



Global Expertise • One Voice

Industry and NRC Coordination Meeting
Materials Programs Technical Exchange

PWROG Materials Subcommittee Update

Chris Koehler, Chairman PWROG MSC (Xcel Energy)

June 2014

Industry and NRC Coordination Meeting
Materials Programs Technical Exchange
PWR Owners Group MSC Agenda



- NRC Interactions
- Areas of Coordination & Strategic Planning with MRP
- Update on Key MSC Programs
- Future Meetings
- PWROG MSC Key Contacts
- MSC PWROG Core/Planning Team Organization

Industry and NRC Coordination Meeting

Materials Programs Technical Exchange

NRC Interactions

- NRC Interactions:
 - WCAP-17096 under PA-MS-C-0473 “Reactor Internals Acceptance Criteria Methodology & Data Requirements “
 - NRC provided draft RAIs in April 2011 and a second set in July. Face to face meeting held on July 12th.
 - Draft responses provided and follow-up calls held with Staff in October 2011. Clarification letter based on telephone discussions provided to NRC in November.
 - Final RAI responses provided in early April 2012.
 - Second set of RAIs received in September and responses provided in January 2013.
 - Draft SE received and comments provided in April 2013. Working on “A” version of report. Updated Westinghouse and AREVA sections provided to the Staff.
 - PWROG MSC participated in the March 2014 Joint Industry Discussion with the NRC and the EPRI MRP on Doel-3 Reactor Vessel Results.
 - PWROG MSC participated in the March 2014 Joint Industry Discussion with the NRC and the EPRI MRP on Clevis Bolt Questions.

Industry and NRC Coordination Meeting Materials Programs Technical Exchange **NRC Interactions**

- NRC Interactions:
 - Meetings scheduled or to be scheduled:
 - ❖ Pre-Submittal Meeting to discuss the update to the PWROG Topical Report pertaining to the Master Integrated Reactor Vessel Surveillance Program (MIRVP) for B&W Fabricated Reactor Vessels. Scheduled by phone for June 16, 2014 (PA-MSC-1182).
 - ❖ Meeting to discuss the methodology that is being developed for performing a functionality analysis for the Lower Support Columns. The plan is to also go over conclusions that the project team can draw from any simplified evaluations that are performed. Tentatively to be scheduled for the Fall 2014 (PA-MSC-1103).
 - ❖ Technical meeting to discuss RV Integrity Issues
 - Present PWROG approach and initial findings under project PA-MSC-1091 “Demonstrate Appendix G Margins for PWR RPV Nozzles.”
 - Discuss the other RV integrity issues as committed in PA-MSC-0554, “Proactively Drive Changes in Reactor Vessel Embrittlement Regulations” Task 1 such as BTP 5-3, RG1.99 revision, and Appendix H. Tentatively to be scheduled for the Fall 2014

Industry and NRC Coordination Meeting Materials Programs Technical Exchange **Areas of Coordination & Strategic Planning with MRP**

- Reactor Vessel Integrity
 - ✓ Subsidizing the host utilities for the PSSP program.
 - ✓ Participating in ASTM E10.02 to develop consensus ETC.
- Reactor Internals
 - ✓ Coordinating with EPRI MRP on MRP-227 LAI/RAI Responses. NRC meetings held in November 2012, January 2013 and March 2014.
 - ✓ Supporting utilities in plant-specific Applicability Determinations, including MRP-191, Fluence, and Cold Worked Stainless.
- Stainless Steel Degradation/BMIs/BMNs
 - ✓ Working with the EPRI MRP on the development of I&E guidance for ID and OD initiated SCC of PWR SS pressure boundary components.
 - ✓ Coordination of industry activities relative to BMIs/BMNs

Industry and NRC Coordination Meeting

Materials Programs Technical Exchange

Update on Key MSC Programs

- PA-MS-C-0688 - Westinghouse Upper Internals Guide Tube Card Wear – Fleet-wide Operational Projections
 - ✓ Guidance of guide card inspections finalized recommendations endorsed per the NEI 03-08 recommendations. Six needed elements. EPRI MRP incorporated into MRP-227-A via interim guidance.

- Work to Support MRP-227-A - Reactor Internals
 - ✓ PA-MS-C-1122 - Reactor Vessel Internals Industry Coordination
 - ✓ PA-MS-C-1103 - Functionality Analysis: Westinghouse Lower Support Columns
 - ✓ PA-MS-C-0983 - Support for Applicant Action Items 1, 2, and 7 from the Final Safety Evaluation on MRP-227, Revision 0 (Working on plant specific requests)
 - ✓ PA-MS-C-0942 - Dynamic Response Model of Westinghouse Internals
 - ✓ PA-MS-C-0835 – B&W Internals MRP-227 Phase III Functionality & Core Barrel Assembly Modeling
 - ✓ PA-MS-C-0784 - Development of Generic Acceptance Criteria for W and CE Reactor Internals – MRP-227 Primary and Expansion Components (Grouping of primary and expansion components, adding new ones based on MRP-127-A)
 - ✓ PA-MS-C-0473 - Reactor Internals Acceptance Criteria Methodology & Data Requirements (working to complete A-version of report)

Industry and NRC Coordination Meeting Materials Programs Technical Exchange **Update on Key MSC Programs**

PA-MS-C-1103R0 – “Functionality Analysis: Westinghouse Lower Support Columns”

- The purpose of the program is as follows:
 - Develop a methodology which will form the basis for generic or, if needed, plant-specific analyses.
 - Complete first steps in substantiating the qualitative safety argument.
- This program is designed to:
 - ❖ Potentially eliminate the need for plant-specific evaluations,
 - ❖ Provides a level of confidence that performing a more detailed functionality analysis, if required, will be successful and
 - ❖ Demonstrates to the NRC that the licensees are working to make progress towards a final resolution of the embrittlement issue for lower support columns.

Industry and NRC Coordination Meeting

Materials Programs Technical Exchange

Update on Key MSC Programs

PA-MS-C-1091R0 – “Demonstrate Excessive Appendix G Margins for PWR RPV Nozzles”

- The purpose of the program is as follows:
 - Identify the magnitude of the various Appendix G margins related to assessment of the inlet/outlet nozzles.
- This program is designed to:
 - ❖ Develop a consistent and less conservative basis for responding to RAIs,
 - ❖ Demonstrate continuous and ongoing compliance with Appendix G,
 - ❖ Minimize, and potentially eliminate, future RAIs on this topic,
 - ❖ Reduce plant costs in updating P-T curves and
 - ❖ Perform generic bounding evaluations.

Industry and NRC Coordination Meeting

Materials Programs Technical Exchange

Update on Key MSC Programs

- PA-MSC-0257 - PWSCC Crack Initiation Testing of Farley Unit 2 Alloy 600 CRDM Penetrations
 - ✓ Work to be complete in Summer 2014.
 - Provides key chemical mitigation input regarding the beneficial effect of zinc addition to delay primary water stress corrosion cracking in nickel based Alloys (A600/A690) and their associated weld metals (A82/182/52M/152) ,
 - Used in PWR primary systems. Program will provide inputs to the extremely low probability of rupture (xLPR) program.

- PA-MSC-0551 - Development of I&E Guidelines for ID and OD-Initiated SCC of PWR SS Pressure Boundary Components
 - ✓ The program has three phases:
 - Phase 1: Establishing screening criteria (COMPLETE)
 - Phase 2: Consequences evaluation (IN PROCESS)
 - Phase 3: Develop I&E guidelines (PLANNED)

Industry and NRC Coordination Meeting Materials Programs Technical Exchange Update on Key MSC Programs



PWROG MSC 2014/2015 Budget

	Approved Funding 2014	Approved Funding 2015
PWROG MSC	\$4,856,235	\$729,912

Note: Approved funding as of May of 2014.

Industry and NRC Coordination Meeting Materials Programs Technical Exchange **PWROG MSC 2014/2015 Meeting Dates**

- **PWROG MSC Meeting Schedule for 2014/2015:**
 - August 4-7, 2014 - Las Vegas, NV (Joint)
 - December 15-18, 2014 - Marco Island, FL (Joint)

 - April, 2015 – TBD (Joint)
 - August 10-13, 2015 - Baltimore, MD (Joint)
 - December, 2015 – TBD (Joint)

Industry and NRC Coordination Meeting Materials Programs Technical Exchange **PWROG MSC Key Contacts**

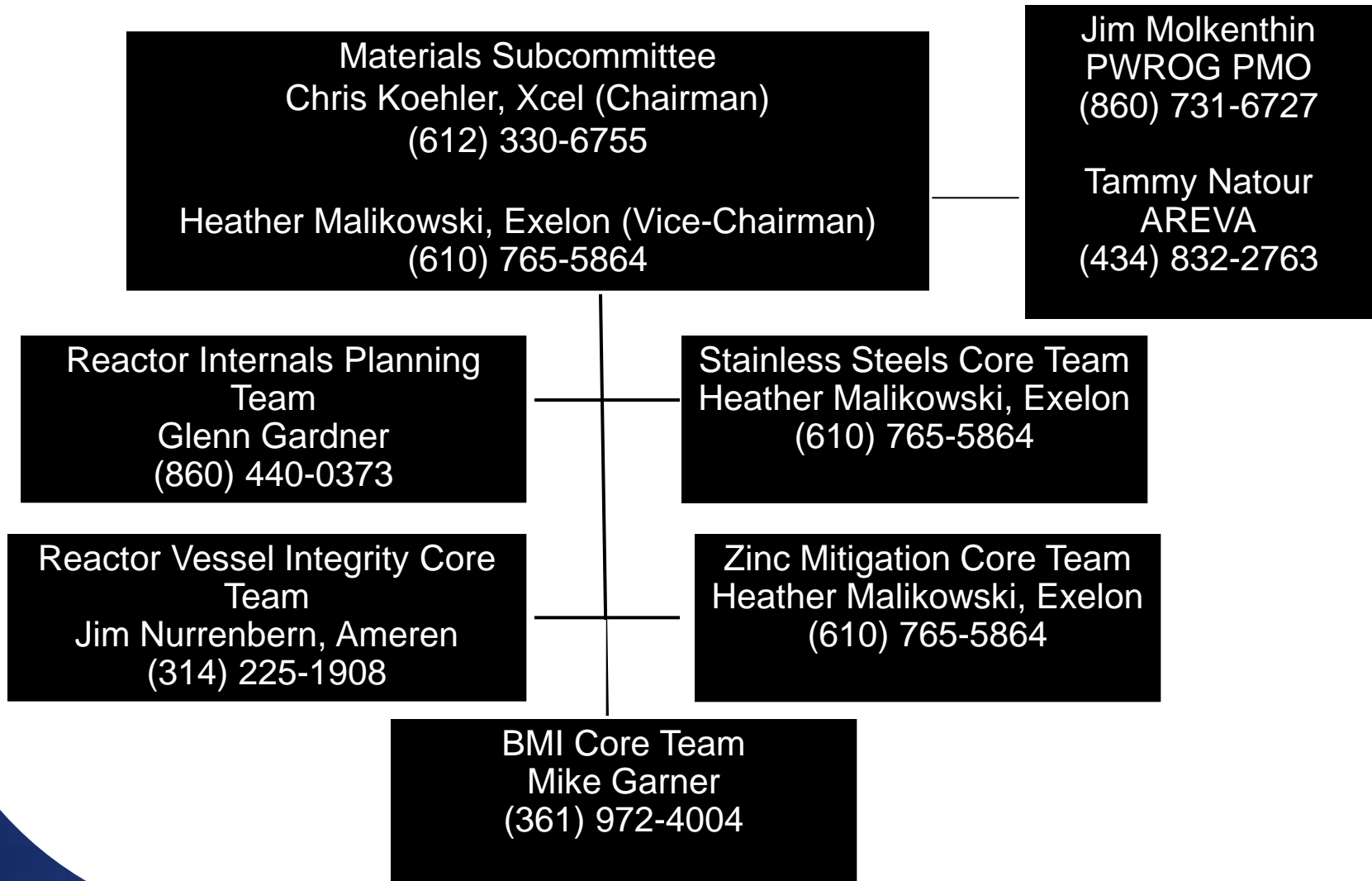
Chairman: Chris Koehler, Xcel Energy
612-330-6755
christopher.koehler@xenuclear.com

Vice Chair: Heather Malikowski, Exelon
610-765-5864
heather.malikowski@exeloncorp.com

PWROG PMO Program Director: Jim Molkenthin
860-731-6727
molkenjp@pwrog.com

AREVA Inc Contacts: Tammy Natour	Ben Grambau
434-832-2763	434-832-3229
<u>Tammy.Natour@areva.com</u>	<u>Ben.Grambau@areva.com</u>

Industry and NRC Coordination Meeting Materials Programs Technical Exchange MSC PWROG Core/Planning Team Organization



Questions?

The Materials Subcommittee is established to provide a forum for the identification and resolution of materials issues including their development, modification and implementation to enhance the safe, efficient operation of PWR plants.



Global Expertise • One Voice
www.pwrog.com