

KHNPDCDRAIsPEm Resource

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Sent: Wednesday, July 15, 2015 1:22 PM
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Cc: Tsirigotis, Alexander; Clark, Theresa; Betancourt, Luis; Lee, Samuel
Subject: APR1400 Design Certification Application RAI 70-8027 (03.12 - ASME Code Class 1, 2, and 3 Piping Systems and Piping Components and Their Associated Supports)
Attachments: APR1400 DC RAI 70 MEB 8027.pdf; image001.jpg

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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Subject: APR1400 Design Certification Application RAI 70-8027 (03.12 - ASME Code Class 1, 2, and 3 Piping Systems and Piping Components and Their Associated Supports)
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REQUEST FOR ADDITIONAL INFORMATION 70-8027

Issue Date: 07/15/2015

Application Title: APR1400 Design Certification Review – 52-046

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

Docket No. 52-046

Review Section: 03.12 - ASME Code Class 1, 2, and 3 Piping Systems and Piping Components and
Their Associated Supports

Application Section: DCD Tier 2 Section 3.12

QUESTIONS

03.12-3

NRC Bulletin (BL) 88-11 and SRP Section 3.12 discuss the potential for stresses induced by thermal stratification in the pressurizer (PZR) surge line (SL). In particular, BL 88-11 requested the establishment of a program that would monitor the surge line for the effects of thermal stratification beginning with hot functional testing (HFT). APR1400 DCD Tier 2, Section 3.12.5.10 states that the APR1400 conforms with BL 88-11, but the APR1400 DCD does not include the description of a program to implement monitoring of the PZR SL consistent with BL 88-11 and SRP Section 3.12 (as was included in other design certification applications that have been reviewed by the NRC).

1. Please confirm that the structural integrity evaluation of the APR1400 PZR SL includes consideration of thermal stratification and thermal striping to ensure that fatigue and stresses are in compliance with applicable code limits.
2. The presentation in DCD Tier 2, Section 3.12.5.10 on thermal stratification with regard to the PZR SL is rather general. Please revise the DCD to describe APR1400 PZR SL features and operational procedures that address the structural integrity issues raised by NRC Bulletin 88-11 in minimizing SL stratification.
3. According to BL 88-11, thermal stratification occurs in the PZR SL during heatup, cooldown, and steady-state operations of the plant. Please discuss whether a monitoring program is planned to verify the design transients used in the structural design of the surge line or how this verification will take place. Describe the program, testing, and its implementation, consistent with BL 88-11 and SRP Section 3.12, that will demonstrate that stratification temperature measurements for the APR1400 PZR SL will be within acceptable analyzed limits, that there will not be unanalyzed thermal cycles, and that piping thermal deflections result in no adverse consequences (such as contacting the pipe whip restraints). In addition, add, or provide a technical justification for not including, HFT activities in DCD Section 14.2 to monitor the PZR SL stratification, which should continue at least during the first cycle of plant operation.
4. Given that PZR SL monitoring is the responsibility of a COL licensee, please discuss (with DCD revisions such as COL items as appropriate) what these responsibilities would be.

