

November 24, 2008

MEMORANDUM TO: Stacey L. Rosenberg, Chief
Special Projects Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

FROM: Tanya M. Mensah, Senior Project Manager **/RAI/**
Special Projects Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF THE OCTOBER 23, 2008, CATEGORY 2 PUBLIC
MEETING WITH THE NUCLEAR ENERGY INSTITUTE (NEI):
MATERIAL RELIABILITY PROGRAM (MRP): TECHNICAL BASIS
FOR PREEMPTIVE WELD OVERLAYS FOR ALLOY 82/182 BUTT
WELD IN PRESSURIZED WATER REACTORS (MRP-169)
(TAC NO. MD8005)

On October 23, 2008, a Category 2 public meeting was held between the U. S. Nuclear Regulatory Commission (NRC) staff and industry representatives at the NRC headquarters in Rockville, MD. A list of attendees is provided in Enclosure 1. The purpose of this meeting was for industry representatives to discuss the current status and next steps associated with the NRC staff's review of Electric Power Research Institute (EPRI) Topical Report (TR) MRP-169, "Technical Basis for Preemptive Weld Overlays for Alloy 82/182 Butt Welds in PWRs [Pressurized Water Reactors]".

By letter dated September 7, 2005 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML052520325), the NEI submitted for NRC staff review TR MRP-169. In a letter dated August 3, 2006 (ADAMS Accession No. ML062050337), the NRC staff issued a request for additional information (RAI). The industry did not provide its RAI responses to the NRC because industry resources on TR MRP-169 were diverted to address an emergent technical issue regarding pressurizer nozzle dissimilar metal welds. As a result, by letter dated April 26, 2007, the NRC discontinued its review of TR MRP-169 (ADAMS Accession No. ML071130113). After an August 23, 2007, pre-submittal meeting with the NRC staff, the NEI and the EPRI indicated that they would submit the necessary documentation to re-initiate the NRC staff's review of TR MRP-169. By letter dated March 25, 2008 (ADAMS Accession No. ML080780600), the NRC staff found that the material provided by NEI on January 9, 2008, was sufficient to begin a comprehensive review.

The October 23, 2008, presentation to the NRC staff included:

- A summary of commercial boiling water reactor (BWR) and PWR weld overlay experience.

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- A discussion of the NRC review schedule.
- A discussion of the current Ultrasonic Testing (UT) of Optimized Weld Overlay (OWOL) .
- A proposed alternative solution to demonstrate that OWOL is effective.

During the meeting, the industry representatives emphasized that they were seeking NRC staff review and approval of TR MRP-169 by May 2009 to support potential fall 2009/spring 2010 reactor pressure vessel nozzle applications.

During the August 23, 2007, pre-submittal meeting, the NRC staff expressed concern regarding the timely completion of the NRC staff's review of TR MRP-169, Revision 1, since industry had not completed the qualification of examination methods for OWOL, and qualification requirements have to be developed. During the October 23, 2008, public meeting, the industry representatives addressed how the current UT results show that the procedures for detection and sizing of circumferential/axial flaws in the outer fifty percent/twenty-five percent (respectively) of weld and wrought base material can be qualified for OWOL designs. Industry representatives stated that their next step is to establish qualification requirements for OWOL and begin qualifying vendors.

Since non-destructive examination (NDE) qualification, for axial flaws, is currently limited to the outer twenty-five percent of the original base material, industry representatives proposed an alternative OWOL design that will satisfy TR MRP-169 OWOL inspection requirements. The NEI and the EPRI plan to submit this new proposed design requirement as an addendum to TR MRP-169 by January 2009. Industry representatives requested that the NRC staff review the alternative design and UT qualification concepts proposed during the meeting and provide industry with information on the results of the review. The industry representatives stated that this information would help the industry to assess using OWOLs in upcoming outages.

At the meeting conclusion, the industry representatives asked if the NRC staff could provide feedback in the meeting summary regarding if the NRC staff agrees with the alternative approach described in the public meeting. An assessment of the industry's alternative design and UT qualification concepts is provided in Enclosure 2 to this meeting summary.

The industry presentation slides are available in ADAMS (Accession No. ML083080223).

The NRC presentation slides are available in ADAMS (Accession No. ML083080219).

No members of the public were in attendance. No public meeting feedback forms were received.

Project Nos. 669 and 689

Enclosures: As stated

cc w/encls: See next page

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ADAMS Accession No: ML083170514 (Package); ML082690459 (Meeting Notice); ML083150165 (Summary); ML083080219, ML083080223 (Handouts) NRC-001

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DATE	11/ 20 /08	11/ 20 /08	11/ 21 /08	11/ 24 /08

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Memo to Stacey L. Rosenberg from Tanya M. Mensah dated November 24, 2008

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THE NUCLEAR ENERGY INSTITUTE: MATERIAL RELIABILITY PROGRAM:
TECHNICAL BASIS FOR PREEMPTIVE WELD OVERLAYS FOR ALLOY 82/182
BUTT WELDS IN PRESSURIZED WATER REACTORS

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List of Attendees for October 23, 2008	
Name	Organization
Brian Beley	NuVision Engineering
Terence Chan	NRC
John Crane (participated by phone)	Westinghouse
Al Csontos	NRC
Dan Horner (participated by phone)	Platts
Greg Kammerdeiner	FENOC
Ken Karwoski	NRC
Michael Lashley	Structural Integrity
Carl Latiolais (participated by phone)	EPRI
B. Lu	EPRI
John Lubinski	NRC
Shah Malik	NRC
Terry McAlister	SCANA
Tanya Mensah	NRC
Carol Nove	NRC
Pat Purtscher	NRC
Harold Queen	Structural Integrity
Pete Riccardella	Structural Integrity
James Riley	NEI
Mike Robinson	Duke Energy
Dave Rudland	NRC
Paul Scott	Battelle Columbus
Jack Spanner	EPRI
Jeff Stukus	Westinghouse
Ted Sullivan	NRC
Ronald Swain	EPRI
Brad Thigpen	AREVA
John Tsao	NRC
Dave Waskey	AREVA
Dennis Weakland	FENOC

U.S. NUCLEAR REGULATORY COMMISSION (NRC) STAFF'S FEEDBACK
ON THE PROPOSED ALTERNATIVE DESIGN CRITERIA FOR
OPTIMIZED WELD OVERLAY

The Electric Power Research Institute (EPRI) Topical Report (TR), Materials Research Program (MRP) MRP-169, Revision 1, specifies that after optimized weld overlay (OWOL) is installed on an Alloy 82/182 dissimilar metal weld, the ultrasonic examination will be able to detect flaws in the OWOL and 50 percent of the outer region of the weld wall thickness. In its review of TR MRP-169, the NRC staff questioned the qualification of the ultrasonic testing (UT) of the OWOL. In the NRC staff's public meeting with industry on October 23, 2008, industry representatives indicated that industry had encountered technical problems with UT qualification for the 50 percent deep axial flaws. Therefore, industry representatives proposed alternative design criteria as follows: (1) OWOL design will be based on a circumferential flaw with 360 degree extent and a depth of 75 percent through the original pipe wall, (2) the design basis axial flaw will be a flaw 100 percent through the original pipe wall, (3) fatigue and primary water stress corrosion cracking crack growth will be performed based on an axial flaw with a depth of 75 percent through wall and a circumferential flaw with a depth of 50 percent through wall, (4) UT examination will be qualified for circumferential flaws 50 percent through the original pipe wall and deeper, and (5) UT examination will be qualified for axial flaws 75 percent through the original pipe wall and deeper.

Based on its review of the information presented at the October 23, 2008 meeting, the NRC staff believes that the proposed alternative design and UT qualification concepts are acceptable. However, these comments do not apply to welds to cast austenitic stainless steel (CASS) components. The industry representatives will need to provide technical details of the proposed alternative concepts for formal NRC review and evaluation as part of its normal process of reviewing TR MRP-169.

As noted in the meeting on October 23, 2008, the NRC staff needs to complete the following activities as part of completing its review of TR MRP-169: (1) review the industry's UT qualification at the EPRI Nondestructive Examination Center in Charlotte, North Carolina; the NRC staff is interested in reviewing UT procedure qualification data and vendor qualification data, (2) evaluate the alternative design for CASS applications, (3) perform independent weld residual stress and flaw growth analyses of the OWOL design, and (4) review and write a safety evaluation (SE) on TR MRP-169, Revision 1, the alternative design criteria when they are formally submitted, and the results of its review activities items (1) and (2) above. The NRC staff is preparing an information request to a licensee to obtain information it needs to perform independent OWOL analyses.

In lieu of submitting a revised TR MRP-169, the industry representatives proposed during the October 23, 2008, meeting to submit an Addendum to TR MRP-169, Revision 1, for NRC staff review. The NRC staff finds that the addendum approach is workable but recommends that the document provided be labeled as an Appendix to TR MRP-169, Revision 1. When EPRI issues TR MRP-169, Revision 2, as an NRC-approved TR, the staff expects that the document would include the NRC's SE and the alternative design Appendix.

ENCLOSURE 2

The industry representatives indicated that the proposed alternative is scheduled to be submitted by January 2009 and requested the NRC approval of TR MRP-169 and Addendum by May 2009. Until the NRC staff completes the first two activities described above, the NRC staff cannot commit to meet the industry's May 2009 target date.

Nuclear Energy Institute
Electric Power Research Institute

Project No. 689
Project No. 669

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