NORTH ANNA POWER STATION, UNITS 1 AND 2 (NAPS)
SUBSEQUENT LICENSE RENEWAL APPLICATION (SLRA)
REQUESTS FOR ADDITIONAL INFORMATION (RAIS)
SAFETY - SET Z

1. Reactor Coolant Pump Code Case N 481, TLAA 4.7.6

Regulatory Basis:

Pursuant to 10 CFR 54.13, Completeness and accuracy of information, Information provided to the U.S. Nuclear Regulatory Commission (NRC or staff) by an applicant for a renewed license must be complete and accurate in all material respects.

Background:

The staff reviewed the Dominion Energy's TLAA for the reactor coolant pump casing integrity and supporting documents, and the corresponding disposition of 10 CFR 54.21(c)(1)(i), consistent with the review procedures in NUREG 2192, "Standard Review Plan for Review of Subsequent License Renewal Applications for Nuclear Power Plants" (SRP-SLR) Section 4.7.3.1.1 and the acceptance criteria in SRP-SLR Section 4.7.2.1.1.

In conducting this review, the staff noted an inaccuracy between the information provided in the subsequent license renewal application (SLRA) and Dominion's supporting documents. The supporting document of interest are:

- topical report PWROG 17033-NP-A ("Update for Subsequent License Renewal: WCAP-13045, 'Compliance to [American Society of Mechanical Engineers] ASME Code Case N-481 of the Primary Loop Pump Casings of Westinghouse Type Nuclear Steam Supply Systems,'" November 2019),
- WCAP-18503-P Rev. 1 ("Resolution of North Anna Power Station Units 1 & 2 Time-Limited Aging Analyses for Subsequent License Renewal," July 2020).

RAI 4.7.6-1

Issue:

SLRA Section 4.7.6 states:

> As discussed in Section 5.4 of WCAP-18503-P, *the plant-specific loadings for the reactor coolant pump casing are bounded by the screening loads* implemented in the generic analysis performed in PWROG-17033-P-A.

However, Table 5-11 of WCAP-18503-P Rev. 1 shows that the force for the NAPS outlet nozzle exceeds that of the generic approved analysis in WCAP-17033-P-A Rev. 1 (which references WCAP-13045), by a small amount, <2 percent. WCAP-18503-P states that the faulted condition loads for the outlet nozzle exceed the screening loads in WCAP-13045.

WCAP-18503-P also states that the calculations include “conservatively large loads” and identifies an ASME Code case that “could be used” in future evaluation efforts to reduce conservatism in the load magnitudes. However, neither the SLRA nor WCAP-18503-P provide evaluations to show either that the loads are bounded or a plant-specific crack stability analysis, as specified in condition 3 of the safety evaluation (SE) for PWROG-17033-NP-A.

Thus the SLRA does not accurately convey the messaging in WCAP-18503-P, and the applicant has not demonstrated that the the plant-specific loads for the reactor coolant pump casing are bounded by the screening loads implemented in the generic analysis performed in PWROG-17033-P-A.

Request:

Please explain and correct the inconsistency. In addition, either:

a) provide a justification for the acceptability of the force for the NAPS outlet nozzle even though it exceeds that of the generic approved analysis in WCAP-17033-P-A (which is contrary to condition 3 of Section 5 of the SE for the report), or
b) submit a plant-specific crack stability analysis to demonstrate structural integrity of the reactor coolant pump casing, as specified by condition 3 of Section 5 of the SE for PWROG 17033-NP-A.