KHNPDCDRAIsPEm Resource

From: Ciocco, Jeff
Sent: Monday, August 31, 2015 6:55 AM
To: apr1400rai@khnp.co.kr; KHNPDCDRAIsPEm Resource; Harry (Hyun Seung) Chang; Andy Jiyong Oh; Steven Mannon
Cc: Ray, Sheila; Wunder, George; Lee, Samuel
Subject: APR1400 Design Certification Application RAI 178-8184 (08.02 - Offsite Power System)
Attachments: APR1400 DC RAI 178 EEB 8184.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 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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Hearing Identifier: KHNP_APR1400_DCD_RAI_Public
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Subject: APR1400 Design Certification Application RAI 178-8184 (08.02 - Offsite Power System)
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REQUEST FOR ADDITIONAL INFORMATION 178-8184

Issue Date: 08/31/2015
Application Title: APR1400 Design Certification Review – 52-046
Operating Company: Korea Hydro & Nuclear Power Co. Ltd.
Docket No. 52-046
Review Section: 08.02 - Offsite Power System
Application Section:

QUESTIONS

08.02-7

The NRC issued Bulletin 2012-01, “Design Vulnerability in Electric Power System,” (Agencywide Documents Access and Management System (ADAMS) Accession Number ML12074A115) to all holders of operating licenses and combined licenses for nuclear power reactors requesting information about the facilities’ electric power system designs, in light of the recent operating experience that involved the loss of one of the three phases of the offsite power circuit (single-phase open circuit condition) at Byron Station, Unit 2 to verify compliance with applicable regulations.

DCD, Tier 2, Table 8.1-2 indicates that BL-2012-01, Design Vulnerability of Electric Power System is applicable to DCD section 8.2.

In order to verify that the applicants of new reactors have addressed the design vulnerability identified at Byron in accordance with the requirements specified in General Design Criterion (GDC) 17, “Electric Power Systems,” in Appendix A, “General Design Criteria for Nuclear Power Plants,” of 10 CFR 50, and the design criteria for protection systems under 10 CFR 50.55a(h)(3), please provide the following information. The staff position on this issue is provided in Branch Technical Position BTP 8-9 (ML15057A085).

A) Describe the protection scheme design for important-to-safety buses (non-safety or safety-related) to detect and automatically respond to a single-phase open circuit condition or high impedance ground fault condition on credited offsite power circuits.
B) If the important-to-safety buses are not powered by offsite power sources during at-power condition, explain how the surveillance tests are performed to verify that a single-phase open circuit condition or high impedance ground fault condition on an off-site power circuit is detected.
C) Discuss how an unintended separation from the off-site power source due to a false indication of an open phase can be prevented.
D) Based on the power system configuration of APR1400, provide a summary of analysis performed for ground-fault, and open phase condition


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