

Based on the staff's review of the responses to RAIs 7a and 11 and the existing BWRVIP reports, the staff notes that the existing BWRVIP inspections do not consistently consider the potential for IGSCC on those components with a significant consequence of failure fabricated from CF-8 materials. In the NRC-approved inspections of BWRVIP-41 and 42, some components fabricated from CF-8 have a high consequence of failure. The approved inspection methodologies assume inspections on the cast side are not needed because the cast product form has a high resistance to IGSCC in BWR core environments. In several locations with a medium consequence of failure, no inspections are recommended because the material is cast. However, the approvals were based on the assumed resistance to IGSCC due to the duplex microstructure.

Based on the information in Section 4.1 of BWRVIP-234, there is a minimum level of carbon and ferrite needed to ensure there is adequate protection from IGSCC. NUREG-0313, Rev. 2 suggests limits of $\leq 0.035\%$ C and $\geq 7.5\%$ ferrite to reduce susceptibility to IGSCC; the GALL report references the NUREG-0313, Rev. 2 limits for the aging management of CASS in PWR reactor coolant systems. Appendix A of BWRVIP-234 shows that a significant fraction of the heats fail to meet the limits for carbon and ferrite contents.

In consideration of the existing BWRVIP augmented inspections, the staff has determined that when publishing the approved version of BWRVIP-234-A, the text should be revised to identify (1) all welds with a significant consequence of failure in the existing BWRVIP reports that could include CASS materials as one of the base materials and (2) an acceptable carbon and ferrite level at which there is reasonable assurance of resistance to IGSCC. This is Topical Report Condition 2.