

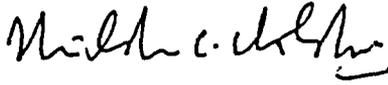


UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

December 31, 2003

MEMORANDUM TO: Michael E. Mayfield, Director
Division of Engineering Technology
Office of Nuclear Regulatory Research

THRU: Nilesh C. Chokshi, Chief 
Materials Engineering Branch
Division of Engineering Technology
Office of Nuclear Regulatory Research

FROM: James A. Davis, Senior Materials Engineer 
Materials Engineering Branch
Division of Engineering Technology
Office of Nuclear Regulatory Research

SUBJECT: TRIP REPORT ON THE AMERICAN SOCIETY OF MECHANICAL
ENGINEERS (ASME) BOILER AND PRESSURE VESSEL CODE WEEK
IN LAKE BUENA VISTA, FLORIDA ON DECEMBER 8-12, 2003

I attended the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Week in Lake Buena Vista, Florida during the week of December 8-12, 2003. I attended the Task Group Temper Bead Welding, the Task Group on Socket Weld Overlays, and the Working Group Welding and Special Repair Processes as the NRC representative, and the Subgroup Repair and Replacement Activities as the alternate.

There were three areas identified where the NRC staff has concerns on various actions:

1. The NRC staff has concerns on underwater welding of irradiated materials as stated in 10 Code of Federal Regulations (CFR) 50.55a(b)(1)(xii), "*Underwater Welding*. The provisions in IWA-4660, "*Underwater Welding*," of Section XI, 1997 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section, are not approved for use on irradiated material." The NRC staff also has a concern about permitting RT in lieu of conducting a bend test during the qualification of underwater welding procedures.
2. The NRC staff considers the evaluation requirements of IWA-4461.4.2 of the 2003 Addenda for qualifying procedures for thermal cutting without subsequent mechanical processing to be lacking. For example, the evaluation does not address specific surface examination requirements, thermal cutting qualification requirements for notch toughness, corrosion tests, and requirements for analyzing stresses induced by the cutting process.
3. The NRC staff has concerns about Code Cases N-561, "Requirements for Wall Thickness Restoration of Class 2 and High Energy Class 3 Carbon Steel Piping," and

562, "Requirements for Wall Thickness Restoration for Moderate Energy Class 3 Carbon Steel Piping." The NRC limitations read, "Neither the ASME Code nor the Code Cases have criteria for determining the rate or extend or degradation of the repair or the surrounding base metal. Reinspection requirements are not provided to verify structural integrity since root cause may not be mitigated.

I have been in contact with Stephanie Coffin of the Office of Nuclear Reactor Regulation (NRR) who is the section chief responsible for welding issues in the Materials and Chemical Engineering Branch of NRR and she has contacted David Waskey, the Chairman of the Working Group on Welding and Special Repair Processes, to discuss these three issues by phone. The phone call is scheduled for January 14, 2004. The purpose of this phone call is to make sure both parties understand the issues involved. The NRC staff will then caucus and come to an internal agreement on these issues and then discuss the resolution with Mr. Waskey and any other parties involved in these issues.

There have been ongoing discussions between the NRC staff and R. D. Kerr from Pacific Gas and Electric on Code Case N-666, "Weld Overlay Repair of Defects in Socket Welds." Mr. Kerr is the ASME project manager for this action. It is the intent of this code case to permit repair of socket welds containing fatigue cracks while the primary coolant system in at operating temperature and pressure. The Electric Power Research Institute (EPRI) has provided funding for this effort and welds have been produced at ambient temperature at full system pressure. These welds have successfully undergone fatigue tests. Following discussions with the NRC staff, two concerns remain for this proposed code case. The first concern is a demonstration that the repair weld can be performed at full operating temperature and pressure (600°F and 2250 psi). The second concern is that there is Japanese fatigue data that does not agree with the EPRI data. Mr. Kerr, with EPRI funding is attempting to resolve these concerns.

The voting sheets for the meetings are attached.

Attachment: As stated

Distribution: K. Manoly W. Bateman E. Imbro W. Norris E. Sullivan.
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DATE	12/3/03		12/1/03	12/3/03

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562, "Requirements for Wall Thickness Restoration for Moderate Energy Class 3 Carbon Steel Piping." The NRC limitations read, "Neither the ASME Code nor the Code Cases have criteria for determining the rate or extend or degradation of the repair or the surrounding base metal. Reinspection requirements are not provided to verify structural integrity since root cause may not be mitigated.

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Attachment: As stated

Working Group Welding and Special Repair Processes

Member: Davis

Committee: XI-WGWSRP

Date: 12/09/2003

Location: Orlando

N-XI-RRM-02-21 RRM 02-16

N/A

N/A

N/A

Item Description: Code Case for Overlay Repair of Dissimilar Base Materials Where Temperbead may be Involved (No Action Req'd. This item needs SG-RRA confirmation of WG-W-vote to drop.)

ASME Priority: None Assigned

Action: New Code Case

Action Description: Section XI is preparing a new code case to merge the existing Section XI requirements with the new Section IX requirements for temperbead welding. The Section IX change will not be published until all the book sections are ready. These actions are required even if Section XI does not want to accept the Section IX requirements because there will be conflicting requirements in the two books.

NRC Vote: No Action

Vote Details:

Committee Votes: 0 Approved

0 Disapproved

0 Abstained

Item Status: No Action

Further Actions: S. Findlan from EPRI has prepared a draft code case but is awaiting the other book sections to complete their actions. The TG-Temperbead Welding recommended to enumerate only those items related to qualification, and not to include Section XI application requirements except as they relate to qualification. Exxon/Mobil welding engineers had comments: 1) four terms are used throughout the draft code case, surface beads, surface temper beads, surface temper weld reinforcing beads, and surface temper bead reinforcing layer. These should be clarified. 2) They want the distance from the toe of the weld to be an essential variable. 3) The amount of bead overlap should be addressed. 4) If a half bead technique is used to qualify a weld, then the half bead technique should be used in production.

RG Input:

Applicable NRC Pillar: (Subgroup only)

Maintain Safety

Reduce Unnecessary Regulatory Burden

Increase Efficiency and Effectiveness

Increase Public Confidence

