KHNPDCDRAIsPEm Resource

From: Ward, William
Sent: Friday, August 19, 2016 6:04 PM
To: apr1400rai@khnp.co.kr; KHNPDCDRAIsPEm Resource; daegeun.ahn@gmail.com; Andy Jiyong Oh; Jungho Kim (jhokim082@gmail.com); Ross, James
Cc: Williams, Donna; Ciocco, Jeff; Steckel, James; Dias, Antonio; Li, Chang Y
Subject: APR1400 Design Certification Application RAI 517-8670 [19.3 - Beyond Design Basis External Event (APR1400))
Attachments: APR1400 DC RAI 517 SPSB 8670.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, 45 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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Options
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Return Notification: No
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REQUEST FOR ADDITIONAL INFORMATION 517-8670

Issue Date: 08/19/2016
Application Title: APR1400 Design Certification Review – 52-046
Operating Company: Korea Hydro & Nuclear Power Co. Ltd.
Docket No. 52-046
Review Section: 19.03 Beyond Design Basis External Event (APR1400)
Application Section:

QUESTIONS

19.03 Beyond Design Basis External Event (APR1400)-41

10 CFR 52.47(a)(2) requires that a standard design certification applicant provide a description and analysis of the structures, systems, and components (SSCs) of the facility, with emphasis upon performance requirements, the bases, with technical justification therefor, upon which these requirements have been established, and the evaluations required to show that safety functions will be accomplished.

In light of recent RAI responses related to DCD Tier 2, Section 9.3.1, the staff found that some assumptions being used for mitigation strategies for the spent fuel pool (SFP) water level during beyond-design-basis-external events (BDBEEs) may need additional justifications.

In RAI 473-8582, Question 09.01.03-4, the staff requested the applicant to clarify the minimum safety water level credited to be retained in the SFP. The applicant's response stated that the minimum safety water level for the SFP is EL. 146 ft. under the worst postulated accident condition. In RAI 77-7991, Question 09.01.03-1, the staff requested the applicant to indicate the elevation of all pipes that interact with the SFP (pipes that penetrate the SFP wall and pipes that extend down into pool). The applicant's response stated that the SFP cleanup suction nozzle is at EL. 149'. In Technical Report APR1400-E-P-NR-14005-P, Rev.0, Appendix B for BDBEEs, one of the key assumptions used in the SFP time to boil and makeup analysis is to assume the initial SFP water level to be at normal water level, i.e. EL.154'. However, since the SFP cleanup suction nozzle is non-seismic, it could fail during a seismic BDBEE, causing the water in the SFP to drop to EL.149' instead of EL154' as assumed in the time to boil calculation mentioned above. A lower water level means less water inventory available for the pool boil-off and less time available for the operator actions to mitigate the event.

NEI 12-06, Section 3.2, "Performance Attributes," (ML12242A378) indicates that "installed equipment that is designed to be robust with respect to design basis external events is assumed to be fully available." The applicant is requested to justify/clarify the robustness of pipes that interact with the SFP that are located below the initial SFP water level assumption used in the calculation (i.e., 154'), or to revise the assumption of the initial SFP water level and re-do the SFP analysis for BDBEEs, and revise the Technical Report and DCD accordingly.