

**MRP** Materials Reliability Program \_\_\_\_\_ MRP 2016-004

Date: January 28, 2016

To: Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-001

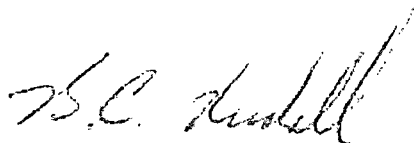
From: Bernie Rudell, Exelon, MRP Integration Chairman  
Anne Demma, EPRI, MRP Program Manager

Subject: Industry comments to draft NRC Safety Evaluation of WCAP-17096-NP, Revision 2, "Reactor Internals Acceptance Criteria Methodology Data Requirements" (TAC No. ME4200) (Project No. 669)

By letter dated May 19, 2010, (ADAMs Accession No. ML101460156), EPRI in cooperation with the Pressurized Water Reactor Owners Group (PWROG) submitted topical report WCAP-17096-NP, Revision 2, "Reactor Internals Acceptance Criteria Methodology and Data Requirements," dated December 20, 2009, for review by the US NRC staff. In November 2015, EPRI received a revised draft Safety Evaluation (SE) (NRC letter from K. Hsueh to A. Demma, dated November 12, 2015), for review and comment by the industry.

NRC staff noted that the final SE would be issued after making any necessary changes and disposition of industry's comment on the draft SE. Attachment 1 provides the industry's comments on the draft SE.

Sincerely,



B. C. Rudell  
MRP Chairman  
Exelon Generation



Anne Demma  
MRP Program Manager  
Electric Power Research Institute

cc: Joe Holonich, NRC  
Jim Molkenhain, PWROG

Attachments:

1. WCAP-17096 Draft Safety Evaluation - Technical Comments
2. PWROG Letter OG-16-25: Transmittal of Responses to Revised Draft Safety Evaluation by the Office of Nuclear Reactor Regulation for Topical Report WCAP-17096-NP, Revision 2 "Reactor Internals Acceptance Criteria Methodology and Data Requirements" (Project Number 669), (TAC NO. ME4200) PA-MS-0473R5

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NRR

## WCAP-17096 Draft Safety Evaluation - Technical Comments Comment Form

Comment #	Comment Location				Comment
	Page #	Section #	Paragraph / Sentence #	Table #	
1	3	3.1	2nd paragraph, last sentence		Reference to TLAA has been removed from WCAP-17096 via RAI responses
2	5 (and several others)	3.2.1	1st paragraph, last sentence		The text "within one year of the initial inspection..." can be interpreted multiple ways. One interpretation could be that a licensee need not submit an analysis should any future examination results indicate aging that triggers expansion. It is suggested that wording similar to that used in Section 3.2.2.1 for the CRGT and IMI guide tube spiders and welds be used if the intention of the statement is the same - "...submit, within one year of inspection of the IMI guide tube assembly spiders or CRGT spacer castings, for NRC to determine whether review and approval are needed if the inspection results indicate aging not meeting the acceptance criteria in Table 5-1 of MRP-227-A." This comment applies to the other locations where this wording is used throughout the document (e.g. Section 3.2.2.1 and Section 4.1)
3	5	3.2.1	1st paragraph, 4th sentence		It is believed that the "P" in brackets is simply the staff adjusting content as stated in WCAP-17096. This also occurs on Page 8 with "PH" in brackets. Please clarify what is meant by the use of these brackets in these instances.
4	6-7	3.2.2.1	Last paragraph, last sentence		Wording on the bottom of page 6 refers to the FD bolts in the second bullet on page 7 as being an "expansion" item, but as discussed in RAI responses, the WCAP is to be revised to be consistent with FD bolts being a "Primary" item in MRP-227-A, per the SE for MRP-227-A. Thus, minor modification to the wording is required in order for this draft SE to be accurate.
5	25	3.2.2.2.2	2nd paragraph, last sentence		There are no expansion criteria for the baffle-edge bolts.

## WCAP-17096 Draft Safety Evaluation - Technical Comments Comment Form

Comment #	Comment Location				Comment
	Page #	Section #	Paragraph / Sentence #	Table #	
6	32 (and other locations)	3.2.2.2.2	3rd paragraph, 3rd sentence		<p>For several of the conditions imposed by the draft SE, the following text or similar text appears: "...that plant-specific analyses be submitted to the NRC to determine if review and approval is needed, within one year after inspection results indicate aging triggering the expansion criteria of MRP-227-A Table 5-2 or 5-3."</p> <p>Similar text appears in the following locations:</p> <ul style="list-style-type: none"> <li>- Page 32, Condition 3, Group 3</li> <li>- Page 33, Condition 3, Group 4</li> <li>- Page 34, Condition 3, Group 1</li> <li>- Page 39, Condition 3, Group 4</li> <li>- Page 42, Condition 3, Group 4</li> <li>- Page 42, Condition 3, Group 6</li> <li>- Page 44, Condition 3 section</li> </ul> <p>The requirements of the condition are currently unclear. Specifically, the components the conditions are applicable to; the submittal timing for each class of component; and the intention to use the expansion criteria when determining if an analysis must be submitted.</p>
7	34	3.2.2.2.2	2nd paragraph, 3rd sentence		Consider revising the sentence starting with "These criteria are the inclusion of VT-3 inspections of..." to avoid future potential for misunderstanding.
8	34	3.2.2.2.2	3rd paragraph, 1st sentence		CE-ID: 4 and W-ID:8 are primary components with no expansion links
9	43	4.1	3rd paragraph		<p>The paragraph starting with "As discussed in Section 3.2.1 of this SE,..." is a long sentence and unclear as is the paragraph starting with "As discussed in Section 3.2.2.1 of this SE,..." two paragraphs later.</p> <p>Please consider revising for clarity.</p>

**WCAP-17096 Draft Safety Evaluation - Technical Comments  
Comment Form**

Comment #	Comment Location				Comment
	Page #	Section #	Paragraph / Sentence #	Table #	
10	43	4.1	3rd paragraph		It appears that an inconsistency exists between the MRP-227-A SE and this draft SE of WCAP-17096 in Condition 1. A/LAI #6 in the MRP-227-A SE states the following: "Applicants/licensees shall justify the acceptability of these components for continued operation through the period of extended operation by performing an evaluation, or by proposing a scheduled replacement of the components. As part of their application to implement the approved version of MRP-227, applicants/licensees shall provide their justification for the continued operability of each of the inaccessible components and, if necessary, provide their plan for the replacement of the components for NRC review and approval." Section 4.1 of this draft SE states the following: "As discussed in Section 3.2.1 of this SE, the licensee is required to submit the detailed analysis, replacement schedule, or justification for some other alternative process, for the three inaccessible Expansion component items within one year of the initial inspection of the linked Primary component items for NRC to determine whether review and approval are needed..." Additionally, in Section 3.2.1 (Page 4) the language supplements (not replacements) is used. It is not clear what is meant by "supplements (not replacements)" nor how licensees are to adhere to the limitations and conditions in both the MRP-227-A and WCAP-17096 SEs.
11	44	4.1	1st paragraph		<p>The paragraph starting with "As discussed under 'CRGT Spacer Castings' and..." has some issues with clarity due to the long sentences and how the modifiers in the different clauses of the sentences could be interpreted in different ways. Please consider revising for clarity.</p> <p>The same comment applies to the sentence beginning with "As discussed under Section 3.2.2.2 of this SE, the applicant is required..." on the same page.</p>
12	44-46	4.3	Several Locations		There appear to be inconsistencies with the component ID nomenclature as identified in Condition 3 of the draft SE. For example, some of the component IDs are consistent with that of the RAI response letters submitted on the docket, while several are not. The component IDs have been updated as a result of letters submitted on the docket in response to RAIs. It is recommended that component ID nomenclature and numbering be revised as submitted in the RAI response letters to ensure consistency.



January 22, 2016

WCAP-17096-NP, Rev. 2

Project Number 694

OG-16-25

Mr. Kyle Amberge, EPRI Project Manager  
Electric Power Research Institute (EPRI)  
3420 Hillview Avenue  
Palo Alto, CA 94304

Subject: Pressurized Water Reactor Owners Group  
**Transmittal of Responses to Revised Draft Safety Evaluation by the Office of Nuclear Reactor Regulation for Topical Report WCAP-17096-NP, Revision 2 “Reactor Internals Acceptance Criteria Methodology and Data Requirements” (Project Number 669), (TAC NO. ME4200) PA-MS-0473R5**

Dear Mr. Amberge:

In January 2010, the Pressurized Water Reactor Owners Group (PWROG), provided the Electric Power Research Institute (EPRI) WCAP-17096-NP, Revision 2 “Reactor Internals Acceptance Criteria Methodology and Data Requirements” (Reference 1). EPRI submitted the document to the Staff for review and comment under the MRP-227 umbrella (Reference 2). In June 2010, the Staff accepted the topical report (Reference 3) and provided a Request for Additional Information (RAI) (Reference 4) on May 19, 2011. On July 15, 2011, the Staff provided a revision for Request for Additional Information (RAI) (Reference 5) and the PWROG provided responses. Based on the draft RAI input provided under Reference 6, teleconferences were held with the Staff to discuss both the AREVA and Westinghouse responses. The minutes from both calls are provided in Reference 7. Based on those minutes, the RAI responses were revised and provided to EPRI for submittal to the NRC (Reference 8). On October 11, 2012, the NRC provided a second Request for Additional Information (RAI) (Reference 9). The Planning Team has reviewed and provided comments on the second Request for Additional Information (RAI) (Reference 10) and submitted them to EPRI under Reference 11. On December 10, 2012, the NRC provided additional comments via email (Reference 12) on the responses to the RAIs that were submitted under Reference 11. The PWROG provided additional responses on December 20, 2012 (Reference 13). On February 11, 2013 the NRC Staff issued the reference draft safety evaluation (Reference 14) for this report. In addition, proposed changes discussed between Simon Sheng (NRC), Sheldon Stuchell (NRC), and Steve Fyfitch during a teleconference held on March 27, 2013 were resolved and changes were incorporated into another draft of the Safety Evaluation (SE) (Reference 15). Overall comments were provided under Reference 16.

On August 18, 2014 the NRC provided two additional RAIs to the PWROG through the EPRI MRP (Reference 17). The PWROG provided additional responses on October 27, 2014 (Reference 18). On February 11, 2015, the NRC provided additional RAIs to the PWROG through the EPRI MRP (Reference 19). The PWROG provided additional responses on May 1, 2015 (Reference 20).

In October 2015 the PWROG received a revised draft Safety Evaluation (SE) (Reference 21). Enclosure 1 provides the PWROG comments on the revised SE.

The PWROG would like to request that we are kept on distribution, via letter, once the comments on the revised SE is provided to the Staff. Once the final SE is received the "A" version of the report will be finalized.

References:

1. PWROG Letter from Dennis Buschbaum to Anne Demma, EPRI Transmittal of Final WCAP-17096-NP, Revision 2 "Reactor Internals Acceptance Criteria Methodology and Data Requirements", December 2009, OG-10-22, dated 1/13/10.
2. Report Transmittal: Westinghouse Non-Proprietary Class 3 Report, "Reactor Internals Acceptance Criteria Methodology and Data Requirements, WCAP-17096-NP, Revision 2, December 2009, MRP 10-034, dated 5/19/10.
3. Acceptance for Review of PWR Owners Group (PWROG) Topical Report WCAP-17096-NP, Revision 2 "Reactor Internals Acceptance Criteria Methodology and Data Requirements" (TAC NO. ME4200), letter from NRC to EPRI, dated 6/28/10.
4. Request of Additional Information on WCAP-17096-NP, Revision 2 "Reactor Internals Acceptance Criteria Methodology and Data Requirements (TAC NO. ME4200) PA-MSC-0473, dated 5/19/11 and posted to the PWROG website under OG-11-163, dated 5/23/11.
5. Revision 1 to the Request of Additional Information on WCAP-17096-NP, Revision 2 "Reactor Internals Acceptance Criteria Methodology and Data Requirements" (TAC NO. ME4200) PA-MSC-0473, dated 7/10/11 and posted under the PWROG website under OG-11-223, dated 7/ 15/11.
6. Responses to the NRC Request for Additional Information (RAI) on PWR Owners Group (PWROG) WCAP-17096-NP, Revision 2 "Reactor Internals Acceptance Criteria Methodology and Data Requirements" (TAC NO. ME4200) PA-MSC-0473, OG-11-264, dated 9/6/11.
7. High Level Minutes (LTR-RIAM-11-50) from October 4th and 12th Teleconferences with the NRC to Discuss the Draft RAI Responses Related to PWROG WCAP-17096, Revision 2 "Reactor Internals Acceptance Criteria Methodology and Data Requirements" (PA-MSC-0473), OG-11-343, dated 11/2/11.
8. Revised Responses (LTR-RIAM-12-12) to the NRC Request for Additional Information (RAI) on PWR Owners Group (PWROG) WCAP-17096-NP, Revision 2 "Reactor Internals Acceptance Criteria Methodology and Data Requirements" (TAC NO. ME4200) PA-MSC-0473, OG-12-202, dated May 25, 2012.
9. Request of Additional Information Related to WCAP-17096-NP, Revision 2 "Reactor Internals Acceptance Criteria Methodology and Data Requirements" December 2009 (TAC NO. ME4200) PA-MSC-0473, dated 10/11/12 and posted to the PWROG website under OG-12-444, dated October 26, 2012.
10. Review and Comment of Additional RAI Responses (LTR-RIAM-12-134) to the NRC Request for Additional Information (RAI) on PWR Owners Group (PWROG) WCAP-17096-NP, Revision 2 "Reactor Internals Acceptance Criteria Methodology and Data Requirements" (TAC NO. ME4200) PA-MSC-0473, OG-12-475, dated November 9, 2012.

References (Continued)

11. Additional RAI Responses (LTR-RIAM-12-138, Rev 0) to the NRC Request for Additional Information (RAI) on PWR Owners Group (PWROG) WCAP-17096-NP, Revision 2 "Reactor Internals Acceptance Criteria Methodology and Data Requirements" (TAC NO. ME4200) PA-MSC-0473, OG-12-495, dated November 21, 2012.
12. Comments to Additional RAI Responses via email from the NRC. Joe Golla (NRC) to Kyle Amberge (EPRI), dated December 10, 2012.
13. Additional RAI Responses (LTR-RIAM-12-138, Rev 1) to the NRC Request for Additional Information (RAI) on PWR Owners Group (PWROG) WCAP-17096-NP, Revision 2 "Reactor Internals Acceptance Criteria Methodology and Data Requirements" (TAC NO. ME4200) PA-MSC-0473, OG-12-519, dated December 20, 2012.
14. Draft Safety Evaluation by the Office of Nuclear Reactor Regulation for Topical Report WCAP-17096-NP, Revision 2 "Reactor Internals Acceptance Criteria Methodology and Data Requirements" (Project Number 669), PA-MSC-0473R3, dated 2/11/13 and posted to the PWROG website under OG-13-46 dated February 13, 2013.
15. Email from Sheldon Stuchell (NRC) to Kyle Amberge (EPRI), dated 4/1/13.
16. Comments on PWR Owners Group (PWROG) WCAP-17096-NP, Revision 2 "Reactor Internals Acceptance Criteria Methodology and Data Requirements" Draft Safety Evaluation (TAC NO. ME4200) PA-MSC-0473, and posted to the PWROG website under OG-13-130 dated April 2, 2013.
17. Letter from J. Holonich (U.S. NRC Senior Project Manager) to B.C. Rudell (EPRI Materials Reliability Program Chairman), "Request for Additional Information Related to WCAP-17096-NP, Revision 2, 'Reactor Internals Acceptance Criteria Methodology and Data Requirements' (TAC No. ME4200)," dated August 18, 2014, ML14177A071 and posted to the PWROG website under OG-14-331, dated September, 18, 2014.
18. Additional RAI Response (LTR-RIAM-14-91, Rev 2) to the NRC Request for Additional Information (RAI) on PWR Owners Group (PWROG) WCAP-17096-NP, Revision 2 "Reactor Internals Acceptance Criteria Methodology and Data Requirements" (TAC NO. ME4200) PA-MSC-0473R5, OG-14-349, dated October 27, 2014.
19. Request of Additional Information Related to WCAP-17096-NP, Revision 2 "Reactor Internals Acceptance Criteria Methodology and Data Requirements" (TAC NO. ME4200) PA-MSC-0473R5, dated February 11, 2015 and posted to the PWROG website under OG-15-112, dated March 16, 2015.
20. Additional RAI Responses (PWROG-15035-NP, Revision 0) to the NRC Request for Additional Information (RAI) on PWR Owners Group (PWROG) WCAP-17096-NP, Revision 2 "Reactor Internals Acceptance Criteria Methodology and Data Requirements" (TAC NO. ME4200) PA-MSC-0473R5, and posted to the PWROG website under OG-15-178, dated May 1, 2016.
21. Revised Draft Safety Evaluation by the Office of Nuclear Reactor Regulation for Topical Report WCAP-17096-NP, Revision 2 "Reactor Internals Acceptance Criteria Methodology and Data Requirements" (Project Number 669), PA-MSC-0473R5, provided via email from the NRC to EPRI on September 24, 2015 and posted to the PWROG website under OG-16-023, dated January 22, 2016.

Kyle Amberge, EPRI Project Manager  
OG-16-25

If you have any questions feel free to contact Mr. Jim Molkenhain of the PWR Owners Group Project Management Office at (860) 731-6727.

Regards,

J. Molkenhain Approving for J. Stringfellow

Jack Stringfellow  
Chief Operating Officer & Chairman  
Pressurized Water Reactor Owners Group

NJS:JPM:kpr

Enclosures (1): WCAP-17096 Revised Draft SE Comments (Excel spreadsheet)

cc: PWROG Steering Committee	PWROG Management Committee
PWROG Licensing Committee	PWROG Materials Subcommittee
PWROG Program Management Office	R. Lott, Westinghouse
J. Rowley, USNRC	J. McKinley, Westinghouse
S. Stuchell, USNRC	E. Benacquista, Westinghouse
J. Holonich, USNRC	T. Demers, Westinghouse
J. Andrachek, Westinghouse	M. Ickes, Westinghouse
P. Paesano, Westinghouse	D. Skulina, AREVA Inc.
C. Boggess, Westinghouse	T. Natour, AREVA Inc.
E. Deemer, Westinghouse	S. Fyfitch, AREVA Inc.
B. Carpenter, Westinghouse	A. Demma, EPRI
M. Spak, Westinghouse	B. Clark, Entergy South