KHNPDCDRAIsPEm Resource

From:	Ciocco, Jeff
Sent:	Monday, September 14, 2015 6:55 AM
To:	apr1400rai@khnp.co.kr; KHNPDCDRAIsPEm Resource; Harry (Hyun Seung) Chang; Andy Jiyong Oh; Steven Mannon
Cc:	Stutzcage, Edward; McCoppin, Michael; Betancourt, Luis; Umana, Jessica; Lee, Samuel
Subject:	APR1400 Design Certification Application RAI 209-8218 (03.11 - Environmental Qualification of Mechanical and Electrical Equipment)
Attachments:	APR1400 DC RAI 209 RPAC 8218.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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United States Nuclear Regulatory Commission
Protecting People and the Environment

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Options
Priority: Standard
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REQUEST FOR ADDITIONAL INFORMATION 209-8218

Issue Date: 09/14/2015
Application Title: APR1400 Design Certification Review – 52-046
Operating Company: Korea Hydro & Nuclear Power Co. Ltd.
Docket No. 52-046
Review Section: 03.11 - Environmental Qualification of Mechanical and Electrical Equipment
Application Section: 3.11

QUESTIONS

03.11-16

10 CFR 50.49 and 10 CFR 50, Appendix A, criterion 4 require that certain components important to safety be designed to withstand environmental conditions, including the effects of radiation, associated with design basis events, including normal operation, anticipated operational occurrences, and design basis accidents.

SRP 3.11 indicates that, "The radiation environment must be based on the integrated effects of the normally expected radiation environment over the equipment's installed life, plus the effects associated with the most severe design basis event during or following which the equipment is required to remain functional." Similar criteria is found in RGs 1.89 and 1.183.

However, FSAR Section 3.11.5.2 indicates that for equipment used only during refueling operations that the total integrated dose (TID) is calculated assuming that the radiation sources only effect the equipment during the refueling period (1 month every 18 months). It is unclear why only the radiation dose during refueling is considered, when the equipment could still be exposed to radiation when not in use. For example, equipment in containment which is not used during normal operations but is used for refueling may be exposed to radiation from the normal radiological conditions in containment during operation, even when not in use. Therefore, in accordance with the above guidance and requirements:

1. Please specify for which equipment the radiation dose is only calculated during refueling.

2. For equipment whose dose is only considered during refueling, please specify why it is acceptable to not account for radiation exposure during operation (non-refueling plant operation). Please provide more information in the FSAR as to why it is acceptable to not account for dose during operation (non-refueling plant operation), for these components.

3. Please indicate in FSAR Section 3.11.5.2 if the equipment for which the normal operation TID only considers refueling, also considers dose contributions from accident conditions. If not, please indicate why it is acceptable to not include accident dose.


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