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July 22, 2016

Mr. Mark Lombard
Division of Spent Fuel Management
Office of Nuclear Material Safety and Safeguards

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Docket No. 72-1014

Subject: Request for Clarification on RIS 2015-13

- References:
- [1] Draft RIS 2015-XX, "Seismic Stability Analysis Methodologies for Spent Fuel Dry Cask Loading Stack-Up Configuration," dated April 8, 2015, ML13353A710
 - [2] Holtec Letter 5014789, "Comments on Draft RIS 2015-XX, "Seismic Stability Analysis Methodologies for Spent Fuel Dry Cask Loading Stack Up Configuration, Docket ID NRC-2015-0098, letter to C. Bladey (NRC) from K. Manzione (Holtec) dated June 4, 2015
 - [3] NRC Response to Public Comments on Draft RIS 2015-XX "Seismic Stability Analysis for Spent Fuel Dry Cask Stack-Up Configuration," dated October 14, 2015, ML15188A534
 - [4] RIS 2015-13, "Seismic Stability Analysis for Spent Fuel Dry Cask Stack-Up Configuration," dated November 12, 2015, ML15132A122

Dear Mr. Lombard:

Holtec International requests a technical clarification regarding RIS 2015-13. When the draft RIS was first made public in April 2015 (Reference [1]), there was a statement in the original document that read as follows:

"The maximum from the mean plus one standard deviation value of the response (maximum rocking angle, maximum sliding displacement, maximum vertical load and shear load) from each discrete simulation should be defined as the "computed" response

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for the stack-up configuration, where a discrete simulation consists of five earthquake time history analyses using one friction value.”

Holtec submitted a comment to the NRC that read as follows (Reference [2]):

Comment No. 2-2: The mean plus one standard deviation value of the maximum responses should be considered as the computed response only for the maximum rocking angle and the maximum sliding displacement. For force and moment results, such as the maximum vertical load and the maximum shear load, the computed response should be taken as the mean value of the maximum responses. This would be consistent with the guidance in Section 3.3.2 of 4-98 which states: "If five or more accelerograms are used, the mean of the calculated responses may be used in making demand-to capacity checks". Using the mean plus one standard deviation value for forces would be unnecessarily conservative since design codes, such as ASME Section III, Subsection NF, have built-in safety factors associated with their allowable limits.

In response to the above comment, the NRC responded as follows (Reference [3]):

NRC Response: The staff partly agrees with this comment. The staff has not evaluated ASCE 4-98 in the context of a stack-up analysis. The RIS has been changed to eliminate forces from the computed response discussion.

In the final version of the RIS (Reference [4]), the above statement from the draft RIS was updated as follows:

“The maximum from the mean plus one standard deviation value of the response (maximum rocking angle and maximum sliding displacement) from each discrete simulation should be defined as the “computed” response for the stack-up configuration, where a discrete simulation consists of five earthquake time history analyses using one friction value.”

This statement is a clear indication that the NRC staff agreed with the above Holtec comment that mean values may be used when evaluating reaction loads (i.e., maximum vertical and shear loads) associated with the stack-up analysis, and that the 84% percent non-exceedance values only need to be considered for the maximum rocking angle and maximum sliding displacement. However, in the final RIS document (Reference [4]) there remains one statement regarding the mating device joint that reads as follows:

“The joint moment and shear should be taken as the mean-plus-one standard deviation value of the maximum moments and shear forces recorded for each discrete simulation.”



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This statement seems to be in conflict with the NRC's response to Comment No. 2-2 above, and it is possible that it was an oversight that this statement was not updated in the final RIS document. Holtec requests that the NRC staff provide clarification on the above statement in the final RIS document.

If you have any questions please contact me at 856-797-0900 ext. 3633.

Sincerely,

Chuck Bullard
Holtec International

cc: (via email)
Mr. Gordon Bjorkman, USNRC
Mr. John McKirgan, USNRC