

August 16, 2016

MEMORANDUM TO: John W. Lubinski, 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 AUGUST 4, 2016, ANNUAL MATERIALS
PROGRAMS TECHNICAL INFORMATION EXCHANGE
PUBLIC MEETING

On August 4, 2016, the U.S. Nuclear Regulatory Commission (NRC) staff hosted a Category 2 public meeting at the Hyatt Regency McCormick Place, Chicago, IL, to discuss material program activities. Attendees included representatives from the Materials Subcommittee of the Pressurized Water Reactor (PWR) Owners Group (PWROG MSC), the Electric Power Research Institute's (EPRI's) Boiling Water Reactor (BWR) Vessel Internals Program (BWRVIP), and EPRI's Materials Reliability Program (MRP).

The NRC staff and industry representatives discussed progress in materials programs designed to provide information related to stress corrosion cracking, reactor vessel surveillance, dissimilar metal welds, and vessel internals examination, among other topics. Presentations are available electronically in the NRC's Agencywide Documents Access and Management System (ADAMS) under Accession No. ML16222A910. The meeting notice and agenda are also available in ADAMS under Accession No. ML16196A044. A list of meeting attendees is enclosed.

The BWRVIP chair discussed the BWRVIP organization, technical committee responsibilities, and 2016 major tasks. The major tasks include supporting surveillance capsule and integrated surveillance program activities and addressing jet pump flow-induced vibration issues. He summarized operating experience involving an indication in an engineered overlay and described a BWR fleet survey to see if any other similar overlays exist in the industry. Previously the NRC had enquired about the potential for the survey questions being misinterpreted and the BWRVIP reviewed the questions and verified that the responses were appropriate. Finally, the BWRVIP requested the NRC prioritize release of the FAVOR computer code. The NRC indicated the FAVOR Code would be issued by September, 2016.

The chair of the PWROG Materials Committee described the organization and recently completed activities. She also described interactions with NRC staff including assessment of cast austenitic stainless steel, reactor vessel internals cold work, and baffle-former bolts. She described coordination with the EPRI MRP on the subjects of reactor vessel integrity, reactor internals and stainless steel degradation.

Enclosure

The chair of the EPRI MRP presented the structure and status of the committee. He described research focus areas and 2016 deliverables. He reviewed PWR materials operating experiences during the past year. The NRC staff requested a more detailed discussion of thermal fatigue operating events be provided at a future teleconference or public meeting. The NRC also noted that the staff planned to perform confirmatory stress analyses for a mechanically stress improved weld configuration. The MRP chair indicated the industry has completed assessments of potential non-conservatism in the staff's Branch Technical Position 5-3 and is waiting for NRC to complete its confirmatory analyses. The NRC indicated the technical evaluation was expected to be completed by December, 2016.

The MRP chair indicated the MRP is awaiting NRC review of the topical report for peening, MRP-335, Revision 3. Initial implementation of peening was conducted in spring 2016. The NRC noted the peening safety evaluation was expected to be complete by September 30, 2016.

The MRP chair discussed the plans and timeline for developing MPP 227, Revision 2, "Materials Reliability Program: Pressurized Water Reactor Internals Inspection and Evaluation Guidelines." Finally, the MRP is leading a baffle former bolt focus group that include members from utilities, EPRI, PWROG and vendors. The group developed issued interim to industry that described which types of plants need to perform ultrasonic examinations of baffle former bolts at the next refueling outage. The baffle former bolt focus group will continue to monitor operating experience and expects to issue additional Nuclear Energy Institute (NEI 03-08) interim guidance during fall 2016.

The technical executive responsible for reactor vessel integrity issues presented the status of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code Appendix G small surface flaw issue. He indicated EPRI was evaluating the use of a cladding stress free temperature (SFT) based of thermal strain in the axial rather than the circumferential direction. Since the hypothetical small surface breaking flaws that might be of concern are oriented circumferentially, and only axial stresses act to open circumferential flaws, it is believed that using a SFT based on axial thermal strains would be more accurate than using one derived from circumferential strain.

The NRC summarized a public meeting held at NRC headquarters on the subject of baffle former bolting. The NRC expressed interest in continuing to receive status updates related to industry's response to baffle former bolt issues.

Communications between the NRC staff and industry materials programs technical leads occurs on an ongoing basis during quarterly telephone calls and this annual meeting. Executive level interactions occur during a separate annual executive session and during a semi-annual telephone conference.

CONTACT: Robert O. Hardies
NRR/DE 301-415-5802

The following new action items were noted:

Action for executive session:

- None

Action for quarterly call:

- PWROG will communicate with NRC staff regarding the timeframe and format for evaluation of reactor vessel nozzles.
- The industry will provide a high-level summary of their self-assessment activities to NRC staff.
- The industry will provide the NRC staff with a summary of thermal fatigue activities
- The NRC will communicate the schedule for MRP 227, Revision 1 review.

Please direct any inquiries to Robert O. Hardies at 301-415-5802 or Robert.Hardies@nrc.gov.

Project Nos. 669, 689, 691, 694, and 704

Enclosure:
Attendees List

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Action for executive session:

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Action for quarterly call:

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Please direct any inquiries to Robert O. Hardies at 301-415-5802 or Robert.Hardies@nrc.gov.

Project Nos. 669, 689, 691, 694, and 704

Enclosure:
Attendees List

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EXTERNAL DISTRIBUTION:

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ADAMS Accession Nos:
Package: ML16228A506
Summary: ML16228A454
Notice & Agenda: ML16196A044
Presentation: ML16222A910

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|--------|------------|
| OFFICE | NRR/DE |
| NAME | RHardies |
| DATE | 08/16/2016 |

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**NRC Public
Meeting
Annual Materials Programs Technical Information
Exchange August 4, 2016**

| | |
|--------------------|----------------|
| Al Ahluwalia | EPRI |
| Drew Odell | Exelon |
| Tim Hardin | EPRI |
| Steve McCracken | EPRI |
| Glenn Gardner | Dominion |
| Robert Carter | EPRI |
| Bill Server | ATI Consulting |
| Chuck Wirtz | EPRI |
| Robin Dyle | EPRI |
| Heather Malikowski | Exelon |
| Nathan Palm | EPRI |
| J. Brian Hall | Westinghouse |
| Brian Burgos | EPRI |
| Jim Molkenthin | PWROG |
| Andy McGehee | EPRI |
| John McHale | NRC |
| Eric Focht | NRC |
| Mark Kirk | NRC |
| Dave Rudland | NRC |
| Dave Alley | NRC |
| Stephen Cumblidge | NRC |
| Jeff Poehler | NRC |
| Robert Hardies | NRC |
| Matt Homiack | NRC |
| Robin Dyle | EPRI |
| Bernie Rudell | Exelon |
| Anne Demma | EPRI |
| Glen White | DEI |
| Edison Fernandez | NRC |
| Kurt Edsinger | EPRI |
| Marjorie Erickson | PEAI |
| Joe Rashid | ANATECH-SI |
| Michael Modes | USNRC Region 1 |
| Hiroyuki Kobayashi | JAPC |
| Tiangan Lian | EPRI |
| Joe Agnew | SIA |
| Rob Tregoning | NRC |
| Greg Troyer | AREVA |
| Steve Petro | AEP |
| Ron Janowiak | Exelon |
| Sarah Davidsaver | AREVA |
| Steve Fyfitch | AREVA |
| Abdul Dullo | Westinghouse |

ENCLOSURE

| | |
|-------------------|------------------|
| Kazunobu Sakamoto | NRA |
| Michael Hoehn II | Ameren Missouri |
| Sharon Merciel | Ameren Missouri |
| Kurt Edsinger | EPRI |
| Chris Wax | APS |
| Chris Lohse | SIA |
| Hein Do | Southern Nuclear |
| Ron Gamble | Sartrex Corp. |
| John Broussard | DEI |
| Craig Harrington | EPRI |
| Stephen Marlette | Westinghouse |
| Jack Spanner | EPRI |
| Bret Flesner | EPRI |
| Gary Poling | AREVA |
| Wayne Lunceford | EPRI |
| Jeff Landrum | EPRI |