KHNPTopRptsRAIsPEm Resource

From: Ciocco, Jeff
Sent: Tuesday, October 27, 2015 12:53 PM
To: apr1400rai@khnp.co.kr; KHNPTopRptsRAIsPEm Resource; Harry (Hyun Seung) Chang; Andy Jiyong Oh; James Ross
Cc: Van Wert, Christopher; McKirgan, John; Olson, Bruce; Lee, Samuel
Subject: APR1400 Topical Report RAI 6-8322 (PLUS7 Fuel Design for the APR140 [APR1400-F-M-TR-13001-P])
Attachments: APR1400 TR RAI 6 SRSB 8322.pdf

KHNP,

The attachment contains the subject Request for Additional Information (RAI). This RAI was sent to you in draft form. Your licensing review schedule assumes technically correct and complete responses within 30 days of receipt of RAIs. However, KHNP requests, and we grant, 60 days to respond to this RAI. We may adjust the schedule accordingly.

Please submit your RAI response to the NRC Document Control Desk.

Thank you,

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REQUEST FOR ADDITIONAL INFORMATION TOP 6-8322

Issue Date: 10/27/2015
Application Title: APR1400 Topical Reports
Operating Company: Korea Hydro & Nuclear Power Co. Ltd.
Docket No. PROJ 0782
Review Section: TR PLUS7 Fuel Design for the APR1400
Application Section: PLUS7 Fuel Design for the APR140 (APR1400-F-M-TR-13001-P)

QUESTIONS

TR PLUS7 Fuel Design for the APR1400-24

GDC 10 requires that the reactor core and associated coolant, control, and protection systems shall be designed with appropriate margin to assure that specified acceptable fuel design limits (SAFDLs) are not exceeded during any condition of normal operation, including the effects of anticipated operational occurrences (AOOs). GDC 27 requires that the reactivity control system is designed with appropriate margin and, in conjunction with the ECCS, is capable of controlling reactivity and cooling the core under post-accident conditions. SRP Section 4.2 (II)(1)(B)(viii) and Appendix A provides review guidance related to mechanical fracturing based on seismic and LOCA applied loads. It is also stated specifically that control rod insertability must be maintained.

This topic is addressed in Section 2.2.2 of APR1400-F-M-TR-13001-P, in the response to Question 2 of RAI 4-7542 (ML14177A220), and in the response to Question 23 of RAI 5-7954. In Question 23 of RAI 5-7954 (ML15169A118), the staff requested supporting technical justification that the proposed guide tube stress limits would meet GDC 27. The response provides an analysis which compares the calculated stresses for the PLUS7 fuel assemblies under seismic and LOCA loads with the material's yield stress and concludes that the yield stress is never exceeded. This response does not address the staff's concerns because the original RAI requested justification for the proposed limits, not an analysis of the applied loads.

Provide a discussion that covers the proposed stress-strain limits and what level of damage could occur to the components based on those limits. If damage could occur to the guide tubes, include a description of the tests and results that demonstrate control rod insertability. Update the topical report, as necessary, to capture these points.


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