

KHNPDCDRAIsPEm Resource

From: Ciocco, Jeff
Sent: Monday, December 14, 2015 8:50 AM
To: apr1400rai@khnp.co.kr; KHNPDCDRAIsPEm Resource; Harry (Hyun Seung) Chang; Andy Jiyong Oh; Erin Wisler
Cc: Thomas, Vaughn; Ng, Ronnie; Lee, Samuel
Subject: APR1400 Design Certification Application RAI 332-8382 (03.08.03 - Concrete and Steel Internal Structures of Steel or Concrete Containments)
Attachments: APR1400 DC RAI 332 SEB1 8382.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, 90 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 332-8382

Issue Date: 12/14/2015

Application Title: APR1400 Design Certification Review – 52-046

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

Docket No. 52-046

Review Section: 03.08.03 - Concrete and Steel Internal Structures of Steel or Concrete
Containments

Application Section: 3.8.3

QUESTIONS

03.08.03-8

10 CFR 50.55a and Appendix A to 10 CFR Part 50, General Design Criteria 1, 2, 4 and 5, provide the regulatory requirements for the design of the mat foundation for the prestressed concrete containment. Standard Review Plan (SRP) 3.8.3.II, "Acceptance Criteria," Subsection 4, "Design Analysis Procedures," and in Item D states that, *"For all containment internal structures, the design and analysis methods described in Subsections II.4 of SRP Sections 3.8.1 and 3.8.2, which are applicable to the containment internal concrete and steel structures, respectively, also need to be considered. These items include assumptions on boundary conditions, axisymmetric and non-axisymmetric loads, transient and localized loads, shrinkage and cracking of concrete, computer programs, and evaluation of liner plates and anchors."*

During the October 6, 2015 public meeting with the applicant, the staff discussed the use of leak-chase channels in the design of the APR1400 application. As a result of this meeting and the staff's further review of the components associated with the APR1400 containment internal structures, the staff determined that additional information related to the leak chase channels used in the carbon-steel containment liner plate; the stainless-steel in-containment refueling water storage tank (IRWST) liner plate; and the stainless-steel hold-up volume tank (HVT) liner plate are needed in order to better understand the applicant's analysis and design approach of the aforementioned structures. Per 10 CFR 50.55a, Appendix A to 10 CFR Part 50, General Design Criteria 1, 2, 4 and 5, and SRP 3.8.3, the applicant is requested to address the following in detail:

- a- Describe and provide associated design drawings of leak chase channels in the containment liner plate, the IRWST, and the HVT liner plates.
- b- How and where are the leaked borated-water from IRWST and HVT leak chase channel systems collected? In case of blockage from of the crystalized boron in a leak chase channel collection system, how can this blockage be opened prior to spilling borated-water into the adjacent reinforced concrete.

The applicant is also requested to update applicable portion of Section 3.8 of the DCD Tier 2, accordingly.



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