

PSEG Nuclear LLC  
P.O. Box 236, Hancocks Bridge, NJ 08038-0236



**JUL 17 2012**

LR-N12-0183  
LAR S12-02

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

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

Subject: **License Amendment Request: Revision to Technical Specification (TS) 3.7.6.1 (Unit 1) and 3.7.6 (Unit 2) “Control Room Emergency Air Conditioning System”**

In accordance with 10 CFR 50.90, PSEG Nuclear, LLC (PSEG) requests an amendment to the facility operating license listed above. In accordance with 10 CFR 50.91(b)(1), a copy of this request for amendment has been sent to the State of New Jersey.

This amendment request proposes to revise Salem Unit 1 Technical Specification (TS) 3.7.6.1 and Salem Unit 2 TS 3.7.6, “Control Room Emergency Air Conditioning System,” to remove the individual action statements for inoperable isolation dampers between the normal Control Area Air Condition System (CAACS) and the Control Room Emergency Air Conditioning System (CREACS).

With the proposed amendment, the actions for an inoperable Control Room Envelope (CRE) boundary will be entered when a CAACS to CREACS isolation damper is inoperable. The removal of the individual action statements which require the inoperable isolation damper to be secured in the closed position within 4 hours will allow for the performance of preventive maintenance that cannot be effectively performed within the current 4 hour action statement requirement. Implementing the actions of an inoperable control room boundary will ensure that mitigating actions are taken to ensure that the CRE boundary is able to meet the limits of the radiological, smoke, and chemical hazards analyses.

No new regulatory commitments are established by this submittal.

Attachment 1 to this letter provides an evaluation supporting the proposed changes. The marked-up TS pages, with the proposed changes indicated, are provided in Attachment 2. PSEG requests approval of the proposed change by July 31, 2013, with the amendment being implemented within 60 days of issuance.

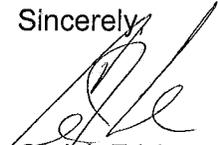
JUL 17 2012

If you have any questions or require additional information, please do not hesitate to contact Mr. Brian Thomas at (856) 339-2022.

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

Executed on 7/17/12  
(date)

Sincerely,



Carl J. Fricker  
Site Vice President  
Salem Generating Station

Attachments (2)

cc: W. Dean, Regional Administrator - NRC Region I  
J. Hughey, Project Manager - USNRC  
NRC Senior Resident Inspector – Salem Unit 1 and Unit 2  
P. Mulligan, Manager IV, NJBNE  
Commitment Coordinator – Salem  
PSEG Commitment Coordinator – Corporate

**LICENSE AMENDMENT REQUEST (LAR) S12-02 – CAACS/CREACS ISOLATION DAMPER ACTION**

**Table of Contents**

1.	DESCRIPTION.....	2
2.	PROPOSED CHANGE.....	2
3.	BACKGROUND .....	2
4.	TECHNICAL ANALYSIS.....	3
5.	REGULATORY ANALYSIS .....	5
6.	ENVIRONMENTAL CONSIDERATION.....	7
7.	REFERENCES.....	7

## **1.0 DESCRIPTION**

This license amendment request (LAR S12-02) proposes changes to Technical Specification (TS) 3/4.7.6.1 (Unit 1) and 3/4.7.6 (Unit 2), "Control Room Emergency Air Conditioning System," by removing the separate action for securing an inoperable Control Area Air Conditioning (CAACS) and Control Room Emergency Air Conditioning System (CREACS) isolation damper in the closed position and entering the actions for an inoperable control room envelope (CRE) boundary.

## **2.0 PROPOSED CHANGE**

The proposed TS changes are described below and are indicated on the marked up TS pages provided in Attachment 2 of this submittal. No changes to the TS Bases are required.

Delete the following actions from TS 3.7.6.1 (Unit 1) and TS 3.7.6 (Unit 2):

Applicable in Modes 1, 2, 3, and 4

f. With any isolation damper between the normal CAACS and the CREACS inoperable, secure the damper in the closed position within 4 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

Applicable in Modes 5 and 6 or during movement of irradiated fuel assemblies.

g. With any isolation damper between the CAACS and the CREACS inoperable, immediately suspend movement of irradiated fuel assemblies until the damper is closed and secured in the closed position.

## **3.0 BACKGROUND**

PSEG requested changes to the Salem Unit 1 and 2 Technical Specifications in a license amendment request dated June 10, 1996, which added the current actions to close and secure in the closed position an inoperable isolation damper between the normal CAACS and CREACS ventilation systems. This license amendment request revised the CREACS LCO, Actions and Surveillance Requirements as a result of modifications to the CREACS. Amendments 190 (Unit 1) and 173 (Unit 2) approved this LAR. Prior to this license amendment, the Salem Unit 1 and 2 control rooms were separate and each contained a single train ventilation system that operated in recirculation in response to design basis radiological events. The modifications performed to the Unit 1 and 2 CREACS combined the individual control rooms into a common control room envelope (CRE) with two 100% capacity filtration trains (one from each unit). In addition, the CREACS system was revised from a recirculation system for design basis radiological events to a pressurization system. During radiological design basis accidents the CREACS is automatically initiated by either a safety injection signal or a control room radiation monitor and operates in the pressurization mode. For chemical and fire events outside of the control area the CREACS is manually initiated by the control room operators in recirculation mode. During this modification isolation dampers (1/2CAA14, and 1/2CAA20) were installed in the ducting that connects the normal CAACS and CREACS pathways to maintain the ventilation boundary of the CRE. The

normal CAACS to CREACS flowpaths contain only one damper for isolating the normal and emergency control room ventilation systems from each other. In addition to adding the actions for an inoperable isolation damper between the CAACS and CREACS, an action (TS 3.7.6 Action c) was also added for the inoperability of the CRE boundary. With the issuance of Amendments 190/173, the action time for an inoperable CRE boundary and the action times for an inoperable CAACS/CREACS isolation damper were 4 hours.

By letter LR-N07-0058 dated April 15, 2007, PSEG requested a change to the CREACS TS to implement Technical Specification Task Force (TSTF) traveler 448, Revision 3, "Control Room Habitability." This request was approved on January 24, 2008 as Amendment 286 (Unit 1) and 269 (Unit 2). Part of this TS change included a revision to the action statement for an inoperable CRE boundary as follows:

- c. With the Control Room Envelope boundary inoperable:
  - 1. Immediately, initiate action to implement mitigating actions, and
  - 2. Within 24 hours, verify mitigating actions ensure CRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits, and
  - 3. Within 90 days, restore the Control Room Envelope boundary to OPERABLE status, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

The actions associated with an inoperable control room boundary ensure that mitigating actions are taken that maintain the plant operation consistent with the radiological, chemical, and smoke hazard analyses.

#### **4.0 TECHNICAL ANALYSIS**

The CAACS and CREACS are designed to maintain room temperatures within limits and permit continuous occupancy under normal and design accident conditions. The CAACS is the normal ventilation system and continuously operates throughout normal conditions to supply the CRE, Control Area Relay Room and Electrical Equipment Room (see UFSAR Figures 9.4-1a and 9.4-1b). During emergency conditions, the system isolates from the CRE and continues to supply the Control Area Relay Room and Electrical Equipment Room. The CREACS is in standby during normal plant operations and supplies the CRE during radiological design basis accidents, hazardous chemical and fire events outside of the control area. During radiological design basis accidents the CREACS is automatically initiated by either a safety injection signal or a control room radiation monitor and operates in the pressurization mode. For chemical and fire events outside of the control area the CREACS is manually initiated by the control room operators in recirculation mode. When CREACS is initiated, the CRE boundary is automatically isolated from the normal CAACS by closure of the CAACS/CREACS isolation dampers (1/2CAA14, and 1/2CAA20).

Currently when a CAACS/CREACS isolation damper is inoperable, the TS actions require the inoperable isolation damper to be closed and secured closed. This action is to ensure that the CAACS system is isolated from the control room envelope such that unfiltered air from the CAACS does not enter the control room envelope and that the CREACS system remains capable of maintaining a positive pressure in the CRE with respect to all adjacent areas.

PSEG is proposing to revise the Salem Unit 1 and 2 TS to remove the separate action for closing the CAACS/CREACS isolation damper and securing the damper in the closed position and entering the TS action for an inoperable control room boundary. The intention of both the individual action statement to close and secure the isolation dampers and the action for the control room boundary is to ensure that the control room envelope is operated within the bounds of the radiological, smoke and chemical hazards analyses. No changes to the radiological, smoke, or chemical hazards analyses are being performed as a result of this change.

The change to the technical specification is being proposed to allow for maintenance to be performed on the CAACS/CREACS isolation dampers. The current action statement for an inoperable CAACS/CREACS isolation damper does not allow the ability to open the damper when the damper has been declared inoperable. Due to this TS restriction certain preventive maintenance activities (i.e., damper overhaul) have not been performed since the CREACS was modified in late 1990's. Performance of this preventative maintenance will improve the reliability of the CAACS/CREACS isolation dampers and avoid unnecessary entry into a shutdown action as a result of failure of an isolation damper to close properly. Although the preventive maintenance has not been performed on these dampers, these dampers are periodically cycled closed during actuation of the CREACS in the accident pressurized mode during surveillance testing. Tracer gas testing has been performed for the Salem CRE in March 2003 and October 2010 which indicate acceptable performance of the CAACS/CREACS isolation dampers for maintaining the CRE boundary. In addition, pressure testing of the CRE has continued to demonstrate that ability of the CREACS system to maintain a positive pressure with respect to all adjacent areas.

The current actions for an inoperable control room boundary would allow the implementation of mitigating actions that ensure the CRE boundary is able to meet the limits of the radiological, smoke and chemical hazards analyses. Performance of these actions in lieu of isolating an inoperable CAACS/CREACS damper in the closed position would allow the performance of preventative maintenance and avoid the unnecessary shutdown of the Salem Units when actions can be implemented that ensure the plant operates within the bounds of the radiological, smoke and chemical hazards analyses. For preventative maintenance activities that require the inoperability of the CAACS/CREACS isolation dampers, the mitigating actions would be developed and reviewed prior to implementation to ensure the mitigating actions maintain operation of the plant within the limits of the radiological, smoke and chemical hazards analyses.

### Conclusion

The removal of the individual action statements which require the inoperable isolation damper to be secured in the closed position within 4 hours will allow for the performance of preventive maintenance that cannot be effectively performed within the 4-hour action statement requirement. Implementing the actions of an inoperable control room boundary will ensure that mitigating actions are taken to ensure that the CRE boundary is able to meet the limits of the radiological, smoke and chemical hazards analyses.

## 5.0 REGULATORY ANALYSIS

### 5.1 Applicable Regulatory Requirements/Criteria

Section 182a of the Atomic Energy Act requires applicants for nuclear power plant operating licenses to include Technical Specifications (TSs) as part of the operating license. The TSs ensure the operational capability of structures, systems, and components that are required to protect the health and safety of the public. The U.S. Nuclear Regulatory Commission's (NRC's) requirements related to the content of the TSs are contained in Section 50.36 of the Title 10 of the *Code of Federal Regulations* (10 CFR 50.36) which requires that the TSs include items in the following specific categories: (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operation; (3) surveillance requirements per 10 CFR 50.36(c)(3); (4) design features; and (5) administrative controls.

GDC 19 of 10 CFR 50, Appendix A, defines requirements for the control room and for the radiation protection of the operators working within it.

10 CFR 50.67, Accident Source Term, establishes limits on the accident source term used in design basis radiological consequence analyses with regard to radiation exposure to members of the public and to control room occupants.

### 5.2 No Significant Hazards Consideration

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," PSEG Nuclear LLC (PSEG) requests an amendment to Renewed Facility Operating License No. DPR-70, Salem Unit 1, and Renewed Facility Operating License No. DPR-75, Salem Unit 2. The proposed amendment would change Technical Specification (TS) 3/4.7.6.1 (Unit 1) and 3/4.7.6 (Unit 2), "Control Room Emergency Air Conditioning System," by removing the separate action for securing an inoperable CAACS and CREACS isolation damper in the closed position and entering the actions for an inoperable control room envelope (CRE) boundary.

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

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

Response: No.

The Control Room Emergency Air Conditioning System (CREACS) is not an initiator of or a precursor to any accident or transient. The CREACS system is in standby during normal operation and initiates in the event of a safety injection signal or control room radiation monitoring actuation in response to a design basis accident to pressurize the Control Room Envelope (CRE) and provide filtration of the CRE atmosphere to maintain the control room operator doses within the limits of General Design Criteria (GDC) 19. The system also operates in recirculation mode to mitigate the consequences of a fire or toxic gas release that occurs outside of the CRE.

The design of plant equipment is not being modified by the proposed amendment. The elimination of the action to secure the isolation dampers between the normal Control Area Air Conditioning System (CAACS) and the CREACS when these dampers are inoperable and entering the actions for the inoperable control room boundary will ensure operation of the plant within the limits of the radiological, smoke and chemical hazard analyses. The intent of the original action for securing the inoperable isolation damper in the closed position was to maintain the boundary of the CRE. The actions for an inoperable control room boundary ensure that mitigating actions are implemented that maintain the CRE boundary within the limits of the radiological, smoke and chemical hazard analyses.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

Response: No.

The proposed changes to the TS to implement the actions for an inoperable control room boundary when a normal CAACS and CREACS isolation damper is inoperable do not introduce any new accident precursors and do not involve any physical plant alterations or changes in the methods governing normal plant operation that could initiate a new or different kind of accident. The proposed amendment does not alter the function of the system to initiate and pressurize the control room envelope in the event of a DBA nor alter the ability to initiate CREACS in the recirculation mode in response to a fire or chemical release that occurs outside of the CRE.

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

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

Response: No.

Margin of safety is related to the ability of the fission product barriers (fuel cladding, reactor coolant system, and primary containment) to perform their design functions during and following postulated accidents. The proposed amendment does not alter setpoints or limits established or assumed by the accident analyses. The control room envelope is considered a barrier for the control room operators during a design basis accident radiological release and a barrier in the event of a fire or chemical hazard that occurs outside of the CRE. Implementing the actions for an inoperable control room boundary in the event of an inoperable isolation damper between the normal CAACS and CREACS ensure operation of the plant within the limits of the radiological, smoke and chemical hazard analysis. The actions for an inoperable control room boundary ensure that mitigating actions are implemented that maintain the CRE boundary within the limits of the radiological, smoke and chemical hazard analyses. Therefore the plant will continue to be operated consistent with the plant safety analyses.

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

Based on the above, PSEG concludes that the proposed amendment 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.

### **5.3 Conclusions**

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.

### **6.0 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 a 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.

### **7.0 REFERENCES**

- 7.1 Letter from PSEG to NRC, "Change to Technical Specifications Revision of Control Room Ventilation Specification, Salem Generating Station Nos. 1 and 2, Facility Operating Licenses DPR-70 and DPR-75, Docket Nos. 50-272 and 50-311," dated June 10, 1996. (Accession No. 9606180681)
- 7.2 Letter from NRC to PSEG, "Salem Nuclear Generating Station, Unit Nos. 1 and 2 (TAC Nos. M95691 and M95692)," Amendment Nos 190 and 173, dated February 6, 1997. (Accession No. ML011720339)
- 7.3 Letter from PSEG to NRC, "Application to Revise Technical Specifications (LCR S07-02) Regarding Control Room Envelope Habitability in Accordance with TSTF-448, Revision 3, Using the Consolidated Line Item Improvement Process," dated April 15, 2007. (Accession No. ML071160156)
- 7.4 Letter from NRC to PSEG, "Salem Nuclear Generating Station, Unit Nos 1 and 2, Issuance of Amendments RE: Control Room Habitability (TAC Nos. MD5367 and MD5368)," Amendment Nos 286 and 269, dated January 24, 2008. (Accession No. ML073470344)

**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

<b><u>Technical Specification</u></b>	<b><u>Page</u></b>
3.7.6.1, Control Room Emergency Air Conditioning System	3/4 7-19

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

<b><u>Technical Specification</u></b>	<b><u>Page</u></b>
3.7.6, Control Room Emergency Air Conditioning System	3/4 7-16

PLANT SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

- d. With one or both series isolation damper(s) on a normal Control Area Air Conditioning System (CAACS) outside air intake or exhaust duct inoperable, close the affected duct within 4 hours by use of at least one isolation damper secured in the closed position or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. (Refer to ACTION 25 of Table 3.3-6.)
- e. With one or both isolation damper(s) on an outside emergency air conditioning air intake duct inoperable, close the affected duct within 4 hours by use of at least one isolation damper secured in the closed position and restore the damper(s) to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- ~~f. With any isolation damper between the normal CAACS and the CREACS inoperable, secure the damper in the closed position within 4 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.~~

MODES 5 and 6 or during movement of irradiated fuel assemblies

- a. With one filtration train inoperable, align CREACS for single filtration train operation within 4 hours, or suspend movement of irradiated fuel assemblies.
- b. With CREACS aligned for single filtration train operation with one of the two remaining fans or associated outlet damper inoperable, restore the fan or damper to OPERABLE status within 72 hours, or suspend movement of irradiated fuel assemblies.
- c. With two filtration trains inoperable, immediately suspend movement of irradiated fuel assemblies.
- d. With the Control Room Envelope boundary inoperable, immediately suspend movement of irradiated fuel assemblies.
- e. With one or both series isolation damper(s) on a normal CAACS outside air intake or exhaust duct inoperable, immediately suspend movement of irradiated fuel assemblies until the affected duct is closed by use of at least one isolation damper secured in the closed position. (Refer to ACTION 25 of Table 3.3-6.)
- f. With one or both series isolation damper(s) on an outside emergency air conditioning air intake duct inoperable, immediately suspend movement of irradiated fuel assemblies until the affected duct is closed by use of at least one isolation damper secured in the closed position. To resume movement of irradiated fuel assemblies, at least one emergency air intake duct must be operable on each unit.
- ~~g. With any isolation damper between the CAACS and the CREACS inoperable, immediately suspend movement of irradiated fuel assemblies until the damper is closed and secured in the closed position.~~

PLANT SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

- d. With one or both series isolation damper(s) on a normal Control Area Air Conditioning System (CAACS) outside air intake or exhaust duct inoperable, close the affected duct within 4 hours by use of at least one isolation damper secured in the closed position or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. (Refer to ACTION 28 of Table 3.3-6.)
- e. With one or both isolation damper(s) on an outside emergency air conditioning air intake duct inoperable, close the affected duct within 4 hours by use of at least one isolation damper secured in the closed position and restore the damper(s) to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- ~~f. With any isolation damper between the normal CAACS and the CREACS inoperable, secure the damper in the closed position within 4 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.~~

MODES 5 and 6 or during movement of irradiated fuel assemblies

- a. With one filtration train inoperable, align CREACS for single filtration train operation within 4 hours, or suspend movement of irradiated fuel assemblies.
- b. With CREACS aligned for single filtration train operation with one of the two remaining fans or associated outlet damper inoperable, restore the fan or damper to OPERABLE status within 72 hours, or suspend movement of irradiated fuel assemblies.
- c. With two filtration trains inoperable, immediately suspend movement of irradiated fuel assemblies.
- d. With the Control Room Envelope boundary inoperable, immediately suspend movement of irradiated fuel assemblies.
- e. With one or both series isolation damper(s) on a normal CAACS outside air intake or exhaust duct inoperable, immediately suspend movement of irradiated fuel assemblies until the affected duct is closed by use of at least one isolation damper secured in the closed position. (Refer to ACTION 28 of Table 3.3-6.)
- f. With one or both series isolation damper(s) on an outside emergency air conditioning air intake duct inoperable, immediately suspend movement of irradiated fuel assemblies until the affected duct is closed by use of at least one isolation damper secured in the closed position. To resume movement of irradiated fuel assemblies, at least one emergency air intake duct must be operable on each unit.
- ~~g. With any isolation damper between the CAACS and the CREACS inoperable, immediately suspend movement of irradiated fuel assemblies until the damper is closed and secured in the closed position.~~