CCNPP3eRAIPEm Resource

From: Arora, Surinder
Sent: Thursday, December 16, 2010 9:52 AM
To: 'Poche, Robert'; 'cc3project@constellation.com'
Cc: CCNPP3eRAIPEm Resource; Hawkins, Kimberly; Kazi, Abdul; Colaccino, Joseph; Miernicki, Michael; Wilson, Anthony; Vrahoretis, Susan
Subject: Draft RAI 285 SEB2 5314
Attachments: DRAFT RAI 285 SEB2 5314.doc

Rob,

Attached is DRAFT RAI No. 285 (eRAI No. 5314). You have until December 31, 2010 to review it and decide whether you need a clarification phone call to discuss the questions in the RAI before the final issuance. After the phone call or on December 31, 2010, the RAI will be finalized and sent to you for response. You will then have 30 days to provide a technically complete response or an expected response date for the RAI.

Thanks.

SURINDER ARORA, PE
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Hearing Identifier: CalvertCliffs_Unit3Col_RAI
Email Number: 65

Mail Envelope Properties (B46615B367D1144982B324704E3BCEED3293B7C820)

Subject: Draft RAI 285 SEB2 5314
Sent Date: 12/16/2010 9:52:00 AM
Received Date: 12/16/2010 10:48:03 AM
From: Arora, Surinder

Created By: Surinder.Arora@nrc.gov

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Post Office: HQCLSTR01.nrc.gov

Files	**Size**	**Date & Time**
MESSAGE	653	12/16/2010 10:48:03 AM
DRAFT RAI 285 SEB2 5314.doc	35322	

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

Request for Additional Information No. 285 (eRAI 5314)
DRAFT
12/16/2010

Calvert Cliffs Unit 3
UniStar
Docket No. 52-016
SRP Section: 03.03.02 - Tornado Loads
Application Section: 03.03.02 - Tornado Loads

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

03.03.02-8

Supplemental Question to RAI 128:

General Design Criterion 2 (GDC 2) requires that structures, systems and components important to safety, be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunamis, and seiches without loss of capability to perform their intended safety functions. GDC 2 further requires that the design bases reflect appropriate considerations for the most severe natural phenomena that have been historically reported for the site and surrounding area, with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated in the past.

The Calvert Cliffs Nuclear Power Plant Unit 3 FSAR, Revision 6, Section 3.3.2.3, and the applicant's response to RAI No. 128, Question 3.3.2-1, parts 1 and 2, created additional concerns for the staff.

In response to RAI 128, Question 3.3.2-1, Part 2, the applicant provided information regarding the design methodology for the non-safety related structures, which are in close proximity to safety related structures. These structures include the Switchgear Building and Forebay. Although the applicant indicated that these structures are designed to withstand the tornado loading, the staff requests additional information for each structure as indicated below due to the applicants' unclear statements in the design methodology section for the aforementioned two structures.

Switchgear Building (SB): As the applicant indicated, the structural system for this building will use the engineered pressure relief siding panels to mitigate the effect of tornado loading. The staff concern is about the magnitude of the damages to the safety related structures caused by the mass of the panels in case of separation from the wall due to the tornado loading and impact on safety related structures. Therefore, the applicant is requested to provide the following information:

1. Explain how the design bases assumptions, as referenced by the applicant in FSAR Revision 6, Section 3.5.1.4, consider the separation of panels from the switchgear building walls during tornado events and the effects of the panel's impact as a missile on safety related structures;

2. Explain the basis for determining the magnitude of the damages on safety related structures panel missile impact; and,

3. If the panels due to its mass are considered a missile as described in FSAR, Revision 6, Section 3.5.1.4, explain how the applicant determined that it's mass enveloped by the missile spectra of RG 1.76.

The staff needs this information to ensure that the panels, generated as a missile by tornado loadings, will not adversely affect the safety related structures, which will allow the staff to make their final safety conclusions.

Forebay: The applicant indicated that, in order for this structure to mitigate adverse effects on safety related structures, the Forebay structure and elements are designed to withstand the tornado loadings in a manner similar to the safety related Ultimate Heat Sink Makeup Water Intake Structure (UHS MWIS). The applicant is requested to clarify the meaning of the phrase "in a manner similar" to the design of safety related structures.

There appears to be inconsistent or confusing information about the design of the Forebay structure. As noted above, on page 4 of the RAI response, the applicant used the terms "is designed to withstand tornado loadings in a manner similar to the design of safety related UHS MWIS," and in Table 1 of the response, the applicant indicated that the Forebay structure is a non-safety related structure. The staff needs additional information to resolve this apparent inconsistency to assure there is no adverse interactions between seismic category I (SCI) and non-SCI structures. The design of the Forebay in resisting the tornado loading could lead to significantly different performance and impacts on safety related structures depending on whether the structure is designed "in a manner similar" to safety related structure or as a non-safety related structure. Specifically, the staff needs to know which part(s) of the Forebay structure will be designed as a safety related structure.

The FSAR should be revised to include the responses to this RAI.