

KHNPDCDRAIsPEm Resource

From: Ward, William
Sent: Thursday, May 14, 2015 5:49 PM
To: 'apr1400rai@khnp.co.kr'; 'Chang, Harry'; 'Yunho Kim (yshh8226@gmail.com)'; KHNPDCDRAIsPEm Resource; 'seung.choi@aecom.com'; 'Mannon, Steven (steven.mannon@aecom.com)'; 'Tyree, Christopher (christopher.tyree@aecom.com)'
Cc: Ciocco, Jeff; Lee, Samuel; Karas, Rebecca; Heeszel, David
Subject: APR1400 Design Certification Application RAI 9-7848 (2.5.2 Vibratory Ground Motion)
Attachments: image001.jpg; APR1400 DC RAI 9 RGS2 7848.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,

William R. Ward, P.E.
Senior Project Manager
U.S. Nuclear Regulatory Commission
m/s T6-D38M
Washington, DC, 20555-0001
NRO/DNRL/Licensing Branch 2
ofc T6-D31
ofc (301) 415-7038 fax (301) 415-6350



 Please consider the environment before printing this email.

Hearing Identifier: KHNP_APR1400_DCD_RAI_Public
Email Number: 12

Mail Envelope Properties (C0A338EE37A11447B136119705BF9A3F028816511CE1)

Subject: APR1400 Design Certification Application RAI 9-7848 (2.5.2 Vibratory Ground Motion)
Sent Date: 5/14/2015 5:48:36 PM
Received Date: 5/14/2015 5:48:38 PM
From: Ward, William

Created By: William.Ward@nrc.gov

Recipients:

"Ciocco, Jeff" <Jeff.Ciocco@nrc.gov>
Tracking Status: None
"Lee, Samuel" <Samuel.Lee@nrc.gov>
Tracking Status: None
"Karas, Rebecca" <Rebecca.Karas@nrc.gov>
Tracking Status: None
"Heeszal, David" <David.Heeszal@nrc.gov>
Tracking Status: None
"apr1400rai@khnp.co.kr" <apr1400rai@khnp.co.kr>
Tracking Status: None
"Chang, Harry" <hyunseung.chang@gmail.com>
Tracking Status: None
"Yunho Kim (yshh8226@gmail.com)" <yshh8226@gmail.com>
Tracking Status: None
"KHNPDCDRAIsPEm Resource" <KHNPDCDRAIsPEm.Resource@nrc.gov>
Tracking Status: None
"seung.choi@aecom.com" <seung.choi@aecom.com>
Tracking Status: None
"Mannon, Steven (steven.mannon@aecom.com)" <steven.mannon@aecom.com>
Tracking Status: None
"Tyree, Christopher (christopher.tyree@aecom.com)" <christopher.tyree@aecom.com>
Tracking Status: None

Post Office: HQCLSTR02.nrc.gov

Files	Size	Date & Time
MESSAGE	657	5/14/2015 5:48:38 PM
image001.jpg	3989	
APR1400 DC RAI 9 RGS2 7848.pdf		80938

Options

Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:



Request for Additional Information 9-7848

Issue Date: 05/14/2015
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

02.05.02-2

Section 2.5.2.6 of the APR1400 DCD describes the conditions required for a site to be considered suitable for a COL application. Specifically, the DCD states, “The COL applicant is to confirm that the site meets the following requirements,” followed by a list of four requirements (a-d) and a provision for performing additional analyses if some of these requirements are not met (e).

In accordance with Appendix S to 10 CFR Part 50, regarding APR1400 DCD Section 2.5.2.6, please discuss the following and propose associated APR1400 DCD modification to text and tables:

- i. As currently written in the DCD, the COL applicant should confirm that its site meets requirements (a), (b), (c), and (d), all four requirements at once. Is it necessary for the COL applicant to meet all of the requirements in (a-d)?
- ii. As currently written in the DCD, (e) states what a COL applicant should do if requirements (a), (b), and (c) are not satisfied, but it does not explicitly mention (d). What, if any, provision for additional analysis in (e) applies to the requirement in (d) that the site specific GMRS is enveloped by the hard rock high frequency (HRHF) spectrum for sites that have a supporting medium with a shear-wave velocity of greater than 4,900 ft/s overlying hard rock?

02.05.02-3

Section 2.5.2.6 states: “For soil sites, the lower bound of the site-specific strain-compatible soil profile is greater than the lower bound of the generic strain-compatible soil profiles used in the APR1400 seismic analyses shown in Tables 3.7A-1 through 3.7A-9 and Figures 3.7A-3 through 3.7A-11 (COL 2.5(3)).

The “lower bound” comparison requirement is not enough to determine if a COL site is consistent with the APR1400 generic soil profiles. For example, each APR1400 generic soil profile has shear wave velocities that generally increase with depth, which a COL site would need to demonstrate to determine that its site is consistent with the generic soil profiles considered in the APR1400 DC. In addition to shear wave velocities, a COL applicant would also need to consider the soil shear modulus (G) and hysteretic damping considered in the APR1400 DC.

Request for Additional Information 9-7848

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 more comprehensive comparison requirements for a COL applicant to use when determining if the COL site soil profile is consistent with the APR1400 generic soil profiles. In addition to DCD modification in Section 2.5.2.6, if applicable, propose changes in Section 2.5.4 and 2.5.5 where necessary.