

**OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3 (ONS)
SUBSEQUENT LICENSE RENEWAL APPLICATION (SLRA)
REQUESTS FOR ADDITIONAL INFORMATION (RAIs)**

SECOND ROUND RAI 4.6.1-1a

SAFETY REVIEW

RAI 4.6.1-1a:

Regulatory Basis:

Title 10 of the *Code of Federal Regulations* (CFR) Section 54.21(a)(3) requires an applicant to demonstrate that the effects of aging for each structure and component identified in 10 CFR 54.21(a)(1) will be adequately managed so that the intended function(s) will be maintained consistent with the current licensing basis for the period of extended operation. One of the findings that the U.S. Nuclear Regulatory Commission (NRC) staff must make to issue a renewed license (10 CFR 54.29(a)) is that actions have been identified and have been or will be taken with respect to managing the effects of aging during the period of extended operation on the functionality of structures and components that have been identified to require review under 10 CFR 54.21, such that there is reasonable assurance that the activities authorized by the renewed license will continue to be conducted in accordance with the current licensing basis.

Per 10 CFR 54.21(c), the applicant is required to evaluate time limited aging analyses (TLAA) and disposition them in accordance with (c)(1)(i), (c)(1)(ii), or (c)(1)(iii). SRP-SLR Section 4.6.1.1 states, in part: "The ASME Code contains explicit requirements for fatigue parameter evaluations (fatigue analyses or fatigue waivers), which are TLAAs."

In order to complete its review and enable making a finding under 10 CFR 54.29(a), the staff requires additional information in regard to the matters described below.

Background:

SLRA Section 4.6.1, "Containment Liner Plate and Cold Penetrations," as amended by response to RAI 4.6.1-1 by letter dated February 14, 2022 (ADAMS Accession No. ML22045A021) states, in part:

For 80-years of operation, the accumulated effects of containment liner and cold penetration loading conditions were evaluated to contemporary standards in accordance with the ASME Code, Section III, Paragraph N-415, to validate that a detailed fatigue analysis would not be warranted. The containment liner plate and cold penetration materials of construction listed in Table 4.6.1-1 above, in particular the carbon steel SA-516 Grade 70 material, meets all six criteria in the ASME Code, Section III, Subsection N-415.1 for the 500 applied design cycles for these components. This evaluation is bounding for the liner plate and cold penetrations, including mechanical, electrical, equipment and personnel-related penetrations.

TLAA Disposition: 10 CFR 54.21(c)(1)(ii)

The fatigue waiver analysis associated with the containment liner plate and cold penetrations meets all six criteria in the ASME Code, Section III, Subsection N-415.1 and will remain valid for the subsequent period of extended operation, in accordance with 10 CFR 54.21(c)(1)(ii).

The related review procedures in SRP-SLR Section 4.6.3.1.1.2 states, in part: “The revised fatigue parameter evaluations [fatigue analyses or fatigue waivers] based on the projected number of occurrences and severities of cyclic loads are reviewed to ensure that the calculated fatigue parameters remain less than the allowed values at the end of the subsequent period of extended operation.”

Issue:

The fatigue waiver evaluation that the applicant stated, in the response to RAI 4.6.1-1, to have performed for the containment liner plate and cold penetrations (including mechanical, electrical, and equipment and personnel-related penetrations) in accordance with the ASME Code, Section III, paragraph N-415.1 was not available for required staff verification during the audit (see audit report section for SLRA TLAA Section 4.6.1, “Containment Liner Plate” in ADAMS Accession No. ML22045A053). Therefore, the staff was unable to verify the claimed fatigue waiver analysis during the audit. Further, SLRA Section 4.6.1, as amended by the response to RAI 4.6.1-1, does not appear to provide sufficient technical detail that demonstrates how the fatigue waiver analyses satisfied all the six acceptance criteria in the ASME Code, Section III, paragraph N415.1, for the containment liner plate and each of the cold penetrations for which it is credited. The staff needs additional information to verify the applicant’s fatigue waiver analyses to make its regulatory finding for the TLAA.

Request:

Provide the fatigue waiver analyses of record (calculation that includes material and cyclic inputs and fatigue parameter evaluations) that demonstrates how the six criteria in the ASME Code, Section III, paragraph N415.1 (1965 edition code of record) were shown to be met for the containment liner plate and each of the cold penetrations for which it is credited.

Alternatively, describe in sufficient technical detail (providing reference to the analysis of record, including material and cyclic inputs and fatigue parameter evaluations) how each of the six acceptance criteria in the ASME Code, Section III, paragraph N415.1 (1965 edition code of record) were satisfied for the containment liner plate and each of the cold penetrations for which the fatigue waiver analysis is credited.