

CCNPP3COLA PEmails

From: John Rycyna
Sent: Thursday, April 16, 2009 9:36 AM
To: Poche, Robert; McQueeney, Jennifer; katie.thurstin@unistarnuclear.com
Cc: CCNPP3COL Resource; Henry Jones; Richard Raione; Joseph Colaccino; James Biggins; Adam Gendelman
Subject: RAI No 99 RHEB 2090.doc (PUBLIC)
Attachments: RAI No 99 RHEB 2090.doc

Rob,

Attached please find the subject request for additional information (RAI). A draft of the RAI was provided to you on April 2, 2009. No conference call was requested to discuss this RAI. The schedule we have established for review of your application assumes technically correct and complete responses within 30 days of receipt of RAIs. For any RAIs that cannot be answered within 30 days, it is expected that a date for receipt of this information will be provided to the staff within the 30 day period so that the staff can assess how this information will impact the published schedule.

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Subject: RAI No 99 RHEB 2090.doc (PUBLIC)
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From: John Rycyna

Created By: John.Rycyna@nrc.gov

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Options

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Reply Requested: No
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Request for Additional Information No. 99
4/16/2009

Calvert Cliffs Unit 3
UniStar
Docket No. 52-016
SRP Section: 02.04.06 - Probable Maximum Tsunami Flooding
Application Section: FSAR Section 2.4

QUESTIONS for Hydrologic Engineering Branch (RHEB)

02.04.06-1

Section C.I.2.4.6.1 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to determination of Probable Maximum Tsunami Flooding. This includes a discussion of the generation of tsunami-like waves from hill-slope failures. Provide topographic and geologic maps and CCNPP site reconnaissance data used in the assessment of potential subaerial landslides near the site.

02.04.06-2

Section C.I.2.4.6.1 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to determination of Probable Maximum Tsunami Flooding. This includes a discussion of the generation of tsunami-like waves from hill-slope failures and the stability of the coastal area. Provide a discussion in the updated FSAR of the cliff-side stability near the CCNPP site with reference to the findings in Section 2.5.2.1 and 2.4.9 of the FSAR.

02.04.06-3

Section C.I.2.4.6.1 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to determination of Probable Maximum Tsunami Flooding. This includes a discussion of the generation of tsunami-like waves from hill-slope failures. Provide a discussion in the updated FSAR of the topographic relief of the eastern side of Chesapeake Bay, opposite the CCNPP site, and the findings in Section 2.5 of the FSAR.

02.04.06-4

Section C.I.2.4.6.1 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to determination of Probable Maximum Tsunami Flooding. This includes a discussion of the potential of earthquake-induced waves in large bodies of water. Provide a discussion in the updated FSAR of the historical and geologic record, or lack thereof, for seismically-generated seiches in Chesapeake Bay. If possible, also provide an analysis of resonant frequencies of the Bay.

02.04.06-5

Section C.I.2.4.6.2 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to the historical tsunami record, including paleo-tsunami evidence. Provide a discussion in the updated FSAR of the literature search conducted that was used to conclude the absence of tsunami deposits preserved in the vicinity of the CCNPP site.

02.04.06-6

Section C.I.2.4.6.3 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to the source characteristics needed to determine Probable Maximum Tsunami Flooding. These characteristics include detailed geo-seismic descriptions of the controlling local tsunami generators, including location, source dimensions, and maximum displacement. Provide a discussion in the updated FSAR of the literature search conducted that was used to determine the tsunami source parameters for the Norfolk Canyon landslide scenario.

02.04.06-7

Section C.I.2.4.6.3 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to the source characteristics needed to determine Probable Maximum Tsunami Flooding. These characteristics include detailed geo-seismic descriptions of the controlling distant tsunami generators, including location, source dimensions, and maximum displacement. Provide a discussion in the updated FSAR of the literature search conducted that was used to determine the tsunami source parameters for the La Palma landslide scenario.

02.04.06-8

Section C.I.2.4.6.3 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to the source characteristics needed to determine Probable Maximum Tsunami Flooding. These characteristics include detailed geo-seismic descriptions of the controlling distant tsunami generators, including location, source dimensions, fault orientation, and maximum displacement. Provide a discussion in the updated FSAR of the numerical model used to determine the 0.9 m maximum amplitude at the Chesapeake Bay entrance for the Haiti (Greater Antilles) earthquake scenario.

02.04.06-9

Section C.I.2.4.6.4 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to tsunami analysis. This includes providing a complete description of the analysis procedure used to calculate tsunami wave height and period at the site. Provide input files and hydrodynamic model codes (NLSWE and TSU) used in the model simulations.

02.04.06-10

Section C.I.2.4.6.4 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to tsunami analysis. This includes providing a complete description of the

analysis procedure used to calculate tsunami wave height and period at the site, including verification of all models used in the analysis. Provide run-up validation and/or field comparisons of the hydrodynamic model codes (NLSWE and TSU) used in the model simulations, in addition to the Gaussian hump comparison with analytic solutions.

02.04.06-11

Section C.I.2.4.6.4 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to tsunami analysis. This includes providing a complete description of the analysis procedure used to calculate tsunami wave height and period at the site. Correct the typographical error in the first term of equation 2.4.6-2 in the updated FSAR.

02.04.06-12

Section C.I.2.4.6.4 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to tsunami analysis. This includes providing a complete description of the analysis procedure used to calculate tsunami wave height and period at the site. Clarify the phrase “waves quickly dispersed” in the updated FSAR and provide a surface contour map of maximum tsunami wave height in Chesapeake Bay.

02.04.06-13

Section C.I.2.4.6.4 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to tsunami analysis. This includes providing a complete description of the analysis procedure used to calculate tsunami wave height and period at the site. Indicate how tsunami run-up on land is estimated from near-shore tsunami amplitude in the updated FSAR.

02.04.06-14

Section C.I.2.4.6.4 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to tsunami analysis. This includes providing a complete description of the analysis procedure used to calculate tsunami wave height and period at the site. Describe the source of data and method used to develop the bathymetric grid for the tsunami model. Also provide a description of the grid-size sensitivity test in the updated FSAR.

02.04.06-15

Section C.I.2.4.6.5 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to tsunami water levels. This includes providing estimates of maximum and minimum (low water) tsunami wave heights from both distant and local generators. Provide a discussion in the updated FSAR of the water levels for all simulations (NLSWE and TSU models), so that the limiting water levels can be confirmed.

02.04.06-16

Section C.I.2.4.6.5 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to tsunami water levels. This includes providing estimates of maximum and minimum (low water) tsunami wave heights from both distant and local generators. Provide a discussion in the updated FSAR of how uncertainty in simulated tsunami water levels was determined.

02.04.06-17

Section C.I.2.4.6.5 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to tsunami water levels. This includes describing the ambient water levels, including tides, sea level anomalies, and wind waves assumed to be coincident with the tsunami. Provide a discussion in the updated FSAR of long-term sea level rise that may be coincident with tsunami water levels.