

## ArevaEPRDCDocsPEm Resource

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**From:** RYAN Tom (RS/IB) [Tom.Ryan@areva.com]  
**Sent:** Friday, April 10, 2015 9:39 AM  
**To:** HOTTLE Nathan (RS/IB)  
**Subject:** FW: Revised Section 3.7 Calculations and Advanced Response to RAI 320, Q. 03.07.02-63

Success! – See first bullet on item 1) from Mike Miernicki's update on the review of calc 32-7012130-002 to close 3.7 Audit Item 3.7-20 out. He clearly indicates that the item can be considered closed.

Tom

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**From:** Miernicki, Michael [mailto:Michael.Miernicki@nrc.gov]  
**Sent:** Wednesday, June 05, 2013 4:15 PM  
**To:** RYAN Tom (RS/NB)  
**Cc:** Snyder, Amy; WILLIFORD Dennis (RS/NB)  
**Subject:** Revised Section 3.7 Calculations and Advanced Response to RAI 320, Q. 03.07.02-63

Tom,

- 1) here are the results of staff's review in the electronic reading room of the 2 calculations that were identified as needing to be updated during the 3/2013 Section 3.7 audit:
  - Calculation 32-7012130-002 "SSI Analysis of EPGB Using Direct Method"-In the SSI analysis of the EPGB there was a modeling error in the boundary conditions for the foundation shear keys. This was identified as item 3.7-20 in the March 28th AREVA audit action item tracking list. Revision 002 of the SSI calculation corrects the error and the action item can be shown as complete.
  - Calculation 32-7011200-000 "Equivalent Static Hydrodynamic Loads for ESWB"-This calculation develops the hydrodynamic pressure loads used in the wall and mat design of the ESWB. There are four items that AREVA should address:
    - To determine the hydrodynamic loads on the structure, accelerations are selected from the ISRS provided in Appendix B of the calculation. A 15% increase is then applied to the selected accelerations to address the difference between the IBP and EBP mass used in the ESWB SSI analysis (see page 43). It isn't clear why this adjustment is needed or why the increase is 15 percent.
    - In some cases there is no 15% adjustment to the selected accelerations from the Appendix B ISRS (see pages 48,49, 57). AREVA should explain why for some cases an adjustment is made while in other cases no adjustment is made.
    - In the calculation, AREVA develops lateral wall pressures due to hydrodynamic impulsive and convective loads. However, it doesn't appear that AREVA has accounted for the increase in the lateral hydrostatic pressure due to the structure's vertical acceleration. Perhaps this is done in another calculation. If so, AREVA should identify the calculation or explain why this additional pressure load is not accounted for. U.S. EPR FSAR Section 3.7.2.9 states that to compensate for the effect of uncertainties, the ISRS for
    - U.S. EPR Seismic Category I structures are broadened by  $\pm 15$  percent. These broadened ISRS are used in the subsequent design of structural elements, including flexible floors and walls. However, the ISRS found in Appendix B of the calculation from which the accelerations are taken directly, have not been peak broadened. AREVA should explain why the licensing basis was not followed.
- 2) We have completed the review of RAI 320, Question 03.07.02-63 and have about 25 comments on the text. These are either editorial, or items needing additional clarification on the meaning of the text.
- 3) I suggest we use a public meeting/ telecon to discuss items 1) and 2). I will send out a scheduler.

Mike

Michael J. Miernicki  
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