St. Lucie SLRA: Breakout Questions

SLRA Section B2.1.34, "Inspection of Water-Control Structures Associated with Nuclear Power Plants" AMP

TRP: 047

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

Technical Reviewer	George Wang	12/13/2021
Technical Branch Chief	Joseph Colaccino	12/20/2021
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	ADM-17.32	13 OF 78	SLRA AMP basis document Sections 4.4 and 4.5 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, plant procedure ADM-17.32, Revision 7, "Structures Monitoring Program," states that normally submerged areas of the intake wells will be completed on once every 4th refueling frequency (approximately 6 years) when individual wells are dewatered for maintenance. GALL-SLR report states that submerged structural elements are	1. Clarify what is the inspection frequency of submerged areas of the intake wells. 2. Clarify whether the Inspection of Water-Control Structures program or Structures Monitoring program has an exception to NUREG-2191 guidance.	

			visually inspected (e.g., dewatering, divers) at least once every 5 years for plants with aggressive raw water.		
2	B.2.3.34	B-254	GALL-SLR report states that the preventive actions emphasize proper selection of bolting material and lubricants, and appropriate installation torque or tension to prevent or minimize loss of bolting preload and cracking of high-strength bolting. If the structural bolting consists of ASTM A325 and/or ASTM A490 bolts (including respective equivalent twist-off type ASTM F1852 and/or ASTM F2280 bolts), the preventive actions for storage, lubricant selection, and bolting and coating material selection discussed in Section 2 of Research Council for Structural Connections publication, need to be used. SLRA Section B.2.3.34, Element 2 enhancement, states that revising the implementing procedure to specify the use of high-strength bolt storage requirements discussed in Section 2 of the RCSC publication for structural bolting consisting of ASTM A325, ASTM A490, and equivalent bolts.	1. Clarify whether additional enhancements for preventive actions are needed to ensure bolting integrity. 2. Check preventive actions enhancements for different AMPs (B.2.3.29 and B.2.3.33) to ensure the consistency.	
3	A19.2.2.34 A19.2.2.34 B.2.3.34 2.4.8 2.4.9	A1-35 A2-35 B-253 2.4-18 2.4-19	SLRA Section A19.2.2.34, Section B.2.3.34, and its AMP basis document state that the scope of the PSL Water-Control Structures AMP includes the Intake Cooling Water Canal,	1. Provide the layout of water-control structures in the drawing and clarify the scope of Inspection of Water-Control	

	2.4.14	2.4-29	Emergency Cooling Canal, Unit 1 and Unit 2 Intake Structures, and Ultimate Heat Sink Dam. SLRA Sections 2.4.8, 2.4.9, and 2.4.14 include Intake, Discharge, and Emergency Cooling Canals; Earthen Canal Dikes; Intake Structures; and Ultimate Heat Sink Dam, respectively. With different names of Water-Control Structures called out in SLRA, it is unclear what structures will be within the scope of Water-Control Structures managed by the Inspection of Water-Control Structures program. GALL-SLR report also includes miscellaneous steel, such as sluice gates and trash racks within the scope of Water-Control Structures. However, the staff could not locate miscellaneous steel such as sluice gates and trash racks in SLRA.	Structures program for each structure. 2. Clarify where Table 1 and 2 AMR items of the intake cooling water canal are located in the SLRA. 3. Clarify whether PSL has miscellaneous steel such as sluice gates and trash racks at site. If they are within the scope of SLR, provide Table 1 and 2 AMR items. 4. Discuss the plan to update the SLRA, UFSAR supplement, and its AMP basis document to ensure the consistency.	
4	B.2.3.34	B-253	GALL-SLR report states that the water-control structures included in the program are concrete structures, embankment structures, spillway structures and outlet works, reservoirs, cooling water channels and canals, **flood protection walls and gates**, and intake and discharge structures. (Emphasis added)	1. Clarify flood protection features and their associated SSCs. 2. List AMR items for the associated SSCs with flood protection features managed by the Structures Monitoring program.	

			SLRA Section B.2.3.34 states that flood protection features are managed by the Structures Monitoring AMP. However, it is not clear what SSCs associated flood protection features are managed by the Structures Monitoring program.		
5	2.4.14	2.4-29	SLRA Section 2.4.14, “Ultimate Heat Sink Dam,” states the adjacent hurricane protection sheet piles are also considered within the evaluation boundary. It is unclear whether adjacent hurricane protection sheet piles are within the scope of SLR and subject to AMR. SLRA Section 2.4.14 states that the concrete compaction piles located in the underlying soil are design features of soil, and thus do not require screening as unique components. But SLRA Table 2.4-14 includes steel sheet piling (beneath dam). It is unclear what piles are used beneath the Ultimate Heat Sink Dam.	1. Clarify whether the adjacent hurricane protection sheet piles are within the scope of SLR and subject to AMR. If they are within the scope, provide AMR items in SLRA. 2. Clarify whether steel sheet piling or concrete compaction piles are located beneath ultimate heat sink dam.	
6	NEESL00008-REPT-073	8 of 26	GALL-SLR report under Element 3 states that accessible sliding surfaces are monitored for indication of loss of material due to wear or corrosion, and accumulation of debris or dirt. The staff does not find accessible sliding surfaces being managed by the Inspection of Water-Control Structures program in SLRA. It is unclear whether there are accessible sliding surfaces for Group 6 structures.	1. Clarify whether there are accessible sliding surfaces requiring aging management for Group 6 structures. 2. Clarify parameters monitored or inspected for cooling canals, earthen canal dikes, and steel sheet piles. 3. Clarify whether procedure ADM-17.32 needs to be	

			SLRA AMP basis document Section 4.3 list parameters monitored or inspected for concrete structures, structural steel, electrical panels, and miscellaneous steel. But it does not provide parameters monitored or inspected for cooling canals, earthen canal dikes, and steel sheet piles. GALL-SLR states that parameters to be monitored and inspected for earthen embankment structures include settlement, depressions, sink holes, slope stability (e.g., irregularities in alignment and variances from originally constructed slopes), seepage, proper functioning of drainage systems, and degradation of slope protection features. Parameters monitored for channels and canals include erosion or degradation that may impose constraints on the function of the cooling system and present a potential hazard to the safety of the plant. Submerged emergency canals (e.g., artificially dredged canals at the river bed or the bottom of the reservoir) are monitored for sedimentation, debris, or instability of slopes that may impair the function of the canals under extreme low flow conditions.	modified to include missing parameters monitored or inspected and clarify whether additional enhancements are needed for Element 3.	
7	NEESL00008-REPT-073	12 of 26	SLRA AMP basis document Section 4.6 states that the PSL Water-Control Structures AMP acceptance criteria and guidelines for structural inspections are documented in procedure ADM-17.32,	1. Clarify acceptance criteria for cooling canals, earthen canal dikes, steel sheet piles.	

			Revision 7, “Structures Monitoring Program.” Procedure ADM-17.32, Revision 7, Section 2.2.1 in Attachment 2, states that inspection findings should be based on relevant codes and standards in addition to the judge of qualified individuals performing the inspections. Each inspection shall be evaluated based on the following three criteria: Acceptable, Acceptance with Deficiencies, and Unacceptance. GALL-SLR report states that acceptance criteria for earthen structures, such as canals and embankments, are consistent with programs falling within the regulatory jurisdiction of the FERC or the USACE. Loose bolts and nuts, and degradation of piles and sheeting are accepted by engineering evaluation or subject to corrective actions. It is unclear what acceptance criteria is used for cooling canals, earthen canal dikes, and steel sheet piles.	2. Clarify whether procedure ADM-17.32 needs to be modified to include missing acceptance criteria and clarify whether additional enhancements are needed for Element 6.	
8	B.2.3.34	B-255	During the St. Lucie onsite audit, the staff identified spalling, cracking, and corrosion on the top of concrete walls in submerged discharge concrete structures. However, OE in SLRA Section B.2.3.34 does not include this OE item.	1. Provide AR and WO associated with OE item of discharge concrete structures. 2. Discuss how discharge concrete structures can	

				maintain their intended functions due to deterioration during the SPEO. 3. Clarify where SLRA Tables 1 and 2 items of discharge concrete structures are located. 4. Discuss the plan to update SLRA OE Section as necessary.	
9	B.2.3.34	B-253	The GALL-SLR report states that 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 notes 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 Structures Monitoring program Enhancement No. 4(c) provides for	1. Clarify whether the Structures Monitoring program Enhancement No. 4(c) shall apply to the Inspection of Water-Control Structures program. 2. Describe what plant-specific actions 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. Note: it is noted that the provided enhancement in Structures Monitoring program does not clearly state the plant-specific	

			updating the existing procedure and other applicable procedure to address the aggressive groundwater/soil environment and lists the same action that the GALL-SLR Report recommended for the AMP. It is also noted that plant-specific program or program actions needs to satisfy the criteria of BTP RLSB-1 (Appendix A.1 of this SRP-SLR). SLRA B.2.3.34 states that the PSL Inspection of Water-Control Structures Associated with Nuclear Power Plants AMP, with enhancements will be consistent without exception to the 10 elements of NUREG-2191, Section XI.S7. It is unclear how the Inspection of Water-Control program addresses aging effects in the aggressive groundwater/soil environment in order to be consistent with the GALL-SLR report.	actions that will be implemented.	