

MINUTES
TTCC/NCC Fall Meeting
October 6-8, 2009 – St. Louis, MO

Wednesday, October 7 - Cement Standards and Technology for Sustainable Concrete Paving

- ❖ **National CP Tech Center Program Summary – Peter Taylor (PowerPoint 1-Taylor)**
 - Sustainability: Sustainability is not about perfection, but minimizing environmental effect. We need to work through complicated ideas and communicate them in order to move towards sustainability.
 - Common sense principles
 - We will need to work smart; “because it’s always been done this way” is not good enough

- ❖ **Industry Initiatives and Role of Cement Standards and Technology – John Melander, PCA (2-Melander)**
 - Provided a brief snapshot of sustainable concrete paving
 - Conversation always revolves around CO₂; cement is #8 of major contributors
 - Needed infrastructural renewal, cost of asphalt, and sustainability of concrete makes concrete attractive
 - New Surface Transportation Authorization may include strong regulatory changes, need to be prepared

- ❖ **Overview of Basic Process – Alan Gee, Vice President of Research, Lehigh Cement (Heidelberg Technology Center), Allentown, Pa. (3-Gee)**
 - Manufacturing Cement
 - Overview of the cement manufacturing process.
 - Need to understand process not just theory; aggregate from quarry is key
 - Quality Control/Quality Assurance
 - Discussion of cement standards (ASTM, AASHTO, etc.), harmonization efforts, and the future of cement standards
 - Nothing has changed in chemical or physical requirements since 1940s. Changes have been made because of world demands, not by ASTM or AASHTO
 - Freeze/thaw durability is compromised with minimum cement content
 - Needs to be consensus on new methods; industry is interested in working on what buyers want

- ❖ **Harmonization: Changes to ASTM C 150 and AASHTO M 85 – Al Innis (4-Innis)**
 - Harmonization Goal
 - Ensure concrete performance
 - Provide means of measuring compliance
 - Provide consistent material
 - Use simple reliable testing and sampling methods
 - Provide flexibility for optimization of available natural resources and manufacturing technology and accommodate various user requirements
 - Ensure understandable communication between buyer and seller
 - Two Type II Cements
 - Processing Additions
 - New Business
 - New method to measure heat of hydration
 - A better way of addressing Bogue composition

- ❖ **ASTM C595 and C1157 – Poppoff (5a- Poppoff)**
 - ASTM C1157- Standard Performance Specification for Hydraulic Cements
 - ASTM C595- Standard Specification for Blended Hydraulic Cements

❖ **CSA and EN Specifications – Popoff (5b-Poppoff)**

- Canadian GHG legislation previously mandated a 18% reduction in CO2 emissions and energy based on 2006 figures by 2010 and then a continued indefinite reduction of 2% annually without final limit requirement...based on a clinker or cement baseline (MT/MT or BTU/MT).
- Process CO2 not included
- ...But all of this is now on hold in order to harmonize with the US efforts...
- CDN government is waiting on the decision of the EPA and US government...
- New Administration and recent EPA statements supporting the new Bill to declare CO2 as a pollutant will require monitoring/reporting emissions exceeding 25kT.
- Expected that we will be under an 80% reduction in TOTAL CO2 emissions by 2050...

❖ **Cement Standards of the future – John Melander (6-Melander)**

- Cement Standards Development Options to Support Concrete Sustainable Development Goals
- Modifications to existing prescriptive standards
- Increased use of performance specifications
- New cement standards
- Combination of existing standards

❖ **Holcim plant tour**

Meeting attendees also were treated to a tour of Holcim (U.S.) Inc.'s cement plant in Sainte Genevieve, Mo. This new plant is capable of producing four million metric tons of cement every year, and has on-site limestone reserves on the 3900 acre site for 100 years of operation. It is the largest single kiln line in operation in the world today.