

Staff Feedback on KHNP Responses to RAI Question 3.7.1-5

In letter MKD/NW-16-0097L, dated January 29, 2016

1 RAI Question 3.7.1-5

1.1 Initial Staff Feedback

The label “CSDRS” in the new figures in the DCD markup should be replaced with “CSDRS anchored at 0.1 g.”

The site response transfer functions, at the foundation level relative to the free field surface motions, are generally greater than 1 between 3 Hz and 20 Hz for the S6 and S7 soil cases, indicating that the CSDRS at the foundation level should generally be higher than the CSDRS (at the ground surface) in that frequency range. However, Figure 3.7A-12 shows the opposite (i.e., the $CSDRS_{ff}$ is lower than CSDRS). The staff requests the applicant provide further explanation on which dips in the transfer functions for S6 and S7 would cause the dips in the response spectra shown in Figure 3.7A-12.

1.2 Received draft revised response on 3/30/2016 through Erin Wisler’s email.

The revised RAI response provided additional information using S1, S2 and S5, and the information is helpful in staff’s review. The staff identified the following items for additional information:

- (1) Soil profiles were requested during the 3/23/2016 public call. The soil profile data were received. However, the soil profiles are in the forms of low strain properties and soil degradation curves (in SHAKE1991 format). Since only generic soil profiles are appropriate for DCD, the staff request the applicant to provide the DCD generic soil profiles (i.e., “strain-compatible” soil profiles in APR1400 DCD Rev. 0 that are used in SASSI SSI analyses).

KHNP INPUT

The generic soil profiles are provided by Attachment of revised response to RAI.

- (2) The revised RAI response does not indicate whether the transfer functions were calculated using the generic soil profiles. The RAI response should be enhanced to confirm the use of generic soil profiles or provide justification otherwise.

KHNP INPUT

The figures 1 through 24 will be revised as shown in the revised response to RAI 253-8300 Question No. 03.07.01-5, Rev. 1. These revised figures are calculated by using generic soil profiles. The figures 3.7A-12 through 14 in attachment of response to RAI are already calculated by using generic soil profiles.

- (3) Please also confirm that the second paragraph of NEI White Paper Section 3.1.3, “Embedded Structures Analyzed as Embedded Structures in the Certified Design,” was followed. If other procedure was used, please describe the procedure and provide justification.

KHNP INPUT

The procedure for calculating of $CSDRS_{ff}$ is followed NEI White Paper Section 3.1.3, "Embedded Structures Analyzed as Embedded Structures in the Certified Design".

- (4) The revised RAI response identifies large dips in the transfer functions in the last paragraph on page 3. Please identify which large dips (i.e., at what frequencies) in the transfer functions for S6 and S7 that possibly correlate to the large dips in the $CSDRS_{ff}$ between 3 Hz to 20 Hz?

KHNP INPUT

The large dips in the transfer functions for S6 and S7 correlate to the large dips in the $CSDRS_{ff}$ at all frequency range as well as between 3 Hz to 20 Hz as shown in figures 11 through 14 of the response to RAI 253-8300 Question No. 03.07.01-5, Rev. 1.