

NRR-PMDAPEm Resource

From: Rankin, Jennivine
Sent: Wednesday, November 20, 2013 12:47 PM
To: Robert.Roehler@aps.com
Cc: Thomas.N.Weber@aps.com; Burkhardt, Janet; George, Andrea; Ronald.Barnes@aps.com
Subject: Request for Additional Information #2: Relief Request regarding axial flaw indications (MF3051)
Attachments: Palo Verde 3 BMI RAI#2.docx

Mr. Roehler,

By letter dated November 8, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13317A070), as supplemented November 18, 2013 (ADAMS Accession No. ML13323A763), Arizona Public Service Company (APS, the licensee) submitted for U.S. Nuclear Regulatory Commission (NRC) approval a relief request pursuant to Title 10 of the *Code of Federal Regulations* (CFR) 50.55a(a)(3)(i). This relief request proposes an alternative to the ASME Code requirements of Section XI related to axial flaw indications identified in the Unit 3 reactor vessel bottom mounted instrumentation nozzle.

Based on a review of the submittal, the NRC staff has determined that the following request for additional information (RAI) is required in order to complete its review. The RAIs were discussed with you on November 20, 2013. It was agreed that a response to these RAIs would be provided by November 20, 2013. If circumstances result in the need to revise the requested response date, please contact me at (301) 415-1530 or via email at jennivine.rankin@nrc.gov.

Thanks,
Jennie

Jennie Rankin, Project Manager
Palo Verde Nuclear Generating Station
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

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Subject: Request for Additional Information #2: Relief Request regarding axial flaw indications (MF3051)
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Created By: Jennivine.Rankin@nrc.gov

Recipients:
"Thomas.N.Weber@aps.com" <Thomas.N.Weber@aps.com>
Tracking Status: None
"Burkhardt, Janet" <Janet.Burkhardt@nrc.gov>
Tracking Status: None
"George, Andrea" <Andrea.George@nrc.gov>
Tracking Status: None
"Ronald.Barnes@aps.com" <Ronald.Barnes@aps.com>
Tracking Status: None
"Robert.Roehler@aps.com" <Robert.Roehler@aps.com>
Tracking Status: None

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Options
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Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
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REQUEST FOR ADDITIONAL INFORMATION #2
THE OFFICE OF NUCLEAR REACTOR REGULATION REGARDING RAI RESPONSES FOR
ATTACHMENT 2, "FLAW FRACTURE MECHANICS EVALUATION TO SUPPORT RESTART"
TO RELIEF REQUEST 51
FOR THE REMNANT FLAW IN THE J-GROOVE WELD
IN THE BOTTOM MOUNTED INSTRUMENT NOZZLE NO. 3
PALO VERDE NUCLEAR GENERATING STATION, UNIT 3
ARIZONA PUBLIC SERVICE COMPANY
DOCKET NO. 50-530

RAI-1

Your response to RAI-2 dated November 18, 2013, stated that, "The maximum faulted condition, Loss of Secondary Pressure [LSP] stresses, derived in Attachment 1 to this enclosure, occur at about 118 seconds into the transient (at the maximum through-wall temperature gradient) when the cold leg temperature is 344 °F and the pressure is less than 300 psia. It is therefore conservative to add the maximum thermal stresses for this transient to the SS [steady state] pressure stresses." Please confirm that by adding the stresses under the SS condition to the stresses under the LSP condition for the SS + LSP condition, you basically assumed that the pressure will be at 2235 psig at any time during the LSP and this is the source of conservatism that you mentioned above in the quote. Please clarify whether there is any other conservatism in the stresses under the SS + LSP condition.

RAI-2

Reference 7 of Attachment 2 to Relief Request 51 dated November 8, 2013, was provided as part of your response to RAI-4 dated November 18, 2013. However, it is not clear which stresses in Reference 7 were used in this application. Please indicate the Table number in Reference 7 from which the stresses were used to calculate the stress coefficients under the SS condition in Table 6-1 of Attachment 2 to Relief Request 51.

RAI-3

Your response to RAI-5 dated November 18, 2013, stated that, "The parameters used to calculate the CD [cooldown] condition used the same total stresses as defined for the SS condition above and included a cooldown transient of 100°F/hour." Considering that the stresses under the CD condition in Table 4-3 of Attachment 2 to Relief Request 51 are much less than the stresses under the SS condition, the NRC staff still thinks that the CD condition are for thermal stresses only.

Please confirm that by adding the stresses under the SS condition to the stresses under the CD condition for the SS + CD condition, you basically assumed that the pressure will be at 2235 psig at any time during CD and this is one source of extra conservatism. Please clarify whether there is any other conservatism in the stresses under the SS + CD condition.

RAI-4

Your response to RAI-6 dated November 18, 2013, indicated that the J-R curve based on NUREG-0744, Volume 2, Revision 1, "Resolution of the Task A-11 Reactor Vessel Materials Toughness Safety Issue," is significantly different from that based on Regulatory Guide (RG) 1.161, "Evaluation of Reactor Pressure Vessels with Charpy Upper-Shelf Energy Less Than 50 FT-LB." As a result, you used the safety factors associated with RG 1.161 to perform the elastic plastic fracture mechanics (EPFM) analysis. The required safety factors for detected flaws (ASME Code) are different from those for postulated flaws (RG 1.161). To avoid identifying the causes for the significant difference between the J-R curves based on the two sources, which may be time consuming, please take out the extra conservatism associated with the stresses under the SS + CD condition (RAI-3) and perform the EPFM analysis using the safety factors for detected flaws.