From:	Scott Wall
Sent:	Thursday, February 22, 2024 2:27 PM
To:	Williams, Christian D:(Constellation Nuclear)
Cc:	Steinman, Rebecca L:(Constellation Nuclear); Weis, Mark E:(Constellation Nuclear)
Subject:	FINAL RAI - Constellation Energy Generation, LLC – Fleet Request – Proposed Alternative for Examination of Pressurizer Circumferential and Longitudinal Shell-to-Head Welds and Nozzle-to-Vessel Welds (L-2023-LLR-0062)

Dear Mr. Williams,

By letter dated November 1, 2023 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML23305A069), Constellation Energy Generation, LLC (CEG, the licensee) requested to a proposed alternative to the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (BPV) Code, Section XI, at Braidwood Station, Units 1 and 2 (Braidwood), and Byron Station, Units 1 and 2 (Byron).

Specifically, the proposed alternatives are related to the volumetric examination of pressurizer (PZR) circumferential and longitudinal shell-to-head welds and nozzle-to-shell welds. The proposed alternative requests to extend the inspection interval frequency from 10 years to the remainder of the currently licensed operating periods.

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the submittal and determined that additional information is needed to complete its review. The specific question is found in the enclosed request for additional information (RAI). On February 22, 2024, the CEG staff indicated that a response to the RAI would be provided by March 25, 2024.

If you have questions, please contact me at 301-415-2855 or via e-mail at Scott.Wall@nrc.gov.

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Docket Nos.: STN 50-456, STN 50-457,
STN 50-454, and STN 50-455

Enclosure:
Request for Additional Information

cc: Listserv

RAI (PZR Welds: NVIB)

REQUEST FOR ADDITIONAL INFORMATION

PROPOSED ALTERNATIVE TO AMERICAN SOCIETY OF MECHANICAL ENGINEERS

BOILER AND PRESSURE VESSEL CODE

RELIEF REQUESTS I4R-15 AND I4R-21

CONSTELLATION ENERGY GENERATION, LLC

BRAIDWOOD STATION, UNITS 1 AND 2

BYRON STATION, UNITS 1 AND 2

DOCKET NOS. STN 50-456, STN 50-457, STN 50-454, AND STN 50-455

By letter dated November 1, 2023 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML23305A069), Constellation Energy Generation, LLC (CEG, the licensee) requested to a proposed alternative to the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (BPV) Code, Section XI, at the following units:

- Braidwood Station, Units 1 and 2 (Braidwood)
- Byron Station, Units 1 and 2 (Byron)

Specifically, the proposed alternatives are related to the volumetric examination of pressurizer (PZR) circumferential and longitudinal shell-to-head welds and nozzle-to-shell welds. The proposed alternative requests to extend the inspection interval frequency from 10 years to the remainder of the currently licensed operating periods.

The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing the application and has determined that the following additional information is required to complete the review.

Vessels and Internals Branch (NVIB) Question

Background

Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 55a, Paragraph (z)(1) (10 CFR 50.55a(z)(1)), the licensee is proposing to defer the inspections of the subject PZR welds through the end of the fifth inservice inspection (ISI) interval at Byron and Braidwood. The licensee referred to the results of the analyses in the non-proprietary Electric Power Research Institute report 3002015905, "Technical Bases for Inspection Requirements for PWR [Pressurized Water Reactor] Pressurizer Head, Shell-to-Head, and Nozzle-to-Vessel Welds," 2019 (ML21021A271) as the primary basis for its proposed alternative. The licensee also committed to completing performance monitoring examinations during the fifth ISI interval. The NRC staff needs additional information to complete its review and approval of the alternative.

Applicable Regulation and Guidance

The NRC has established requirements in 10 CFR Part 50 to protect the structural integrity of structures and components in nuclear power plants. Among these requirements are the ISI requirements of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a to ensure that adequate structural integrity of PZR vessels (including their welds) is maintained

through the service life of the vessels. Therefore, the regulatory basis for the following request for additional information is that the licensee must demonstrate that the proposed alternative ISI requirements would ensure adequate structural integrity of the licensee's PZR welds, and thereby would provide an acceptable level of quality and safety per 10 CFR 50.55a(z)(1).

Request for Additional Information

The licensee stated in the submittal that Constellation committed to completing performance monitoring examinations, as specified in letter dated April 8, 2022 (ML22098A179), "during the fifth inservice inspection [ISI] interval (by 2034) at Byron Unit 2." The proposed performance monitoring examinations are summarized in Attachment 1 and Section 5 of Attachment 2 to the submittal. The proposed performance monitoring sample specifies seven PZR weld examinations at Byron Unit 2 to be completed by 2034. The staff communicated its technical position on what is needed for an adequate performance monitoring plan in an April 27, 2023, public meeting (ML23114A034) and that a sample of at least 25 percent of ASME Code required examinations would provide enough monitoring data to be representative of the requested components. The staff noted that the proposed performance monitoring sample of seven PZR weld examinations at Byron Unit 2 is nearly one full set of PZR weld examinations, but it is not large enough for what is needed for an adequate performance monitoring plan.

RAI-NVIB-01

- Please demonstrate how the current proposed performance monitoring plan ensures that a sample of at least 25 percent of ASME Code required examinations are conducted.

Hearing Identifier: NRR_DRMA
Email Number: 2409

Mail Envelope Properties (SA1PR09MB9605750ABDF4274419BB635C92562)

Subject: FINAL RAI - Constellation Energy Generation, LLC – Fleet Request – Proposed Alternative for Examination of Pressurizer Circumferential and Longitudinal Shell-to-Head Welds and Nozzle-to-Vessel Welds (L-2023-LLR-0062)
Sent Date: 2/22/2024 2:26:45 PM
Received Date: 2/22/2024 2:26:49 PM
From: Scott Wall

Created By: Scott.Wall@nrc.gov

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Files	**Size**	**Date & Time**
MESSAGE	6158	2/22/2024 2:26:49 PM

Options
Priority: Normal
Return Notification: No
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Sensitivity: Normal
Expiration Date: