

February 21, 2013

MEMORANDUM TO: Anthony J. Mendiola, Chief  
Licensing Processes Branch  
Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation

FROM: Joseph A. Golla, Project Manager /RA/  
Licensing Processes Branch  
Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF JANUARY 22-23, 2013, CLOSED MEETING WITH THE  
ELECTRIC POWER RESEARCH INSTITUTE AND WESTINGHOUSE

On January 22-23, 2013, U.S. Nuclear Regulatory Commission (NRC) staff met with representatives of the Electric Power Research Institute (EPRI) and Westinghouse Electric Company (Westinghouse) in a closed meeting at the offices of Westinghouse in Rockville, Maryland. The purpose of the meeting was for Westinghouse to present proprietary data to the NRC staff intended to show broad applicability of the Material Reliability Program (MRP)-227-A, "Pressurized Water Reactor Internals Inspection and Evaluation Guidelines," guidelines. Enclosed is a list of those in attendance.

Opening remarks were made by Ms. Stacey Rosenberg, Chief, Vessels & Internals Integrity Branch (EVIB), Office of Nuclear Reactor Regulation, and Dr. Randy Lott of Westinghouse. After opening remarks, Mr. Lott began presenting the Westinghouse briefing titled, "Reactor Internals Aging Management, MRP-227-A Applicability for Combustion Engineering and Westinghouse Pressurized Water Reactor Designs." This briefing covered background and meeting objectives, history, and general project framework and implementation examples. The presentation is retained in the NRC Agencywide Documents Access and Management System as non-publicly available because the information in it is proprietary.

The information presented was intended to demonstrate broad applicability of the MRP-227-A guidelines to the range of Westinghouse and Combustion Engineering (CE) design reactor vessel internals (RVIs). The presentation focused on exploring how design variations within the operating fleet would affect the three key variables that feed into the screening process for aging degradation (stress, neutron fluence, and temperature) and how these variations would ultimately affect the aging management recommendations.

EPRI and Westinghouse representatives presented the results of recent sensitivity studies intended to generally demonstrate the broad applicability of MRP-227-A across the range of RVI design variations in the Westinghouse and CE fleets. These sensitivity studies included additional detailed analyses of stress, neutron fluence, and internal metal temperatures for additional reactor designs to those used as the "representative plants" for the initial evaluation of the various aging mechanisms.

Specifically, results were presented for 2-loop, 3-loop, and 4-loop Westinghouse designs and CE designs for varying power ratings. For both Westinghouse and CE designs, the sensitivity studies expanded on the original assumption of 30 years of operation with an “out/in” or high-leakage core design, to a core that switched to a low-leakage design earlier in plant life, which is more typical for the actual plants. The results of these sensitivity studies were intended to show that variations in plant design generally would not result in any changes to the inspection recommendations of MRP-227-A.

Westinghouse also presented two examples of plant-specific evaluations of the effect of variations on the inspection recommendations of MRP-227-A. Both cases involved plant modifications that were not bounded by the original assumptions of MRP-227-A. That is, both plants replaced original RVI components. In each case, alternate aging management requirements were developed using essentially the same process used to develop the standard MRP-227-A recommendations.

At the conclusion of the meeting, the NRC staff expressed that the information presented was helpful in informing the staff’s evaluation of the effects of plant-specific stresses, neutron fluences, and internal metal temperatures on the MRP-227-A inspection requirements for a sample of RVI components. However, the NRC staff identified remaining questions that may need to be addressed by licensees to allow the staff to evaluate plant-specific applicability of MRP-227-A. These questions are:

1. Does the plant have non-weld or bolting austenitic stainless steel components with 20 percent cold work or greater, and if so, do the affected components have operating stresses greater than 30 ksi? (If both conditions are true, additional components may need to be screened in for stress corrosion cracking).
2. Does the plant have atypical fuel design or fuel management that could render the assumptions of MRP-227-A, regarding core loading/core design, non-representative for that plant?
3. If the plant implemented an Extended Power Uprate (EPU), are the peak internal metal temperatures within the assumptions made in developing MRP-227-A? (This question is being evaluated as part of additional investigations by Westinghouse).

EPRI, Westinghouse, and the NRC staff agreed that EPRI would create a technical basis document, to be issued to licensees, providing guidance for licensees in responding to the above questions, and that a teleconference would be held in mid-February 2013 to discuss the schedule for completion of the technical basis document.

Also, it was agreed that Westinghouse will provide to the NRC a letter-report formally transmitting the proprietary design information regarding the variances in stress, fluence and temperature intended to demonstrate broad applicability of the MRP-227-A guidelines and, more specifically, providing justification that licensees need only respond to the above three questions to verify plant-specific applicability (in addition to verifying the assumptions in MRP-227-A, Section 2.4). This letter-report would essentially be a more robust form of the data presented to the NRC staff at this meeting. In the meantime, the NRC staff could develop revised requests for additional information to licensees for the information in questions 1, 2, and 3, but could not complete its safety evaluations of plant-specific RVI inspection plans until the EPRI MRP submits the technical basis document.

A. Mendiola

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(The preceding refers to plants that were granted a license renewal and are in the process of responding to MRP-227-A, Action Items 1-8.)

An additional item that was discussed at the conclusion of the meeting was that the generic guidance for EPU should include a recommendation to review the impact of the EPU on the plant-specific applicability of MRP-227-A. This is an item for the NRC staff to consider when revising its guidance for EPU, and does not need to be addressed in the RAIs issued, related to individual plant inspection plans.

Enclosure:

As stated

cc w/encl: See next page

A. Mendiola

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List of Attendees

Closed Meeting with the U.S. Nuclear Regulatory Commission (NRC) Staff and  
Electric Power Research Institute and Westinghouse Electric Company (Westinghouse)

Held on January 22-23, 2013

<b>NAME</b>	<b>AFFILIATION/AGENCY</b>
Cheryl Boggess	Westinghouse
Randy Lott	Westinghouse
Josh McKinley	Westinghouse
Karli Szweda	Westinghouse
Patricia Paesano	Westinghouse
Eric Eggleston	Westinghouse
Frank Marx*	Westinghouse
Stan Anderson*	Westinghouse
Kyle Amberge	EPRI
Robin Dyle	EPRI
Robert Hardies	NRC
Rob Tregoning	NRC
Allen Hiser	NRC
Ganesh Cheruvenki	NRC
Jeffrey Poehler	NRC
Joseph Golla	NRC
Patrick Purtscher	NRC
Stacey Rosenberg	NRC

\*Denotes individuals that participated via teleconference for portions of the meeting.

ENCLOSURE

EPRI  
cc:

Project No. 669

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