

KHNPDCDRAIsPEm Resource

From: Ciocco, Jeff
Sent: Tuesday, August 25, 2015 10:38 AM
To: apr1400rai@khnp.co.kr; KHNPDCDRAIsPEm Resource; Harry (Hyun Seung) Chang; Andy Jiyong Oh; Christopher Tyree
Cc: McKirgan, John; Lee, Samuel; Steckel, James; Drzewiecki, Timothy
Subject: APR1400 Design Certification Application RAI 170-8163 (15.06.01 - Inadvertent Opening of a PWR Pressurizer Pressure Relief Valve or a BWR Pressure Relief Valve)
Attachments: APR1400 DC RAI 170 SRSB 8163.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. 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 170-8163 (15.06.01 - Inadvertent Opening of a PWR Pressurizer Pressure Relief Valve or a BWR Pressure Relief Valve)
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REQUEST FOR ADDITIONAL INFORMATION 170-8163

Issue Date: 08/25/2015

Application Title: APR1400 Design Certification Review – 52-046

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

Docket No. 52-046

Review Section: 15.06.01 - Inadvertent Opening of a PWR Pressurizer Pressure Relief Valve or a BWR Pressure Relief Valve

Application Section:

QUESTIONS

15.06.01-1

General Design Criteria (GDC) 10 requires that specified acceptable fuel design limits (SAFDLs) are not exceeded during an anticipated operational occurrence (AOO). 10 CFR 52.47(a)(9) requires that applicants for light-water cooled nuclear power plants, provide an evaluation of the standard plant design against the standard review plan (SRP) revision in effect 6 months before the docket date of the application. Where a difference exists, the evaluation shall discuss how the proposed alternative provides an acceptable method of complying with the Commission's regulations that underlie the corresponding SRP section.

GDC 10 is not satisfied in Section 15.06.01 of the APR4000 Design Control Document (DCD) because the result of an AOO appears to violate SAFDL limits. Section 15.6.1 of the SRP identifies a spurious electrical signal or operator error as potential scenarios for the inadvertent opening of a pressurizer relief valve (IOPRV). The SRP identifies the IOPRV as an AOO. Section 5.1 of the DCD identifies the ability of the pressurizer pilot operated safety relief valves (POS RVs) to be controlled manually. Therefore, the scenarios identified in the SRP are directly applicable to the APR1400 design. The IOPRV, however, is analyzed as a postulated accident (PA) in Section 15.6.5 of the DCD. The analysis of the IOPRV appears to show that SAFDL limits are exceeded because of the reduced pressure, flow, and level in the reactor vessel at full power as evidenced by Figures 15.6.5-32(A-H) in the DCD.

10 CFR 52.47(a)(9) is not satisfied because Section 15.6.1 of the DCD departs from the SRP and no justification is provided. Table 15.0-5 of the DCD states the IOPRV is a postulated accident, which is evaluated in DCD Section 15.6.5. Section 15.6.1 of the SRP states that the IOPRV is to be treated as an AOO. Additionally, Table 1.9-2 in the DCD states that the APR1400 conforms with SRP Section 15.6.1, which is not accurate.

NRC staff request that the applicant (1) resolve or justify the current treatment of this event in the DCD and (2) update the DCD with the appropriate resolution or justification.

