St. Lucie SLRA: Breakout Questions
SLRA Section B.2.3.33: Structures Monitoring
TRP: 046

Note: Breakout Questions are provided to the applicant and will be incorporated into the publicly-available audit report.

Technical Reviewer	Juan Lopez	12/15/2021
Technical Branch Chief	Joseph Colaccino	12/15/2021
Breakout Session	*Date/Time*	*To be filled in by PM*

Applicant Staff	**NRC staff**
To be filled out by PM during breakout	

Question Number	SLRA Section	SLRA Page	Background / Issue (As applicable/needed)	Discussion Question / Request	Outcome of Discussion
1	2.1.4.2.1 2.4 B.2.3.33	2-1-13 2.4-1 B-248	The GALL-SLR XI.S6 states that the scope of the program includes all SCs, component supports, and structural commodities in the scope of license renewal (e.g., pipe whip restraints, jet impingement shields, etc.) that are not covered by other structural aging management programs. SLRA Section 2.1.4.2.1 states that NNS whip restraints, **jet impingement shields**, blowout panels, etc. that are designed and installed to protect SR equipment from the effects of a HELB are within the scope of SLR per 10 CFR 54.4(a)(2). However, it is not	**Scope of the Program:** 1. Clarify how the SLRA addresses the components described in SLRA Section 2.1.4.2.1, and if jet impingement shields are within the scope of the structures monitoring program, or if they need to be address within SLRA Sections 2.4 and 3.5.	

			clear how St. Lucie addresses some of these components for the subsequent period of extended operation and if the structures monitoring program will manage them. It is noted that Attachment 1 of the structures monitoring program procedure (ADM-17.32) seems to include whip restraints into the scope of components to be monitored/inspected, however it is not clear if jet impingement shields are within the scope of the structures monitoring program.		
2	B.2.3.33	B-248	The GALL-SLR XI.S6 states that: • Elastomeric vibration isolators, structural sealants, and seismic joint fillers are monitored for cracking, loss of material, and hardening. • Elastomeric vibration isolation elements are acceptable if there is no loss of material, cracking, or hardening that could lead to the reduction or loss of isolation function. The SLRA enhancement No 3(b) adds to the AMP the inspection of elastomers for loss of material and loss of strength. However, it is not clear how loss of strength will be monitored using visual inspections by the AMP and if cracking will be a parameter to be monitored. It is noted that Section 4.13 of ADM-17.32 do not include cracking as a parameter to be monitored and the Tables in	**Parameters Monitored or Inspected:** 1. Clarify how loss of strength will be managed for elastomers during the visual inspections. 2. Is cracking also being monitored during inspection? How it is specified in the current AMP? **Acceptance Criteria:** 3. Clarify how the existing AMP is consistent with the GALL-SLR Report recommendation for ensuring that elastomeric vibration isolation elements are only acceptable if there is no loss of material, cracking, or hardening that	

			Attachment 1 only lists “loss of seal” as the applicable aging effect to be monitored using visual inspection. The staff also notes that Enhancement No. 4 will provide for tactile inspection in addition to visual inspection of elastomeric elements to detect hardening. Furthermore, it is not clear what acceptance criteria the current program includes for elastomeric vibration isolation elements.	could lead to the reduction or loss of isolation function.	
3	B.2.3.33	B-248	The GALL-SLR XI.S6 states that: • Bolting within the scope of the program is monitored for loss of material, loose bolts, missing or loose nuts, and other conditions indicative of loss of preload. • Loose bolts and nuts are not acceptable unless accepted by engineering evaluation. It is not clear if the current program defines the parameters to be monitored or inspected for structural bolting, to demonstrate consistency with the GALL-SLR Report. The following was generally identified within ADM-17.32: • Section 4.3 for structural and miscellaneous steel looks for "anchor bolt deficiencies" (might be too general)	**Parameters Monitored or Inspected:** 1. Clarify how the existing AMP is being consistent with the GALL-SLR Report recommendation for monitoring the different parameters associated with bolting degradations. **Acceptance Criteria:** 2. Clarify how the existing AMP is consistent with the GALL-SLR Report recommendation for ensuring that loose bolts and nuts are not acceptable unless accepted by engineering evaluation.	

			• Attachment 2 Sections 4.9 and 4.10, looks for missing/loose bolts or nuts specifically at equipment mounting and tanks, • Attachment 2, Section 5.1.3 looks for no detached embedment or loose bolts.		
4	B.2.3.33	B-248	The GALL-SLR XI.S6 states that: • In general, all structures are monitored on an interval not to exceed 5 years SLRA Enhancement no. 9(d) states that procedures will be updated to require the inspection of the CST and AFW structures and piping inspection in trenched every third refueling outage, which will ensure that these inspections are performed at least once per 5 years, SLRA AMP basis document Sections 4.4 and 4.5 (for water control structures) state that one intake well is dewatered and inspected every refueling outage on the rolling basis, which is a frequency of one inspection per unit every 18 months. However, ADM-17.32 Section 3.2(1)(E) states that normally submerged areas of the intake wells will be completed on a once every 4th refueling frequency (approximately 6 years) when the wells are dewatered for maintenance.	**Detection of Aging Effects:** This issue/question is being address under TRP-047 for the water controlled-structures. Item is kept here (as well) for tracking purposes as it also affects the Structures Monitoring Program. No further discuss is necessary at this point.	
5	B.2.3.33	B-249	The GALL-SLR XI.S6 states that:	**Detection of Aging Effects:**	

			• For plants with aggressive groundwater/soil (pH < 5.5, chlorides > 500 ppm, or sulfates > 1,500 ppm) and/or where the concrete structural elements have experienced degradation, a plant-specific AMP accounting for the extent of the degradation experienced should be implemented to manage the concrete aging during the subsequent period of extended operation. • The GALL Report further states that this plant-specific AMP may include evaluations, destructive testing, and/or focused inspections of representative accessible (leading indicator) or below-grade, inaccessible concrete structural elements exposed to aggressive groundwater/soil, on an interval not to exceed 5 years. SLRA Enhancement No. 4(c) provides for updating the existing procedure and other applicable procedure to address the aggressive groundwater/soil environment and lists the same general actions that the GALL-SLR Report recommended for the plant-specific AMP. However, the enhancement does not provide sufficient detail to clearly understand the what/when/where/how of the plant-specific actions that will be implemented to demonstrate that the	1. Describe the plant-specific actions that will be implemented within the AMP to ensure and demonstrate that the AMP will adequately manage degradations for inaccessible areas exposed to an aggressive water/soil environment. Notes: • The SLRA needs to define the proposed plant-specific actions/program elements in sufficient details so they can be evaluated. Therefore, plant-specific program or program actions needs to align with the criteria specified in the Branch Technical Position RLSB-1 (Appendix A.1 of the SRP-SLR). • Any plant-specific action/enhancement (not generically address by the GALL) should be considered for inclusion in the UFSAR Supplement. SLRA Section 19.2.2.33 did provided some.	

			aging effects will be adequately managed.		
6	B.2.3.33	B-249	SLRA Enhancement No. 4(d) provides for updating the existing procedure and other applicable procedures to require the inspection of the condensate storage tank, auxiliary feedwater structures and piping inspections in the trenches every third refueling outage which will ensure that these inspections are performed at once per 5 years. However, this enhancement appears to add these structures/components (SC) as new SCs to the scope of the program and additional clarification is necessary.	**Monitoring and Trending:** 1. Clarify if these SCs are new to the scope of the program. Is so, is there any plan to inspect these structures prior to entering the period of extended operations.to ensure that quantitative baseline inspection data is established prior to entering the period of extended operations. **Detection of Aging Effects:** 2. Clarify what is the refueling outage frequency at St. Lucie and how using a third outage interval will ensure that inspections are being performed at least once every 5 years.	
7	Table 3.3-1	3.3-46	SLRA Table 3.3-1, AMR line item 3.3-1, 111 states that it is consistent with the GALL-SLR Report and the Structures Monitoring AMP (B.2.3.33) is used to manage loss of material in structural steel exposed to uncontrolled indoor air. This line item is used to evaluate structural items in Section 3.5. However, during the review of SLRA Table 3.5-2, no AMR line item evaluating	**AMR Line Item**: Clarify the discrepancy in the SLRA for the AMR line item 3.3-1, 111. Also, state what material the new fuel storage racks are made of. It is noted that, the GALL-SLRA Report uses AMR line item 3.3-1, 111 to evaluate new	

			the components associated with AMR line item 3.3-1, 111 was identified. SLRA Section 2.4.7 also stated that "the fuel handling building provides an area for cask loading and space for the storage of new fuel."	fuel storage (racks) made of steel that are exposed to an air-indoor environment.	
8	Table 3.5.2-7	3.5-107	In SLRA Table 3.5.2-7, an AMR line item associated with 3.5-1, 088 cited a note E to stated that loss of preload in structural supports for fuel handling building will be manage by the one-time inspection program and the water chemistry program. Plant-specific note 5 states that connections associated with the spent fuel pool will be managed under the Water Chemistry and the One-Time Inspection AMP's. However, it is not clear how the aging effects of loss of preload will be adequately manage by these programs.	**AMR Line Item**: Clarify how the Water Chemistry and the One-Time Inspection AMP's will be used to adequately manage the loss of preload aging effects for these components.	
9	Table 3.5.2-17	3.5-143	In SLRA Table 3.5.2-17, an AMR line item associated with 3.5-1, 092 cited a note E to stated that loss of material in carbon steel plates used as fire barriers will be manage by the fire protection program. Plant-specific note 1 states that metal components of fire barrier assemblies will be managed by the Fire Protection AMP.	**AMR Line Item**: Clarify why item 3.5-1, 092 was used to address this material/aging effects combination associated with fire barriers. Were other AMR line items associated with the fire protection program considered? (e.g., 3.3-1, 058 / 059 or 255 as a different component with same material and aging effects)	

10	Table 3.5.2-16	3.5-143	During the review of SLRA Table 3.5.2-16, it was noted that several AMR line items associated with 3.5-1, 055 addresses the reduction in anchor capacity for components support commodities. However, based on the line items in the SLRA, and considering the line items evaluated in the GALL-SLR Report, it is not clear why the following associated components were not addressed in the SLRA: • Class 1, II, III and MC supports (i.e., III.B1.1.TP-42, III.B1.2.TP-42, III.B1.3.TP-42), • anchorage of Racks, Panels, Cabinets, and Enclosures for Electrical Equipment (i.e., III.B3.TP-42), • Supports for Emergency Diesel Generator, HVAC System Components (i.e., III.B4.TP-42) was excluded. It was also noted that the Table 1 AMR line item did not described any partial applicability for AMR 3.5-1, 055. Similarly, for items associated with 3.5-1, 093 addressing the Loss of material due to pitting, crevice corrosion for support members, it is not clear why the following associated component was not addressed in the SLRA: • Supports for Emergency Diesel Generator, HVAC System Components, and Other	**AMR Line Item**: 1. Clarify why the listed components, associated with AMR line time 3.5-1, 055, were not addressed in the SLRA. 2. Clarify why the listed component, associated with AMR line time 3.5-1, 093, was not addressed in the SLRA.	

			Miscellaneous Mechanical Equipment (i.e., III.B4.TP-6)		
11	2.1.4.2.1	2.1-14	SLRA Section 2.1.4.2.1 states that NNS whip restraints, jet impingement shields, blowout panels, etc. that are designed and installed to protect SR equipment from the effects of a HELB are within the scope of SLR per 10 CFR 54.4(a)(2). However, it is not clear where the jet impingement shields were addressed in the SLRA.	**Scope of Program** Clarify how the jet impingement shields was addressed by the SLRA.	
12	19.2.2.33	A1-35 A2-34	SLRA Section 19.2.2.33 states, in part, that "[t]he PSL Structures Monitoring AMP is an existing AMP that consists of periodic inspection and monitoring of the condition of concrete and steel structures, structural components, components supports, and structural commodities to ensure that aging degradation…" GALL-SLR Table XI-01 provides a FSAR Supplement Summary for the Structures Monitoring Program as generically evaluated in the GALL-SLR Report.	**UFSAR Supplement:** Clarify why the program description do not clearly define the type of inspection that will be performed (e.g., visual)	