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Alkali-Silica Reactivity (ASR)

AASHTO/ASR Task Force

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ASR Defined

- ◆ Loosely defined.....
 - Alkali silica reactivity (ASR) is a reaction between reactive silica (in the aggregates) and an alkali (usually present in the cement), which results in the formation of a gel. This gel increases in volume with water and exerts expansive pressure on the concrete, causing deterioration of the concrete



AASHTO/ASR Task Force

- ◆ Purpose
- ◆ Current Specifications/Activities
- ◆ Future Activities
- ◆ Recommendations

Purpose of Task Force

- ◆ To review state-of-the-art ASR specifications, tests, etc.
- ◆ Update the status of the current AASHTO specifications.
- ◆ Determine what more is needed in regards to ASR?

Current Specifications

- ◆ There is an AASHTO Lead States DRAFT ASR Specification.
- ◆ States have various versions of ASR Specifications (some based on AASHTO's DRAFT with modifications).
- ◆ Lacking adopted specifications on how to design concrete resistant to ASR.

Current Activities

- ◆ FHWA's ASR Development and Deployment Program has developed Protocol's for testing and evaluation.
 - Protocol A – *Determining the Reactivity of Concrete Aggregate and Selecting Appropriate Measures for Preventing Deleterious Expansion in New Concrete Construction.*

Recommendations for AASHTO

- ◆ Have AASHTO form a small group with the goal of drafting an AASHTO ASR specification.
 - Update the AASHTO Draft Guide Specification with the technical information in FHWA Protocol A
 - Technical support will be available through the FHWA's ASR Development and Deployment Program.

Recommendations (cont)

- ◆ Ultimately, an “M” specification should be created and adopted by AASHTO for states’ use.
- ◆ Need proven methods and techniques for mitigation of ASR in existing concrete based upon research and experience.
- ◆ *More discussions will take place in Tech Session 3b and 3c.*

Thank you for your time and
attention.....

