

July 17, 2014

MEMORANDUM TO: Patrick L. Hiland, Director  
Division of Engineering  
Office of Nuclear Reactor Regulation

FROM: Robert O. Hardies, Senior Level Advisor */RA/*  
Division of Engineering  
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF INDUSTRY/U.S. NUCLEAR REGULATORY  
COMMISSION (NRC) ANNUAL MATERIALS PROGRAMS  
INFORMATION EXCHANGE – EXECUTIVE SESSION  
(CATEGORY 2 PUBLIC MEETING)

On June 25, 2014, staff from the U.S. Nuclear Regulatory Commission (NRC) met with representative of the nuclear industry in the annual executive session for materials program information exchange. The purpose of the annual meeting is for management representatives from the Office of Nuclear Reactor Regulation (NRR) and Office of Nuclear Regulatory Research (RES) to discuss with executive representatives of industry materials programs, from a management perspective, issues related to materials degradation in pressurized water reactors (PWR) and boiling water reactors (BWR). The industry materials programs include the Electric Power Research Institute (EPRI) Materials Reliability Program (MRP), EPRI BWR Vessels and Internals Project (BWRVIP), EPRI Nondestructive Examination (NDE) Action Plan Committee (APC), EPRI Steam Generator Management Program (SGMP), Materials APC, the PWR Owners Group (PWROG) Materials Subcommittee (MSC) and the EPRI Long Term Operations (LTO) committee. Attachment 1 is a list of attendees at the meeting. Copies of the presentations from the meeting can be found in the Agencywide Document and Management System accession number ML14184B448.

The NRC staff opened the meeting with some introductory remarks. The technical chair of the EPRI Materials Action Plan Committee (MAPC) reviewed the Nuclear Energy Institute (NEI) Materials Initiative NEI 03-08 program organization, and presented a status update for the Primary System Corrosion Research committee's irradiation assisted stress corrosion crack growth report, and discussed ongoing activities related to cast austenitic stainless steel in reactor vessel internals. He also outlined the Branch Technical Position 5-3 project plan and discussed prioritization of materials work and research.

The executive sponsor of the BWRVIP discussed the BWRVIP organization, technical committee responsibilities, and 2014 major tasks. The major tasks include: revising the the water chemistry guidelines; evaluating the shroud cracking boat sample; optimizing inspection and evaluation guidelines for core spray, jet pumps and core shrouds; and addressing jet pump flow-

induced vibration issues. He discussed the impact of GE-Hitachi Nuclear Company safety communications on BWRVIP guidelines, industry involvement in the remote visual testing round robin program, and the status of the BWRVIP-62, Revision 1 topical report review. Finally, he requested NRC timely attention to submittals requesting extension of the time for reporting surveillance capsule reports.

The executive chairman of the MRP and SGMP described the organizational structure of the two groups. He listed and described MRP documents that currently have mandatory or needed implementation elements and reviewed the Zorita retired reactor materials testing program. He discussed peening for mitigation and noted that some plants intended to deploy peening campaigns starting in 2016. Those utilities are eager for the NRC to complete its review of the peening topical report submitted in February 2013, so they can address NRC concerns before they do work in the field. He also discussed MRP-375, a technical evaluation of performance of Alloy 690 head penetrations, and indicated utilities are developing relief requests to extend ultrasonic inspection (UT) intervals for new reactor pressure vessel head penetrations made of Alloy 690. He discussed PWR internals inspection results and indicated that ongoing evaluation of cold worked stainless steel yielded no instances of cold worked stainless steel being used during fabrication of internals components.

The executive chair of the SGMP provided an overview of the SGMP organization. The presentation covered open technical issues and guideline revision status.

The technical chair of the MAPC discussed the organizational structure, NRC interactions, and areas of strategic planning of the PWROG Materials Subcommittee. Focus areas for 2014-2015 include guidance for guide card wear inspections, work to support MRP-227, functionality analysis of lower core support columns, evaluation of Appendix G margins related to assessment of nozzles, Alloy 600 crack initiation testing, and development of inspection and evaluation guidelines for austenitic stainless steel stress corrosion cracking.

The Chairman of the EPRI NDE APC made a presentation on UT human performance issues. The industry is sponsoring research in the area of maintaining examiner proficiency and improving UT technology. The Institute of Nuclear Power Operations (INPO) evaluates implementation of recommendations from the NDE Improvement Focus Group, and implementation was characterized as proceeding well. The industry NDE programs have identified vendor outreach as an important area for improvement, since NDE vendors perform a large fraction of the critical UT field evolutions. As a result, the industry is permitting and encouraging vendor participation in the NDE program advisory process. Recent successes in the NDE program include interaction on the Performance Demonstration Initiative bolting issue, collaboration on the remote visual examination round robin project, and collaboration on UT modeling and simulation. The industry NDE program and the NRC have instituted quarterly teleconferences and an annual information exchange meeting to improve communications related to NDE performance improvement.

Finally, EPRI LTO presented an overview of issues associated with long-term operation of plants. The focus of the presentation was key research and development areas related to life-limiting components. The overall conclusion was that existing ageing management programs, with appropriate enhancement, should be successful in supporting long-term operation.

Following the industry presentations, the staff highlighted recent operating experience associated with materials degradation.

This concluded the discussions among the staff and industry. No external stakeholders attended.

The following new action items were recorded:

1. Industry is collecting information on how plants have used NRC Branch Technical Position 5-3 and intends to provide the results of the investigation to the NRC. The action is to report whether the information will be provided as raw data or in some other format.
2. Industry and the NRC will continue working to develop prioritization criteria for addressing materials issues.
3. Long term operation considerations will be added to the list of prioritization criteria for addressing materials issues.
4. Industry will contact NRC staff to review the impact of the 2009 GE-Hitachi Safety Communication on existing Title 10, Code of Federal Regulations, Part 50.46 analyses.
5. The MAPC will communicate to its members lessons-learned on the transfer of proprietary information to the NRC
6. The BWRVIP will communicate to its members the need to include BWRVIP-135 information in reactor pressure vessel integrity submittals.
7. The NRC will establish a process and timeframe for communicating peening performance or application criteria that would need to be addressed in requests for inspection relief related to the application of peening.
8. The NRC will update its schedule for completing the safety evaluation of the peening topical report.
9. The MRP will communicate to the NRC the number of plants where the review of cold work in austenitic stainless steel internals has been completed.
10. The MRP/LTO will communicate to the NRC its plans and schedule for addressing MRP-227 revisions, including timing for subsequent license renewal considerations.
11. The NRC will provide the ADAMS accession number (ML14028A028) for the NRC memo on SONGS lessons learned and schedule for ACRS discussions (July 10, 2014). This item was completed after the meeting.
12. Industry will provide the NRC the INPO Event Report on engineering issues. This item was completed after the meeting.
13. Industry will communicate to the NRC their plans and schedule to address fuel alignment plate and upper core plate ageing due to neutron embrittlement.

14. The MRP will determine whether any plants have taken deviations from MRP-227 to implement alternative programs. The action is to report at the quarterly technical call.
15. The NDE APC will provide the NRC the evaluation of differences between the Diablo Canyon and the EPRI root causes over missed indications in weld overlay UT examinations.
16. The MRP will discuss plans for management of the potential for primary water stress corrosion cracking of certain branch connection welds and nozzles and propose action in the American Society of Mechanical Engineers Boiler and Pressure Vessel Code committees. Action is to report the status on the quarterly call.

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**ADAMS Accession Nos.:**  
**Package: ML14184B448**  
**Summary: ML14196A327**  
**Meeting Notice: ML14163A429**

<b>OFFICE</b>	<b>NRR/DE</b>
<b>NAME</b>	<b>RHardies</b>
<b>DATE</b>	<b>07/17/2014</b>

**OFFICIAL RECORD COPY**

List of Attendees

**June 25, 2014**  
**Industry/U.S. Nuclear Regulatory Commission Annual Materials Programs**  
**Information Exchange Meeting – Executive Session**

<b>Name</b>	<b>Organization</b>
Joe Holonich	U.S. Nuclear Regulatory Commission
Robert Hardies	U.S. Nuclear Regulatory Commission
John Tsao	U.S. Nuclear Regulatory Commission
Rob Tregoning	U.S. Nuclear Regulatory Commission
Mirela Gavrilas	U.S. Nuclear Regulatory Commission
Sunil Weerakkody	U.S. Nuclear Regulatory Commission
Stacey Rosenberg	U.S. Nuclear Regulatory Commission
Allen Hiser	U.S. Nuclear Regulatory Commission
Patrick Hiland	U.S. Nuclear Regulatory Commission
M.J. Ross-Lee	U.S. Nuclear Regulatory Commission
Tina Taylor	EPRI
Drew Odell	Exelon
Tim Hanley	Exelon
Sherry Bernhoft	EPRI
Robin Dyle	EPRI
Scot Greenlee	Exelon
David Czufin	TVA
Joe Donahue	Duke
Mark Richter	NEI