



250 West Main Street, Suite 100

Charlottesville, VA 22902

Phone: (434) 977-3716

Fax: (434) 979-2439

easter@easterassociates.com

Technical Committee

Wednesday, October 22, 2014

10:00 AM – 1:00 PM

The Place at Innsbrook, Richmond, Virginia

- I. **Call to Order/Welcome** – Chairman George Kuhn, Chandler Concrete, called the meeting to order at 10:00 AM. Other members in attendance included:

Bill Brooks, Grace	Scott Manning, Powhatan RMC
Teck Chua, Vulcan Materials	Brad Meyers, Swope & Assoc.
Ann-Germaine Danz, VRMCA	Bob Neal, Lehigh Cement
Bill Denison, Titan America	Michael Robinson, Stalite
Marie Derby, Essroc Cement	David van Wyhe, Lynchburg Ready Mix
Kevin Goode, S.B. Cox Ready Mix	Tom Wahl, The SEFA Group
Hank Keiper, The SEFA Group	Shelley Wright, Vulcan Materials
Kisia Kimmons, Roanoke Cement	

- II. **Anti-Trust Statement** – Kuhn referred all attendees to the VRMCA Anti-Trust Statement.

- III. **Approval of Agenda** – Moved by Michael Robinson, seconded by Marie Derby.

- IV. **Review/Approval of July 23, 2014 Minutes**

- V. **Old Business** –

- a. Technical Bulletin #5 – Within Test Variability – Neal acknowledged that this revised item was updated on the VRMCA website as of Monday, October 20, 2014.
- b. Reference Documents – Members were encouraged to review the reference document section of the website before the next meeting. Neal mentioned if there is no author, then items should not be on the website. Danz passed around documents that have been taken down and stored in archive until further direction. Kuhn discussed that these include: expectations for colored concrete (Sammy Davis 2011), Iowa report (Bob Neal 2006), and two documents on non-structural fibers. Other items to review include: reflectance, cold weather concrete.
- c. VDOT COOP Meeting Items (July 29, 2014, Charlottesville).
 - Option Based Mix Designs – Kuhn relayed Larry Lundy's opinion that field data is not overseen by VDOT, no VDOT personnel is needed for truck verification. Important to let VDOT know that you are trying. Keiper attempting outreach for VDOT truck verification.
 - SCC Drilled Shaft Special Provision – This is a special provision, not a specification. It does not control future jobs. Controls or limits special provisions. Feedback on the "official" document from Larry Lundy: 4 hour slump requirement is out, duration; spread requirement depends on job requirements. Some thought 22 +/-2, Denison though over 24. Goode questioned the negative impact on coulombs test variation. Denison also acknowledged variation. Discussion of SCC, cylinder handling, one lift. Kuhn encouraged members to voice concerns at COOP meeting.

- Contractor Quality Control – Per Larry Lundy, benefits for contractor, no new activity.
- ERS Sublots – When there are multiple labs, which one takes precedence? Independent testing lab of record is the one used for acceptance. Second and third labs are for verifying, not correcting and should not hold up acceptance or trigger investigation. Keiper stated that the same holds true if results are better from 2nd and 3rd labs, they do not override lab of record. Kuhn encouraged sharing examples of issues at COOP meeting.
- Shotcrete – Job site mix is not ok. Bag and RMC are ok. Subject to pre-approval, copy will be included.
- Mass Concrete – Neal relayed notes from meeting with Lundy at Elko. Larry and Chelik say the specification is in limbo. Questions over how you determine when it is mass concrete. Neal mentioned suggested ranges, SCM. Tech Chua brought up thermal control concerns, higher temperatures. ASR minimums will stay in place. 56-day acceptance push. Chua says to leave it to District Materials Engineer for 28 or 56-day, either-or justifiable by mix design. Higher temperature concerns, slag cement up to 170°F. Neal referenced ACI presentation. ACI sub chapter, DEF 185°F. Kuhn stated that the intent is for a master mass concrete document. Keiper commented on change in temperature. Neal mentioned temperature change greater than 35°F. Chua discussed Pocahontas Freeway had Δ t over 55 °F, crack-free, halide, flexural strength always ahead. Neal suggested equilibrium 1 month. Denison thinks 1 month seems too long. Chua mentioned variation of materials, battling ambient temperature, winter peak low temperature is more challenging. Wright stated that a producer has the opposite problem on the front end. Denison plots thermal Q for Midtown tunnel, 5 foot thickness. Neal suggests 6ft, 8ft, 10ft thickness is mass concrete. Chua mentions 207 geometric factor, surface versus ambient temperature varies with deeper thermometer, 2" vs 3" depth per ACI 301. Neal discusses Concrete Works Software vs Quadrell. Denison shares that the default can be changed for the amount of cover in Concrete Works. Results are conservative if use of 2" measure. Neal asks Denison to give demonstration on software.
- Lightweight – Robinson states that he is working with Lundy and Chelik on 3 projects: I-64 overlays, 198 on the east side of the state, and high-early strength parapet. Work is driven by special provisions, crack free. Water and air are important, low-end, hold out two gallons. Low cement contents. Denison working on new marine unified specification. Stadium less than 1500 coulombs. Robinson brings up issues of floating with chemical slumps. Chua mentions lightweight + S.C.C. hybrid mix. Denison mentions ultra-fine class F. Robinson discusses whether the intent is a lightweight specification. Neal mentions findings from CRAC meeting, lower modulus. Robinson brings up elastic matching and internal curing. Chua uses example of chewing gum consistency and discusses plastic shrinkage cracking. Consensus is that lightweight is preferred. Neal also relayed that there is discussion of S.C.C. Field Testing Technician Certification.
- Patching – VCTIR research projects. Wright wonders how to progress if VDOT allows the technology. Nothing new to discuss on these projects.
- Plant/Truck Certifications – Kuhn states that this is now in effect. Self-verification requires NRMCA and reporting forms. A new document was sent out to district, February 1, 2015 date to conform. Wright states all forms required only if not NRMCA. October 8, 2014 memo (MD 369-14) from Any Babish states producers must be able to furnish documents. Kuhn states there are no tags. Danz to draft newsletter article to communicated changes to members.

- VDOT Mineral Filler – Chua mentions shortage of natural sand in Northern Virginia. Reshaped manufactured sand, rounded grains of Luck Stone branded advanta sand with -200s in a higher amount, up to 20%, #10 screens, not washed manufactured sand. Moisture 5-6% stone flour, material crusted in exterior bins. Indoor material storage less than 4% moisture, no issue with consistent results. The supplier is no longer producing in abundance, new supply, plan to invite VDOT to observe. ACI 211 Proportioning Guide for Mineral Filler due out next year. Washed sand approved if the strength is there, no set specification for mix design. To satisfy District Material Engineer, create blends with 50%, 40% and 30% manufactured sand. Chua offers that by first quarter next year he anticipates VDOT mix approval with 50%-75% replacement of natural sand. Kuhn questions if manufactured sand is non-conforming sand. Chua mentions he is able to reduce the amount of stone. Meyers states the pre-cast industry has had success with manufactured sand. Kuhn states the specification wording is opened up for testing purposes in order to do R&D work with districts. Neal discusses variations with different crushers. Chua brings up that there is clay in some crushed stone which can have a very high water demand. Brooks talks on the Methylene Blue Index, MBV over 0.8 are a concern.
- 3 Day Curing – No new comments.
- VDOT Verification of Retarder Set Times – No new comments.
- Permeability Payment Penalties – No new comments.
- d. Flyash Update – Keiper states the December 29, 2014 ruling date per court order.
- e. Roller Compacted Concrete Demo Project – Keiper states this project is complete.
- f. 56 Day Strengths – Wahl states that this can be discussed at pre-con meeting. RMC producers think this is too long to hold cylinders and wait for payment. Goode states it is common for a commercial job to ask for it.
- g. ACI Flatwork Certification – Denison mentions he is recently certified to teach ACI Flatwork. The first week of November he is teaching this course for a private contractor in Virginia Beach, then another date will be set for January.
- h. Slab Efflorescence – No new comments.
- i. New Pervious Brochure – Approved by members. Edits were received by Danz via email and incorporated into the current draft. The document was passed around for final review.
- j. Virginia Beach Pervious Class – NRMCA certification course being hosted by Hampton Roads Advisory Council at Tidewater Community College. Members were encouraged to get pervious concrete customers trained and certified. Denison shared that often pervious concrete jobs come up with NRMCA certification in the spec. and then no contractors are qualified.
- k. ACI International Conference October 26 – 30 – No new comments on ACI conference.

VI. **New Business**

- a. Pervious Concrete – cleaning of – Denison mentioned a committee is working on a maintenance document for pervious concrete. Discussion centered around the importance of coordinating with owners and landscape contractors to not dump fine material on pervious.
- b. Point of Testing of Concrete – Technical bulletin #1 states point of sampling at the truck, prior to placement. Kuhn stated Lundy considers sampling at the truck. Denison brought up the case of pumping for example waste water treatment plants, having high air going in for water-bearing structures. Van Wyhe discussed loads that do not lose air when going through a

- pump, wonders who is responsible for those values. Denison states typically after 30 minutes the concrete is the property of the owner.
- c. Topics for Future Meeting Programs / Potential Speakers, topic Twin Shaft Mixers. Upon request from the group, Denison is planning to demonstrate best practices for Concrete Works software at a future meeting.
 - d. CRAC Meeting Comments – Neal discussed standards for the Microwave Drying Test for water content for water-cement ratio. It was noted that the use of Pyrex-brand vessels is important.
 - e. VDOT TL-27 – Formwork, option-based mix designs, 3 aggregates, no room for use of 4 aggregates. Neal discusses the ACI worksheet with 1 fine and 1 coarse aggregate; inconsistency between forms. Chua suggests using excel to modify the form to suit your needs. Keiper suggests that we should prepare to offer a solution or better method, hardship to TL-28. Wright states that values represent are calculated, not actual. Neal asks if the TL-28 data is not in the database. Wright states that the form is where the batcher's signature goes with the field test data.
- VII. Future Technical Committee Dates:** January 7th? (pending availability of The Place), April 22nd, July 22nd, October 28th – The Place, Richmond (4th Wednesday)
- VIII. Future COOP Meeting Dates:** January 27, July 28, 10:00 AM VCTIR, Charlottesville
- IX. Adjournment** – Motion to adjourn Kuhn, seconded by Shelley Wright.