

KHNPDCDRAIsPEm Resource

From: Ciocco, Jeff
Sent: Tuesday, March 01, 2016 8:02 AM
To: apr1400rai@khnp.co.kr; KHNPDCDRAIsPEm Resource; Andy Jiyong Oh; Steven Mannon
Cc: Som, Swagata; Zimmerman, Jacob; Steckel, James; Wunder, George; Lee, Samuel
Subject: APR1400 Design Certification Application RAI 422-8536 (08.03.01 - AC Power Systems (Onsite))
Attachments: APR1400 DC RAI 422 EEB 8536.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, 60 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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REQUEST FOR ADDITIONAL INFORMATION 422-8536

Issue Date: 03/01/2016
Application Title: APR1400 Design Certification Review – 52-046
Operating Company: Korea Hydro & Nuclear Power Co. Ltd.
Docket No. 52-046
Review Section: 08.03.01 - AC Power Systems (Onsite)
Application Section: 8.3.1

QUESTIONS

08.03.01-24

APR1400 DCD – Follow-up RAI to Applicant Response for RAI 7984, Q. 08.03.01-6 (DVR/LOV)

The RAI Response 7984, Question 08.03.01-6, provided Degraded Voltage Relay (DVR) and Loss of Voltage Relay (LOV) setpoints and time delays. The staff requests response to the follow-up items below:

1. The response related to DVR time delay states that the first time delay duration is 60 Seconds and the second time delay is typically set at 4 minutes. The staff finds that these time delays are not consistent with the staff position B.1.b, described in Branch Technical Position BTP 8-6. The BTP requires “The subsequent occurrence of a safety injection signal (SIAS) should immediately separate the Class 1E distribution system from the offsite power system. In addition, the DVR logic should appropriately function during the occurrence of an SIAS followed by a degraded voltage condition.” The applicant is requested to provide justification as to how the time delays chosen will meet accident analysis assumptions if DVR occurs concurrent with a loss of coolant accident (LOCA).
2. Section 8.3.1.1.3.12 of the DCD states that the DVR and LOV protection schemes are designed in accordance with recommendation of IEEE Std. 741. NRC has not endorsed IEEE 741 and do not agree with the current version. Please confirm that the applicant meets all staff positions described in BTP 8-6 for DVR and LOV protection schemes.
3. Additionally, Section 8.3.1.1.3.12 of the DCD states that the drop-out for the second-level undervoltage relays for the Class 1E distribution system is set at a level above the minimum voltage that allows proper operation of safety loads with the worst-case line-up and minimum switchyard voltage. The voltage studies for DVR typically are based on the minimum voltage requirements of equipment performed in conformance with BTP 8-6, Subsection B.1.a. Please clarify that this is the intent of the applicant’s selection of analytical voltage limits and time delays for DVR.

Please revise the DCD Section 8.3.1.1.3.12 accordingly.



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