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## Industry Recommendations for NUREG-1801 Revisions

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### Proposed Revisions to NUREG-1801

- Draft Chapter XI.M16 for NUREG-1801, Revision 2
  - Reference not only “applicable and staff approved documents”
  - EPRI MRP-227, *Pressurized Water Reactor Internals Inspection and Evaluation Guidelines* (latest version)
  - EPRI MRP-228, *Inspection Standard for PWR Internals* (latest version)
  - EPRI TR-1002884, *PWR Primary Water Chemistry Guidelines* (latest version)
  - Other documents, as needed
- Modify “Aging Management Program (AMP)” column in Tables IV.B2, IV.B3, and IV.B4 of NUREG-1801, Revision 2

## Use Format of Chapter XI.M9 for Chapter XI.M16

See NUREG-1801, Revision 1, p. 718

### XI.M9 BWR VESSEL INTERNALS

#### Program Description

The program includes: (a) inspection and flaw evaluation in conformance with the guidelines of applicable and staff-approved boiling water reactor vessel and internals project (BWRVIP) documents, and (b) monitoring and control of reactor coolant water chemistry in accordance with the guidelines of BWRVIP-29 (Electric Power Research Institute [EPRI] TR-103515) to ensure the long-term integrity and safe operation of boiling water reactor (BWR) vessel internal components.

#### Evaluation and Technical Basis

1. **Scope of Program:** The program is ....

....

The various applicable BWRVIP guidelines are as follows:

*Core shroud:* BWRVIPs-07, -63, and -76 provide guidelines for inspection and evaluation; BWRVIP-02, Rev. 2, provides guidelines for repair design criteria.

*Core plate:* BWRVIP-25 provides guidelines for inspection and evaluation; BWRVIP-50 provides guidelines for repair design criteria.

## Use Information in MRP-227, Appendix A

- Augment Appendix A information, as necessary to provide adequate level of discussion
  1. Scope of Program (augmentation needed)
  2. Preventive Actions
  3. Parameters Monitored/Inspected (augmentation needed)
  4. Detection of Aging Effects (augmentation needed)
  5. Monitoring and Trending (augmentation needed)
  6. Acceptance Criteria (augmentation needed)
  7. Corrective Actions
  8. Confirmation Process
  9. Administrative Controls
  10. Operating Experience (augmentation needed)

## Use Format Similar to Table IV.B1 (BWR)

- Note example for Item IV.B1-1 in NUREG-1801, Revision 1, p. 268

IV REACTOR VESSEL, INTERNALS, AND REACTOR COOLANT SYSTEM							
B1 Reactor Vessel Internals (BWR)							
Item	Link	Structure and/or Component	Material	Environment	Aging Effect/Mechanism	Aging Management Program (AMP)	Further Evaluation
IV.B1-1 (R-92)	IV.B1.1-a	Core shroud (including repairs) and core plate  Core shroud (upper, central, lower)	Stainless steel	Reactor coolant	Cracking/ stress corrosion cracking, intergranular stress corrosion cracking, irradiation-assisted stress corrosion cracking	Chapter XI.M9, "BWR Vessel Internals" for core shroud and  Chapter XI.M2, "Water Chemistry" for BWR water	No

## Alter Column 7 of Current Table Format

IV REACTOR VESSEL, INTERNALS, AND REACTOR COOLANT SYSTEM							
B2 Reactor Vessel Internals (PWR) - Westinghouse							
Item	Link	Structure and/or Component	Material	Environment	Aging Effect/Mechanism	Aging Management Program (AMP)	Further Evaluation
IV.B2-32 (RP-24)	IV.B2	Reactor vessel internals components	Stainless steel; nickel alloy	Reactor coolant	Loss of material/ pitting and crevice corrosion	Chapter XI.M2, "Water Chemistry," for PWR primary water	No
IV.B2-33 (R-106)	IV.B2.1-d	Upper internals assembly  Hold-down spring	Stainless steel	Reactor coolant	Loss of preload/ stress relaxation	If a further aging management review is necessary if the applicant provides a commitment in the FSAR supplement to (1) participate in the industry programs for investigating and managing aging effects on reactor internals; (2) evaluate and implement the results of the industry programs as applicable to the reactor internals; and (3) upon completion of these programs, but not less than 24 months before entering the period of extended operation, submit an inspection plan for reactor internals to the NRC for review and approval.	No, but licensee commitment needs to be confirmed
IV.B2-34 (R-115)	IV.B2.1-f	Upper internals assembly  Upper core plate alignment pins	Stainless steel; nickel alloy	Reactor coolant	Loss of material/ wear	Chapter XI.M1, "ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD," for Class 1 components	No

## Progress to Date

- Initial Draft Chapter XI.M16 is complete
  - Major revisions to “Scope of Program” are in progress
  - The intention is to quote not only from “applicable and staff approved documents”
  - Operating experience discussion from MRP-227 supporting documentation will be cited
  - Discussion for most of the attributes complete
- Modification of Tables IV.B2, IV.B3, and IV.B4 will come later