

KHNPDCDRAIsPEm Resource

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Sent: Friday, May 22, 2015 8:53 AM
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Cc: Lee, Samuel; Steckel, James; Travis, Boyce; ODriscoll, James
Subject: APR1400 Design Certification Application RAI 12-7902 (6.2.2 Containment Heat Removal System)
Attachments: APR1400 DC RAI 12 SCVB 7902.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.

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

Thank you,

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Subject: APR1400 Design Certification Application RAI 12-7902 (6.2.2 Containment Heat Removal System)
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REQUEST FOR ADDITIONAL INFORMATION 12-7902

Issue Date: 05/22/2015

Application Title: APR1400 Design Certification Review – 52-046

Operating Company: Korea Hydro & Nuclear Power Co. Ltd.

Docket No. 52-046

Review Section: 06.02.02 - Containment Heat Removal Systems

Application Section: 6.2.2

QUESTIONS

06.02.02-1

10 CFR 50.46(b)(5) requires, in part, that after successful operation of the emergency core cooling system (ECCS), that decay heat shall be removed for the extended period of time required by the long lived radionuclides. Inherent in this requirement is that ECCS systems have adequate net positive suction head (NPSH) margin in the presence of LOCA generated debris.

Although the APR1400 design addresses latent debris, and states that no fibrous insulation is located within break zones of influence (ZOIs), other potential sources of fibrous insulation (such as power/instrument cable filler in cables within the ZOI that are damaged) is not discussed. In the design control document (DCD) and technical report APR1400-E-N-NR-14001-P, update the discussion on fibrous debris to include whether other components in the ZOI contain fiber and, if any is included, disposition the fiber as part of the debris loading.

Staff requires this information in order to be assured that all sources of fiber within the design are considered, as the margin for additional fiber loading in the plant is extremely low and fiber is a primary driver for the strainer performance, which could affect the capability of the ECCS to provide adequate long term core cooling.

06.02.02-2

10 CFR 50.46(b)(5) requires, in part, that after successful operation of the ECCS systems, that decay heat shall be removed for the extended period of time required by the long lived radionuclides. Inherent in this requirement is that ECCS systems have adequate net positive suction head (NPSH) margin in the presence of LOCA generated debris.

The APR1400 design follows the guidance offered in NEI 04-07 and the associated staff safety evaluation in determining the debris loading. Although APR1400 uses 200 lbm of latent debris as suggested by NEI 04-07, only 7.5% of this debris is considered fiber (rather than the 15% recommended by the guidance). Provide a justification for the reduction in fiber loading in technical report AP1400-E-N-NR-14001-P, "Design Features to Address GSI-191."