

KHNPDCDRAIsPEm Resource

From: Ciocco, Jeff
Sent: Thursday, October 22, 2015 7:17 AM
To: apr1400rai@khnp.co.kr; KHNPDCDRAIsPEm Resource; Harry (Hyun Seung) Chang; Andy Jiyong Oh; Christopher Tyree
Cc: Stutzcage, Edward; McCoppin, Michael; Olson, Bruce; Lee, Samuel
Subject: APR1400 Design Certification Application RAI 263-8329 (12.03-12.04 - Radiation Protection Design Features)
Attachments: APR1400 DC RAI 263 RPAC 8329.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 the RAI question. 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 263-8329

Issue Date: 10/22/2015
Application Title: APR1400 Design Certification Review – 52-046
Operating Company: Korea Hydro & Nuclear Power Co. Ltd.
Docket No. 52-046
Review Section: 12.03-12.04 - Radiation Protection Design Features
Application Section: 12.3-12.4

QUESTIONS

12.03-47

This is a follow-up to RAI 7858, Question 12.03-4.

10 CFR 50, Appendix A, Criterion 61 requires in part that radioactive waste systems and other systems which may contain radioactivity contain suitable shielding for radiation protection.

In the response to RAI 7858, Question 12.03-4, the applicant indicates that the zoning and shielding of piping is based on assuming piping of a length of 20 feet with the dose rate taken 1 foot away from the pipe. However, staff calculations using the radionuclide concentration of the purification ion exchange resins in a 20 foot long pipe, assuming piping diameters ranging from 5 inches to 10 inches, indicate the dose rate a foot away from this piping would be greater than 500 rad/hour. However, the pipe chases in the areas where the staff would expect the resin transfer piping would to be located are zoned less than 500 rad/hour.

1. Please provide additional information indicating how the dose rate 1 foot away from the resin transfer piping was determined. For example, indicate what diameter piping was assumed and if any credit was taken for dilution of the resin (provide the basis for the assumptions used). If any FSAR changes are necessary as a result of this response, such as updated shielding or zoning, please update the FSAR, as appropriate.
2. In order for the staff to verify that the appropriate areas are being considered, please indicate which rooms the resin transfer piping that is used to transfer resin from the CVCS purification ion exchangers to the spent resin long term storage tank, is located.

In addition, Question 12.03-4, requested that the applicant provide information on how shielding and zoning was determined for all radiation sources which are not explicitly modeled in FSAR Section 12.2. However, the applicant did not provide any information on shielding for ventilation system components, such as ventilation ducting and filters, or if the zoning considered these sources.

3. Therefore, provide information on the shielding for ventilation system components and how shield thicknesses for these components were determined. Also indicate how ventilation system sources were considered for plant zoning. Please update the FSAR to provide this information.

