

From: Lee, Samson
Sent: Wednesday, May 11, 2022 7:33 AM
To: Joshua Turner
Subject: DRAFT supplemental information needed for acceptance - Wolf Creek inservice inspection relief request for reactor pressure vessel head penetration nozzles with peened surface (EPID: L-2022-LLR-0039)

Josh,

Below is DRAFT supplemental information needed for acceptance of the Wolf Creek inservice inspection relief request for reactor pressure vessel head penetration nozzles with peened surface. We have scheduled a clarification call for May 18, 2022. We plan to issue the final supplemental information needed for acceptance after the clarification call. As agreed, please provide a response by June 6, 2022.

Thanks,
Sam

BACKGROUND

By letter dated April 4, 2022 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22095A252), Wolf Creek Nuclear Operating Corporation (the licensee) submitted a proposed alternative to the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) paragraph 50.55a(g)(6)(ii)(D)(5), "Peening," regarding the follow-up volumetric examination frequency and bare metal visual examination requirements. The acceptance review was performed to determine if there is sufficient technical information in scope and depth to allow the U.S. Nuclear Regulatory Commission (NRC) staff to complete its detailed technical review. The acceptance review is also intended to identify whether the application has any readily apparent information insufficiencies in its characterization of the regulatory requirements or the licensing basis of the plant. Pursuant to 10 CFR 50.55a(z)(1), the licensee shall demonstrate that the proposed alternatives would provide an acceptable level of quality and safety.

The NRC staff has reviewed your alternative and concluded that it did not provide technical information in sufficient detail to enable the NRC staff to complete its detailed review and make an independent assessment regarding the acceptability of the proposed amendment in terms of regulatory requirements for the protection of public health and safety and the environment.

REGULATORY BASIS

Pursuant to 10 CFR 50.55a(g)(6)(ii), "Augmented ISI [inservice inspection] program," the NRC may require the licensee to follow an augmented ISI program for systems and components for which the NRC deems that added assurance of structural reliability is necessary.

Paragraph 50.55a(g)(6)(ii)(D) of 10 CFR, "Augmented ISI requirements: Reactor Vessel Head Inspections," requires licensees of pressurized water reactors (PWRs) to augment their ISI of the reactor vessel head with the American Society of Mechanical Engineers (ASME) Code Case N-729-6, "Alternative Examination Requirements for PWR Reactor Vessel Upper Heads With Nozzles Having Pressure-Retaining Partial-Penetration Welds, Section XI, Division 1," with conditions.

INFORMATION INSUFFICIENCIES

During its acceptance review of the proposed alternative, the NRC staff noted that the licensee's reason for the request was that the warranty from the vendor, which provided the peening service, specified that the follow-up inspection be conducted in the third refueling outage after the peening. However, the submittal did not include the technical basis for why the follow-up examination should be extended to the third refueling outage, and that the examination in accordance with the current NRC regulation would not be acceptable. Additionally, the basis for not performing a bare metal visual examination, during outages when volumetric/surface examinations are being performed, was limited to a hardship basis associated with radiological dose and expense.

SUPPLEMENTAL INFORMATION NEEDED

To support the continuation of the acceptance review for this application, the NRC staff requests the licensee to supplement the submittal with the following information:

1. Technical basis to support extending the first follow-up volumetric/surface examination to three refueling outages after peening in accordance with the peening vendor's warranty provision. At a minimum, the technical basis should address the change in stresses due to the application in peening, the potential effect on any missed flaws during the application cycle examinations, and potential unacceptable flaw growth that could occur during the proposed extended frequency of the examination.
2. Technical basis to remove the defense-in-depth bare metal visual examination requirement when performing a volumetric examination during the first follow-up examination, specifically, and then follow-up examinations for the duration of the proposed alternative. Consideration should be given to the effect of the change in stress profile by the surface application of peening on the J-groove weld, the potential to open up fabrication defects due to the application of peening, the non-destructive examinations applied, and the inability to volumetrically inspect the weld.
3. The licensee submitted the relief request under 10 CFR 50.55a(z)(1). However, Section 4, "Reason for Request," of the attachment to the submittal discusses "hardships." In order for the NRC staff to consider hardship as a basis, the licensee should also submit the relief request under 10 CFR 50.55a(z)(2) and provide additional estimates of radiological dose savings with the extended examination frequency.

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