Committee Report: JCI-TC152A Technical Committee on Performance Based Design and Maintenance Scenario with Controlling ASR Deterioration

委員会報告：JCI-TC152A 性能規定に基づく ASR 制御型設計・維持管理シナリオに関する研究委員会

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Keywords: ASR control, design and maintenance management linked scenario, concrete prism test, structural performance evaluation

Abstract
This technical committee “Technical Committee on Performance Based Design and Maintenance Scenario with Controlling ASR Deterioration”, for the purpose of establishing a scenario on link between design and maintenance oriented to alkali silica reaction (ASR) controlling according to importance of structure, evaluated the ASR occurrence possibility, and investigated the advancement of concrete prism tests (CPT) for predicting expansion behavior. Also, we proposed a revision proposal for JCI’s ASR-related criteria (former AAR-3 and DD 2). On the other hand, regarding the structural performance evaluation of the ASR degradation member, numerical analyses by several institutes were conducted on a common ASR specimen, and in addition to summarizing information necessary for evaluation, we showed the problem of performance prediction based on expansion prediction. Additionally, based on interviews with managers, the actual tasks of maintenance management for ASR were summarized, and the design and maintenance management linked scenarios that consider ASR were shown.

1. Introduction
In regards to the alkali silica reaction (hereinafter, ASR), a design of “suppression” type assuming not causing deterioration on the design has been carried out, based on the aggregate alkali reactivity test which hasn’t necessarily been fully sufficient up to now, and control measures for concrete formulation. However, ASR-suspected structures are still reported, and with many technical problems in checking, evaluating, and predicting in maintenance management, the current status of post maintenance management is inevitable. Additionally, the long-term evaluation and feedback for actual structures in regards to ASR repair and reinforcement measures were insufficient, creating difficulties in countermeasures.
Therefore, this research committee.....

URL: https://www.jci-net.or.jp/j/publish/research/tcr/tcr2017/TC152A.pdf