

Central Region Airport Certification Bulletin



Bulletin: 2006-7
Subject: PCC Pavement Condition Inspections
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Issuing Office:

FAA, Central Region, Airports Division
Safety and Standards Branch, ACE-620
901 Locust St, Kansas City, MO 64106
Phone: (816) 329-2624,
Fax: (816) 329-2610

Prepared by:

Doug Johnson, Regional Paving Engineer
Phone: 816-329-2616

Application

This bulletin is being sent to Part 139 Airport Managers and State Aviation Directors in Iowa, Kansas, Missouri and Nebraska

Background:

There is a potential that cracks may develop in concrete pavements as a result of a reaction between available alkalis from cement and certain reactive forms of silica within aggregates react to form an expansive by product that may lead to deterioration of your pavements. Documented field observations have indicated an increase in alkali-silica reaction (ASR) activity in the presence of deicing chemicals. Typical distress is manifested as cracking throughout the concrete pavement that is visible as closely spaced cracking at the pavement surface. The crack pattern is commonly referred to as "map cracking" due to the observed pattern of cracks. As the distress progresses, the potential for small pieces of the concrete surface breaking loose also increases. Loose pieces of concrete can be ingested into jet engines or strike aircraft propellers, creating concerns for the safety of aircraft operating on these pavements.

As part of your airports ongoing pavement maintenance management programs, as required by grant assurances, we are recommending that you be on the lookout for any ASR cracking. Typically in early stages ASR cracking may mimic D cracking and consist of cracks parallel to joints. At later stages ASR cracking will form more of a 'map' that fills the whole panel. Typically in the early stages ASR does not create a FOD problem but once the pieces do start to break apart the pavement surface may deteriorate rapidly. On future projects for the construction of PCC pavements we will be recommending that the procedures outlined in [Engineering Brief No 70](#) be followed.

If your pavement inspections reveal what you believe may be ASR cracking please email photos to the attention of Doug Johnson, Regional Paving Engineer, doug.johnson@faa.gov. If given adequate notice, Doug Johnson can be available to accompany your personnel on pavement inspections.