

US-APWRRRAIsPEm Resource

From: Ciocco, Jeff
Sent: Monday, April 22, 2013 2:35 PM
To: us-apwr-rai@mhi.co.jp; US-APWRRRAIsPEm Resource
Cc: Hilsmeier, Todd; Mrowca, Lynn; Reyes, Ruth
Subject: US-APWR Design Certification Application RAI 1021-7085 (19)
Attachments: US-APWR DC RAI 1021 SPRA 7085.pdf

MHI,

The attachment contains the subject request for additional information (RAI). This RAI was sent to you in draft form. Your licensing review schedule assumes technically correct and complete responses within 30 days of receipt of RAIs. However, MHI requests and we grant 45 days to respond to the RAI. We will adjust the schedule accordingly.

Please submit your RAI response to the NRC Document Control Desk.

Thank you,

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Subject: US-APWR Design Certification Application RAI 1021-7085 (19)
Sent Date: 4/22/2013 2:35:20 PM
Received Date: 4/22/2013 2:35:21 PM
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Options

Priority: Standard

Return Notification: No

Reply Requested: No

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Recipients Received:

REQUEST FOR ADDITIONAL INFORMATION 1021-7085

Issue Date: 4/22/2013

Application Title: US-APWR Design Certification - Docket Number 52-021

Operating Company: Mitsubishi Heavy Industries

Docket No. 52-021

Review Section: 19 - Probabilistic Risk Assessment and Severe Accident Evaluation
Application Section: 19

QUESTIONS

19-587

Standard Review Plan Section 19.0, "Probabilistic Risk Assessment and Severe Accident Evaluation for New Reactors" (June 2007), states that the applicant's PRA submittal should be consistent with prevailing PRA standards, guidance, and good practices as needed to support its uses and applications and as endorsed by the NRC (e.g., Regulatory Guide 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," which endorses standard ASME/ANS RA-Sa-2009, "Addenda to ASME/ANS RA-S-2008, Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications").

Based on Section 19.1.4.1.1, "Description of the Level 1 PRA for Operations at Power," of the US-APWR DCD Tier 2, the success criteria analysis for the Level 1 PRA is based on ASME/ANS RA-Sa-2009 and uses the results of MAAP thermal hydraulic analyses and engineering judgment in a manner to provide margin for the uncertainties attributed with the thermal hydraulic analyses. However, in accordance with criterion SC-B5 (page 58) in ASME/ANS RA-Sa-2009, the applicant should demonstrate the reasonableness and acceptability of the MAAP results used to support the Level 1 PRA success criteria analysis. This is necessary to verify the applicant's modeling of the US-APWR design in the MAAP code (e.g., plant nodalization and other modeling assumptions) and because certain scenarios modeled in the Level 1 PRA may challenge the simplified modeling techniques employed by MAAP.

The staff requests that the applicant demonstrate the reasonableness and acceptability of their MAAP results (including the modeling of the US-APWR design in the MAAP code) used to support the Level 1 PRA success criteria analysis. For example, based on criterion SC-B5 in ASME/ANS RA-Sa-2009, one acceptable method is to perform benchmarking studies that compare the applicant's MAAP results with results of similar analyses performed with another NRC-approved code, and show that MAAP is able to capture the important thermal hydraulic phenomena and the timing of such phenomena in simulations of accident sequences included in the PRA. If a small set of accident scenarios is used in the benchmarking studies, the applicant should provide an adequate rationale for its selection of scenarios, including a discussion of the criteria used for selection.

