using aggregate with low degradation values in concrete mixes.

9/22/09 – Kurt reported that WSDOT is considering discontinuing the study because of a lack of low deg concrete sources. Craig Matteson said that he may have a source to use. Kurt will make a decision by November 2009. No one voiced opposition to discontinuing the study.

**Action Plan: Continue to give updates to WACA at Monthly Meetings – Kurt W.**

**Issue: Proposed Specification Change to Section 6-02.3(2) Proportioning Materials - Mo**

This regards changes to the allowable chloride ion content in concrete that has been discussed before and addition changes to the amount of slag and fly ash allowed in concrete per the table shown in the proposed specification below:

**6-02.3(2) Proportioning Materials**

The soluble chloride ion content shall be determined by the concrete supplier and included with the mix design. The soluble chloride ion content shall be determined by (1) testing mixed concrete cured at least 28 days or (2) totaled from tests of individual concrete ingredients (cement, aggregate, admixtures, water, fly ash, ground granulated blast furnace slag, and other supplementary cementing materials). Chloride ion limits for admixtures and water are provided in Sections 9-23 and 9-25. Soluble chloride ion limits for mixed concrete shall not exceed the following percent by mass of cement when tested in accordance with AASHTO T 260:

<u>Category</u>	<u>Acid-soluble</u>	<u>Water-soluble</u>
<u>Prestressed concrete</u>	<u>0.08</u>	<u>0.06</u>
<u>Reinforced concrete</u>	<u>0.10</u>	<u>0.08</u>

The total water soluble Chloride ion (Cl-) content of the mixed concrete shall not exceed 0.06 percent by weight of cementitious material for prestressed concrete nor 0.10 percent by weight of cementitious material for reinforced concrete. An initial evaluation may be obtained by testing individual concrete ingredients for total chloride ion content per AASHTO T 260 and totaling these to determine the total water soluble Chloride ion (Cl-) or the total water soluble Chloride ion (Cl-) in accordance with ASTM C 1218.

Unless otherwise specified, the Contractor shall use Type I or II Portland cement in all concrete as defined in Section 9-01.2(1).

The use of fly ash is required for Class 4000D and 4000P concrete, except that ground granulated blast furnace slag may be substituted for fly ash at a 1:1 ratio. The use of fly ash and ground granulated blast furnace slag is optional for all other classes of concrete and may be substituted for Portland cement at a 1:1 ratio as noted in the table below.

Class of Concrete	Maximum Percent replacement of fly ash for Portland cement	Maximum Percent replacement of ground granulated blast furnace slag for Portland cement
4000	35	40
4000A	35	20
4000D	35	20
4000P	35	40
4000W	35	40
3000	35	40
Commercial Concrete	35	40

~~Fly ash, if used, shall not exceed 35 percent by weight of the total cementitious material and shall conform to Section 9-23.9. Ground granulated blast furnace slag, if used, shall not exceed 25 percent by weight of the total cementitious material and shall conform to Section 9-23.10.~~ When both ground granulated blast furnace slag and fly ash are included in the concrete mix, the total weight of both these materials is limited to 35-percent by weight of the total cementitious material.

The water/cement ratio shall be calculated on the total weight of cementitious material. The following are considered cementitious materials: Portland cement, fly ash, ground granulated blast furnace slag and microsilica.

As an alternative to the use of fly ash, ground granulated blast furnace slag and cement as separate components, a blended hydraulic cement that meets the requirements of Section 9-01.2(4) Blended Hydraulic Cements may be used.

9/22/09 – *Mo was not available to present the issue. Kurt reported that the changes will be in the 2010 Standard Specifications. There was discussion that a 4000D mix still requires a minimum of 660 pounds of portland cement plus 100 pounds of fly ash and addition fly ash can be added to Alkali Silica Reactivity mitigation which can raise the total cementitious above 800 pounds. Is this really what WSDOT wants? Kurt noted that this is a topic within WSDOT and WSDOT is working to address this issue.*

**Action Plan: Kurt will follow up on the 4000D question at the next meeting, rest of issue is complete.**

*Issue: Cement Acceptance Program (CAP) – Kurt*

9/22/09 – *There was no discussion regarding this issue. Kurt reviewed the addition of ground granulated blast furnace slag and fly ash to QC-1. There were no objections to this addition. It will be included in the January 2010 specification.*

*Action Plan: Issue resolved.*

**New Issue: ASR Testing – Kurt W**

Changes to Specifications Section 9-03.1(1) will use AASHTO T 303 only and deletes ASTM C 1260. This is due to differences in the testing methods, for example water cement ratio is different between the two. WSDOT currently tests only fine aggregate and would like to begin testing coarse aggregate also.

9/22/09 – *Kurt reported that only fine aggregate will be tested for ASR as currently the State Materials Lab is not able to purchase the additional equipment. WACA members requested advance notice of any requirement to test coarse aggregate.*

**Action Plan: Issue on hold - Kurt**

**New Issue: Select Borrow – Craig Matteson**

**9-03.14(2) Select Borrow**

Material for select borrow shall consist of granular material, either naturally occurring or processed, and shall meet the following requirements for grading and quality:

Sieve Size	Percent Passing
6" square <sup>1,2</sup>	100
3" square	75-100
U.S. No. 40	50 max.
U.S. No. 200	10.0 max.
Sand Equivalent	30 min.

All percentages are by weight.

<sup>1</sup>For geosynthetic reinforced walls or slopes, 100 percent passing 1¼-inch square sieve and 90 to 100 percent passing 1-inch square sieve.

<sup>2</sup>100 percent shall pass 4-inch square sieve and 75 to 100 percent shall pass 2-inch square sieve when select borrow is used in the top 2-feet of embankments or where Method C compaction is required.

*9/22/09 – Craig led a discussion on how select borrow can be eliminated from contracts due to good borrow being available on site. When this happens it cuts into a contractor's expected payment. Kurt said that he would discuss the issue with Jim Spaid.*

***Action Plan: Update on this is at next WACA meeting– Kurt***

### ***New Issue: Fly Ash***

WSDOT contracts awarded this year should have the following specification in the amendments and this will be in the 2010 Standard Specifications:

### **Std Spec Section 9-23.9 Fly Ash**

Fly ash shall conform to the requirements of AASHTO M 295 Class C or F including optional chemical requirements as set forth in Table 2 and with a further limitation that the loss on ignition shall be a maximum of 1.5 percent.

Fly ash that exceeds the available alkali limits set in AASHTO M 295 Table 2 may be used if they meet the test requirements of Section 9-03.1(1). The optional chemical limits in AASHTO M 295 Table 2 do not apply to fly ash used in Controlled Density Fill.

### **Std Spec Section 9-03.1 General Requirements, 3<sup>rd</sup> paragraph from bottom states:**

The use of fly ash that does not meet the requirements of Table 2 of AASHTO M295 may be approved for use. The Contractor shall submit test results according to ASTM C 1567 through the Project Engineer to the State Materials Laboratory that demonstrate that the proposed fly ash when used with the proposed aggregates and portland cement will control the potential expansion to 0.20 percent or less before the fly ash and aggregate sources may be used in concrete. The Contracting Agency may test the proposed ASR mitigation measure to verify its effectiveness. In the event of a dispute, the Contracting Agency's results will prevail.

*9/22/09 – Kurt pointed out that the new specification requires proof of mitigation by ASTM C1567 if the fly ash alkalis are greater than 1.5%*

*Rich Halverson reported that Headwaters is setting aside 55 gallon drums of production runs of fly ash to identify the highest alkali content sample for testing with aggregate sources. There is no guarantee that future fly ash won't have higher than tested alkalis. He also said that they could blend their ash with other ashes to lower the alkalis. It takes 4 – 6 weeks to run alkali tests.*

*Bob Raines asked if the AASHTO Table 2 requirements apply only for reactive aggregates. Kurt replied that they apply to all aggregates. Bob also asked if it was possible to compare ASTM C1260 results with the ASTM C1293 results. Kurt replied that we are not able to do that because we only receive passing 1293 test results and no one submits failing results from these tests to WSDOT. Currently it is not required that the ASTM C 1293 test results be submitted to WSDOT. If the industry shared their data, maybe we could correlate the tests, but this is not happening.*

***Action Plan: Issue complete***

**Discussion Item: Cure Box Specification** – Cure boxes are currently a separate bid item. Kurt inquired whether we could make the cure box incidental instead of a separate pay item. The group consensus was to leave it as a separate item to make sure that contractors know they are required. Kurt agreed to leave it as is.

**Discussion Item** – Craig Matteson reported that WR Grace Type S admixture previously named “Eclipse Plus” is now named “4500”. It needs to be added to the Qualified Products List.