KHNPDCDRAIsPEm Resource

From:	Ciocco, Jeff
Sent:	Monday, February 01, 2016 8:42 AM
To:	apr1400rai@khnp.co.kr; KHNPDCDRAIsPEm Resource; Harry (Hyun Seung) Chang; Andy Jiyong Oh; Christopher Tyree
Cc:	Makar, Gregory; Mitchell, Matthew; Wunder, George; Lee, Samuel
Subject:	APR1400 Design Certification Application RAI 381-8467 (10.04.08 - Steam Generator Blowdown System)
Attachments:	APR1400 DC RAI 381 MCB 8467.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, 45 days to respond to RAI questions 10.04.08-1 and 10.04.08-5. We may adjust the schedule accordingly.

Please submit your RAI response to the NRC Document Control Desk.

Thank you,

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United States Nuclear Regulatory Commission
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REQUEST FOR ADDITIONAL INFORMATION 381-8467

Issue Date: 02/01/2016
Application Title: APR1400 Design Certification Review – 52-046
Operating Company: Korea Hydro & Nuclear Power Co. Ltd.
Docket No. 52-046
Review Section: 10.04.08 - Steam Generator Blowdown System
Application Section:

QUESTIONS

10.04.08-1

FSAR Tier 1 subsection 2.7.1.8 and Tier 2 subsection 10.4.8.2.3.5, identify electrical signals that close containment isolation valves in the Steam Generator Blowdown System (SD-V005, -V006, -V007, and –V008) under “Abnormal Operation.” The signals identified are main steam isolation signal (MSIS), diverse protection system auxiliary feedwater actuation signal (DPS-AFAS), containment isolation actuation signal (CIAS), and auxiliary feedwater actuation signal (AFAS). However, this information appears to be inconsistent with the description of the design of APR1400 instrumentation and controls systems in FSAR Tier 2 Chapter 7, which does not identify MSIS, DPS-AFAS, or AFAS as signals that actuate containment isolation valves. In addition, Tier 2 Subsection 10.4.8.2.3.5 identifies other conditions that actuate containment isolation valves, some of which are listed in Tier 2 Table 6.2.4-1 (“List of Containment Penetrations and System Isolation Positions”), and some of which are not. These signals are high radiation, blowdown flash tank high pressure, blowdown flash tank high temperature, and blowdown flash tank high-high level.

Please clarify how the containment isolation signals described for the Steam Generator Blowdown System are consistent with the design of Instrumentation & Controls (Tier 2 Chapter 7) and the design of containment isolation actuation signals (Tier 2 Chapter 6). This information is needed for the staff to determine if the design meets GDC 13 (“Instrumentation and Controls”) and to understand apparent inconsistencies in the FSAR.

10.04.08-2

Based on the review of FSAR Subsection 10.4.8, the staff is unclear regarding the classification of the central blowdown pipe inside the steam generator as it relates to material, design, fabrication, testing, and inspection. The staff needs this information to determine if the system meets the requirements of GDC 1, GDC 2, and GDC 14.

10.04.08-3

Please describe how flow accelerated corrosion (FAC) is addressed for the Steam Generator Blowdown System (SGBS). The November 24, 2015, response (ML15328A218, Enclosure 3) to MCB Issue #10 (KHNP AI 10-12.10) proposes deleting a paragraph on FAC in the SGBS from FSAR Subsection 10.3.6.3. The response also describes factors in the selection of

materials for the SGBS. However, the description does not address how FAC is addressed for susceptible portions of the SGBS. Since the proposed FSAR revision would delete the paragraph specifically addressing SGBS, and the SGBS is not part of the Steam and Feedwater System, the staff is unable to determine how FAC would be addressed for the SGBS.

10.04.08-4

Please clarify the location of the safety-related portion of the Steam Generator Blowdown System and correct FSAR Tier 1 Subsection 2.7.1.8 if necessary. There is a discrepancy between the location of the safety-related portion of the system defined in FSAR Tier 1 Subsection 2.7.1.8.1 ("the containment and the auxiliary building") and that defined in Table 2.7.1.8.1-1 ("Containment Building").

10.04.08-5

The staff is unclear on the information that a COL applicant is required to provide for COL Item 10.4(7). FSAR Tier 2 Table 1.8-2 and Subsection 10.4.3.2.3.4 state that the COL applicant is to describe the system design for the "SG drain." However, the description in FSAR Subsection 10.4.8 also states that SGBS is used to drain the SG. Therefore, it is the staff's understanding that the COL applicant is required to describe how the SG will be drained, rather than describing the drain itself. Please clarify this COL information requirement and discuss your plans to revise the FSAR to provide this clarification.


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