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2019 Materials Programs Technical Information Exchange Core Barrel Welds Update

Chris Wax, PWROG MSC Chair (APS)

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P R E S S U R I Z E D W A T E R R E A C T O R O W N E R S G R O U P

Core Barrel Welds Update (1/4)

- NEI 03-08 needed inspection guidance for PWR Westinghouse and CE Core Barrel welds is in draft form and is currently being reviewed by the MRP members for endorsement
 - Expect publication by 2/1/2020
 - Includes a 6-month implementation period to allow plant preparation
- PWROG published a report (PWROG-17084-P Rev. 1) in March 2019 to qualitatively examine the functional impact of a core barrel separation
 - Provides part of the technical basis behind the interim guidance
 - Evaluated normal/upset and faulted operating conditions

Core Barrel Welds Update (2/4)

- PWROG-17084-P, Rev. 1 evaluates the ability of the plant to safely shut down following a complete core barrel separation for normal, upset, and faulted conditions
 - The hypothetical condition of a complete separation of the core barrel was assumed as an initial attempt to bound the problem
 - This bounding assumption is very conservative and could likely be reduced through further analysis
- Goal of the report was originally to develop a technical basis supporting classification of core barrel inspections as asset preservation rather than safety

Core Barrel Welds Update (3/4)

- PWROG-17084-P, Rev. 1 Conclusions:
 - The ability to insert the control rods (and shut down) is maintained with a separated core barrel (i.e. control rod insertion path would remain intact and sufficiently aligned)
 - Faulted events initiate automatic shut down so inspections related to prevention of separation resulting from these events can be classified as asset preservation
 - Separation during normal/upset operation may cause some indications that a separation has occurred, but there is uncertainty regarding how long it would take to diagnose the condition and manually shutdown the plant
 - This supports the safety significance ranking used in current guidance documents and the IG currently under development

Core Barrel Welds Update (4/4)

- PA-MSR-1655, Core Barrel Focus Group Investigations and Support
 - Goals of this project are:
 - To build knowledgebase related to differences in design/fabrication practices used for the core barrel to potentially gain insight on relative susceptibility between plants
 - To provide utilities with information related to the locations of their axial welds to support inspections
 - To support the utilities in planning for inspection by outline available contingency response options in areas of analysis, repair, replacement, mitigation, and monitoring
 - To provide general support to the industry for addressing this issue
- Westinghouse has completed investigation of Part 21 as part of its corrective action process and determined the issue is not reportable to the NRC

Questions?

The Materials Committee 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.



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