

KHNPDCDRAIsPEm Resource

From: Ciocco, Jeff
Sent: Wednesday, July 15, 2015 2:30 PM
To: apr1400rai@khnp.co.kr; KHNPDCDRAIsPEm Resource; Harry (Hyun Seung) Chang; Yunho Kim; Steven Mannon
Cc: Chuang, Tze-Jer; Xu, Jim; Betancourt, Luis; Lee, Samuel
Subject: APR1400 Design Certification Application RAI 75-8023 (03.04.02 - Analysis Procedures)
Attachments: APR1400 DC RAI 75 SEB1 8023.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.

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

Thank you,

Jeff Ciocco
New Nuclear Reactor Licensing
301.415.6391
jeff.ciocco@nrc.gov



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From: Ciocco, Jeff
Created By: Jeff.Ciocco@nrc.gov

Recipients:

"Chuang, Tze-Jer" <Tze-Jer.Chuang@nrc.gov>
Tracking Status: None
"Xu, Jim" <Jim.Xu@nrc.gov>
Tracking Status: None
"Betancourt, Luis" <Luis.Betancourt@nrc.gov>
Tracking Status: None
"Lee, Samuel" <Samuel.Lee@nrc.gov>
Tracking Status: None
"apr1400rai@khnp.co.kr" <apr1400rai@khnp.co.kr>
Tracking Status: None
"KHNPDCDRAIsPEM Resource" <KHNPDCDRAIsPEM.Resource@nrc.gov>
Tracking Status: None
"Harry (Hyun Seung) Chang" <hyunseung.chang@gmail.com>
Tracking Status: None
"Yunho Kim" <yshh8226@gmail.com>
Tracking Status: None
"Steven Mannon" <steven.mannon@aecom.com>
Tracking Status: None

Post Office: HQPWMSMRS08.nrc.gov

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REQUEST FOR ADDITIONAL INFORMATION 75-8023

Issue Date: 07/15/2015

Application Title: APR1400 Design Certification Review – 52-046

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

Docket No. 52-046

Review Section: 03.04.02 - Analysis Procedures

Application Section: SRP 3.4.2

QUESTIONS

03.04.02-1

10 CFR 52.47 requires, in part, that the applicant's final safety analysis report (FSAR) must include sufficient information to allow NRC to make a final safety finding. In addition, GDC 2 requires that SSCs important to safety shall be designed to withstand the effects of natural phenomena such as earthquakes, tornados, hurricanes, floods, tsunami, and seiches without loss of capability to perform their safety functions as it relates to natural phenomena. The design bases for these SSCs shall reflect appropriate combinations of the effects of normal and accident conditions with the effects of the natural phenomena.

During the review of Section 3.4.2 "Analysis Procedures." the staff found that the applicant did not provide a clear description on how the water heads transform into hydrostatic and hydrodynamic loadings on seismic Category I structures as per "areas of review" specified in SRP 3.4.2, Section I.2. In the first paragraph of the section, the applicant only makes a brief description at a high level of detail, and refers more details to Section 3.8. In accordance with 10 CFR 52.47 and GDC2, the applicant is requested to address following issues in Section 3.4.2 of the DCD:

- a. Provide design input from all sources of water heads including but not limited to: (i) design basis flood level, Table 2.0-1; (ii) maximum ground water level, Table 2.0-1; (iii) PMWP, Table 2.0-1; (iv) maximum precipitation rate, Table 2.0-1; (v) probable maximum water level, PMF and PMP described in Sec. 2.4.
- b. How are those various water heads transformed into hydrostatic or hydrodynamic loadings (including buoyant forces)? [such as hydrostatic load, (L_h), Flooding load, (Y_f), Design flood/precipitation, (H), PMF/PMP, (H_s). Hydrodynamic load in seismic loads (E_s)—See Sec. 3.8.4.3. and Table 3.8-9A, Footnote (2)]
- c. How are those effective loadings being classified into various categories of loadings such as normal load, abnormal load, severe environmental load or extreme environmental load? Note that assignment to a proper class of loading will assure correct load combinations for the design input in compliance with the code specifications.
- d. How are those loadings applied in the design of seismic Category I structures?

