

RS-23-075

10 CFR 50.90

June 7, 2023

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Braidwood Station, Units 1 and 2
Renewed Facility Operating License Nos. NPF-72 and NPF-77
NRC Docket Nos. STN 50-456 and STN 50-457

Byron Station, Units 1 and 2
Renewed Facility Operating License Nos. NPF-37 and NPF-66
NRC Docket Nos. STN 50-454 and 50-455

Subject: Application for Technical Specification Improvement to Extend the Completion Time for Condition B of Technical Specification 3.5.1, "Accumulators," Using the Consolidated Line Item Improvement Process

In accordance with the provisions of 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Constellation Energy Generation, LLC (CEG), is submitting a request for amendments to Renewed Facility Operating License Nos. NPF-72 and NPF-77 for Braidwood Station, Units 1 and 2 (Braidwood) and Renewed Facility Operating License Nos. NPF-37 and NPF-66 for Byron Station, Units 1 and 2 (Byron).

The proposed amendments would extend the completion time from one (1) hour to 24 hours for Condition B of Technical Specification 3.5.1, "Accumulators." The changes are consistent with NRC-approved Industry/Technical Specification Task Force (TSTF) Standard Technical Specification Change Traveler, TSTF-370, "Risk Informed Evaluation of an Extension to Accumulator Completion Times for Westinghouse Plants." The availability of this technical specification improvement was announced in the Federal Register on March 12, 2003, as part of the consolidated line item improvement process (CLIP).

Attachment 1 provides a description of the proposed changes and confirmation of applicability. Attachments 2 and 3 provide the existing Technical Specifications (TS) pages marked-up to show the proposed changes for Braidwood and Byron, accordingly. Attachments 4 and 5 provide the existing TS Bases pages marked-up to reflect the proposed changes (for information only) for Braidwood and Byron, accordingly.

CEG requests approval of this proposed license amendment by December 8, 2023. Once approved, the amendment will be implemented within 30 days.

The proposed amendments have been reviewed and approved by the Braidwood and Byron Station Plant Operations Review Committees in accordance with the requirements of the CEG Quality Assurance Program.

In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," Paragraph (b), CEG is notifying the State of Illinois of this application for license amendments by transmitting a copy of this letter and its attachments to the designated State Official.

There are no regulatory commitments contained in this letter. Should you have any questions concerning this letter, please contact Mr. Brian Seawright at (630) 657-2814.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 7th day of June 2023.

Respectfully,



David Gullott
Director – Licensing
Constellation Energy Generation, LLC

Attachments:

1. Evaluation of Proposed Change
2. Mark-up of Braidwood Station, Units 1 and 2 Technical Specifications Page
3. Mark-up of Byron Station, Units 1 and 2 Technical Specifications Page
4. Mark-up of Braidwood Station, Units 1 and 2 Technical Specifications Bases Pages – For Information Only
5. Mark-up of Byron Station, Units 1 and 2 Technical Specifications Bases Pages – For Information Only

cc:

NRC Regional Administrator – Region III
NRC Senior Resident Inspector – Braidwood Station
NRC Senior Resident Inspector – Byron Station
Illinois Emergency Management Agency – Division of Nuclear Safety

ATTACHMENT 1
Evaluation of Proposed Change

1.0 DESCRIPTION

The proposed License amendment extends the Completion Time from one (1) hour to 24 hours for Condition B of the Braidwood Station, Units 1 and 2 (Braidwood), and Byron Station, Units 1 and 2 (Byron) Technical Specification (TS) 3.5.1, "Accumulators."

The changes are consistent with NRC approved Industry/Technical Specification Task Force (TSTF) Standard Technical Specification Change Traveler, TSTF-370, "Risk Informed Evaluation of an Extension to Accumulator Completion Times for Westinghouse Plants." The availability of this technical specification improvement was announced in the *Federal Register* on March 12, 2003, as part of the consolidated line item improvement process (CLIIP).

2.0 ASSESSMENT

2.1 Applicability of Published Safety Evaluation

Constellation Energy Generation, LLC (CEG) has reviewed the safety evaluation published on July 15, 2002 (67 FR 46542) as part of the CLIIP. This verification included a review of the NRC's evaluation as well as the supporting information provided to support TSTF-370 (i.e., WCAP-15049-A, "Risk- Informed Evaluation of an Extension to Accumulator Completion Times," dated May 18, 1999). CEG has assessed Braidwood and Byron Probabilistic Risk Assessment (PRA) model differences from the PRA models in WCAP-15049-A and concluded that the differences do not impact the conclusions of WCAP-15049-A. The justifications presented in the TSTF proposal and the safety evaluation prepared by the NRC are applicable to Braidwood Station, Units 1 and 2, and Byron Station, Units 1 and 2, and justify these amendments for the incorporation of the changes into the Braidwood and Byron Technical Specifications.

2.2 Optional Changes and Variations

CEG is not proposing any variations or deviations from the technical specification changes described in TSTF-370 or the NRC's model safety evaluation published on July 15, 2002.

ATTACHMENT 1
Evaluation of Proposed Change

3.0 REGULATORY EVALUATION

3.1 No Significant Hazards Determination

CEG has reviewed the proposed no significant hazards consideration determination published on July 15, 2002 (67 FR 46542) as part of the CLIIP. CEG has concluded that the proposed determination presented in the notice is applicable to Braidwood Station, Units 1 and 2, and Byron Station, Units 1 and 2, and the determination is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

3.2 Verification and Commitments

There are no new regulatory commitments associated with the proposed changes.

4.0 ENVIRONMENTAL EVALUATION

CEG has reviewed the environmental evaluation included in the model safety evaluation published on July 15, 2002 (67 FR 46542) as part of the CLIIP. CEG has concluded that the NRC's findings presented in that evaluation are applicable to Braidwood Station, Units 1 and 2, and Byron Station, Units 1 and 2, and the evaluation is hereby incorporated by reference for this application.

ATTACHMENT 2

**BRAIDWOOD STATION,
UNITS 1 and 2**

Renewed Facility Operating License Nos. NPF-72 and NPF-77

Docket Nos. STN-50-456 and STN-50-457

Mark-up of Technical Specifications Page

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.1 Accumulators

LCO 3.5.1 Four ECCS accumulators shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODE 3 with Reactor Coolant System (RCS) pressure
> 1000 psig.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One accumulator inoperable due to boron concentration not within limits.	A.1 Restore boron concentration to within limits.	72 hours
B. One accumulator inoperable for reasons other than Condition A.	B.1 Restore accumulator to OPERABLE status.	1 hour 24 hours
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3.	6 hours
	<u>AND</u> C.2 Reduce RCS pressure to ≤ 1000 psig.	12 hours
D. Two or more accumulators inoperable.	D.1 Enter LCO 3.0.3.	Immediately

ATTACHMENT 3

**BYRON STATION,
UNITS 1 and 2**

Renewed Facility Operating License Nos. NPF-37 and NPF-66

Docket Nos. STN-50-454 and STN-50-455

Mark-up of Technical Specifications Page

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.1 Accumulators

LCO 3.5.1 Four ECCS accumulators shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODE 3 with Reactor Coolant System (RCS) pressure
> 1000 psig.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One accumulator inoperable due to boron concentration not within limits.	A.1 Restore boron concentration to within limits.	72 hours
B. One accumulator inoperable for reasons other than Condition A.	B.1 Restore accumulator to OPERABLE status.	1 hour 24 hours
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3.	6 hours
	<u>AND</u> C.2 Reduce RCS pressure to \leq 1000 psig.	12 hours
D. Two or more accumulators inoperable.	D.1 Enter LCO 3.0.3.	Immediately

ATTACHMENT 4

**BRAIDWOOD STATION
UNITS 1 and 2**

Renewed Facility Operating License Nos. NPF-72 and NPF-77

Docket Nos. STN-50-456 and STN-50-457

Mark-up of Technical Specifications Bases Pages

(For Information Only)

B 3.5.1-7
B 3.5.1-10

BASES

APPLICABILITY (continued)

In MODE 3, with RCS pressure \leq 1000 psig, and in MODES 4, 5, and 6, the accumulator motor operated isolation valves are closed to isolate the accumulators from the RCS. This allows RCS cooldown and depressurization without discharging the accumulators into the RCS or requiring depressurization of the accumulators.

ACTIONS

A.1

If the boron concentration of one accumulator is not within limits, it must be returned to within the limits within 72 hours. In this Condition, ability to maintain subcriticality or minimum boron precipitation time may be reduced. The boron in the accumulators contributes to the assumption that the combined ECCS water in the partially recovered core during the early reflooding phase of a large break LOCA is sufficient to keep that portion of the core subcritical. One accumulator below the minimum boron concentration limit, however, will have no effect on available ECCS water and an insignificant effect on core subcriticality during reflood. Boiling of ECCS water in the core during reflood concentrates boron in the saturated liquid that remains in the core. In addition, current analysis demonstrates that the accumulators do not discharge following a large main steam line break. Thus, 72 hours is allowed to return the boron concentration to within limits.

B.1

24 hours

If one accumulator is inoperable for a reason other than boron concentration, the accumulator must be returned to OPERABLE status within ~~1-hour~~. In this Condition, the required contents of three accumulators cannot be assumed to reach the core during a LOCA. Due to the severity of the consequences should a LOCA occur in these conditions, the **24** ~~1-hour~~ Completion Time to open the valve, remove power to the valve, or restore the proper water volume or nitrogen cover pressure ensures that prompt action will be taken to return the inoperable accumulator to OPERABLE status. The Completion Time minimizes the potential for exposure of the unit to a LOCA under these conditions.

The 24 hours allowed to restore an inoperable accumulator to OPERABLE status is justified in WCAP-15049-A, Rev. 1 (Ref. 6).

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.6

Verification that power is removed from each accumulator isolation valve operator ensures that an active failure could not result in the undetected closure of an accumulator motor operated isolation valve. If this were to occur, only two accumulators would be available for injection given a single failure coincident with a LOCA.

The power to the accumulator motor operated isolation valves is removed by opening the motor control center breaker and tagging it out administratively. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. IEEE Standard 279-1971.
2. UFSAR, Chapter 15.
3. UFSAR, Chapter 6.
4. 10 CFR 50.46.
5. WCAP-16996-P-A, Revision 1, "Realistic LOCA Evaluation Methodology Applied to the Full Spectrum of Break Sizes (FULL SPECTRUM LOCA Methodology)," November 2016.

6. WCAP-15049-A, Revision 1, "Risk-Informed Evaluation of an Extension to Accumulator Completion Times," April 1999.

ATTACHMENT 5

**BYRON STATION
UNITS 1 and 2**

Renewed Facility Operating License Nos. NPF-37 and NPF-66

Docket Nos. STN-50-454 and STN-50-455

Mark-up of Technical Specifications Bases Pages

(For Information Only)

B 3.5.1-7
B 3.5.1-10

BASES

APPLICABILITY (continued)

In MODE 3, with RCS pressure \leq 1000 psig, and in MODES 4, 5, and 6, the accumulator motor operated isolation valves are closed to isolate the accumulators from the RCS. This allows RCS cooldown and depressurization without discharging the accumulators into the RCS or requiring depressurization of the accumulators.

ACTIONS

A.1

If the boron concentration of one accumulator is not within limits, it must be returned to within the limits within 72 hours. In this Condition, ability to maintain subcriticality or minimum boron precipitation time may be reduced. The boron in the accumulators contributes to the assumption that the combined ECCS water in the partially recovered core during the early reflooding phase of a large break LOCA is sufficient to keep that portion of the core subcritical. One accumulator below the minimum boron concentration limit, however, will have no effect on available ECCS water and an insignificant effect on core subcriticality during reflood. Boiling of ECCS water in the core during reflood concentrates boron in the saturated liquid that remains in the core. In addition, current analysis demonstrates that the accumulators do not discharge following a large main steam line break. Thus, 72 hours is allowed to return the boron concentration to within limits.

B.1

24 hours

If one accumulator is inoperable for a reason other than boron concentration, the accumulator must be returned to OPERABLE status within ~~1 hour~~. In this Condition, the required contents of three accumulators cannot be assumed to reach the core during a LOCA. Due to the severity of the consequences should a LOCA occur in these conditions, the **24** ~~1~~ hour Completion Time to open the valve, remove power to the valve, or restore the proper water volume or nitrogen cover pressure ensures that prompt action will be taken to return the inoperable accumulator to OPERABLE status. The Completion Time minimizes the potential for exposure of the unit to a LOCA under these conditions.

The 24 hours allowed to restore an inoperable accumulator to OPERABLE status is justified in WCAP-15049-A, Rev. 1 (Ref. 6).

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.6

Verification that power is removed from each accumulator isolation valve operator ensures that an active failure could not result in the undetected closure of an accumulator motor operated isolation valve. If this were to occur, only two accumulators would be available for injection given a single failure coincident with a LOCA.

The power to the accumulator motor operated isolation valves is removed by opening the motor control center breaker and tagging it out administratively. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. IEEE Standard 279-1971.
2. UFSAR, Chapter 15.
3. UFSAR, Chapter 6.
4. 10 CFR 50.46.
5. WCAP-16996-P-A, Revision 1, "Realistic LOCA Evaluation Methodology Applied to the Full Spectrum of Break Sizes (FULL SPECTRUM LOCA Methodology)," November 2016.

6. WCAP-15049-A, Revision 1, "Risk-Informed Evaluation of an Extension to Accumulator Completion Times," April 1999.