NEXTera® ENERGY SEABROOK

10 CFR 50.90

SBK-L-19049

June 4, 2019

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

Seabrook Station
Docket No. 50-443

Subject: License Amendment Request 19-01, Application to Revise the Technical Specifications Associated with Emergency Core Cooling System Accumulators

Pursuant to 10 CFR 50.90, NextEra Energy Seabrook, LLC (NextEra) is submitting License Amendment Request (LAR) 19-01 to revise the Seabrook Station Technical Specifications (TS). The proposed change revises the TS associated with the emergency core cooling system accumulators. Specifically, the proposed amendment modifies the TS actions for an inoperable accumulator, relocates the actions for inoperable accumulator instrumentation, and deletes an unnecessary surveillance requirement. The proposed change also deletes a duplicate surveillance requirement associated with the accumulator isolation valves.

The enclosure to this letter provides NextEra's evaluation of the proposed change. Attachment 1 to the enclosure provides a markup of the TS showing the proposed changes. Attachment 2 provides existing TS Bases pages marked up to show the proposed changes. The changes to the TS Bases are provided for information only and will be incorporated in accordance with the plant's TS Bases Control Program upon implementation of the approved amendment. Retyped TS pages containing the proposed changes will be provided when requested by the NRC Project Manager.

As discussed in the evaluation, the proposed change does not involve a significant hazards consideration pursuant to 10 CFR 50.92, and there are no significant environmental impacts associated with the change.

The Seabrook Onsite Review group has reviewed the proposed license amendment. In accordance with 10 CFR 50.91(b) (1), a copy of this letter is being forwarded to the designee of the State of New Hampshire.

There are no new or revised commitments made in this submittal.

NextEra Requests NRC review and approval of this license amendment in time to support the next refueling outage at Seabrook, which begins in early April 2020. Implementation would follow within 90 days. The requested change will reduce burden on the plant staff by eliminating an unnecessary surveillance requirement.

Should you have any questions regarding this letter, please contact Mr. Ken Browne, Licensing Manager, at (603) 773-7932.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 4, 2019

Sincerely,

Eric McCartney
Site Vice President
NextEra Energy Seabrook, LLC

Enclosure: Evaluation of the Proposed Change

cc: NRC Region I Administrator
NRC Project Manager
NRC Senior Resident Inspector

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Enclosure

NextEra Energy Seabrook's Evaluation of the Proposed Change

Subject: License Amendment Request 19-01, Application to Revise the Technical Specifications Associated with the Emergency Core Cooling System Accumulators

Evaluation of the Proposed Change

1.0 SUMMARY DESCRIPTION

NextEra Energy Seabrook, LLC (NextEra) is submitting License Amendment Request (LAR) 19-01 to revise the Seabrook Station Technical Specifications (TS). The proposed change revises the TS associated with the emergency core cooling system (ECCS) accumulators. Specifically, the proposed amendment modifies the TS actions for an inoperable accumulator, relocates the actions for inoperable accumulator instrumentation, and deletes an unnecessary surveillance requirement (SR). The proposed change also deletes a duplicate SR associated with the accumulator isolation valves.

2.0 DETAILED DESCRIPTION

2.1 System Design and Operation

The ECCS accumulators are pressure vessels partially filled with borated water and pressurized with nitrogen gas. During normal operation, each accumulator is isolated from the reactor coolant system (RCS) by two check valves in series. Should the RCS pressure fall below the accumulator pressure, the check valves open and borated water is forced into the RCS. One accumulator is attached to each of the cold legs of the RCS. Mechanical operation of the swing disc check valves is the only action required to open the injection path from the accumulators to the core via the cold leg.

The accumulators are provided with normally open, motor-operated discharge isolation valves, which are designed to open automatically when RCS pressure exceeds a preselected value or upon actuation of a safety injection signal. However, during plant operation, the motor control centers that supply power to the valve operators are de-energized to provide protection against spurious actuation of the valves. The four accumulator motor-operated isolation valves are provided with red (open) and green (closed) position-indicating lights located on the main control board and at the remote shutdown panels. An alarm is actuated whenever the isolation valve is not fully opened, coincident with pressurizer pressure greater than a set value. This alarm remains a high priority on the video alarm system until the isolation valve is reopened. Control power availability to each of the valves is indicated by a monitoring light at the main control board.

2.2 Current TS Requirements

2.2.1 Below are the requirements in TS 3.5.1.1, "Accumulators," relevant to the proposed change.

3.5.1.1 Each Reactor Coolant System (RCS) accumulator shall be OPERABLE with:

a. The isolation valve open and power removed,

b. A contained borated water volume of between 6121 and 6596 gallons,

c. A boron concentration of between the limits specified in the COLR, and

d. A nitrogen cover-pressure of between 585 and 664 psig.

APPLICABILITY: MODES 1, 2, and 3*

ACTION:

a. With one accumulator inoperable, except as a result of a closed isolation valve, restore the inoperable accumulator to OPERABLE status within 8 hours or be in at least HOT STANDBY within the next 6 hours and reduce pressurizer pressure to less than 1000 psig within the following 6 hours.

b. With one accumulator inoperable due to the isolation valve being closed, either immediately open the isolation valve or be in at least HOT STANDBY within 6 hours and reduce pressurizer pressure to less than 1000 psig within the following 6 hours.

c. With one pressure or water level channel inoperable per accumulator, return the inoperable channel to OPERABLE status within 30 days or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

d. With two pressure channels or two water level channels inoperable per accumulator, immediately declare the affected accumulator(s) inoperable.

SURVEILLANCE REQUIREMENTS

4.5.1.1 Each accumulator shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by:

2) Verifying that each accumulator isolation valve is open.

c. In accordance with the Surveillance Frequency Control Program when the RCS pressure is above 1000 psig by verifying that power to the isolation valve operator is disconnected.

d. In accordance with the Surveillance Frequency Control Program by verifying that each accumulator isolation valve opens automatically under each of the following conditions:

1) When an actual or a simulated RCS pressure signal exceeds the P-11 (Pressurizer Pressure Block of Safety Injection) Setpoint, and

2) Upon receipt of a Safety Injection test signal.

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*Pressurizer pressure above 1000 psig.

2.2.2 Below is current SR 4.5.2 in TS 3.5.2, "ECCS Subsystems - T_{avg} Greater Than or Equal to 350°F."

4.5.2 Each ECCS subsystem shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying that the following valves are in the indicated positions with power to the valve operators removed:

Valve Number	Valve Function	Valve Position
SI-V-3	Accumulator Isolation	Open*
SI-V-17	Accumulator Isolation	Open*
SI-V-32	Accumulator Isolation	Open*
SI-V-47	Accumulator Isolation	Open*
SI-V-114	SI Pump to Cold-Leg Isolation	Open
RH-V-14	RHR Pump to Cold-Leg Isolation	Open
RH-V-26	RHR Pump to Cold-Leg Isolation	Open
RH-V-32	RHR to Hot-Leg Isolation	Closed
RH-V-70	RHR to Hot-Leg Isolation	Closed
SI-V-77	SI to Hot-Leg Isolation	Closed
SI-V-102	SI to Hot-Leg Isolation	Closed

*Pressurizer pressure above 1000 psig.

2.3 Reason for the Proposed Change

The proposed change revises Seabrook TS 3.5.1.1 to be consistent with TS 3.5.1, "Accumulators," in NUREG-1431, "Standard Technical Specifications - Westinghouse Plants," [Reference 1] and TSTF-370, "Increase Accumulator Completion Time from One Hour to 24 Hours (WCAP-15049)" [Reference 2]. In addition to extending the completion time for an inoperable accumulator, the change removes the TS actions for inoperable accumulator pressure and level instrumentation because the instrumentation does not meet the criteria for mandatory inclusion in the TS. The surveillance requirement (SR) that verifies the normally open and de-energized accumulator discharge isolation valves are capable of automatically opening is unnecessary and is proposed for deletion to reduce burden on plant staff. The change combines the SRs in TS 3.5.1.1 and TS 3.5.2, "ECCS Subsystems - T_{avg} Greater Than or Equal to 350°F," that verify accumulator valve position into a single SR in TS 3.5.1.1 to eliminate duplication and reduce burden on the operators.

2.4 Description of the Proposed Change

2.4.1 The proposed changes to TS 3.5.1.1 are shown below.

ACTION:

a. With one accumulator inoperable, except ***due to boron concentration not within limits*** ~~as a result of a closed isolation valve~~, restore the inoperable accumulator to OPERABLE status within ***24*** ~~8~~ hours or be in at least HOT STANDBY within the next 6 hours and reduce pressurizer pressure to less than 1000 psig within the following 6 hours.

b. With one accumulator inoperable due to ***boron concentration not within limits*** ~~the isolation valve being closed~~, ***restore boron concentration to within limits within 72 hours*** ~~either immediately open the isolation valve~~ or be in at least HOT STANDBY within 6 hours and reduce pressurizer pressure to less than 1000 psig within the following 6 hours.

~~c. With one pressure or water level channel inoperable per accumulator, return the inoperable channel to OPERABLE status within 30 days or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.~~

~~d. With two pressure channels or two water level channels inoperable per accumulator, immediately declare the affected accumulator(s) inoperable.~~

SURVEILLANCE REQUIREMENTS

4.5.1.1 Each accumulator shall be demonstrated OPERABLE:

~~d. In accordance with the Surveillance Frequency Control Program by verifying that each accumulator isolation valve opens automatically under each of the following conditions:~~

~~1) When an actual or a simulated RCS pressure signal exceeds the P-11 (Pressurizer Pressure Block of Safety Injection) Setpoint, and~~

~~2) Upon receipt of a Safety Injection test signal.~~

2.4.2 The proposed changes to TS 3.5.2 are shown below.

4.5.2 Each ECCS subsystem shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying that the following valves are in the indicated positions with power to the valve operators removed:

Valve Number	Valve Function	Valve Position
~~SI-V-3~~	~~Accumulator Isolation~~	~~Open*~~
~~SI-V-17~~	~~Accumulator Isolation~~	~~Open*~~
~~SI-V-32~~	~~Accumulator Isolation~~	~~Open*~~
~~SI-V-47~~	~~Accumulator Isolation~~	~~Open*~~
SI-V-114	SI Pump to Cold-Leg Isolation	Open
RH-V-14	RHR Pump to Cold-Leg Isolation	Open
RH-V-26	RHR Pump to Cold-Leg Isolation	Open
RH-V-32	RHR to Hot-Leg Isolation	Closed
RH-V-70	RHR to Hot-Leg Isolation	Closed
SI-V-77	SI to Hot-Leg Isolation	Closed
SI-V-102	SI to Hot-Leg Isolation	Closed

~~* Pressurizer pressure above 1000 psig.~~

3.0 TECHNICAL EVALUATION

3.1 TS 3.5.1.1, Actions a and b

NextEra proposes to revise TS 3.5.1.1, actions a and b, to be consistent with NUREG-1431 and TSTF-370. Currently, action a addresses inoperability of an accumulator for reasons other than a closed isolation valve, and action b addresses accumulator inoperability due to a closed isolation valve. These actions are different from those in TS 3.5.1 in NUREG-1431, which address accumulator inoperability for two conditions: (1) boron concentration not within limits, and (2) inoperability for reasons other than boron concentration not within limits. The completion time in NUREG-1431 for restoring accumulator operability with boron concentration outside limits is 72 hours. With an accumulator inoperable for reasons other than boron concentration not within limits, NUREG-1431 provides 24 hours to restore accumulator operability as justified in TSTF-370.

Seabrook TS 3.5.1.1 action a currently provides an eight-hour completion time to restore an accumulator that is inoperable for reasons other than a closed isolation valve. This action is revised to address accumulator inoperability for reasons other than boron concentration not within limits, which includes conditions such as an accumulator isolation valve closed or energized, water level outside limits, or pressure not within limits. The change also provides a 24-hour completion time, which was justified in WCAP-15049-A, "Risk-Informed Evaluation of an Extension to Accumulator

Completion Times," [Reference 3] and implemented in NUREG-1431 by TSTF-370. WCAP-15049 provided a comprehensive risk analysis applicable to all the various vintages of Westinghouse plants that supported a 24-hour completion time for an accumulator inoperable for reasons other than boron concentration outside of specification. NextEra reviewed the safety evaluation published on July 15, 2002 (67 FR 46542) as part of the consolidated line item improvement process for TSTF-370 and the supporting information provided to support TSTF-370 (i.e., WCAP-15049-A, "Risk-Informed Evaluation of an Extension to Accumulator Completion Times"). NextEra concluded that the justifications presented in the TSTF proposal and the safety evaluation prepared by the NRC staff are applicable to Seabrook and justify incorporation of the change to the Seabrook TS.

Seabrook TS 3.5.1.1 currently does not contain an action that specifically addresses the condition that accumulator boron is not within limits. However, since action a is revised to address all causes of accumulator inoperability excluding boron concentration, action b is modified to address the condition that accumulator boron concentration is not within limits. Consistent with NUREG-1431, the revised action provides 72 hours to restore accumulator boron concentration within limits.

The boron in the accumulators contributes to the assumption that the combined ECCS water in the partially recovered core during the early re-flooding phase of a large break loss of coolant accident 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 re-flood. Boiling of ECCS water in the core during re-flood concentrates boron in the saturated liquid that remains in the core. Therefore, 72 hours is a reasonable period to return boron concentration to within limits.

3.2 TS 3.5.1.1, Actions c and d

TS 3.5.1.1 actions c and d prescribe remedial measures for inoperable accumulator water level and pressure instrumentation. However, neither the LCO nor the SRs specify any requirements for this instrumentation. Furthermore, although accumulator operability requires in part that water level and pressure are within specified limits, the ability of the accumulators to perform their specified function is not dependent on the availability of the instruments that monitor these parameters. Therefore, NextEra proposes to relocate the requirements in actions c and d to the Seabrook Technical Requirements Manual, which is subject to 10 CFR 50.59, on the basis that the instrumentation is not required for operability of the accumulators.

NUREG-0452 [Reference 4], the standard TS that preceded NUREG-1431, contained SRs that demonstrate operability of the accumulator water level and pressure instruments. However, Generic Letter 93-05 [Reference 5] recommended relocating these SRs from the standard TS as discussed below:

> "The NRC staff and industry effort to develop new STS recognized that accumulator instrumentation operability is not directly related to the capability of the accumulators to perform their safety function. Therefore, surveillance requirements for this instrumentation are being relocated from the STS." The only necessary SR is to confirm that the parameters defining accumulator operability are within their specified limits.

The proposed change is consistent with NUREG-1431, which does not include an LCO, SRs, or Conditions and Required Actions associated with the accumulator water level and pressure instruments. Specifying actions for inoperable instrumentation that is neither required to be operable by the LCO nor has any associated SRs is inconsistent with the purpose and structure of the TS. The Seabrook TS will retain the current SRs that demonstrate accumulator water level and pressure are within limits; therefore, NextEra determined that relocation of the requirements in actions c and d is appropriate and justified.

3.3 SR 4.5.2.a

SR 4.5.1.1.a.2 verifies that each accumulator isolation valve is open, and SR 4.5.1.1.c verifies that power to the accumulator isolation valves operators is removed when RCS pressure is above 1000 psig. Similarly, SR 4.5.2.a duplicates these requirements by verifying that each accumulator isolation valve is open with power to the valve operators removed when RCS pressure is above 1000 psig. NextEra proposes to delete the accumulator isolation valves from SR 4.5.2.a to eliminate the duplicate SR.

One purpose of SRs is to ensure the associated LCO will be met. The SRs associated with the accumulator isolation valves ensure that the LCO for the accumulators in TS 3.5.1.1 will be met. However, including the SRs for the accumulators in TS 3.5.2 (ECCS) is inappropriate because the LCO for TS 3.5.2 only specifies requirements for the required trains of ECCS, which does not include accumulators. Furthermore, when a SR is not met, the LCO is not met, and the rules of TS usage require complying with the actions when an LCO is not met. The condition that SR 4.5.2.a is not met for the accumulator isolation valves would require complying with the actions of TS 3.5.2 due to a failure to meet the LCO. This situation would lead to confusion regarding implementation of the actions because TS 3.5.2 only provides an action for an inoperable ECCS subsystem but no action for an inoperable accumulator. Therefore, the appropriate location for the SRs associated with the accumulator isolation valves is in the TS for the accumulators.

The proposed change is administrative in nature because there are no changes to the technical requirements of the SRs. The SRs in TS 3.5.1.1 and 3.5.2 both verify that the accumulator isolation valves are open with power removed from the valve operators when pressure is above 1000 psig at a frequency in accordance with the SFCP. The proposed change only removes a duplicate requirement and reduces burden on the operators who implement the TS. Therefore, NextEra determined the proposed change is acceptable.

3.4 SR 4.5.1.1.d

SR 4.5.1.1.d verifies that each accumulator isolation valve automatically opens when RCS pressure exceeds the P-11 (permissive for pressurizer pressure block of safety injection) setpoint and upon receipt of a safety injection (SI) signal. NextEra proposes to delete this unnecessary SR.

Current TS 3.5.1.1 requires that each accumulator isolation valve is open with power removed from the valve operator in modes 1, 2, and 3 with pressurizer pressure above 1000 psig. Since the valves are maintained in their actuated position with the motor control center supplying power to the operators de-energized, automatic operation and online testing of valve actuation is not required.

The four accumulator motor-operated isolation valves are provided with red (open) and green (closed) position-indicating lights located above the control switch on the main control board (MCB) and at the remote shutdown panels. A monitor light that illuminates for each isolation valve when the valve is full open is provided in an array of monitor lights also located at the MCB. An alarm is actuated by the motor operator limit switch whenever the isolation valve is not fully opened, coincident with pressurizer pressure greater than a set value. This alarm remains a high priority status until the isolation valve is reopened. An alarm is also provided at the MCB when an accumulator isolation valve control switch is in the close position. Control power availability to each of the valves is indicated by a monitoring light at the MCB.

NUREG-0452 included a SR that required verification of the automatic opening feature of the accumulator isolation valves; however, the SR was deleted during development of NUREG-1431 because of the TS requirement for the valves to be open with power removed. While the automatic opening feature of the accumulator isolation valves exists as a design feature, it is not a requirement for operability of the accumulators.

Inadvertent closure of the isolation valves is unlikely because periodic SRs verify that the valves are open with power removed to the valve operators, and alarms alert the operators if a valve is not fully open and when a valve control switch is in the close position. Because the accumulator isolation valves are open with power removed to the valve operators during plant operation, the automatic opening feature of the isolation valves serves no useful function. Consequently, NextEra concluded that deletion of SR 4.5.1.1.d is acceptable.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

- 10 CFR 50.36, "Technical specifications," specifies the requirements for TS limiting conditions for operation and surveillance requirements.

- WCAP-15049, "Risk-Informed Evaluation of an Extension to Accumulator Completion Times," evaluated the risk associated with extending the accumulator completion time from 1 hour to 24 hours when an accumulator is declared inoperable for reasons other than its boron concentration being out of specification. The NRC staff approved WCAP-15049 in February 1999.

- TSTF-370, "Increase Accumulator Completion Time from One Hour to 24 Hours (WCAP-15049)" - the NRC staff, following the consolidated line item improvement process (CLIIP), issued a notice of opportunity for comment on the model safety evaluation and a model no significant hazards consideration determination (July 15, 2002, 67 FR 46542) and subsequently issued a notice of availability of the models for referencing in license amendment applications using the CLIIP (March 12, 2003, 68 FR 11880).

- NUREG-0800, "Standard Review Plan," discusses in section 16.0, Technical Specifications, that TS change requests for facilities with TS based on previous standard TS should comply with the comparable provisions in the current standard TS (NUREG-1431 for Westinghouse plants) to the extent possible.

The proposed change is consistent with the above regulatory requirements and criteria.

4.2 Precedent

- The NRC approved amendments for Salem Units 1 and 2 that extended the completion time for the accumulators from one hour to 24 hours based on TSTF-370 and WCAP-15049. [Reference 6]
- The NRC approved amendments for Beaver Valley Units 1 and 2 that deleted the surveillance requirement that verified automatic opening of the accumulator isolation valves when RCS pressure exceeds the P-11 setpoint and upon receipt of a SI signal. The NRC staff concluded that the automatic actuation features to assure the valves will open when required serve no useful function and periodic testing is not required. [Reference 7]

4.3 No Significant Hazards Consideration

NextEra Energy Seabrook, LLC (NextEra) is submitting License Amendment Request (LAR) 19-01 to revise the Seabrook Station Technical Specifications (TS). The proposed change revises the TS associated with the emergency core cooling system (ECCS) accumulators. Specifically, the proposed amendment modifies the TS actions for an inoperable accumulator, relocates the actions for inoperable accumulator instrumentation, and deletes an unnecessary surveillance requirement (SR). The proposed change also deletes a duplicate SR associated with the accumulator isolation valves.

NextEra has evaluated whether a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of Amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No.

   Operability of the ECCS accumulators ensure that a sufficient volume of borated water will be immediately forced into the reactor core through each of the cold legs in the event the reactor coolant system (RCS) pressure falls below the pressure of the accumulators. This initial surge of water into the core provides the initial cooling mechanism during large RCS pipe ruptures. The proposed change does not change the limiting condition for operation (LCO) for the accumulators.

   The proposed change deletes a surveillance requirement that verifies the accumulator isolation valves automatically open on an actuation signal because the technical specifications require maintaining the motor-operated valves open and de-energized. In addition, the completion times for an inoperable accumulator are revised to 24 hours for inoperability due to reasons other than boron concentration outside limits and to 72 hours for boron not within limits. The consequences of an accident that might occur during the revised completion times are no different from those that might occur during the current completion times. The change to eliminate a duplicate surveillance requirement makes no technical changes and is administrative in nature.

The proposed change does not alter the design, function, or operation of any plant structure, system, or component (SSC). The capability of any operable TS-required SSC to perform its specified safety function is not impacted by the proposed change. As a result, the outcomes of accidents previously evaluated are unaffected. Therefore, the proposed changes do not result in a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any previously evaluated?

   Response: No

   The proposed change does not challenge the integrity or performance of any safety-related systems. No plant equipment is installed or removed, and the changes do not alter the design, physical configuration, or method of operation of any plant system or component. No physical changes are made to the plant, so no new causal mechanisms are introduced. Therefore, the proposed changes to the TS do not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed change involve a significant reduction in the margin of safety?

   Response: No.

   The ability of any operable ECCS equipment to perform its designated safety function is unaffected by the proposed changes. The proposed changes do not alter any safety analyses assumptions, safety limits, limiting safety system settings, or method of operating the plant. The changes do not adversely affect plant operating margins or the reliability of equipment credited in the safety analyses. With the proposed change, the ECCS remains capable of performing its safety function. Therefore, the proposed changes do not involve a significant reduction in the margin of safety.

Based on the above, NextEra concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c) and, accordingly, a finding of "no significant hazards consideration" is justified.

4.4 Conclusion

In conclusion, based on the considerations above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the general public.

5.0 ENVIRONMENTAL CONSIDERATION

NextEra has evaluated the proposed amendment for environmental considerations. The review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not

involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment needs to be prepared in connection with the proposed amendment.

6.0 REFERENCES

1. NUREG-1431, "Standard Technical Specifications - Westinghouse Plants," Revision 4, April 2012

2. TSTF-370, "Increase Accumulator Completion Time from One hour to 24 Hours (WCAP-15049), February 22, 2002

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

4. NUREG-0452, "Standard Technical Specifications for Westinghouse Reactors," November 1981

5. Generic Letter 93-05, ""Line-Item Technical Specifications Improvements to Reduce Surveillance Requirements for Testing During Power Operation (Generic letter 93-05)," September 27, 1993

6. NRC letter "Salem Nuclear Generating Unit Nos. 1 and 2, Issuance of Amendments Re: Emergency Core Cooling System Accumulators (TAC Nos. MC6416 and MC6417)," October 14, 2005 (ML052770347)

7. NRC letter "Amendment Nos. 164 and 44: Accumulator Isolation Valve Surveillance Requirement - Change Request No. 172/33 (TAC Nos. M75556 and M75557)," March 25, 1992

Attachment 1

Markup of the Technical Specifications

3/4.5 EMERGENCY CORE COOLING SYSTEMS

3/4.5.1 ACCUMULATORS

HOT STANDBY, STARTUP, AND POWER OPERATION

LIMITING CONDITION FOR OPERATION

3.5.1.1 Each Reactor Coolant System (RCS) accumulator shall be OPERABLE with:

a. The isolation valve open and power removed,

b. A contained borated water volume of between 6121 and 6596 gallons,

c. A boron concentration of between the limits specified in the COLR, and

d. A nitrogen cover-pressure of between 585 and 664 psig.

APPLICABILITY: MODES 1, 2, and 3*

due to boron concentration not within limits,

ACTION:

restore boron concentration to within limits within 72 hours

a. With one accumulator inoperable, except ~~as a result of a closed isolation valve~~, restore the inoperable accumulator to OPERABLE status within ~~8~~ 24 hours or be in at least HOT STANDBY within the next 6 hours and reduce pressurizer pressure to less than 1000 psig within the following 6 hours.

b. With one accumulator inoperable ~~due to the isolation valve being closed~~, ~~either immediately open the isolation valve~~ or be in at least HOT STANDBY within 6 hours and reduce pressurizer pressure to less than 1000 psig within the following 6 hours.

c. ~~With one pressure or water level channel inoperable per accumulator, return the inoperable channel to OPERABLE status within 30 days or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.~~

~~d.~~ ~~With two pressure channels or two water level channels inoperable per accumulator, immediately declare the affected accumulator(s) inoperable.~~

SURVEILLANCE REQUIREMENTS

4.5.1.1 Each accumulator shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by:

1) Verifying the contained borated water volume and nitrogen cover-pressure in the tanks, and

*Pressurizer pressure above 1000 psig.

EMERGENCY CORE COOLING SYSTEMS

ACCUMULATORS

HOT STANDBY, STARTUP, AND POWER OPERATION

SURVEILLANCE REQUIREMENTS

4.5.1.1 (Continued)

2) Verifying that each accumulator isolation valve is open.

b. By verifying the boron concentration of the accumulator solution under the following conditions:

1) In accordance with the Surveillance Frequency Control Program,

2) Within 6 hours after each solution volume increase of greater than or equal to 1% of tank volume. This surveillance is not required when the volume increase makeup source is the RWST and the RWST has not been diluted since verifying that the RWST boron concentration is equal to or greater than the accumulator boron concentration limit.

c. In accordance with the Surveillance Frequency Control Program when the RCS pressure is above 1000 psig by verifying that power to the isolation valve operator is disconnected.

~~d. In accordance with the Surveillance Frequency Control Program by verifying that each accumulator isolation valve opens automatically under each of the following conditions:~~

~~1) When an actual or a simulated RCS pressure signal exceeds the P-11 (Pressurizer Pressure Block of Safety Injection) Setpoint, and~~

~~2) Upon receipt of a Safety Injection test signal.~~

EMERGENCY CORE COOLING SYSTEMS

ECCS SUBSYSTEMS - T_{avg} GREATER THAN OR EQUAL TO 350°F

SURVEILLANCE REQUIREMENTS

4.5.2 Each ECCS subsystem shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying that the following valves are in the indicated positions with power to the valve operators removed:

Valve Number	Valve Function	Valve Position
~~SI-V-3~~	~~Accumulator Isolation~~	~~Open*~~
~~SI-V-17~~	~~Accumulator Isolation~~	~~Open*~~
~~SI-V-32~~	~~Accumulator Isolation~~	~~Open*~~
~~SI-V-47~~	~~Accumulator Isolation~~	~~Open*~~
SI-V-114	SI Pump to Cold-Leg Isolation	Open
RH-V-14	RHR Pump to Cold-Leg Isolation	Open
RH-V-26	RHR Pump to Cold-Leg Isolation	Open
RH-V-32	RHR to Hot-Leg Isolation	Closed
RH-V-70	RHR to Hot-Leg Isolation	Closed
SI-V-77	SI to Hot-Leg Isolation	Closed
SI-V-102	SI to Hot-Leg Isolation	Closed

b. In accordance with the Surveillance Frequency Control Program by:

1) Verifying ECCS locations susceptible to gas accumulation are sufficiently filled with water, and

2) Verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.**

c. By a visual inspection which verifies that no loose debris (rags, trash, clothing, etc.) is present in the containment which could be transported to the containment sump and cause restriction of the pump suctions during LOCA conditions. This visual inspection shall be performed:

1) For all accessible areas of the containment prior to establishing primary CONTAINMENT INTEGRITY, and

2) At least once daily of the areas affected within containment by containment entry and during the final entry when primary CONTAINMENT INTEGRITY is established.

~~*Pressurizer pressure above 1000 psig.~~
**Not required to be met for system vent flow paths opened under administrative control.

Attachment 2

Markups of Proposed Bases Changes

INSERT BASES

Action a.

If one accumulator is inoperable for a reason other than boron concentration, the accumulator must be returned to OPERABLE status within 24 hours. 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 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 plant 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.

Action b.

If the boron concentration in 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. Thus, 72 hours is allowed to return the boron concentration to within limits.

3/4.5 EMERGENCY CORE COOLING SYSTEMS

BASES

3/4.5.1 ACCUMULATORS

The OPERABILITY of each Reactor Coolant System (RCS) accumulator ensures that a sufficient volume of borated water will be immediately forced into the reactor core through each of the cold legs in the event the RCS pressure falls below the pressure of the accumulators. This initial surge of water into the core provides the initial cooling mechanism during large RCS pipe ruptures.

The limits on accumulator volume, boron concentration, and pressure ensure that the assumptions used for accumulator injection in the safety analysis are met.

In MODES 1 and 2, the accumulator power-operated isolation valves are considered to be "operating bypasses" in the context of IEEE Std. 279-1971, which requires that bypasses of a protective function be removed automatically whenever permissive conditions are not met. In MODES 1, 2, 3, and in MODE 4 within 12 hours of entry into MODE 3 from 4, the accumulator isolation valves are open with their power removed whenever pressurizer pressure is greater than 1000 psig. In addition, as these accumulator isolation valves fail to meet single-failure criteria, removal of power to the valves is required.

INSERT BASES

~~The limits for operation with an accumulator inoperable for any reason except an isolation valve closed minimizes the time exposure of the plant to a LOCA event occurring concurrent with failure of an additional accumulator which may result in unacceptable peak cladding temperatures. If a closed isolation valve cannot be immediately opened, the full capability of one accumulator is not available and prompt action is required to place the reactor in a mode where this capability is not required.~~

3/4.5.2 and 3/4.5.3 ECCS SUBSYSTEMS

The OPERABILITY of two independent ECCS subsystems ensures that sufficient emergency core cooling capability will be available in the event of a LOCA assuming the loss of one subsystem through any single-failure consideration. Either subsystem operating in conjunction with the accumulators is capable of supplying sufficient core cooling to limit the peak cladding temperatures within acceptable limits for all postulated break sizes ranging from the double-ended break of the largest RCS cold-leg pipe downward. In addition, each ECCS subsystem provides long-term core cooling capability in the recirculation mode during the accident recovery period. Managing of gas voids is important to ECCS OPERABILITY.

Operability of the ECCS flow paths is contingent on the ability of the encapsulations surrounding the containment sump isolation valves (CBS-V8 and CBS-V14) to perform their design functions. During the recirculation phase of an accident, any postulated leakage resulting from the failure of the valves or piping will be contained within the encapsulations, preserving the water inventory needed to support ECCS operation during recirculation. Consequently, maintaining the encapsulations intact with leakage within allowable limits is necessary to ensure operability of the ECCS flow paths. Although designed to withstand containment pressure, the encapsulations do not function as a containment boundary, but rather prevent the release of radioactive fluid and gasses to the environment.