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MRP Materials Reliability Program_____MRP 2014-002

(via e-mail)

January 16, 2014

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

Subject: Proposed Edits to WCAP-17096-A Draft

As discussed at a public meeting with NRC staff in May 2013, this letter provides proposed text revisions for draft WCAP-17096-NP Revision 2. Changes were made based on the NRC RAIs, draft Safety Evaluation, and lessons learned from recent plant-specific work performed by AREVA and Westinghouse. The updated text has been reviewed by the PWR Owner's Group Materials Subcommittee (MSC) and comments have been incorporated.

Subsequent letters from EPRI-MRP will provide additional proposed text revisions from Westinghouse.

Sincerely,

Tim Wells
Chairman, Integration Committee
EPRI-Materials Reliability Program

Anne Demma
Program Manager
EPRI- Materials Reliability Program

Cc: Joe Holonich, NRC
James Molkenthin, PWROG Program Manager

Docket No. 669

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PALO ALTO OFFICE
3420 Hillview Avenue, Palo Alto, CA 94304-1338 USA • 650.855.2000 • Customer Service 800.313.3774 • www.epri.com

Section or page of WCAP-17096 Rev. 2	NRC RAI	Current Wording	Proposed Revision	Remarks
		required in MRP-227. The former plates are partially accessible through openings in the core barrel assembly and could potentially be VT-3 examined. Nothing is required for examination at this time.	required in MRP-227. The top portion of the uppermost former plate is partially accessible from above the core barrel assembly and portions of the remaining former plates are partially accessible through openings in the core barrel assembly that could potentially be VT-3 examined if techniques were required to be developed, but substantial development efforts would be needed, which is why they are not currently required to be examined. Nothing is required for examination at this time.	

Page A-47	N/A	Methodology and Data Requirements:
		
		The general analytical methodology to be used for acceptance criteria for the former plates involves the following steps and inputs:
		
		• Confirmation of required loading and combination requirements
		
		• Perform a linear-elastic fracture mechanics (LEFM) evaluation to determine the critical crack size using the MRP-211 fracture toughness values
		
		  • A flaw handbook could also be developed
		
		  • Or, justify the existing calculations in
			Methodology and Data Requirements:
			
			The general analytical methodology to be used for acceptance criteria for the former plates involves the following steps and inputs:
			
			• Perform an evaluation to assess the potential of degradation with respect to the baffle plates
			• This will include comparison of similarity of materials, accumulated irradiation fluence and stresses in the former plates versus the baffle plates
			Excluding the stresses in the former plates at the threaded holes it is expected that the former plates will be shown to be less susceptible to embrittlement than the baffle plates.
			
			If the above effort is inconclusive then the possibility of limited examination of the former plate will be assessed, with the objective of confirming that the former plates had not cracked through to the surface around the threaded connections.
				Methodology revision

Section or page of WCAP-17096 Rev. 2	NRC RAI	Current Wording	Proposed Revision	Remarks
		MRP-210 • An operability evaluation to operate at least one cycle based on possible degradation of the former plates should be performed • An evaluation of the consequences of leaving cracked former plates in place should be performed Analytical efforts could be performed on a generic basis.	Analytical efforts could be performed on a generic basis.	

Page A-50	N/A	Methodology and Data Requirements:
		
		The general analytical methodology to be used for acceptance criteria for the BB bolts involves the following steps and inputs:
		
		• A global FEM model is developed to evaluate failures for use in developing the frequency for the I&E guidelines, acceptable failure pattern or numbers, and for use in preparing possible JCOs for the BF and CF bolts
		  • Evaluations for these bolt locations will consider BB bolts to be failed and structurally inactive
		  • No specific pattern will need to be evaluated as the BB bolts do not
			Methodology and Data Requirements:
			
			The general analytical methodology to be used for acceptance criteria for the BB bolts involves the following steps and inputs:
			
			• A global FEM model is developed to evaluate failures for use in developing the frequency for the I&E guidelines, acceptable failure pattern or numbers, and for use in preparing possible JCOs for the BF and CF bolts
			  o Evaluations for these bolt locations will consider BB bolts to be failed and structurally inactive
			  o No specific pattern will need to be evaluated as the BB bolts do not perform any core support function, nor are they required to maintain the geometry of the core cavity
			  o In addition, no specific acceptance criteria
				Methodology revision