

CCNPP3eRAIPEm Resource

From: Arora, Surinder
Sent: Thursday, May 03, 2012 3:15 PM
To: Infanger, Paul; UNECC3Project@unistarnuclear.com
Cc: CCNPP3eRAIPEm Resource; Segala, John; Chakrabarti, Samir; Wilson, Anthony; Vrahoretis, Susan; Thomas, Brian; Miernicki, Michael; McLellan, Judith
Subject: Draft RAI 344 SEB2 6470
Attachments: DRAFT RAI 344 SEB2 6470.doc

Paul,

Attached is DRAFT RAI No. 343 (eRAI No. 6471). You have until May 17, 2012 to review it and decide whether you need a conference call to discuss the RAI before the final issuance. After the phone call or after May 17, 2012, the RAI will be finalized and sent to you for your response. You will then have 30 days to provide a technically complete response or an expected response date for the RAI.

Thanks

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Request for Additional Information No. 344 (eRAI 6470)
DRAFT
5/3/2012

Calvert Cliffs Unit 3
UniStar
Docket No. 52-016
SRP Section: 03.07.01 - Seismic Design Parameters
Application Section: FSAR 3.7.1

QUESTIONS for Structural Engineering Branch 2 (ESBWR/ABWR Projects) (SEB2)

03.07.01-18

Follow-up Question to RAI 314, Question 03.07.01-17

In its partial response to question 03.07.01-17 (Item 1Bullet 3) regarding ITAAC covering the shear wave velocity requirements for the structural backfill of the NI, CBIS and SCII SSE structures, the applicant revised Table 2.4-1 of COLA Part 10 to include the NI and SC II SSE structures. The applicant stated in the response that the CBIS was founded on native soil and backfill was not required. However, regarding the NI and SC II SSE structures, the response requires the following clarifications:

1. On page 3 of the response it indicates that the backfill low strain best estimate shear wave velocity down to a depth of 6 ft. is 790 fps, from 6 ft. to a depth of 22 ft. the shear wave velocity is 900 fps and the shear wave velocity for backfill below a depth of 22 ft. is 1080fps. However the next sentence states that the low strain best estimate shear wave values are lower than the EPR FSAR requirement of 1000 fps. This disagrees with the information provided in the previous sentence for depths below 22 ft. The applicant should explain the contradiction between the two sentences.
2. On page 3 of the response, in the second paragraph, it lists the shear wave velocity at the foundation depth of the NI as 830 fps while in the fourth paragraph this value is given as 860 fps. The applicant needs to correct the inconsistency between the two values.
3. In Table 2.4-1, a shear wave velocity requirement is provided for the Fire Protection Building (FPB) and the Fire Protections Tanks (FPTs) (item 4) and also for SC II SSE structures (item 6). Currently the FPB and FPTs are designated as SC II SSE structures. The applicant should explain why the FPB and FPTs have not been included under the SC II SSE structures in item 6. As written it is not clear that the structural fill installation requirement of meeting 95 percent of the Modified Proctor density applies to the FPB and FPT structures. The applicant should clarify its intent in this regard.
4. On page 3 of the response, it states the acceptance criteria for shear wave velocity testing is approximately one standard deviation less than the best estimate values, but greater than the lowest values used by the site-specific Soil Structure Interaction (SSI) analyses. The acceptance criteria values correspond to 630 fps at a depth of 6 ft (foundation depth of the EPGBs), 720 fps at a depth of 22 ft

(foundation depth of ESWBs), and 830 fps at a depth of 41.5 ft (foundation depth of the NI Common Basemat Structures). It further states these values are within the bounds of the SSI analyses. As they have not been provided with the response, the applicant should provide the lowest backfill low strain and the corresponding strain compatible shear wave velocity values used in the SSI analysis for SC I and SC II SSE structures and provide their technical basis.

5. On page 3 of the response it indicates the best estimate low strain shear wave velocity below 22 ft is 1080 fps. On page 7 of the response it states that the best estimate shear wave velocity beneath the ESWB and the NI is 1080 fps. Since the basemat of the ESWB is at a depth of 22 ft and the ESWB and NI appear to have the same best estimate low-strain shear wave velocity values, the applicant should explain why the one standard deviation shear wave velocity acceptance criteria used for the ESWB (720 fps) is different from that used for the NI Common Basemat Structures (860 fps).
6. On page 8 of the response in the sixth paragraph it states that Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) testing will be performed during construction to confirm that the shear wave velocity of the installed and compacted fill exceeds the best estimate minus one standard deviation shear wave velocity used in the FSAR Section 3.7 analysis. There are two inconsistencies in this statement that the applicant should explain:
 - a. Table 2.4-1 says that the shear wave velocity of structural fill material is greater than *or equal to* the indicated shear wave velocities which are supposedly the best estimate minus one standard deviation values. The applicant needs to make it clear what the acceptance criteria are for the testing of the structural backfill.
 - b. According to page 3 of the response in the first paragraph the best estimate less one standard deviation shear wave velocity values are greater than the lowest values used in the analysis. This implies that the best estimate values less one standard deviation are not the lowest values used in the analysis but are bounded by the lowest values used in the analysis. The applicant needs to make it clear what has been used for analysis versus what is used as acceptance criteria for the structural backfill.