

US-APWRRRAIsPEm Resource

From: Ward, William
Sent: Thursday, February 21, 2013 5:12 PM
To: 'us-apwr-rai@mhi.co.jp'; US-APWRRRAIsPEm Resource
Cc: Hamzehee, Hossein; Ciocco, Jeff; Reyes, Ruth; Donoghue, Joseph; Schmidt, Jeffrey; Landry, Ralph; 'masatoshi_nagai@mnes-us.com'
Subject: US-APWR Design Certification Application RAI 994-7007 (4.4)
Attachments: US-APWR DC RAI 994 SRSB 7007.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 a clarification call and may request additional time to respond after the call. Any extension to the response time will be determined upon request.

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

Thank you,

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From: Ward, William

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REQUEST FOR ADDITIONAL INFORMATION 994-7007

Issue Date: 2/21/2013

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

Operating Company: Mitsubishi Heavy Industries

Docket No. 52-021

Review Section: 04.04 - Thermal and Hydraulic Design
Application Section:

QUESTIONS

04.04-43

In the VIPRE-01M Topical Report MUAP-07009 the applicant requests a DNBR correlation limit of 1.17 for fuel with the Z2 and Z3 grid design for both the WRB-1 and WRB-2 CHF correlations. This limit of 1.17 the previously approved value for the WRB-1 and WRB-2 CHF correlations and in their draft SER for the VIPRE-01M topical, the staff concluded that this value was conservative for MHI fuels. The DNBR correlation limit is used to bound the 95/95 statistic the measured-to-predicted CHF values and is obtained by determining the 95/95 statistic and adding a small conservative bias. The 95/95 statistic is obtained from the mean and standard deviation of the measured-to-predicted CHF values.

In instances where MHI would use the correlation limit, it would be expected that the value of 1.17 would be used. However, the staff is aware that in the previously approved RTDP methodology the DNBR correlation limit is not used. Instead, the mean and standard deviation of the measured-to-predicted data are combined with other uncertainties to obtain a total DNBR limit. While this methodology is approved, the RTDP methodology does not change the approved DNBR correlation limit. Simply using the mean and standard deviation of the measured-to-predicted data ignores this previously approved bias.

Demonstrate that the mean and standard deviation of the measured-to-predicted data which is used in the RTDP methodology will produce a 95/95 statistic which is equal or conservative compared to the approved DNBR correlation limit of 1.17 for both the WRB-1 and WRB-2 CHF correlations.