

KHNPDCDRAIsPEm Resource

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Sent: Tuesday, May 24, 2016 10:14 AM
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Subject: APR1400 Design Certification Application RAI 489-8615 (10.03.06 - Steam and Feedwater System Materials)
Attachments: APR1400 DC RAI 489 MCB 8615.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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REQUEST FOR ADDITIONAL INFORMATION 489-8615

Issue Date: 05/24/2016

Application Title: APR1400 Design Certification Review – 52-046

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

Docket No. 52-046

Review Section: 10.03.06 - Steam and Feedwater System Materials

Application Section: 10.3.6

QUESTIONS

10.03.06-23

In FSAR Section 10.3.6.3, on page 10.3-27, the applicant states:

"The following piping portions with potential for FAC are generally based on NSAC-202L-R3 (Reference 17) and NUREG-1344 (Reference 18) attached to GL 89-08 (References 19).

a. For other safety/non-safety carbon steel piping with relatively mild FAC degradation identified in NUREG-1344 attached to GL 89-08, NSAC-202L-R3, and through experience, the average thinning rates of 2.54×10^{-6} mm/hr (0.1×10^{-6} in/hr) in steam system and 4.35×10^{-6} mm/hr (0.17×10^{-6} in/hr) in the water system are given based on the actual measurement records from Korea standard nuclear plants. The additional thickness of 0.889 mm (0.035 in) for the portion of steam system piping, and 1.524 mm (0.06 in) for the portion of water system piping in design are applied in consideration of the 40 years of design life."

In response to RAI 314-8378, Question 10.03.06-17 the applicant provided CHECWORKS data for components within the steam and feedwater systems. The staff concludes that several components in the steam and feedwater system are expected to deplete of the 0.06 or 0.035 inch corrosion margin prior to the conclusion of the 40 year license period.

The CHECWORKS data also states that the components are expected to be operable for 40 years. This information suggests that additional margin designed into thickness on the feedwater and steam piping. This additional margin is used to justify structural integrity when the corrosion thickness is depleted.

- 1) Confirm that a component with wear exceeding the corrosion allowance would meet still meet the requirements of ASME Code, Section III or ASME B31.1.
- 2) State where this additional thickness (above the ASME Code, Section III or ASME B31.1 requirements) comes from
- 3) If additional margin is used to justify structural integrity once the corrosion thickness is depleted, than the additional margin is element of a methodology to meet the requirements of GL 89-08 (which requires a FAC program which prevents unexpected failure).
 - a. Update the FSAR to state that procured piping thickness will include additional thickness beyond the corrosion thickness which is used to prevent FAC failure.
 - b. Update the FSAR to state where this thickness comes from.

