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PSEG Nuclear LLC

10 CFR 50.90

LR-N22-0066
LAR S22-07

August 31, 2022

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

Salem Generating Station, Units 1 and 2
Renewed Facility Operating License Nos. DPR-70 and DPR-75
NRC Docket Nos. 50-272 and 50-311

Subject: **License Amendment Request (LAR) to Relocate Salem Unit 1 and Unit 2 Technical Specifications (TS) Requirements for Reactor Head Vents to the Technical Requirements Manual (TRM)**

In accordance with the provisions of 10 CFR 50.90, PSEG Nuclear LLC (PSEG) is submitting a request for an amendment to the Technical Specifications (TS) for Salem Generating Station (Salem) Unit 1 and Unit 2.

The proposed change will relocate TS 3/4.4.12 limiting condition for operation (LCO), associated Action Statements and Surveillance Requirements (SRs) for the Reactor Coolant System Head Vents from the Salem TS to the Technical Requirements Manual (TRM).

PSEG concludes that the proposed change does not involve a 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.

The Enclosure provides a description and assessment of the proposed change. Attachment 1 provides the existing TS page marked up to show the proposed change for both Units. Attachment 2 provides a markup of the TS Bases for both Units for information only.

PSEG requests approval of this LAR by March 27, 2023 which is just prior to the next Salem refueling outage. Once approved, the amendment will be implemented within 60 days from the date of issuance.

There are no regulatory commitments contained in this letter.

In accordance with 10 CFR 50.91, a copy of this application, with attachments, is being provided to the designated State of New Jersey Official.

If there are any questions or if additional information is needed, please contact Mr. Michael Wiwel at 856-339-7907.

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

Executed on 8/31/22
(Date)

Respectfully,

David Sharbaugh
Site Vice President
Salem Generating Station

Enclosure: Evaluation of the Proposed Changes
Attachment 1: Technical Specification Page Markup
Attachment 2: Markup of Technical Specification Bases Page for Information Only

cc: Administrator, Region I, NRC
Project Manager, NRC
NRC Senior Resident Inspector, Salem
Ms. A. Pfaff, Manager, NJBNE
PSEG Corporate Commitment Tracking Coordinator
Site Commitment Tracking Coordinator

Enclosure

Evaluation of the Proposed Change

Subject: License Amendment Request (LAR) to Relocate Salem Unit 1 and Unit 2 Technical Specifications (TS) Requirements for Reactor Head Vents to the Technical Requirements Manual (TRM)

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ATTACHMENTS:
1. Technical Specification Page Markup
2. Technical Specification Bases Page Markup for Information Only

1.0 SUMMARY DESCRIPTION

The proposed change relocates the Limiting Conditions for Operation (LCO), associated Action Statements and Surveillance Requirements (SRs) for Salem Unit 1 and Unit 2 Technical Specification (TS) 3/4.4.12 for Reactor Coolant System Head Vents from the TS to the Technical Requirements Manual (TRM) where they will be controlled by the licensee. Removal of TS 3/4.4.12 in its entirety from TS is consistent with 10 CFR 50.36, "Technical Specifications" as well as NUREG-1431, "Standard Technical Specifications – Westinghouse Plants (Reference 6.1). Relocation of the requirements for the Reactor Head Vents (RHVs) to the TRM under licensee control is consistent with established precedent for those licensees that have adopted the standard improved TS under NUREG-1431.

2.0 DETAILED DESCRIPTION

2.1 System Design and Operation

The RHVs are one of three principal high points in the Reactor Coolant System (RCS). The RHVs are provided to exhaust non-condensable gases and/or steam from the RCS which could inhibit natural circulation core cooling following any event requiring long-term cooling, such as a loss of coolant accident (LOCA). Their function and capabilities conform to the requirements of NUREG-0737, "Clarification of TMI Action Plan Requirements (Reference 6.2). The RHVs are also used to vent the RCS during normal RCS fill and vent operations following completion of a refueling outage.

Four individual vent valves are arranged in a redundant series-parallel grouping that is cross-tied to form four distinct vent paths. The vent paths are designed to minimize the probability of inadvertent or irreversible actuation while also ensuring that a single failure of a vent valve or power supply will not prevent establishment of a vent path. The vent line downstream of the valves discharges to the pressurizer relief tank. The vent piping and associated vent valves are stainless steel and are classified as Seismic Category I and Nuclear Safety class 2. The RHVs are located behind the pressurizer missile shield to prevent inadvertent damage from a missile in the pressurizer area.

The vent piping is 3/4 inch diameter schedule 160 pipe and includes a 3/8 inch diameter restricting orifice close to the reactor vessel. The vent orifice size is within the LOCA definition size which permits venting half the gas volume of the RCS in one hour. This sizing minimizes the challenges to the Emergency Core Cooling System (ECCS) since inadvertent vent opening would not require ECCS actuation. Rupture of the head vent lines is treated as an infrequent fault in Chapter 15 of the Updated Final Safety Analysis Report (UFSAR) and covered as a LOCA resulting from a small bore pipe rupture. The LOCA analysis in UFSAR Chapter 15 shows the high head portion of the ECCS together with the safety injection accumulators provide sufficient core flooding to keep calculated peak clad temperature below the required limits of 10 CFR 50.46. The RHVs are not credited for any design basis accident mitigation function in UFSAR Chapter 15. The operation of the vent valves is manually initiated by the reactor operator after the event has occurred and is only required when there is indication that natural circulation has degraded or is not occurring.

There is no automated actuation or permissive logic associated with the RHVs and each of the four valves are remote-manually actuated from the main control room using individual key lock switches. The solenoid operated vent valves are energize to open and powered from two redundant vital Class 1E DC electrical buses and are designed to fail closed on a loss of power.

Open and Close indications for each of the solenoid valves are provided in the main control room with both visual and audible alarms.

2.2 Current Technical Specification Requirements

The current TS associated with this change is TS 3/4.4.12, "HEAD VENTS." The mark-ups provided in Attachment 1 contain the details of the current TS.

2.3 Reason for the Proposed Change

PSEG has assessed Salem TS 3/4.4.12 against the requirements of 10 CFR 50.36 for continued inclusion in TS as well as the contents of NUREG-1431 (Reference 6.1). Based on the lack of conformance to the safety criteria in 10 CFR 50.36 as discussed in Section 3 below and aligning with the Improved Standard TS, relocation of TS 3/4.4.12 to the TRM under licensee control is warranted.

2.4 Description of the Proposed Change

Salem TS INDEX page V will show Section 3/4.4.12 as ***DELETED***.

Salem TS INDEX page XII will show Bases Section 3/4.4.12 as ***DELETED***.

Salem TS 3/4.4.12 - All LCOs, Actions and SRs will be deleted in its entirety and replaced with ***DELETED***.

Mark-ups of the affected page are provided in Attachment 1. The associated TS Bases will also be deleted as shown in Attachment 2 for information only. The associated TS Bases will be relocated to the TRM Bases.

3.0 TECHNICAL EVALUATION

On July 22, 1993, the NRC published its "Final Policy Statement of Technical Specifications Improvements for Nuclear Power Reactors," 58 FR 39132 (Reference 6.3). This Final Policy Statement established asset of objective criteria as guidance for determining which regulatory requirements and operating restrictions should be included in TS, as follows:

(1) Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary;
(2) A process variable, design feature, or operating restriction that is an initial condition of a Design Basis Accident or Transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier;
(3) A structure, system, or component that is part of the primary success path and which function or actuates to mitigate a Design Basis Accident or Transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier;
(4) As structure, system, or component which operating experience or probabilistic safety assessment has shown to be significant to public health and safety.

The Final Policy Statement also provided that LCOs which do not meet any of the four criteria may be removed from the TS and relocated to licensee-controlled documents, such as the UFSAR or TRM. Changes to the facility or to procedures described in the UFSAR are subject to the controls of 10 CFR 50.59. NRC-approved NUREG-1431, "Standard Technical Specifications -Westinghouse Plants," identifies an improved standard TS that was developed based on the criteria in the Final Policy Statement

These four criteria were later incorporated into 10 CFR 50.36, “Technical Specifications.” These criteria in the Final Policy Statement were the basis for the Standard Improved Technical Specifications in NUREG-1431 for Westinghouse Plants (Reference 6.1).

The function of the RHVs do not meet the four criteria outlined in 10 CFR50.36(c)(2)(ii) for inclusion in TS. Relative to criterion (1), the RHVs are not installed instrumentation that is used to detect and indicate in the control room a significant abnormal degradation of the reactor coolant pressure boundary. Therefore, criterion (1) is not satisfied as a basis to include the reactor head vents in TS.

Relative to criterion (2) of 10 CFR50.36(c)(2)(ii), the RHVs do not comprise a process variable that is an initial condition of a design basis accident or transient analysis that either assumes the failure of, or presents a challenge to, the integrity of a fission product barrier. As described in Section 2.1, the vent valves are not credited in any analyzed UFSAR Chapter 15 event for protecting a fission product barrier. The design of the vent piping and valve controls ensures against inadvertent opening. The vent piping is sized such that any rupture to the vent line is limited in its mass release such that it does not challenge containment or the capability of high head ECCS injection. The vent valve configuration is missile protected to ensure against shearing of one or more vent valves due to a missile within the pressurizer area of containment. Therefore, criterion (2) is not satisfied as a basis to include the reactor head vents in TS.

Relative to criterion (3) of 10 CFR50.36(c)(2)(ii), the RHVs are not credited in the mitigation of any UFSAR Chapter 15 event. Although they may be used to assist in reestablishing conditions conducive to natural circulation, they are not components that are part of the primary success path and which function to mitigate a design basis accident or transient that either assumes the failure of, or presents a challenge to, the integrity of a fission product barrier. Therefore, criterion (3) is not satisfied as a basis to include the reactor head vents in TS.

Relative to criterion (4) of 10 CFR50.36(c)(2)(ii), the design of Westinghouse pressurized water reactors is such that a buildup of non-condensable gases or steam within the primary system to the extent to inhibit natural circulation core cooling is unlikely. Inadvertent opening of the RHVs would result in a restricted loss of primary coolant based on the size and restricted design of the vent path. A PRA assessment of the Salem RHVs with respect to multiple spurious openings, and fire safe shutdown determined that the risk contribution of these failures in the head vent system is very small and is not a primary contributor to risk. Therefore, this TS does not contain constraints of prime importance to dominant risk sequence. Therefore, criterion (4) is not satisfied as a basis to include the reactor head vents in TS.

Relocation of Salem TS 3/4.4.12 in its entirety to the TRM is aligned with the format and content of the Standard Improved TS within NUREG-1431 for Westinghouse plants (Reference 6.1). Requirements for RHVs have been removed from the Standard TS since initial issuance of NUREG-1431 based on the assessment that these valves do not meet any of the four criteria cited in 10 CFR 50.36(c)(2)(ii). Accordingly, the RHV requirements can be established in a licensee controlled document, the Salem TRM. Future changes to RHV requirements in the TRM will be subject to the controls of 10 CFR 50.59.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

In 10 CFR 50.36, "Technical specification," the Commission established its regulatory requirements related to the content of the TSs. Pursuant to 10 CFR 50.36, TSs are required to include items in the following five specific categories related to station operation: (1) safety limits, limiting safety system settings, and limiting control settings; (2) Limiting conditions for operation (LCOs); (3) surveillance requirements (SRs); (4) design features; and (5) administrative controls. Based on the assessments described in Section 3, the RHV specification does not meet the four criteria of 10 CFR 50.36(c)(2)(ii) for retention in the Technical Specifications.

10 CFR 50.90, "Application for amendment of license or construction permit," addresses the requirements for a licensee desiring to amend its license and the TS incorporated therein. This license amendment request to relocate Salem TS 3/4.4.12 to the TRM has been prepared to meet the requirements of 10 CFR 50.90.

4.2 Precedents

The proposed removal of RHVs from TS is currently reflected in those Westinghouse plants that have adopted the Improved Standard TS established in NUREG-1431. The proposed change is also consistent with the following stand-alone amendment regarding relocation of requirements from TS to the TRM under licensee control:

1. Letter from NRC to K. Singer, “Sequoyah Nuclear Plant, Units 1 and 2 – Issuance of Amendments Regarding Relocations of Multiple Technical Specifications to the Technical Requirements Manual (TAC Nos. MC6881 and MC6882) (TS 04-06),” Dated December 28, 2005 (ADAMS Accession No. ML052060033)

4.3 No Significant Hazards Consideration

In accordance with 10 CFR 50.90, PSEG Nuclear LLC (PSEG) requests an amendment to the Salem Technical Specifications (TS) to relocate TS 3/4.4.12 for Reactor Coolant System Head Vents in its entirety to the Technical Requirements Manual (TRM) which is under licensee control under 10 CFR50.59.

PSEG 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

   The proposed change is administrative in nature and does result in any physical change to the plant or the manner in which the plant is operated and maintained. Therefore, the proposed change does not adversely affect accident initiators or precursors or alter the design assumptions, conditions, or configuration of the facility. The proposed change does

not alter or prevent the ability of structures, systems, and components (SSCs) to perform their intended function to mitigate the consequences of an analyzed event. The proposed change does not affect the source term, containment isolation, or radiological release assumptions used in evaluating the radiological consequences of an accident previously evaluated. The proposed change is consistent with, and continues to support, the assumptions and resultant consequences of the Safety Analyses contained in Chapter 15 of the Updated Final Safety Analysis Report (UFSAR).

Therefore, the proposed change does not involve 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 accident previously evaluated?

   Response: No

   The proposed change is administrative in nature and does not alter any design basis accident initiators. The change removes the Salem TS for rector head vents (RHVs) which do not meet the criteria delineated in 10 CFR 50.36(c)(2)(ii) for inclusion in TS and relocates these requirements to licensee control through the TRM. This change does not affect the design or operation of the RHVs nor does the change cause any plant SSCs to become initiators of a new or different type of accident. All plant systems and components will be operated in the same configuration and manner for which the systems were analyzed and designed.

   Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

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

   Response: No

   The proposed change does not alter the permanent plant design, including instrument set points, nor does it change the assumptions contained in the UFSAR Safety Analyses.

   There is no reduction in capability or change in operation, design or configuration of any accident mitigating system as a result of the proposed change. Therefore the plant's ability to respond to a design basis accident is unaffected. The proposed change does not alter any design basis or safety limit.

   Therefore, it is concluded that the proposed change does not involve a significant reduction in a margin of safety.

Based upon the above, PSEG concludes that the proposed change 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 discussed 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 public.

5.0 ENVIRONMENTAL CONSIDERATION

A 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 need be prepared in connection with the proposed amendment.

6.0 REFERENCES

6.1 NUREG-1431, "Standard Technical Specifications –Westinghouse Plants"

6.2 NUREG-0737, "Clarification of TMI Action Plan Requirement," U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, November 1980.

6.3 58 FR 39132, "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors", Effective July 22, 1993.

Technical Specification Page Markup

The following Technical Specifications page for Renewed Facility Operating License DPR-70 is affected by this change request:

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The following Technical Specifications page for Renewed Facility Operating License DPR-75 is affected by this change request:

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LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

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BASES

XXX

3/4.4.12 HEAD VENTS DELETED

LIMITING CONDITION FOR OPERATION

3.4.12 Four reactor vessel head vent paths shall be operable with the vent paths closed. A vent path consists of at least two head vent valves in series, powered from vital sources, and associated flowpath.

APPLICABILITY: MODES 1, 2, 3 AND 4.

ACTION:

a. With one, two or three reactor vessel head vent path(s) inoperable, STARTUP and/or POWER OPERATION may continue provided the inoperable vent path(s) is maintained closed with the valve actuators key locked in the closed position; restore the inoperable vent path(s) to OPERABLE status within 30 days, or, be in HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With four reactor vessel head vent paths inoperable; maintain the inoperable vent paths closed with power removed from the valve actuators of all the vent valves in the inoperable vent paths, and restore at least one of the vent paths to OPERABLE status within 72 hours or be in HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.4.12 Reactor vessel head vent system vent paths shall be demonstrated OPERABLE in accordance with the Surveillance Frequency Control Program by:

1. Verifying all manual isolation valves in each vent path are locked in the open position.

2. Cycling each valve in the vent paths through at least one complete cycle of full travel from the control room during COLD SHUTDOWN or REFUELING.

3. Verifying flow through the reactor vessel head vent system vent path during venting.

XXX

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LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

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BASES

3/4.4.12 ~~HEAD VENTS~~ DELETED

~~LIMITING CONDITION FOR OPERATION~~

3.4.12 Four reactor vessel head vent paths shall be operable with the vent paths closed. A vent path consists of at least two head vent valves in series, powered from vital sources, and associated flowpath.

APPLICABILITY: MODES 1, 2, 3 AND 4.

ACTION:

a. With one, two or three reactor vessel head vent path(s) inoperable, STARTUP and/or POWER OPERATION may continue provided the inoperable vent path(s) is maintained closed with the valve actuators key locked in the closed position; restore the inoperable vent path(s) to OPERABLE status within 30 days, or, be in HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With four reactor vessel head vent paths inoperable; maintain the inoperable vent paths closed with power removed from the valve actuators of all the vent valves in the inoperable vent paths, and restore at least one of the vent paths to OPERABLE status within 72 hours or be in HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.4.12 Reactor vessel head vent system vent paths shall be demonstrated OPERABLE in accordance with the Surveillance Frequency Control Program by:

1. Verifying all manual isolation valves in each vent path are locked in the open position.

2. Cycling each valve in the vent paths through at least one complete cycle of full travel from the control room during COLD SHUTDOWN or REFUELING.

3. Verifying flow through the reactor vessel head vent system vent path during venting.

Salem Technical Specification Bases Page Markup for Information Only

The following Technical Specifications Bases page for Renewed Facility Operating License DPR-75 is affected by this change request:

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The following Technical Specifications Bases page for Renewed Facility Operating License DPR-75 is affected by this change request:

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3/4.4.10 DELETED

3/4.4.11 THIS SECTION INTENTIONALLY BLANK

3/4.4.12 ~~REACTOR VESSEL HEAD VENTS~~ DELETED

~~Reactor Coolant System vents are provided to exhaust noncondensible gases and/or steam from the Reactor Coolant System that could inhibit natural circulation core cooling. The OPERABILITY of a reactor vessel head vent path ensures the capability exists to perform this function.~~

~~The valve redundancy of the Reactor Coolant System vent paths serves to minimize the probability of inadvertent or irreversible actuation while ensuring that a single failure in a vent valve power supply or control system does not prevent isolation of the vent path.~~

~~The function, capabilities, and testing requirements of the Reactor Coolant System Vent Systems are consistent with the requirements of Item II.B1 of NUREG-0737, "Clarification of TMI Action Plan Requirements," November 1980. The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.~~

~~Correction lettr dated February 15, 1990, to Amendment 108 dated January 29, 1990.~~

3/4.4.11 DELETED

3/4.4.12 ~~REACTOR VESSEL HEAD VENTS~~ DELETED

~~Reactor Coolant System vents are provided to exhaust noncondensible gases and/or steam from the Reactor Coolant System that could inhibit natural circulation core cooling. The OPERABILITY of a reactor vessel head vent path ensures the capability exists to perform this function.~~

~~The valve redundancy of the Reactor Coolant System vent paths serves to minimize the probability of inadvertent or irreversible actuation while ensuring that a single failure vent in a valve power supply or control system does not prevent isolation of the vent path.~~

~~The function, capabilities, and testing requirements of the Reactor Coolant System Vent Systems are consistent with the requirements of Item II.B.1 of NUREG-0737, "Clarification of TMI Action Plant Requirements," November 1980. The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program~~.