



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

September 28, 2022

Mr. David P. Rhoades
Senior Vice President
Constellation Energy Generation, LLC
President and Chief Nuclear Officer
Constellation Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: BRAIDWOOD STATION, UNIT 1 AND BYRON STATION, UNIT 1 – STEAM
GENERATOR LICENSE RENEWAL RESPONSE TO COMMITMENT 10 –
AUDIT PLAN

Dear Mr. Rhoades,

By letter dated June 7, 2022 (Agencywide Documents Access and Management System (ADAMS) Accession Number ML22158A294), Constellation Energy Generation, LLC (CEG), submitted to the U.S. Nuclear Regulatory Commission (NRC or staff) a response to Commitment 10 of the Braidwood Station, Unit 1 and Byron Station, Unit 1 license renewal. In December 2015, the NRC published the final "Safety Evaluation Report Related to the License Renewal of Byron Station, Units 1 and 2, and Braidwood Station, Units 1 and 2," as NUREG-2190, Volume 1 (ML15350A038) and NUREG-2190, Volume 2 (ML15350A041).

In NUREG-2190, Volume 2, Appendix A, "Byron Station Units 1 and 2, and Braidwood Station, Units 1 and 2, License Renewal Commitments," Commitment 10 part 1 gave the stations three options to fulfill this commitment.

Braidwood Unit 1 and Byron Unit 1 have chosen Option 2: Analysis. This option requires Braidwood and Byron to:

"Perform an analytical evaluation of the steam generator divider plate welds in order to establish a technical basis which concludes that the steam generator reactor coolant pressure boundary is adequately maintained with the presence of steam generator divider plate weld cracking. This analytical evaluation will be submitted to the NRC for review and approval two (2) years prior to entering the associated period of extended operation."

Braidwood and Byron License Renewal Commitment 10 part 2 gave the stations three options to fulfill this commitment. Braidwood Unit 1 and Byron Unit 1 have chosen Option 2: Analysis - Susceptibility. This option requires Braidwood and Byron to:

"Perform an analytical evaluation of the steam generator tube-to-tubesheet welds to determine that the welds are not susceptible to primary water stress corrosion cracking. The evaluation for determining that the tube-to-tubesheet welds are not susceptible to primary water stress corrosion cracking will be submitted to the NRC for review and approval two (2) years prior to entering the associated period of extended operation."

The NRC staff plans to conduct an audit specific to Braidwood, Unit 1 and Byron, Unit 1 License Renewal Commitment 10 from October 3 – November 10, 2022, in accordance with the enclosed audit plan.

If you have any questions, please contact Christopher Tyree at Christopher.Tyree@nrc.gov or Angela Wu at Angela.Wu@nrc.gov.

Sincerely,



Signed by Gibson, Lauren
on 09/28/22

Lauren K. Gibson, Chief
License Renewal Projects Branch
Division of New and Renewed Licenses
Office of Nuclear Reactor Regulation

Docket Nos. 50-456 and 50-454

Enclosure:
Audit Plan

cc w/encl: Listserv

SUBJECT: BRAIDWOOD STATION, UNIT 1 AND BYRON STATION, UNIT 1 – STEAM GENERATOR LICENSE RENEWAL RESPONSE TO COMMITMENT 10 – AUDIT PLAN. DATED: SEPTEMBER 28, 2022

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E-MAIL:

lisa.zurawski@constellation.com

ADAMS Accession No.: ML22265A013

NRR-106

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DATE	0/28/2022	9/28/22

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**BRAIDWOOD STATION, UNIT 1 AND BYRON
STATION, UNIT 1 – STEAM GENERATOR LICENSE
RENEWAL RESPONSE TO COMMITMENT 10 –
AUDIT PLAN**

October 3 – November 10, 2022

**Division of New and Renewed Licenses
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission**

**BRAIDWOOD STATION, UNIT 1 AND
BYRON STATION, UNIT 1 – STEAM
GENERATOR LICENSE RENEWAL
RESPONSE TO COMMITMENT 10 –
AUDIT PLAN**

1. Background

By letter dated June 7, 2022 (Agencywide Documents Access and Management System (ADAMS) Accession Number ML22158A294), Constellation Energy Generation, LLC (CEG), submitted to the U.S. Nuclear Regulatory Commission (NRC or staff) a response to Commitment 10 of the Braidwood Station (Braidwood), Unit 1 and Byron Station (Byron), Unit 1 license renewal.

In accordance with the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," and NUREG-2190, Volume 2, Appendix A, "Byron Station Units 1 and 2, and Braidwood Station, Units 1 and 2, License Renewal Commitments," the NRC staff will perform an audit to gain a better understanding of how CEG's Steam Generators program will 1) validate that primary water stress corrosion cracking of the divider plate welds to the primary head and tubesheet cladding is not occurring at Braidwood, Unit 1 and Byron, Unit 1, and 2) validate that primary water stress corrosion cracking of the tube-to-tubesheet welds at Braidwood, Unit 1 and Byron, Unit 1.

2. Audit Bases

License renewal requirements are specified in 10 CFR Part 54. In December 2015, the NRC published the final "Safety Evaluation Report Related to the License Renewal of Byron Station, Units 1 and 2, and Braidwood Station, Units 1 and 2," as NUREG-2190, Volume 1 (ML15350A038) and NUREG-2190, Volume 2 (ML15350A041).

In NUREG-2190, Volume 2, Appendix A, "Byron Station, Units 1 and 2, and Braidwood Station, Units 1 and 2, License Renewal Commitments," Commitment 10 part 1 gave the stations three options to fulfill this commitment.

Braidwood Unit 1 and Byron Unit 1 have chosen Option 2: Analysis. This option requires Braidwood and Byron to:

"Perform an analytical evaluation of the steam generator divider plate welds in order to establish a technical basis which concludes that the steam generator reactor coolant pressure boundary is adequately maintained with the presence of steam generator divider plate weld cracking. This analytical evaluation will be submitted to the NRC for review and approval two (2) years prior to entering the associated period of extended operation."

Braidwood and Byron License Renewal Commitment Number 10 part 2 gave the stations three options to fulfill this commitment. Braidwood Unit 1 and Byron Unit 1 have chosen Option 2: Analysis - Susceptibility. This option requires Braidwood and Byron to:

"Perform an analytical evaluation of the steam generator tube-to-tubesheet welds to determine that the welds are not susceptible to primary water stress corrosion cracking. The evaluation for determining that the tube-to-tubesheet welds are not susceptible to primary water stress corrosion cracking will be submitted to the NRC for review and approval two (2) years prior to entering the associated period of extended operation."

3. Audit Scope of Review

CEG performed an analytical evaluation specific to the Braidwood, Unit 1 and Byron, Unit 1 steam generators because it could not be determined if the steam generators were bounded by the industry analyses, EPRI Report 3002002850, "Steam Generator Management Program: Investigation of Crack Initiation and Propagation in the Steam Generator Channel Head Assembly," that the staff accepted for the divider plate primary water stress corrosion cracking evaluation in LR-ISG-16-01, "Changes to Aging Management Guidance for Various Steam Generator Components."

The staff is unable to determine from the information submitted whether the licensee's analysis establishes an adequate technical basis for concluding that the steam generator reactor coolant boundary would be maintained in the presence of divider plate cracking. The audit team will view documentation and calculations the licensee referenced as technical support, focusing on the key assumptions, methodology, and inputs.

4. Audit Activities

For the audit, the technical staff will review the licensee's submittal dated June 7, 2022 and documentation on the licensee's electronic portal (ePortal). The staff will have the opportunity to have technical discussions with the licensee to gain context, clarity, and information on the documentation to support the staff's review. The audit is coordinated to support the development of the reviewers' reasonable assurance for the safety findings to be documented in the safety evaluation.

The License Renewal Projects Branch (NLRP) safety project manager will coordinate all communications with the licensee. Staff requests for communication with the licensee will require approval of their respective technical branch chief and the NLRP branch chief.

Following completion of the audit, an audit report will be issued.

5. Information and Other Material Necessary for the Audit

Throughout the audit, the staff will review the supporting documents as appropriate and requested, on the ePortal. The staff may request additional documents to be added to the ePortal over the course of the audit. The staff requests for ePortal additions shall be made, as needed, to the NLRP safety project manager, who will provide the requests to the licensee.

6. Team Assignments

Team Member	Branch/Division
David Rudland	Division of New and Renewed Licenses (DNRL)
Andrew Johnson	Corrosion and Steam Generators Branch (NCSG)/DNRL
Leslie Terry	NCSG/DNRL
Gregory Makar	NCSG/DNRL
Paul Klein	NCSG/DNRL
Christopher Tyree	License Renewal Projects Branch (NLRP)/DNRL
Angela Wu	NLRP/DNRL
Jessica Hammock	NLRP/DNRL

7. Logistics

The audit will be conducted using telecommunications from October 3 – November 10, 2022. Entrance and exit briefings will be held at the beginning and end of the audit.

8. Deliverables

An audit report should be issued to the licensee within 90 days from the end of the audit.