Response to SDAA Audit Question

Question Number: A-3.7.2-24

Receipt Date: 08/21/2023

Question:

(Follow-on from A-3.7.2-12). In its response to Audit Question A-3.7.2-12, the applicant defers to the documents posted on the audit portal for requested information. Documents posted on the audit portal are not docketed and the staff does not base its safety findings on information that is not docketed. Therefore, the applicant is requested to provide in FSAR Section 3.7.2 a list of frequencies used in calculation of the transfer functions for the double building model and CRB model for different soil types for staff review of their adequacy. Staff notes that DCA Tables 3.7.2-18 through 3.7.2-21 include the frequencies used in transfer function calculations for soil-structure interaction analysis for the DCA, and a comparable scope of information should be provided in the SDAA. The staff also notes that the supporting documents posted on the audit portal (EC-103331; EC-103332; EC-103333) refer to the triple building model used in the US600 DCA. Please ensure that these new documents (EC-103331; EC-103332; EC-103333) on the audit portal provide correct information for the SDAA.

Response:

The US460 Standard Design Approval Application (SDAA) follows the same approach as the US600 Design Certification Application (DCA). The soil impedance matrices and load vectors provided in EC-103331, EC-103332 and EC-103333 remain applicable to the SDAA. As noted in SDAA Section 3.7.2.4 the soil-structure interaction (SSI) analysis follows the approved methodology presented in TR-0118-58005-P-A-R2. In this methodology, the SSI is performed in the frequency domain using a multi-step approach. For each soil type, soil impedance and seismic load vectors are calculated using SASSI to form a soil library. These soil impedance and seismic load vectors are then imported into an ANSYS model for the SSI analysis.

The current content of the US460 SDAA Section 3.7.2 meets the Design Specific Review Standard (DSRS) 3.7.2 without the requested information shown in Table 1 below.

Table 1: Frequencies with Calculated Impedance and Load Vectors Soil Type 7, Soil Type 9 and Soil Type 11

{{

}}2(a),(c)

{{

}}2(a),(c)

No changes to the SDAA are necessary.