Oconee Nuclear Station - SLRA: Breakout Questions

SLRA Section – 4.7.1.2, 74.7.2, and 4.7.3

TRPs: 149.12, 149.2, and 149.3

Question Number	SLRA Section	SLRA Page	Background / Issue (As applicable/needed)	Discussion Question / Request
1	4.7.1.2 (TRP149.12)	4-118/119	ANP-3899P-000 - PWR Vessel Internals TLAA - Section 3 of document is associated with flow induced vibrations for RVI Indicates decay rate of [[XX]] for high strength steel bolts Indicates decay rate of [[XX]] for austenitic steels Section 3.1 cites NUREG-1723 and indicates that 10^12 cycles was the design for 40 years and that 10^13 cycles was assumed for 60 years\ of operation. Basis for decay rate assumptions and cycle assumption for 80years is not clear.	• What is the basis for the decay rates that were used to account for the high-cycles for 80years? ○ There was reference to BAW-10051A – But I was unable to find the technical basis/justification. • Thermal adjustment to fatigue curve (0.9) – Is this commonly accepted practice? Supporting literature/tech basis for this? • In the LR analysis for 60 years was the use of 10 ^13 cycles just overly conservative at the time? If so, what was the rationale for being so overly conservative for 60 years (i.e., an order of magnitude greater than 40 year design)? Did something change (e.g., design, plant operation, etc) that for 80 years the assumption was just to “double the design of 10^12 cycles and then conservatively assume 10^13 cycles again for 80 years?
2	4.7.2 (TRP149.2)	4-122	SLRA Section states ANP-3898P/NP Revision 0 was performed for 72 EFPY and measurement uncertainty recapture conditions using current fracture toughness information, applied stress intensity factor solutions, fatigue crack growth correlations for SA-508 Class 2 materials, and is evaluated in accordance with the	• What is the basis for limiting *KIc* to a maximum value of 200 ksi√in (upper shelf fracture toughness). • When/where did this max value of 200 ksi√in (upper shelf fracture toughness) get used in the flaw evaluation?

			methodology prescribed in ASME Section XI, 2013 Edition, IWB-3612. Section 7.4.3 of ANP-3898 states "In this present flaw evaluation, *KIc* is limited to a maximum value of 200 ksi√in (upper shelf fracture toughness). Table 7-5 of ANP-3898P/NP contains a list of applicable design transients. Basis for this assumption is not clear in the evaluation	• Isn't the maximum value of 200 ksi√in (upper shelf fracture toughness) only true if the expression (T-RTndt) is less than 104.25 degree F. What about situations when the expression (T-RTndt) is greater than 104.2511 degree F? • Are the number of transient cycles used in underclad analysis the "40-year design" number of cycles for all the transients – SLRA Table 4.3.1-1 doesn't have a complete listing to check.
3	4.7.2 (TRP149.2)	4-121/122	Original 60-year TLAA is in BAW-2274, which is contained in BAW-2251A (Reference 7-2) as Appendix C. SE associated with BAW-2274 included The Consideration of a Non-Design Basis Transient. This statement is from the SE: "As mentioned, the topical report considered design basis transients only. To demonstrate that pressurized thermal shock (PTS)is not a concern for underclad cracks, the staff requested the B&WOG to perform a deterministic analysis using the extended high-pressure injection (HPI) transient from the PTS study of 1982 (Reference C.6)." Does not appear that this issue is addressed, even though it was part of the original evaluation.	• How is the consideration for PTS accounted for in the Oconee underclad cracking analysis for 80-years? • Are the conclusions from the work in BAW2274 to address the staff's question for PTS still valid? • Since RTpts is still met for 80 years – does this mean the issues for non-design basis transient still addressed/valid for 80 years?
4	4.7.3 (TRP149.3)	4-123	OSC-2077-03-SLR-0501 indicates the following: • data for RCP starts was assessed starting in the year 2000-2019.	• Statement about RCP not being cycled quicker than 5 mins – Is this procedurally controlled? Or best engineering practice/ judgment regarding how the plant is operated? What supports this statement?

			• RCP flywheel designed for 10,000 cycles. • Attachment #1 – this is only for Unit 1. • States RCP are not cycled quicker than 5 mins Basis for assumption is not clear – and its is not clear how Unit 2 and 3 were evaluated.	• Load following cycles/transients – Is Oconee operating as load following or base loaded? Would loading following operation impact the start/stop cycles for RCP? • What about breakdown for RCP starts for Units 2 and 3? Is Unit 1 bounding? If so, how was Unit 2/3 checked or confirmed to be bounded by Unit 1? • 4 pumps per unit? Conclusion applicable to all pumps? - Is the 10k cycle limit associated with each RCP or spilt evenly for each RCP per unit? • What data is being looked at? – calc mentioned operator aided computer – just data from the plant comp? If so, why was data only take starting in 2000? Are there records before 2000, and are they available/retrievable? • MUR-PU – NRC SE 3.2.2.2.2 talks about the pressure-retaining portion of the RCP being assessed for the MUR-PU – but I was not easily able to find anything about the flywheel – Was the fatigue analysis for the flywheel assessed? Can the evaluation be placed on the portal? Was there any impact due to MUR-PU?