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Subsequent License Renewal (SLR) Lessons Learned Public Meeting #5

July 16, 2020

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Meeting Purpose

- Discuss the 3 draft Interim Staff Guidance documents (ISGs) that document proposed revisions from the industry to electrical, structures, and mechanical sections of GALL-SLR (NUREG-2191) and SRP-SLR (NUREG-2192)
- Discussions should inform public comments
  - FRN: 85 FR 39938 (ML20159A000)

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AGENDA

- Welcome and Introductions
- Discussion on Draft Interim Staff Guidance: Electrical
- Discussion on Draft Interim Staff Guidance: Structures
- Break (Optional)
- Discussion on Draft Interim Staff Guidance: Mechanical
- Other Topics/Summary/Next Actions
- Next Lessons Learned Meeting
- Adjourn

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Electrical ISG

- XI.E3A/B/C
  - 5-year inspections of manholes with water level monitoring and alarms
  - no need for event-driven inspections if there is no water accumulation
- XI.E7
  - add polymer and toughened glass high-voltage (HV) insulators to the scope and program elements
  - includes all insulators operating above 4kV

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Structures ISG

- Appendix A
  - Provide the option to perform a further evaluation based on ASME Code, Section III, Division 1, Subsection NE, fatigue waiver analysis for containment metallic pressure-retaining boundary components that are subject to cyclic loading but have no current licensing basis (CLB) fatigue analysis.
  - If the ASME Code fatigue waiver acceptance criteria are met, then cracking due to cyclic loading does not require aging management

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Structures ISG

- Appendix A (con't)
  - SRP-SLR Sections 3.5.2.2.1.5 and 3.5.3.2.1.5, and Table 3.5-1, line items 027 and 040 revised
  - GALL-SLR line items II.A3.CP-37, II.B1.1.CP-49, II.B2.1.CP-107, II.B2.1.CP-142, II.B2.2.CP-64, and II.B4.CP-37 revised

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Structures ISG

- Appendix B
  - Revise AMP XI.S8 (monitoring and maintenance of protective coatings)
    - revises the frequency of inservice coating inspection monitoring to no later than 6 years, based on trending of the total amount of permitted degraded coatings.

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Structures ISG

- Appendix B (con't)
  - Revise AMP XI.S8
    - add discussion of in-vessel effects of degraded coatings in containment.
    - revises Element 4, 5 , and 10 to provide detail on proposed extended inspection intervals, in-vessel debris limits, and to add RG 1.54, Rev. 3
    - add Regulatory Guide 1.54, Rev. 3 to references

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Structural ISG

- Appendix C
  - modifies GALL-SLR (Chapter II) to reflect the option of using plant-specific enhancements to GALL-SLR XI.S2/XI.S6 AMPS to manage the effects of aging in concrete in lieu of recommended plant-specific aging management programs

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Structures ISG

- Appendix C (con't)
  - reduction of strength and modulus of elasticity due to elevated temperature
  - loss of material and cracking due to freeze-thaw
  - cracking due to expansion from reaction with aggregates
  - increase in porosity and permeability; loss of strength due to leaching of calcium hydroxide and carbonation

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Structures ISG

- Appendix C (con't)
  - add line items from App. A that provides option to perform Further Evaluation for fatigue waiver analysis for containment metallic pressure-retaining boundary components that are subject to cyclic loading but have no current licensing basis (CLB) fatigue analysis.

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Structures ISG

- Appendix D
  - modifies GALL-SLR (Chapter III) to reflect the option of using plant-specific enhancements to selected GALL-SLR AMPs to manage the effects of aging in concrete, in lieu of recommended plant-specific aging management programs

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Structures ISG

- Appendix D (con't)
  - Added to those of ISG Appendix C modifications:
    - reduction of strength and mechanical properties due to irradiation of concrete

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Structures ISG

- Appendix E
  - modifies SRP-SLR Section 3.5 and Table 3.5-1 to provide the option to perform a further evaluation based on ASME Code Section III, Division 1, Subsection NE, fatigue waiver analysis for containment metallic pressure-retaining boundary components that are subject to cyclic loading but have no current licensing basis (CLB) fatigue analysis, consistent with revisions in Appendix A of the ISG, and to manage the effects of aging in concrete, consistent with revisions in Appendices C and D of the ISG

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Mechanical ISG

- Appendix A
  - Modify Element 6 and References section to AMP X.M2 (neutron fluence monitoring) to reference approaches that have been found to be acceptable in recent staff reviews of extended beltline and reactor vessel internals fluence calculations, as RG 1.190 is not applicable

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Mechanical ISG

- Appendix B
  - revises AMP XI.M2 (water chemistry) and FSAR Supplement to include the latest revision of EPRI guidelines for BWRs and PWRs

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Mechanical ISG

- Appendix C
  - Revised AMP XI.M12 (thermal aging embrittlement of cast austenitic stainless steel (CASS)) to add the 2019 Edition of ASME Code, Section XI, Non-mandatory Appendix C, which provides flaw evaluation procedures for CASS with ferrite content ≥ 20 percent.

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Mechanical ISG

- Appendix D
  - revises AMP XI.M21A (closed treated water systems) to include the latest revision of EPRI closed cooling water chemistry guidelines.

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Mechanical ISG

- Appendix E
  - adds new AMR Items VII.G.A-805, VII.G.A-806, and VII.G.A-807 to GALL-SLR Table VII.G, “Fire Protection”
    - manage loss of material, change in material properties, cracking, delamination, and separation for subliming compounds, cementitious coatings, and silicates exposed to air
  - makes conforming changes to SRP-SLR Table 3.3-1

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Mechanical ISG

- Appendix F
  - revises the SRP-SLR Table 3.3-1 and GALL-SLR Table VII.H2 to include a line item to manage the reduction of heat transfer for a steel heat exchanger radiator exposed internally to diesel fuel oil.

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Mechanical ISG

- Appendix G
  - revises SRP-SLR Table 3.3-1 and GALL-SLR Table VII.H2 to include a line item for managing loss of material for nickel alloy externally exposed to diesel fuel oil.

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Mechanical ISG

- Appendix H
  - revises AMP XI.M42 (internal coatings/linings in pipes, piping components, heat exchanger, and tanks) to recommend opportunistic inspections, in lieu of periodic inspections, as an acceptable alternative for buried internally coated/lined fire water system piping if certain conditions are met

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Items for Final Mechanical ISG

- Add loss of coating integrity for compressed air steel tanks w/internal coatings (Item #2 of F-J table)
  - Add information to final ISG
- Add LOM for compressed air steel tanks w/internal coatings (Item #3 of F-J table)
  - Add information to final ISG

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Items for Final Mechanical ISG

- LOM/general, pitting, crevice corrosion in zinc (Item #11 of F-J table: No-Go)
  - Limited use of zinc does not justify additional line items
- LOM/general, pitting, crevice corrosion in carbon steel, stainless steel, and copper alloy in treated water (Item #12 of F-J table: No-Go)
  - Applying MEAPs where applicable is fine

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Items for Final Mechanical ISG

- Add line items to GALL-SLR Chapter VII tables to credit AMP XI.M38 to address metallics in raw water (Item #16 of F-J table)
  - Add information to final ISG

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Other Topics

- Should the final ISGs include entire GALL and SRP tables or just the parts that have been revised?
- Other comments on to reduce size of the ISGs

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Next Actions

- Public comments due August 3, 2020
  - FRN: 85 FR 39938 (ML20159A000)
- Finalize Electrical, Structural, and Mechanical ISGs
- Issue final Electrical, Structures, and Mechanical ISGs
- Update NUREG-2221 (Tech Bases)
- Issue PWR Reactor Vessel Internals Draft ISG
- Next Lessons Learned Meeting