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10 CFR 50.90

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LAR S19-02

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 to Relocate Technical Specifications (TS) 3.9.3 and 3.9.12 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 TS for Salem Generating Station (Salem) Units 1 and 2.

The proposed change will relocate Salem Unit 1 and Unit 2 TS 3/4.9.3, "Decay Time," and TS 3/4.9.12, "Fuel Handling Area Ventilation," to the Salem TRM.

The Enclosure provides a description and assessment of the proposed changes. Attachment 1 provides the existing TS pages marked up to show the proposed changes. Attachment 2 provides existing TS Bases pages marked up to show the proposed changes and are being provided for information only.

PSEG requests approval of this license amendment request (LAR) in accordance with standard NRC approval process and schedule. Once approved, the amendment will be implemented within 60 days from the date of issuance.

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.

There are no regulatory commitments contained in this letter.

If you have any questions or require additional information, please contact Mr. Brian Thomas at 856-339-2022.

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

Executed on 6/28/19
(Date)

Respectfully,

Charles V. McFeaters
Site Vice President
Salem Generating Station

Enclosure: Evaluation of the Proposed Changes
Attachment 1 Mark-up of Proposed Technical Specification Pages
Attachment 2 Mark-up of Proposed Technical Specification Bases Pages

cc: Administrator, Region I, NRC
Project Manager, NRC
NRC Senior Resident Inspector, Salem
Mr. P. Mulligan, Chief, NJBNE
PSEG Corporate Commitment Tracking Coordinator
Salem Commitment Tracking Coordinator

Enclosure

Evaluation of the Proposed Changes

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1.0 SUMMARY DESCRIPTION

The proposed change will relocate Salem Unit 1 and Unit 2 Technical Specification (TS) 3/4.9.3, "Decay Time," and TS 3/4.9.12, "Fuel Handling Area Ventilation System," to the Salem Technical Requirements Manual (TRM).

2.0 DETAILED DESCRIPTION

2.1 System Design and Operation

As discussed in Section 9.4.3.2.1 of the Salem Updated Final Safety Analysis Report (UFSAR), the fuel handling area is a structure separate from other unit structures and is provided with its own ventilation system. This system is a once-through filtered air system that continuously ventilates the normal operating areas (fuel pools, decontamination pit, electrical equipment room, and sump tunnel). All exhaust effluent is diverted to the standby HEPA and charcoal exhaust unit in the event that radioactivity levels within the building become excessive. This exhaust effluent path through the HEPA and charcoal filters is not credited in the Fuel Handling Accident (FHA) in the Fuel Handling Building (FHB).

As discussed in section 3/4.9.3, Decay Time, of the Salem TS Bases:

> The minimum requirement for reactor subcriticality prior to movement of irradiated fuel assemblies in the reactor pressure vessel ensures that sufficient time has elapsed to allow the radioactive decay of the short lived fission products. The 80-hour decay time (LAR S08-01) is consistent with the assumptions used in the fuel handling accident analyses and the resulting dose calculations using the Alternative Source Term described in Reg. Guide 1.183.
>
> The minimum requirement for reactor subcriticality also ensures that the decay time is consistent with that assumed in the Spent Fuel Pool cooling analysis. The calendar based restrictions are established for the actual movement of irradiated fuel; i.e., movement cannot commence in the October 15th through May 15th window unless at least 80 hours has elapsed since subcriticality was achieved. The 80 hour clock can start prior to October 15 but must end in the October 15th – May 15th window for the 80 hour criteria to be applicable.
>
> Similarly, fuel movement between May 16th and October 14th cannot commence unless at least 168 hours has elapsed since subcriticality was achieved. Delaware River water average temperature between October 15th and May 15th is determined from historical data taken over 30 years. The use of 30 years of data to select maximum temperature is consistent with Reg. Guide 1.27, "Ultimate Heat Sink for Nuclear Power Plants."
>
> A core offload has the potential to occur during both applicability time frames. In order not to exceed the analyzed Spent Fuel Pool cooling capability to maintain the water temperature below 180°F, two decay time limits are provided. In addition, PSEG has developed and implemented a Spent Fuel Pool Integrated Decay Heat Management Program as part of the Salem Outage Risk Assessment. This program requires a pre-outage assessment of the Spent Fuel Pool heat loads and heatup rates to assure available Spent Fuel Pool cooling capability prior to offloading fuel.

Salem Unit 1 Amendment 251 and Unit 2 Amendment 232 (dated October 10, 2002, Reference 9), revised the fuel decay time in TS 3.9.3 from 168 hours year round to 100 hours from October 15th to May 15th. These amendments added the information to the Salem TS Bases regarding the spent fuel cooling analysis and the Spent Fuel Pool Integrated Decay Heat Management Program. In addition to being added to the Salem TS Bases, the Spent Fuel Pool Integrated Decay Heat Management (IDHM) Program was added to Salem UFSAR section 9.1.3. (page 9.1-10a). The FHA dose analysis was converted to the alternate source term (AST) pursuant to 10 CFR 50.67. With the conversion of the dose analysis to AST, no credit was taken for the Fuel Handling Area Ventilation System (FHAVS) exhaust filtration.

Salem Unit 1 Amendment 263 and Unit 2 Amendment 245 (dated September 16, 2004, Reference 11), revised the requirements for containment closure during fuel movement and removed the FHAVS charcoal and HEPA filtration requirements from TS 3.9.12. These changes were based on the FHA analysis reviewed in Amendments 251 and 232.

On October 17, 2007, PSEG submitted a license amendment request (LAR) for Salem Unit 2 that allowed a one-time change to the fuel decay time from 100 to 86 hours (Reference 12). In this submittal, a new FHA dose analysis was submitted to the NRC as Attachment 5. The revised FHA analysis used a bounding minimum fuel decay time of 24 hours. The activities required prior to moving irradiated fuel in the reactor vessel (e.g. RCS cooldown, depressurization, containment entry, removal of the reactor vessel head, removal of reactor vessel internals) require well in excess of 24 hours to complete before irradiated fuel can be moved. The FHA dose analysis performed an assessment of the release from the FHB by considering a 2-hour release (with FHAVS operating and no exhaust filtration credited) and a rapid (puff) release assuming a release rate of one FHB volume per minute (no credit for operation of the FHAVS). The assumed puff release yields a higher control room dose because it results in a larger amount of unfiltered iodine activity entering the control room prior to the one minute start of the control room emergency air conditioning system. The NRC approved this LAR as Salem Unit 2 Amendment 271 dated March 5, 2008 (Reference 13). In section 3.1 of the NRC Safety Evaluation Report (SER) for Amendment 271, the NRC documented the following:

> The puff release yields a slightly higher dose (0.01 rem) than the 0-2 hour release for the EAB, while the LPZ dose for both cases is identical.
>
> The licensee's calculated dose results of an FHA occurring in the FHB are included in Tables 2 through 4 of this SE. The licensee's analysis shows that, for an FHA occurring in the FHB, the limiting event would be that of a rapid release assuming a 24-hour decay period, which would result in TEDE dose values of 1.27 rem for the EAB and 0.18 rem TEDE for the LPZ. These results are below the regulatory dose acceptance criterion of 6.3 rem TEDE for both the EAB and LPZ, as shown in RG 1.183 and SRP 15.0.1.
>
> The control room doses calculated by the licensee, resulting from the postulated design-basis FHA are below the regulatory dose criterion of 5.0 rem TEDE shown in 10 CFR 50.67 and GDC-19. The FHA in the FHB with rapid release proved to be the limiting event for all analyzed FHAs and decay times, resulting in a control room dose of 2.06 rem TEDE, assuming a 24-hour decay period.

In Section 3.2.2 of the NRC SER for Amendment 271, the NRC documented the following regarding Spent Fuel Pool cooling:

> The NRC staff concludes that the licensees analysis associated with reducing the minimum decay time from 100 hours to 86 hours on a one-time basis for refueling outage 2R16, in conjunction with the IDHM Program procedural controls as described in UFSAR Section 9.1.3, provide reasonable assurance that the available decay heat removal capability will be maintained consistent with its importance to safety and the SFP cooling system will provide the capability to prevent a significant reduction in coolant inventory under accident conditions.

On March 11, 2008, PSEG submitted an LAR for Salem Unit 1 and 2 that permanently revised the fuel decay time for the period of October 15th to May 15th from 100 to 80 hours (Reference 14). The FHA dose analysis provided with this submittal was the same analysis provided for Unit 2 Amendment 271. The NRC approved this LAR as Salem Unit 1 Amendment 289 and Unit 2 Amendment 273 (Reference 15). As documented in Section 3.1 of the NRC SER for Amendments 289 and 273, the NRC staff's previous evaluation of the radiological consequences for an FHA for Salem Unit No. 2 Amendment 271 is applicable to the proposed amendment for Salem Unit Nos. 1 and 2. In Section 3.2 of the NRC SER for Amendments 289 and 273, the NRC documented the following regarding Spent Fuel Pool cooling:

> Based on its review, the NRC staff concludes that the proposed changes to TS 3.9.3 in conjunction with the operational control on component cooling water temperature specified by the IDHM program; provide reasonable assurance that the decay heat removal capability will be maintained consistent with the importance to safety.

Subsequent to Amendments 289 and 273, PSEG revised the FHA dose analysis in accordance with 10 CFR 50.59 to increase the assumption of unfiltered inleakage entering the control room to bound the results of tracer gas testing performed in 2010. The 24 hour fuel decay time and assumptions associated with the FHAVS were not changed.

2.2 Current Technical Specification Requirements

The current technical specifications associated with this change are TS 3/4.9.3, "Decay Time," and TS 3/4.9.12, "Fuel Handling Area Ventilation System." The marked up TS pages provided in Attachment 1 contain the details of the current Technical Specifications.

2.3 Reason for Proposed Change

Relocating the decay time and FHAVS requirements from the TS aligns the TS with the current design basis analysis for a postulated FHA in the FHB and will eliminate the burden of processing license amendments when future changes are made to the decay time or FHAVS requirements and will facilitate the more effective utilization of NRC and PSEG resources.

2.4 Description of Proposed Change

The proposed change will relocate Salem Unit 1 and Unit 2 Technical Specification (TS) 3/4.9.3, "Decay Time," and TS 3/4.9.12, "Fuel Handling Area Ventilation System," with no changes, to the Salem TRM. The TS pages will be marked: 'This page intentionally blank.'

The following associated changes will also be made to support relocation of TS 3/4.9.3 and 3/4.9.12:

- The TS Index will be revised to delete the references to TS 3/4.9.3 and 3/4.9.12.
- TS Bases Sections TS 3/4.9.3, "Decay Time," and TS 3/4.9.12, "Fuel Handling Area Ventilation System," will be deleted.

Marked up TS pages are provided in Attachment 1 of this submittal. Marked up TS Bases pages are provided for information only in Attachment 2.

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. This Final Policy Statement clarified the purpose of TS and established a set of objective criteria as guidance for determining which regulatory requirements and operating restrictions should be included in TS.

(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 functions 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) a structure, system, or component which operating experience or probabilistic safety assessment has shown to be significant to public health and safety.

The purpose of Technical Specifications is to impose those conditions or limitations upon reactor operation necessary to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety by identifying those features that are of controlling importance to safety and establishing on them certain conditions of operation which cannot be changed without prior Commission approval. The criteria for Limiting Conditions for Operation (LCOs) to be retained in TS are derived from the plant safety analysis or risk analysis.

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 Final Safety Analysis Report (FSAR). Changes to the facility or to procedures described in the FSAR 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.

The above four criteria were later incorporated into 10 CFR 50.36, "Technical specifications." Below is the assessment of the four criteria of 50.36 for the fuel decay time and the fuel handling area ventilation system.

Decay Time

Criterion 1: Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary;

The decay time does not use installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary. Therefore this specification does not satisfy Criterion 1 for retention in the TS.

Criterion 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;

Although the decay time specification involved an operating restriction or 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, during the development of NUREG-1431 it was determined that this specification could be relocated. The basis for this determination was that existing scheduling restraints associated with moving irradiated fuel following a plant shutdown will prevent the decay time limit from being exceeded. These activities include containment entry, removal of the reactor vessel head and upper internals as well as filling the refueling cavity.

As discussed in Section 2.1, the decay time assumed for the fuel handling accident (FHA) is 24 hours. The scheduling constraints discussed above are applicable to Salem Units 1 and 2 and ensure that fuel decay time assumed in the FHA is met. A review of Salem Refueling Outage performance for the past 10 years shows that entry into Mode 6 (reactor head de-tensioned) has averaged around 62 hours. The minimum time to reach movement of irradiated fuel in this 10 year period was 91 hours. The current TS requirement is not required to ensure the plant is operated within the bounds of the FHA design basis analysis. Therefore it does not satisfy Criterion 2 for retention in the TS.

Criterion 3: A structure, system, or component that is part of the primary success path and which functions 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.

The decay time specification does not involve a structure system or component (SSC) that is part of the primary success path and which functions 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. Therefore, this specification does not satisfy Criterion 3 for retention in the TS.

Criterion 4: A structure, system, or component which operating experience or probabilistic safety assessment has shown to be significant to public health and safety.

The decay time specification does not involve a SSC which operating experience or probabilistic safety assessment has shown to be significant to the public health and safety. Therefore, this specification does not satisfy Criterion 4 for retention in the TS.

Therefore, the fuel decay time specification does not meet any of the four screening criteria of the Final Policy Statement. This conclusion is supported by the absence of operability and surveillance requirements for the fuel decay time in the improved standard Technical Specifications (ISTS) presented in NUREG-1431. Accordingly, this proposed change conforms to the ISTS, and fuel decay time requirements can be established in a licensee-controlled document, the Salem TRM. Future changes to fuel decay time requirements in the TRM will be subject to the controls of 10 CFR 50.59. Any changes to the IDHM Program as described in Salem UFSAR Section 9.1.3 are already subject to the controls of 10 CFR 50.59.

Fuel Handling Area Ventilation System

Criterion 1: Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary;

The FHAVS is not used to detect degradation of any type associated with the reactor coolant pressure boundary. Therefore, this specification does not satisfy Criterion 1 for retention in the TS.

Criterion 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;

The operation of the FHAVS during a FHA in the Fuel Handling Building (FHB) is not a process variable, design feature or operating restriction that is an initial condition of a design basis accident or transient analysis. As described in Section 15.4.6.1 of the Salem UFSAR, the FHA is assumed to occur from the dropping of spent fuel assembly onto the spent fuel pit floor or inside the containment resulting in the rupture of the cladding of all of the fuel rods in the assembly. The rupture of the cladding of the fuel assembly is not impacted by the operation of the FHV system. Therefore, this specification does not satisfy Criterion 2 for retention in the TS.

Criterion 3: A structure, system, or component that is part of the primary success path and which functions 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.

The operation of the FHAVS in the FHB is not required to function or actuate to mitigate the FHA. Analysis has demonstrated that when the FHAVS is not in service, the dose consequences of a FHA are well within the limits of 10 CFR 50.67 as discussed in Section 2.1. Therefore, this specification does not satisfy Criterion 3 for retention in the TS.

Criterion 4: A structure, system, or component which operating experience or probabilistic safety assessment has shown to be significant to public health and safety.

The FHAVS is not a risk significant system. Analysis has demonstrated that when the FHAVS is not in service, the dose consequences of a FHA are well within the limits of 10 CFR 50.67 as discussed in Section 2.1. Therefore, this specification does not satisfy Criterion 4 for retention in the TS.

Therefore, the FHAVS specification does not meet any of the four screening criteria of the Final Policy Statement. Accordingly, the FHAVS requirements can be established in a licensee-controlled document, the Salem TRM. Future changes to FHAVS requirements in the TRM will be subject to the controls of 10 CFR 50.59. No plant modifications are currently planned to remove the FHAVS.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

10 CFR 50, Appendix A, General Design Criteria (GDC)

Salem was designed in accordance with PSEG's understanding of the intent of the Atomic Energy Commission (AEC) proposed General Design Criteria published in July 1967. The applicable AEC proposed criteria, as document in Salem UFSAR Section 3.1, were compared to 10 CFR 50 Appendix A General Design Criteria (GDC) as discussed below. The applicable GDC criteria are GDC-60 and 61.

Criterion 60—Control of releases of radioactive materials to the environment. The nuclear power unit design shall include means to control suitably the release of radioactive materials in gaseous and liquid effluents and to handle radioactive solid wastes produced during normal reactor operation, including anticipated operational occurrences. Sufficient holdup capacity shall be provided for retention of gaseous and liquid effluents containing radioactive materials, particularly where unfavorable site environmental conditions can be expected to impose unusual operational limitations upon the release of such effluents to the environment.

GDC Criterion 60 is similar to AEC Criterion 70.

Criterion 61—Fuel storage and handling and radioactivity control. The fuel storage and handling, radioactive waste, and other systems which may contain radioactivity shall be designed to assure adequate safety under normal and postulated accident conditions. These systems shall be designed (1) with a capability to permit appropriate periodic inspection and testing of components important to safety, (2) with suitable shielding for radiation protection, (3) with appropriate containment, confinement, and filtering systems, (4) with a residual heat removal capability having reliability and testability that reflects the importance to safety of decay heat and other residual heat removal, and (5) to prevent significant reduction in fuel storage coolant inventory under accident conditions.

GDC Criterion 61 is similar to AEC Criteria 67, 68 and 69.

Following implementation of the proposed changes, Salem Units 1 and 2 will remain in compliance with AEC Criteria 67, 68, 69 and 70.

10 CFR 50.36, Technical specifications, list four criteria that require the establishment of a Limiting Condition for Operation.

> Criterion 1: Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary;

Criterion 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;

Criterion 3: A structure, system, or component that is part of the primary success path and which functions 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.

Criterion 4: A structure, system, or component which operating experience or probabilistic safety assessment has shown to be significant to public health and safety.

As discussed in Section 3.0, the Salem fuel decay time and Fuel Handling Area Ventilation System (FHAVS) do not meet the four criteria of 10 CFR 50.36 for retention in the Technical Specifications.

4.2 Precedent

- Decay Time

  The relocation of the decay time requirements is consistent with NUREG-1431 and the following industry Technical Specification Amendments:

  Millstone Unit 2 Amendment No. 240 (ADAMS Accession No. ML003684825) relocated refueling operations specifications including the fuel decay time from the Technical Specifications to the Technical Requirements Manual.

  In a letter from Carolina Power & Light to the NRC dated April 5, 1995, Shearon Harris requested a license amendment to relocate refueling operations specifications including the fuel decay time from the Technical Specifications to the Technical Requirements Manual (ADAMS Accession No. 9504110048). The Shearon Harris license amendment request was approved as Amendment No. 61 (ADAMS Accession No. 9508180182).

- Fuel Handling Area Ventilation System

  In a letter from Entergy to the NRC dated April 24, 2007, Arkansas Nuclear One (ANO) Units 1 and 2 requested a license amendment to relocate the Fuel Handling Area Ventilation System and associated Ventilation Filter Testing Program requirements to the Technical Requirements Manual (ADAMS Accession No. ML071220178). The ANO license amendment request was approved as Amendment No. 231 for Unit 1 and 274 for Unit 2 dated February 4, 2008 (ADAMS Accession No. ML073330005).

4.3 No Significant Hazards Consideration

PSEG Nuclear LLC (PSEG) requests an amendment to the Salem Unit 1 and Unit 2 Operating Licenses. The proposed amendment will relocate Salem Unit 1 and Unit 2 Technical Specification (TS) 3/4.9.3, "Decay Time," and TS 3/4.9.12, "Fuel Handling Area Ventilation System," to the Salem Technical Requirements Manual (TRM).

PSEG has evaluated the proposed changes to the TS using the criteria in 10 CFR 50.92, and determined that the proposed changes do not involve a significant hazards consideration. The following information is provided to support a finding of no significant hazards:

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

   Response: No

   The proposed relocation of Technical Specifications 3/4.9.3 and 3/4.9.12 to the Salem TRM does not alter the requirements for component operability or surveillance currently in the Technical Specifications. The proposed change to remove these requirements from the Technical Specifications and relocate the information to an administratively controlled document will have no impact on any safety related structure, system or component (SSC).

   The decay time and the Fuel Handling Area Ventilation System (FHAVS) are not initiators of any analyzed event in the Updated Final Safety Analysis Report (UFSAR). The proposed changes do not alter the design of the FHAVS or any other SSC. The consequences of the fuel handling accident (FHA) in the fuel handling building (FHB) are not altered by this change. The proposed changes conform to NRC regulatory guidance regarding the content of plant TS, as identified in 10 CFR 50.36, NUREG-1431, and the NRC Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors in 58 FR 39132.

   Therefore, these proposed changes do 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 to the TS would relocate the decay time and FHAVS requirements to the Salem TRM. The proposed change does not involve a modification to the physical configuration of the plant or change in the methods governing normal plant operation. The proposed changes will not impose any new or different requirement or introduce a new accident initiator, accident precursor, or malfunction mechanism.

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

3. Do the proposed changes involve a significant reduction in a margin of safety?

   Response: No

   The proposed relocation of Technical Specifications 3/4.9.3 and 3/4.9.12 to the Salem TRM does not alter the requirements for component operability or surveillance currently in the Technical Specifications. The proposed change to remove these requirements from the Technical Specifications and relocate the information to an administratively controlled

document does not alter any assumptions in the Salem FHA analysis in the FHB. Future revisions to the TRM will be subject to review pursuant to 10 CFR 50.59.

The proposed amendment will not result in a design basis or safety limit being exceeded or altered. The assumptions of the FHA are not altered by the proposed amendment. Therefore, since the proposed changes do not impact the response of the plant to a design basis accident, the proposed changes do not involve a significant reduction in a margin of safety.

Based upon the above, PSEG 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

Therefore, 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

1. NUREG-1431, Revision 4.0, Standard Technical Specifications Westinghouse Plants, April 2012
2. Letter from Carolina Power & Light Company to NRC, "Shearon Harris Nuclear Power Plant: Request for License Amendment Refueling Operations," dated April 5, 1995, (ADAMS Accession No. 9504110048)
3. Letter from Carolina Power & Light Company to NRC, "Shearon Harris Nuclear Power Plant: Refueling Operations Supplemental Information" dated July 31, 1995, (ADAMS Accession No. 9508040049)
4. Letter NRC to Carolina Power & Light Company, "Issuance of Amendment No. 61 to Facility Operating License No. NPF-63 Regarding Various Portion of TS 3/4.9, 'Refueling Operations' to be consistent with NUREG-1431 – Shearon Harris Nuclear Power Plant, Unit 1 (TAC No. M91972)," dated August 9, 1995 (ADAMS Accession No. 9508180182).

5. Letter NRC to Northeast Nuclear Energy Company, "Millstone Nuclear Power Station, Unit No. 2 – Issuance of Amendment Re: Relocation of Technical Specifications (TAC No. MA6081)," dated February 10, 2000 (ADAMS Accession No. ML003684825)
6. Letter from Entergy to the NRC, "License Amendment Request to Delete the Fuel Handling Area Ventilation System and Associated Filter Testing Program Requirements, Arkansas Nuclear One, Unit 1 and Unit 2," dated April 24, 2007, (ADAMS Accession No. ML071220178).
7. Letter from NRC to Entergy, "Arkansas Nuclear One, Units 1 and 2 – Issuance of Amendments Re: Relocation of the Fuel Handling Area Ventilation System and Associated Filter Testing Program Requirements to the Technical Requirements Manuals (TAC Nos. MD5379 and MD5390)," dated February 4, 2008 (ADAMS Accession No. ML073330005).
8. Letter PSEG Nuclear LLC to NRC, "Request for Changes to Technical Specifications Refueling Operations – Fuel Decay Time Prior to Commencing Core Alterations or Movement of Irradiated Fuel," dated June 28, 2002 (ADAMS Accession No. ML021920053)
9. Letter NRC to PSEG Nuclear LLC, "Salem Generating Station, Unit Nos. 1 and 2, Issuance of Amendment Re: Refueling Operations – Fuel Decay Time Prior to Commencing Core Alterations or Movement of Irradiated Fuel (TAC Nos. MB5488 and MB5489)," dated October 10, 2002 (ADAMS Accession No. ML02770181)
10. Letter PSEG Nuclear LLC to NRC, "Request for Changes to Technical Specifications Refueling Operations – Relaxation of Requirements Applicable During Movement of Irradiated Fuel," dated July 29, 2002 (ADAMS Accession No. ML022200450)
11. Letter NRC to PSEG Nuclear LLC, "Salem Generating Stations, Unit Nos. 1 and 2, Issuance of Amendments Re: Request for Relaxation of Technical Specification Requirements Applicable During Movement of Irradiated Fuel (TAC Nos. MB5710 and MB5711)," dated September 16, 2004, (ADAMS Accession No. ML042450476)
12. Letter PSEG Nuclear LLC to NRC, "Request for One-Time Change to Technical Specifications Refueling Operations – Decay Time License Amendment Request (LAR) S07-06," dated October 17, 2007 (ADAMS Accession No. ML073470363)
13. Letter NRC to PSEG Nuclear LLC, "Salem Nuclear Generating Station, Unit No. 2, Issuance of Amendment Re: Refueling Operations – Decay Time (TAC No. MD7027)," dated March 5, 2008 (ADAMS Accession No. ML080320421)
14. Letter PSEG Nuclear LLC to NRC, "Request for Changes to Technical Specifications Refueling Operations – Decay Time, License Amendment Request (LAR) S08-01," dated March 11, 2008, (ADAMS Accession No. ML080930080)
15. Letter NRC to PSEG Nuclear LLC, "Salem Nuclear Generating Station, Unit Nos. 1 and 2, Issuance of Amendments Re: Refueling Operations – Decay Time (TAC Nos. MD8259 and MD8260)," dated September 24, 2008, (ADAMS Accession No. ML082340922)

Attachment 1

Mark-up of Proposed Technical Specification Pages

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

Technical Specification	Page
INDEX	IX, XV
3/4.9.3, Decay Time	3/4 9-3
3/4.9.12, Fuel Handling Area Ventilation System	3/4 9-12

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

Technical Specification	Page
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INDEX

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

BASES

DECAY TIME

LIMITING CONDITION FOR OPERATION

3.9.3 The reactor shall be subcritical for at least:.

a. 80 hours
b. 168 hours

APPLICABILITY: Specification 3.9.3.a - From October 15th through May 15th, during movement of irradiated fuel in the reactor pressure vessel.

Specification 3.9.3.b - From May 16th through October 14th, during movement of irradiated fuel in the reactor pressure vessel.

ACTION:

With the reactor subcritical for less than the required time, suspend all operations involving movement of irradiated fuel in the reactor pressure vessel. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.3 The reactor shall be determined to have been subcritical as required by verification of the date and time of subcriticality prior to movement of irradiated fuel in the reactor pressure vessel.

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FUEL HANDLING AREA VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.9.12 The Fuel Handling Area Ventilation System shall be OPERABLE with:

a. Two exhaust fans and one supply fan OPERABLE and operating, and

b. Capable of maintaining slightly negative pressure in the Fuel Handling Building.

APPLICABILITY: During movement of irradiated fuel within the Fuel Handling Building

ACTION:

a. With no Fuel Handling Area Ventilation System OPERABLE, suspend all operations involving movement of fuel within the storage pool until the Fuel Handling Area Ventilation System is restored to OPERABLE status.

b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.12 The above required ventilation system shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying that, the Fuel Handling Building is maintained at a slightly negative pressure with respect to atmospheric pressure.

b. In accordance with the Surveillance Frequency Control Program by verifying both exhaust fans and one supply fan sta t and operate for at least 15 minutes, if not operating already.

c. In accordance with the Surveillance Frequency Control Program by verifying a system flowrate of 19,490 cfm ± 10% during system operation.

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LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

BASES

DECAY TIME

LIMITING CONDITION FOR OPERATION

3.9.3 The reactor shall be subcritical for at least:

a. 80 hours
b. 168 hours

APPLICABILITY: Specification 3.9.3.a - From October 15th through May 15th, during movement of irradiated fuel in the reactor pressure vessel.

Specification 3.9.3.b - From May 16th through October 14th, during movement of irradiated fuel in the reactor pressure vessel.

ACTION:

With the reactor subcritical for less than the required time, suspend all operations involving movement of irradiated fuel in the reactor pressure vessel. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.3 The reactor shall be determined to have been subcritical as required by verification of the date and time of subcriticality prior to movement of irradiated fuel in the reactor pressure vessel.

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3/4.9.12 FUEL HANDLING AREA VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.9.12 The Fuel Handling Area Ventilation System shall be OPERABLE with:

a. Two exhaust fans and one supply fan OPERABLE and operating, and

b. Capable of maintaining slightly negative pressure in the Fuel Handling Building.

APPLICABILITY: During movement of irradiated fuel within the Fuel Handling Building

ACTION:

a. With no Fuel Handling Area Ventilation System OPERABLE, suspend all operations involving movement of fuel within the storage pool until the Fuel Handling Area Ventilation System is restored to OPERABLE status.

b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.12 The above required ventilation system shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying that the Fuel Handling Building is maintained at a slightly negative pressure with respect to atmospheric pressure.

b. In accordance with the Surveillance Frequency Control Program by verifying both exhaust fans and one supply fan start and operate for at least 15 minutes, if not operating already.

c. In accordance with the Surveillance Frequency Control Program by verifying a system flowrate of 19,490 cfm ± 10% during system operation.

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Attachment 2

Mark-up of Proposed Technical Specification Bases Pages

The following Technical Specifications Bases pages for Renewed Facility Operating License DPR-70 are affected by this change request:

Technical Specification Bases	Page
3/4.9.3, Decay Time	B3/4 9-1c
3/4.9.12, Fuel Handling Area Ventilation System	B3/4 9-4

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

Technical Specification Bases	Page
3/4.9.3, Decay Time	B3/4 9-1c
3/4.9.12, Fuel Handling Area Ventilation System	B3/4 9-4

Any combination of NIS source range neutron flux monitors and/or Gamma-Metrics post-accident neutron flux monitors may be used to satisfy the LCO. Two of the four total source range neutron flux monitors are required to be OPERABLE.

With only one required source range neutron flux monitor OPERABLE, redundancy has been lost. Suspending positive reactivity additions that could result in failure to meet the minimum boron concentration limit is required to assure continued safe operation.

With no required source range neutron flux monitor OPERABLE, action to restore a monitor to OPERABLE status shall be initiated immediately. With no source range neutron flux monitor OPERABLE, there is no direct means of detecting changes in core reactivity. However, since positive reactivity additions are not to be made, the core reactivity condition is stabilized until the source range neutron flux monitors are OPERABLE. This stabilized condition is confirmed by performing Surveillance Requirement 4.9.1 to ensure that the required boron concentration exists and adequate shutdown margin is maintained.

3/4.9.3 ~~DECAY TIME~~ Deleted

The minimum requirement for reactor subcriticality prior to movement of irradiated fuel assemblies in the reactor pressure vessel ensures that sufficient time has elapsed to allow the radioactive decay of the short lived fission products. The 80-hour decay time (LAR S08-01) is consistent with the assumptions used in the fuel handling accident analyses and the resulting dose calculations using the Alternative Source Term described in Reg. Guide 1.183.

The minimum requirement for reactor subcriticality also ensures that the decay time is consistent with that assumed in the Spent Fuel Pool cooling analysis. The calendar based restrictions are established for the actual movement of irradiated fuel; i.e., movement cannot commence in the October 15th through May 15th window unless at least 80 hours has elapsed since subcriticality was achieved. The 80 hour clock can start prior to October 15 but must end in the October 15th – May 15th window for the 80 hour criteria to be applicable.

Similarly, fuel movement between May 16th and October 14th cannot commence unless at least 168 hours has elapsed since subcriticality was achieved. Delaware River water average temperature between October 15th and May 15th is determined from historical data taken over 30 years. The use of 30 years of data to select maximum temperature is consistent with Reg. Guide 1.27, "Ultimate Heat Sink for Nuclear Power Plants".

A core offload has the potential to occur during both applicability time frames. In order not to exceed the analyzed Spent Fuel Pool cooling capability to maintain the water temperature below 180°F, two decay time limits are provided. In addition, PSEG has developed and implemented a Spent Fuel Pool Integrated Decay Heat Management Program as part of the Salem Outage Risk Assessment. This program requires a pre-outage assessment of the Spent Fuel Pool heat loads and heatup rates to assure available Spent Fuel Pool cooling capability prior to offloading fuel.

For support systems: Service Water (SW) and Component Cooling (CC), component redundancy is necessary to ensure no single active component failure will cause the loss of Decay Heat Removal. One piping path of SW and CC is adequate when it supports both RHR loops. The support systems needed before entering into the desired configuration (e.g., one service water loop out for maintenance in Modes 5 and 6) are controlled by procedures, and include the following:

- A requirement that the two RHR, two CC and two SW pumps, powered from two different vital buses be kept operable
- A listing of the active (air/motor operated) valves in the affected flow path to be locked open or disabled.

Note that four filled reactor coolant loops, with at least two steam generators with at least their secondary side water level greater than or equal to 5% (narrow range), may be substituted for one residual heat removal loop. This ensures that a single failure does not cause a loss of decay heat removal.

With the reactor vessel head removed and 23 feet of water above the reactor pressure vessel flange, a large heat sink is available for core cooling. Thus, in the event of a failure of the operating RHR loop, adequate time is provided to initiate emergency procedures to cool the core.

3/4.9.9 (NOT USED)

3/4.9.10 and 3/4/9/11 WATER LEVEL - REACTOR VESSEL AND STORAGE POOL

The restrictions on minimum water level ensure that sufficient water depth is available to remove 99% of the assumed 10% iodine gap activity released from the rupture of an irradiated fuel assembly. The minimum water depth is consistent with the assumptions of the accident analysis.

3/4.9.12 ~~FUEL HANDLING AREA VENTILATION SYSTEM~~ Deleted

~~The operability of the Fuel Handling Area Ventilation System during movement of irradiated fuel ensures that a release of fission product radioactivity within the Fuel Handling Building will not exceed the guidelines and dose calculations described in Reg. Guide 1.183, Alternative Radiological Source Term for Evaluating Design Basis Accidents at Nuclear Power Reactors.~~

alert the operator to unexpected changes in core reactivity, such as a boron dilution event. This ensures that redundant monitoring capability is available to detect changes in core reactivity. Based on isolating all boron dilution paths per LCO 3.9.2.1, only the source range neutron flux monitor visual indication in the control room is required for OPERABILITY.

Any combination of NIS source range neutron flux monitors and/or Gamma-Metrics post-accident neutron flux monitors may be used to satisfy the LCO. Two of the four total source range neutron flux monitors are required to be OPERABLE.

With only one required source range neutron flux monitor OPERABLE, redundancy has been lost. Suspending positive reactivity additions that could result in failure to meet the minimum boron concentration limit is required to assure continued safe operation.

With no required source range neutron flux monitor OPERABLE, action to restore a monitor to OPERABLE status shall be initiated immediately. With no source range neutron flux monitor OPERABLE, there is no direct means of detecting changes in core reactivity. However, since positive reactivity additions are not to be made, the core reactivity condition is stabilized until the source range neutron flux monitors are OPERABLE. This stabilized condition is confirmed by performing Surveillance Requirement 4.9.1 to ensure that the required boron concentration exists and adequate shutdown margin is maintained.

3/4.9.3 ~~DECAY TIME~~ Deleted

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3/4.9.9 (Not Used)

3/4.9.10 and 3/4/9/11 WATER LEVEL - REACTOR VESSEL AND STORAGE POOL

The restrictions on minimum water level ensure that sufficient water depth is available to remove 99% of the assumed 10% iodine gap activity released from the rupture of an irradiated fuel assembly. The minimum water depth is consistent with the assumptions of the accident analysis.

3/4.9.12 ~~FUEL HANDLING AREA VENTILATION SYSTEM~~ Deleted

~~The operability of the Fuel Handling Area Ventilation System during movement of irradiated fuel ensures that a release of fission product radioactivity within the Fuel Handling Building will not exceed the guidelines and dose calculations described in Reg. Guide 1.183, Alternative Radiological Source Term for Evaluating Design Basis Accidents at Nuclear Power Reactors.~~