

From: Thomas Wengert
Sent: Wednesday, December 14, 2022 4:26 PM
To: Keele Jr, Riley D
Cc: CLARK, ROBERT W; Jennifer Dixon-Herrity
Subject: Final RAI RE: Relief Request ANO1-ISI-035 (EPID L-2022-LLR-0050)
Attachments: ANO1-ISI-035 Final RAI.pdf

On December 6, 2022, the U.S. Nuclear Regulatory Commission (NRC) staff sent Entergy Operations, Inc. (the licensee) the draft Request for Additional Information (RAI) identified below.

This RAI relates to the augmented examination requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(g)(6)(ii)(D), which specify that periodic inservice volumetric or surface examinations of reactor vessel closure head (RVCH) penetrations be performed in accordance with American Society of Mechanical Engineers (ASME) Code Case N-729-6, "Alternative Examination Requirements for PWR [Pressurized Water Reactor] Reactor Vessel Upper Heads with Nozzles Having Pressure-Retaining Partial-Penetration Welds," Section XI, Division 1. Specifically, Request for Relief ANO1-ISI-035 pertains to a one-time extension of the schedule for inservice examination of control rod drive mechanism (CRDM) Penetration No. 1 in the RVCH of Arkansas Nuclear One, Unit 1 (ANO-1).

On December 14, 2022, the NRC staff conducted a conference call with the licensee's staff to clarify the request. At the conclusion of the call, the licensee stated that request was understood and that no additional clarification of the RAI was necessary. A publicly available version of this final RAI (attached with "Draft" removed) will be placed in the NRC's Agencywide Documents Access and Management System (ADAMS). As agreed, please provide a response to this RAI within 45 days of the date of this request.

From: Thomas Wengert
Sent: Tuesday, December 06, 2022 3:47 PM
To: Keele Jr, Riley D <rkeele@entergy.com>
Cc: CLARK, ROBERT W <RCLARK@entergy.com>; Jennifer Dixon-Herrity <Jennifer.Dixon-Herrity@nrc.gov>
Subject: ANO-1 Draft RAI RE: Relief Request ANO1-ISI-035 (EPID L-2022-LLR-0050)

By letter dated May 31, 2022 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22151A322), Entergy Operations, Inc., (the licensee) requested relief from the augmented examination requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(g)(6)(ii)(D), which specify that periodic inservice volumetric or surface examinations of reactor vessel closure head (RVCH) penetrations be performed in accordance with American Society of Mechanical Engineers (ASME) Code Case N-729-6, "Alternative Examination Requirements for PWR [Pressurized Water Reactor] Reactor Vessel Upper Heads with Nozzles Having Pressure-Retaining Partial-Penetration Welds," Section XI, Division 1. Specifically, Request for Relief ANO1-ISI-035 pertains to a one-time extension of the schedule for inservice examination of control rod drive mechanism (CRDM) Penetration No. 1 in the RVCH of Arkansas Nuclear One, Unit 1 (ANO-1).

The U.S. Nuclear Regulatory Commission (NRC) staff has determined that additional information, as described in the attached request for additional information (RAI), is required for

the staff to complete its review of this application. This RAI is identified as draft at this time to confirm your understanding of the information that the NRC staff needs to complete the evaluation. If the request for information is understood, please respond to this RAI within 30 days of the date of this request or contact me to discuss the proposed response time.

Please contact me if you would like to set up a conference call with the NRC staff to clarify this request.

Tom Wengert
Project Manager – Arkansas Nuclear One
NRR/DORL/LPL4
(301) 415-4037

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"Keele Jr, Riley D" <rkeele@entergy.com>
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REQUEST FOR ADDITIONAL INFORMATION (RAI)

RELIEF REQUEST ANO1-ISI-035

REGARDING ASME CODE CASE N-729-6 AUGMENTED EXAMINATION REQUIREMENTS

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE, UNIT 1

DOCKET NO. 50-313

By letter dated May 31, 2022 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22151A322), Entergy Operations, Inc., (the licensee) requested relief from the augmented examination requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(g)(6)(ii)(D), which specify that periodic inservice volumetric or surface examinations of reactor vessel closure head (RVCH) penetrations be performed in accordance with American Society of Mechanical Engineers (ASME) Code Case N-729-6, "Alternative Examination Requirements for PWR [Pressurized Water Reactor] Reactor Vessel Upper Heads with Nozzles Having Pressure-Retaining Partial-Penetration Welds," Section XI, Division 1. Specifically, Request for Relief ANO1-ISI-035 pertains to a one-time extension of the schedule for inservice examination of control rod drive mechanism (CRDM) Penetration No. 1 in the RVCH of Arkansas Nuclear One, Unit 1 (ANO-1).

To complete its review, the NRC staff requests the following additional information.

Regulatory Basis

The regulation in 10 CFR 50.55a(g)(6)(ii)(D)(1) requires:

(D) Augmented ISI requirements: Reactor vessel head inspections— (1) Implementation.

Holders of operating licenses or combined licenses for pressurized-water reactors as of or after June 3, 2020, shall implement the requirements of ASME BPV [Boiler and Pressure Vessel] Code Case N-729-6 instead of ASME BPV Code Case N-729-4, subject to the conditions specified in paragraphs (g)(6)(ii)(D)(2) through (8) of this section, by no later than one year after June 3, 2020. All previous NRC-approved alternatives from the requirements of paragraph (g)(6)(ii)(D) of this section remain valid.

Table 1 of Code Case N-729-6 requires a volumetric or surface examination per Item B4.40 with the following extent and frequency:

All nozzles, not to exceed two inspection intervals (nominally 20 calendar years).

RAI-1

Given the limited hypothetical flaw analysis case is the time for an outside diameter (OD) axial crack centered at the toe of the weld to grow through the nozzle wall, the NRC staff requests additional information on the options for OD surface examination and the hardship associated with any such options.

- (a) Provide additional information (e.g., schematic drawings, diagrams, photographs, description) regarding how the configuration of the RADCAL instrument installed on CRDM Penetration No. 1 prevents volumetric and surface examinations from the inside diameter (ID) and OD of the nozzle penetration and wetted surface of the J-groove weld, as appropriate.
- (b) Discuss the maximum extent to which the volumetric and surface examinations can be performed without removal of the RADCAL instrument and provide any assessment of the hardship associated with examinations of the portion of CRDM Penetration No. 1 that is not directly obstructed by the RADCAL instrument.