KHNPDCDRAIsPEm Resource

From:	Ward, William
Sent:	Friday, August 07, 2015 6:45 PM
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Cc:	Ciocco, Jeff; Lee, Samuel; Roy, Tarun; Karas, Rebecca; Devlin-Gill, Stephanie
Subject:	APR1400 Design Certification Application RAI 137-8102 (2.5.2 - Vibratory Ground Motion)
Attachments:	APR1400 DC RAI 137 RGS2 8102.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.

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

Thank you,

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REQUEST FOR ADDITIONAL INFORMATION 137-8102

Issue Date: 08/07/2015
Application Title: APR1400 Design Certification Review – 52-046
Operating Company: Korea Hydro & Nuclear Power Co. Ltd.
Docket No. 52-046
Review Section: 02.05.02 - Vibratory Ground Motion
Application Section:

QUESTIONS

02.05.02-4

In response to RAI 9-7848, Question 02.05.02-3, the APR1400 licensee stated it would modify DCD Section 2.5.2.6, 2.5.6 and APR1400 COL Table 1.8-2 regarding the requirements of a COL applicant that is siting an APR1400 on a site soil as follows:

> For soil sites, (i) the requirement for the site-specific weight densities of subsurface soils is to be no less than 2002.3 kg/m^3 (125 lb/ft^3) and the site-specific strain-compatible soil hysteresis damping ratio profile is to be less than that shown in Table 3.7A-1, (ii) the site-specific soil properties (weight density, strain-compatible soil shear and compression wave velocity, and strain-compatible soil hysteresis damping ratio) have their profiles generally increasing with depth from the ground surface in a manner similar to the general profile shapes shown in Tables 3.7A-1 through 3.7A-9 and Figures 3.7A-3 through 3.7A-11, (iii) the site-specific soil profiles have no inverse condition, i.e., the soil properties of a deeper soil layer are less than the properties of the soil layer above it, and (iv) the site-specific soil profiles are bounded by the soil profiles of the generic site conditions S1 through S9 considered for the standard design as shown in Tables 3.7A-1 through 3.7A-9 and Figures 3.7A-3 through 3.7A-11 (COL 2.5(3)).

The proposed requirements do not require a COL applicant to demonstrate that:

1. The COL applicant's site-specific strain-compatible profile(s), including backfill, is consistent with, rather than bounded by, one of the APR1400 generic site conditions S1 through S9 considered for the standard design as shown in APR1400 Tables 3.7A-1 through 3.7A-9 and Figures 3.7A-3 through 3.7A-11.

2. The COL applicant's site-specific strain-compatible properties are consistent with the assumptions used in the SSI analyses including embedment and extent of backfill, as described in APR1400 Section 3.7A.3.1.

The NRC staff thinks the issues identified should be corrected, such that a COL applicant is required to demonstrate items (1) and (2), above, because it is important to ensure that the assumptions and parameters used in the APR1400 soil structure interaction (SSI) analysis are sufficiently similar to those demonstrated by a COL applicant applying to build an APR1400 design. Criteria should be provided and justified to determine the acceptable level of consistency between a COL applicant's site-specific strain-compatible profile(s) and the corresponding APR1400 generic profile(s).

In accordance with Appendix S to 10 CFR Part 50, regarding APR1400 DCD Section 2.5.2.6, please propose modifications to the APR1400 DCD text and tables, where applicable, to provide adequate comparison requirements for a COL applicant to use when determining if the COL site soil profile is consistent with the APR1400 generic soil profiles, as detailed in (1.) and (2.) above. In addition to DCD modification in Section 2.5.2.6, if applicable, propose changes in Section 3.7 where necessary.