



November 5, 2025

Bulletin 42 Concrete Producers

Re: Alkali Silica Reaction – Field Observations and Questionnaire

Dear Department Concrete Producers:

The Pennsylvania Department of Transportation and the Pennsylvania Aggregate and Concrete Association (PACA) Technical Work Group on Alkali Silica Reaction (ASR) would like to examine the field history of Type A aggregate sources used in Pennsylvania's concrete projects with respect to ASR. The intent of this survey is to provide insight into the possible extent, distribution, and severity of deleterious ASR across the Commonwealth. Accurately recorded observations will facilitate further studies that will contribute to department and producer cost savings in ASR mitigation.

The work group is asking each approved PennDOT Bulletin 42 concrete producer to look at the field performance history of their aggregate sources in exterior concrete applications.

Observations should be conducted on exterior concrete applications which are routinely exposed to moisture from rain or snow events such as pavements, sidewalks, bridge decks, bridge abutments, bridge piers, bridge columns, and walls of all types. These observations are not limited to PennDOT projects. Conduct and document your observations on at least 10 concrete applications that have been in place for at least 10 years. Observations of concrete applications with 15, 20, and 25 years of service life are also desirable. Please use the enclosed form to record your observations. The documentation is for your records only; however, please retain them for possible follow up questions by the Technical Work Group. The observations should report the Type of Concrete Application (Sidewalk, Pavement, Structural Element, Wall, etc.), Project Location (State Route, Roadway Segment/Offset, County, GPS Coordinates), and Approximate Concrete Age. Record Possible, Probable, or Confirmed ASR and its extent (%) and submit photographs of what you observed.

The following are common indicators of possible ASR expansion:

- Map cracking in the form of randomly-oriented cracks on the surface of concrete entities.
- Expansion that causes movement and deformation.
- Spalling and delamination.

- Surface discoloration (brownish zones) and gel extrusion (white surface build-up).

The following link or QR code can be used as a guide for field identification of ASR: www.fhwa.dot.gov/pavement/conc-rete/asr/pubs/hif12022.pdf.



Most importantly - Please only conduct these operations with the utmost regard for the safety of all those working to provide this information.

Please select the following link or copy and paste the following link into your internet browser or scan the QR code to complete a short Microsoft Forms Questionnaire to answer the survey questions.

<https://forms.office.com/g/vNk0ApBCcc>



If possible or probable ASR is observed on any PennDOT project, the workgroup would appreciate as much detail as possible as to the location, extent of the effected concrete application, and the Bulletin 14 source codes of all aggregates used in the mix design. Please email any pictures and notes on observations to micmatthew@pa.gov and jimc@pacaweb.org.

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Each questionnaire is specific to a combination of coarse aggregate and fine aggregate sources. If all concrete observations contain the same combination of aggregate sources, regardless of the specific mixes or aggregate sizes, only one questionnaire needs be completed. A separate questionnaire must be completed for observations with a different combination of coarse aggregate and fine aggregate sources with the concrete placements observed.

All information will be held in strictest confidence, and all information will be blinded before discussion within the work group.

If you have any questions, please contact either PennDOT's Michael E. Matthews, P.G., Unit Manager – Aggregate, Cement, Concrete and Soils, at 717.787.7268 or micmatthew@pa.gov or PACA's James M. Casilio, P.E., Director of Technical Services, at 610.730.2385 or jimc@pacaweb.org.

Sincerely,



Jonathan A. Eboli, P.E.
Chief Engineer

Enclosure

5135/4810/GDB/lgb

cc: Peter Vlahos, Pennsylvania Aggregates and Concrete Association
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