

Oconee Nuclear Station (ONS) SLRA: Breakout Topics/Questions
SLRA TLAA Section: 4.7.1, Reactor Vessel Internals, Subsection 4.7.1.1,
Reduction Fracture Toughness due to Neutron Embrittlement
(RVI Reduction of Ductility TLAA)
TRP: 149.11

Staff comment on RVI Reduction of Ductility TLAA: The staff's review is based on a comparison the methodology and analysis in B&W Proprietary Report No. BAW-10008, Part 1, Revision 1, and the updated TLAA in Framatome Proprietary Report No. ANP-3899P, Rev. 0. The audit breakout discussion are oriented on the differences between the two methodologies, with a particular focus on the methodology and results for the seven components that were identified as needing reconciliation and evaluated in Section 2.3.2 of ANP-3899P, Revision 0. For these components, the staff needs to make a final determination whether these components are appropriately dispositioned both in the TLAA and in the gap analysis for the applicant's PWR Vessel Internals Program (SLRA AMP B.2.1.7), which the applicant uses to disposition the TLAA in accordance with 10 CFR 54.21(c)(1)(iii). The seven components are: (1) the upper core barrel (UCB) bolts ["Primary" category components per Item B7 in Table 4-1 of MRP-227, Rev. 1-A]; (2) core support shield (CSS) lower flange ["No Additional Measures" or NAM component in MRP-227, Rev. 1-A; the CSS top flange is the "Primary" component per Item B1.d in Table 4-1 of the MRP report]; (3) lower grid rib sections ["Expansion" per B10.3 in Table 4-4 of the MRP report; elevated to "Primary" components in the gap analysis]; (4) lower rib grid section-to-lower grid forging joint bolts [NAM per Table 3-1 in MRP-227, Rev. 1-A, which refers to them as lower grid rib-to-shell forging cap screws]; (5) lower grid support post-to-support forging joint welds [NAM]; (6) upper grid rib section [NAM per Table 3-1 in MRP-227, Rev. 1-A]; and (7) upper grid assembly support pads bolts [NAM per Table 3-1 in MRP-227, Rev. 1-A, which refers to the bolts as upper grid fuel assembly support pad cap screws].

Question Number	SLRA Section	SLRA Page	Background / Issue (As applicable/needed)	Discussion Question / Request
1	4.7.1.1	4-104 – 4-117	Topic: <i>General methodology in the TLAA used to update the stress intensity analyses for referenced RVI components, especially those re-evaluated in Section 2.3.2 in ANP-3899P, Rev. 0. Basis for dispositioning the TLAA in accordance with 10 CFR 54.21(c)(1)(iii), especially for each of the RVI components that were in need reconciliation per the assessment in Section 2.3.2 of the referenced ANP report.</i>	<p>The applicant should be prepared to discuss the re-evaluations performed in ANP-3899P, Rev. 0, especially for the seven components needing reconciliation and subject to the evaluations in Section 2.3.2 of the ANP report. The discussion topics may cover (but are not necessarily limited to) the following areas of discussion:</p> <p>1) Clarifications on whether the re-analyses for the components are based on the assumed loading combinations defined for Case IV assessments in BAW-10008 Part 1, Revision 1 and the revised faulted conditions for the components in BAW-1621, as approved by the staff.</p>

#1 Cont.				<p>2) How the components were re-evaluated for appropriate stress intensity values and how appropriate LOCA and Faulted condition loads were incorporated into those values (as applicable and appropriate for the updated component-specific assessments)</p> <p>3) The basis changing the stress allowable basis for the Case IV loading assessments.</p> <p>4) How the re-evaluated TLAA basis for each of the seven components relates to the final inspection category for the components, as evaluated and finalized in the gap analysis for SLRA AMP B2.1.7, "PWR Vessel internals."</p>	
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