

NUREG-2191 & 2192 (February 2017 Draft)
Summary List of Significant Industry Comments

1. Operating Experience (All AMPs)

Remove review of research and development activities from AMP element 10 OE reviews. AMPs are informed by plant specific and Industry OE. Research and development activities needs to be assessed for applicability through other reviews (e.g. EPRI, NRC National Labs/Universities, etc.)

2. Water Chemistry (NUREG-2191 XI.M2)

Update of AMP XI.M2 is requested to be consistent with EPRI PWR Primary Water Chemistry Guidelines Revision 7 (3002000505, April 2014). This is consistent with previous Industry comments that identified PWRs have updated their Water Chemistry Programs to EPRI PWR Primary Water Chemistry Guidelines Revision 7.

3. Bolting Integrity (NUREG-2191, XI.M18)

Clarification of the AMP inspection requirements in element 4 for high strength closure bolting (actual yield strength greater than or equal to 150 ksi) is required. Consistent with ASME Examination Category B-G-1, NUREG-2191 Bolting Integrity program appears to limit the examination to high strength closure bolting greater than 2 inches in diameter. In addition; for high strength closure bolting in piping systems, Examination Category B-G-1 specifies the examination of one bolted connection among a group of bolted connections that are similar in design, size, function, and service.

4. Corrective Actions (Expanded Inspection Sample)

Open Cycle Cooling Water Systems (NUREG-2191 XI.M20)

Closed Treated Water Systems (NUREG-2191 XI.M21A)

One-Time Inspections (NUREG-2191 XI.M32)

Selective Leaching (NUREG-2191 XI.M33)

External Surfaces of Monitoring of Mechanical Components (NUREG-2191 XI.M36)

Inspections of Internal Surfaces in Miscellaneous Piping and Ducting (NUREG-2191 XI.M38)

Element 7 of the AMPs noted above was revised to require no fewer than five additional inspections for each inspection that did not meet acceptance criteria. Five additional samples would result in a disproportionately large inspection sample for small inspection populations or inspection defects with limited extent of condition. Recommend revising the corrective action to read:

“The number of increased inspections is determined in accordance with the site’s corrective action process. As a minimum, the smaller of five additional inspections for each inspection that did not meet acceptance criteria or 20% of the inspection population is conducted. If subsequent inspections do not meet acceptance criteria, an extent of condition and extent of cause is conducted to determine the further extent of inspection.”

5. Reactor Vessel Material Surveillance (NUREG-2191 XI.M31)

The third paragraph of the program description for AMP XI.M31, Reactor Vessel Material Surveillance, requires end of life vessel fluence in order to eliminate the BWR RV circumferential weld examination (4.2.3.1.5) or to demonstrate an acceptable probability of failure for the BWR RV axial welds (4.2.3.1.6). Recommend deleting the requirements for Sections 4.2.3.1.5 and 4.2.3.1.6 from the third paragraph of the program description. There is currently no requirement that a plant have surveillance data bounding of the end of life vessel fluence in order to eliminate the BWR RV circumferential weld examination (4.2.3.1.5) or to demonstrate an acceptable probability of failure for the BWR RV axial welds (4.2.3.1.6). BWR RV material property TLAs for USE and ARTS use the 1/4T fluence not the surface (OT) fluence which is used for the circumferential weld and BWR RV axial welds TLAs. BWRs do not have to meet the PTS rule which is the regulation that uses surface fluence.

6. One-Time Inspections for ASME Class 1 Small Bore Pipe (NUREG-2191 M35)

In Table 35-1 and the associated footnotes, clarify that the age related cracking could result in the identification of a smaller periodic examination population that is unique to the weld failure/degradation. For example, the socket welds that attach the seal injection lines to the reactor coolant pumps. Therefore, after the one-time inspections are completed the periodic Category C examinations would apply to the applicable failure population within the socket or butt weld groups. For the purposes of subsequent license renewal one-time inspections, the remainder of the butt weld or socket weld populations that did not experience cracking would be considered a Category A examination population.

7. ASME Section XI, Subsection IWE (NUREG-2191 XI.S1)**One-Time Volumetric Examination**

AMP XI.S1 requires a one-time volumetric examination of the containment metal shell or liner surfaces that are inaccessible from one side if triggered by plant specific OE. The trigger for this supplemental examination is plant-specific occurrence or recurrence of any instance of metal shell or liner corrosion initiated on the inaccessible side or areas, since the date of issuance of the first renewed license. Revise "any instance" to identify significant or measurable degradation such as through wall corrosion on the accessible surfaces or corrosion with greater than 10% wall thickness loss on the inaccessible surfaces when they becomes accessible.

Surface Examination of Pressure Retaining Components With Cyclic Loading (With No CLB Fatigue Analysis)

AMP XI.S1, Table 3.5-027 and AMRs II.A3/B4.CP-37 now require a surface examination of all pressure retaining components that are subject to cyclic loading but do not have a current licensing basis (CLB) fatigue analysis. This surface examination requirement is not consistent with Table 3.5-009 for pressure retaining components that are subject to fatigue/cyclic loading/cyclic displacement with a CLB fatigue analysis. The examination population for cyclic loaded components (no CLB fatigue analysis) is unreasonably expanded to include all

containment components, regardless of material, and requires performance of an augmented surface examination. Revise Table 3.5-027 to include a further evaluation that requires aging management based on a screening threshold for cyclic loading or a plant specific justification for cyclic loading applicability. The further evaluation should provide reasonable cyclic loading screening threshold values above which susceptible components would receive an augmented surface examination as part of the ASME Section XI Subsection IWE Program. Consistent with the EPRI Fatigue Management Handbook (TR-104534), a reasonable screening threshold of 200F is recommended for carbon steel cyclic loaded components (with no CLB fatigue analysis) and a screening threshold of 270F is recommended for stainless steel and dissimilar metal weld cyclic loaded components (with no CLB fatigue analysis).

8. NUREG-2192 Further Evaluation 3.5.2.2.1.3 Loss of Material in PWR and BWR Containments

In the first paragraph of the further evaluation delete the fourth sentence that requires justification from exclusion of Appendix J local leakage rate testing (i.e. Appendix J Type B and Type C testing). Revise the further evaluation and restore the prior evaluation for IWE aging management considerations. Aging management of containment shell or containment liner, heads and other related IWE pressure boundary components are not excluded from, but are subject to Appendix J Type A ILRT (Integrated Leakage Rate Testing) and IWE examinations.

9. Aluminum and Stainless Steel Structural Support Members (NUREG-2191 AMP XI.M32 and NUREG-2192 Further Evaluations 3.5.2.2.2.4 and 3.5.3.2.2.4)

NUREG-2192 Further Evaluation 3.5.2.2.2.4 and 3.5.3.2.2.4 now require one-time inspections to be conducted consistent with AMP XI.M32 that would require EVT-1 or surface examinations for aluminum or stainless steel structural support members. Inspection Methods for structural support should be consistent with NUREG-2191 aging management programs. Revise AMP XI.M32 Table 32-1 and other sections to include a loss of material and cracking (structural components) line item that specifies VT-3 examinations (ASME Section XI Subsection IWF) or visual examinations (AMP XI.S6 Structures Monitoring) for the inspection method.

10. Environmental Qualification (NUREG-2191, X.E1)

Revise AMP X.E1 element 4 to identify potential adverse localized environments (ALEs) that may impact qualified life once every 10 years. The impact of potential ALEs on qualified life is evaluated through the corrective action program. The current AMP implies that all passive EQ equipment will be inspected every 10 years for ALEs.

11. Inaccessible I&C and Low Voltage Power Cables (NUREG-2191 XI.E3B and XI.E3C)

- Change the 6 year inspection (new requirement) of cables to a frequency of at least once every 10 years to align with other ALE inspections in the plant. The AMP requires

periodic inspection for water accumulation at least annually and removing the water as needed.

- Revise the AMP to align inspection and, if necessary testing for cables designed for wetting and submergence with existing requirements for cables that are not so designed. The AMPs now require a one-time inspection and test for inaccessible cables designed for continuous wetting or submergence.
- Delete the element 7 paragraph that requires additional inspections if one of the inspections does not meet the acceptance criteria because all inspections are 100%. The only inspections associated with these two AMPs are manhole inspections for water accumulation and cable inspections within these manholes for condition assessment. Each round of periodic manhole water accumulation inspections will include 100% of the affected manholes and each round of cable inspections will include all cables inside each of the affected manholes.

12. GALL Master spreadsheet and NUREG-2191

The following AMR line items (M32 program for cracking in SS/air) are a limited sample of AMR lines that are available in the GALL Master Excel spreadsheet dated 2/14/17; however they do not appear in the NUREG-2191 final version. Which is the correct source to use, GALL Master Spreadsheet or NUREG-2191?

VII.C1.AP-209a
 VII.C2.AP-209a
 VII.C3.AP-209a
 VII.D.AP-209a
 VII.E1.AP-209a
 VII.E4.AP-209a
 VII.F1.AP-209a
 VII.F2.AP-209a
 VII.F3.AP-209a
 VII.F4.AP-209a
 VII.G.AP-209a
 VII.H2.AP-209a

EDITORIAL OR TYPOGRAPHICAL CORRECTIONS

The following are examples of typical editorial or typographical changes that are required for consistency within the documents.

13. Electrical Cable Connections (NUREG-2191 XI.E6)

- In Element 5, delete the requirement: "Where practical, degradation is projected until the next scheduled inspection". It is neither practical nor possible to project degradation until the next scheduled inspection for a one-time confirmatory AMP. Recommend keeping the original wording for this section.
- Element 7 includes a scope expansion methodology that does not align with a one-time confirmatory AMP. Recommend keeping the original text for Element 7 as it includes sample expansion as part of the considerations for corrective actions.

14. NUREG-2192 Further Evaluation 3.5.3.2.1.8

Revise the following portion of the second consideration for a plant specific AMP to read as follows: "or ~~mismangement~~misalignment/distortion of attached components." Correction is required for consistency with other sections of NUREG-2192.

15. NUREG-2191 Table VI Table B Item VI.B.L-05

Revise the following section titles or AMP names in the aging management program column as indicated:

- SRP Section 4.4
Environmental Qualification (EQ) of ~~Electrical~~ Electric Equipment
- AMP X.E1
Environmental Qualification (EQ) of Electric ~~Components~~ Equipment