

# Materials Information Exchange Meeting

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## *Update on NRC Review of MRP-227, Revision 1*



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# Review Status

- 27 RAI's
- A draft version of the RAI's was provided to EPRI on March 20, 2017
- Formal transmittal of RAI's to MRP week of May 15, 2017
- EPRI indicated responses would be sent by September 27, 2017
- Final safety evaluation expected 3Q 2018.

# Most Significant RAI Topics

- Core barrel/core support barrel weld reduced examination coverage in Westinghouse and CE design RVI.
- Baffle-former bolt changes in response to operating experience
- Guide card changes
- Other reductions in examination coverage
- Use of VT-3 to examine non-redundant components
- Use of examination OE to refine examination coverage
- Definition of “adjacent base metal” for welds

# Core Barrel/Core Support Barrel Weld Coverage (RAI 5)

- Minimum coverage reduced from 75% to 25% of weld length for Westinghouse core barrel and CE core support barrel (CSB)
- RAI asks for:
  - More justification that the reduced coverage would be sufficient to provide high probability of detection of structurally significant cracking
  - How it can be assured that the 25% sample of the weld comprises the portion of the weld most likely to experience cracking.

# Baffle-Former Bolt Response to Operating Experience (RAI 8)

- RAI asks:
  - Whether revised guidance for baffle-former bolt examination be incorporated into the final MRP-227, Rev. 1?
  - Whether guidance for subsequent examination needs to be revised
    - WCAP-17096-NP-A allows 10-yr interval provided  $< 50\%$  of initial margin consumed
    - No guidance if  $>50\%$  of margin degraded
- Latest EPRI interim guidance letter (MRP 2017-009) addresses some of these issues.

# Guide Cards (RAI 19)

- Westinghouse submitted a 10 CFR Part 21 notification due to four reactors having higher guide card wear than predicted with WCAP-17451-P methodology
- Westinghouse also issued an NSAL on this topic in January 2017
- RAI asks how the results of this evaluation will be incorporated into MRP-227, Rev. 1

# Other Reductions in Exam Coverage

- CE lower core support columns and Westinghouse lower support columns
  - Coverage reduced to 25%
  - VT-3 replaces EVT-1
  - Justification needed
- CE lower support structure – deep beams
  - Coverage reduced to 25%
  - High consequence of failure
  - Justification needed
- CE core shroud assembly, C3.1 remaining axial welds, C3.2 ribs and rings, coverage reduced compared to equivalent MRP-227-A items

# Other Reductions in Exam Coverage

- Westinghouse upper core plate and lower core support forging (RAI 14)
  - non-redundant Expansion components, method changed from EVT-1 to VT-3
  - Coverage reduced to 25%
  - Justification needed



# Use of Examination OE to Refine Coverage Requirements (RAI 15)

- RAI asks:
  - If examination coverage requirements were revised to incorporate OE from initial MRP-227-A examinations? Justify if not.
  - If any components were reclassified as inaccessible based on examination OE?
    - Identify components
    - Describe alternate measures taken (analysis, etc.)

# B&W Components

- Changes in wording regarding initial examination schedule for some Primary components (RAI 1)
  - Changed from “during the next 10-year ISI” to “during the next 10-year ISI interval.”
  - Unclear, does that mean if a plant is in the 4<sup>th</sup> interval now examination not required until the 5<sup>th</sup> interval, or does it mean examination must be completed at the next scheduled 10-year ISI?
- Similarly, for baffle-to-former bolts (RAI 4), changed from
  - “no later than two refueling outages from the beginning of the license renewal period” to “volumetric (UT) examination during the next 10-year ISI interval.”
  - Not clear when the next 10-year ISI interval starts, could result in the baseline examination being significantly later.
  - Assumption that all B&W units have already completed baseline?
- RAI’s ask for clarification/and or justification of schedule being pushed out

# Definition of Adjacent Base Metal

- Revised examination coverage for numerous CE and Westinghouse welds now refers to the weld plus adjacent base metal. RAI 20 asks for definition of “adjacent base metal.”