

**From:** Scott Wall  
**Sent:** Wednesday, August 21, 2024 1:56 PM  
**To:** Brown, Jesse S:(Constellation Nuclear)  
**Cc:** Weis, Mark E:(Constellation Nuclear); Gantt, Danii M:(Constellation Nuclear)  
**Subject:** FINAL RAI - Constellation Energy Generation, LLC – Fleet Request – Proposed Alternative Concerning Extension of Permanent Relief from Ultrasonic Examination of Reactor Pressure Vessel Circumferential Shell Welds (L-2024-LLR-0031)

Dear Jesse Brown,

By letter dated May 2, 2024 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML24123A119), Constellation Energy Generation, LLC (CEG, the licensee) requested to a proposed alternative to the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI (BVP Code), at LaSalle County Station, Units 1 and 2, Limerick Generating Station, Units 1 and 2, and Nine Mile Point Nuclear Station, Unit 2.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations*, Part 50, Section 55a, Paragraph (z)(1) (10 CFR 50.55a(z)(1)), the CEG is requesting permanent relief from the required ultrasonic examinations of the circumferential welds from the current ASME Code, Section XI requirements until the end of extended operating licenses for varying effective full power years (EFPYs), depending on the site. The licensee referred to BWRVIP-329-A, “Updated Probabilistic Fracture Mechanics Analyses for BWR [Boiling Water Reactor] RPV [Reactor Pressure Vessel] Welds to Address Extended Operations” as technical basis for the request.

The 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 August 21, 2024, the CEG staff indicated that a response to the RAIs would be provided by September 20, 2024.

If you have questions, please contact me at 301-415-2855 or via e mail at [Scott.Wall@nrc.gov](mailto:Scott.Wall@nrc.gov).

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Docket Nos.: 50-373, 50-374, 50-352,  
50-353, and 50-410

Enclosure:

Request for Additional Information

cc: Listserv

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**RAI (BWRVIP-329-A)**

**REQUEST FOR ADDITIONAL INFORMATION**

**PROPOSED ALTERNATIVE TO AMERICAN SOCIETY OF MECHANICAL ENGINEERS**

**BOILER AND PRESSURE VESSEL CODE FOR ADOPTION OF**

**BWRVIP-329-A**

**CONSTELLATION ENERGY GENERATION, LLC**

**LASALLE COUNTY STATION, UNITS 1 AND 2**

**LIMERICK GENERATING STATION, UNITS 1 AND 2**

**NINE MILE POINT NUCLEAR STATION, UNIT 2**

**DOCKET NOS. 50-373, 50-374, 50-352, 50-353 AND 50-410**

By letter dated May 2, 2024 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML24123A119), Constellation Energy Generation, LLC (CEG, the licensee) requested to a proposed alternative to the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI (BVP Code), at the following units:

- LaSalle County Station, Units 1 and 2 (LaSalle)
- Limerick Generating Station, Units 1 and 2 (Limerick)
- Nine Mile Point Nuclear Station, Unit 2 (NMP-2)

Specifically, pursuant to Title 10 of the *Code of Federal Regulations*, Part 50, Section 55a, Paragraph (z)(1) (10 CFR 50.55a(z)(1)), the licensee is requesting permanent relief from the required ultrasonic examinations of the circumferential welds from the current ASME Code, Section XI requirements until the end of extended operating licenses for varying effective full power years (EFPYs), depending on the site. The licensee referred to BWRVIP-329-A, "Updated Probabilistic Fracture Mechanics Analyses for BWR [Boiling Water Reactor] RPV [Reactor Pressure Vessel] Welds to Address Extended Operations" as technical basis for the request.

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.

## **RAI-NVIB**

### **Background**

CEG has previously utilized BWRVIP-74-A, “BWR Vessel and Internals Project BWR Reactor Pressure Vessel Inspection and Flaw Evaluation Guidelines for License Renewal,” or BWRVIP-05, “BWR Vessel and Internals Project, BWR Reactor Pressure Vessel Shell Weld Inspection Recommendations,” to obtain examination relief of reactor pressure vessel (RPV) beltline circumferential welds and to address embrittlement of RPV beltline axial welds during extended plant operation. The NRC safety evaluation (SE) of BWRVIP-74-A issued October 18, 2001 (ML012920549), specified actions to obtain examination relief of RPV beltline circumferential welds and to monitor embrittlement of RPV beltline axial welds, both of which were based on results of probabilistic fracture mechanics (PFM) analyses in the staff’s SE and supplemental SE of BWRVIP-05.

### **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 inservice inspection (ISI) requirements of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a to ensure that adequate structural integrity of the reactor pressure vessels (including their welds) is maintained through the service life of the vessels. Therefore, the regulatory basis for the following request for additional information has to do with demonstrating that the alternative request from the ISI requirements would ensure adequate structural integrity of the licensee’s subject reactor pressure vessel circumferential welds, and thereby would provide an acceptable level of quality and safety per 10 CFR 50.55a(z)(1).

### **Request for Additional Information**

The licensees referenced probabilistic and fracture analyses in BWRVIP-329-A to demonstrate that RPVs in the subject units have margin against failure and provides justification for relief from the examination of RPV circumferential welds. The licensee presented plant-specific information to demonstrate that the referenced analyses in BWRVIP-329-A would bound the subject circumferential welds until the end of the current licenses.

The NRC’s SE of BWRVIP-74-A specified actions to obtain examination relief of RPV beltline circumferential welds based on results of PFM analyses in the staff’s SE and supplemental SE of BWRVIP-05. Specifically, NRC’s SE of BWRVIP-74-A, Section 4.1: Renewal Applicant Action Item (11) states, “...and (2) that they have implemented operator training and established procedures that limit the frequency of cold overpressure events to the amount specified in the staff’s FSER [Final Safety Evaluation Report].” This is in addition to providing justification that RPV circumferential welds will satisfy the limiting conditional failure frequency in Action Item 11, which the staff noted is the action being addressed by the licensee’s alternative request through the use of BWRVIP-329-A. The NRC staff also noted in its SE for the Limerick license renewal application (ML14276A156), Section 4.2.6, that the Limerick units will use the same operator procedures and training in the period of extended operation that has been the practice during

the original licensing period. However, the staff noted that the licensee did not provide sufficient information that operator training has been implemented for LaSalle and NMP-2.

**RAI-NVIB-01**

- Address licensee's plan or confirm licensee's activities for implementing operator training and established procedures for limiting the frequency of cold overpressure events for LaSalle for 54 EFPY and NMP-2 for 54 EFPY.

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**Received Date:** 8/21/2024 1:55:32 PM

**From:** Scott Wall

**Created By:** Scott.Wall@nrc.gov

**Recipients:**

"Weis, Mark E:(Constellation Nuclear)" <Mark.Weis@constellation.com>

Tracking Status: None

"Gantt, Danii M:(Constellation Nuclear)" <Danii.Gantt@constellation.com>

Tracking Status: None

"Brown, Jesse S:(Constellation Nuclear)" <jesse.brown@constellation.com>

Tracking Status: None

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