Public Service
Electric and Gas
Company

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SEP 2 9 1998

LR-N980415
LCR S98-11

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Gentlemen:

REQUEST FOR AMENDMENT
REFUELING OPERATIONS, CONTAINMENT BUILDING PENETRATIONS –
SALEM GENERATING STATION
UNIT NOS. 1 AND 2
DOCKET NOS. 50-272 AND 50-311

In accordance with the requirements of 10CFR50.90, Public Service Electric & Gas Company (PSE&G) hereby transmits a request for amendment to Facility Operating Licenses DPR-70 and DPR-75 for Salem Generating Station Unit Nos. 1 and 2 respectively. Pursuant to the requirements of 10CFR50.91(b)(1), a copy of this request for amendment has been sent to the State of New Jersey.

The proposed amendment modifies Technical Specification 3/4.9.4, Refueling Operations, Containment Building Penetrations. The Salem Unit 1 and Unit 2 Technical Specifications will be modified to permit the use of equivalent methods to obtain containment closure during refueling operations for the Containment Equipment Hatch and for containment penetrations providing direct access from the containment atmosphere to the outside atmosphere. The change will support the installation of an outage equipment door or other closure devices that are capable of providing access for temporary services needed to support maintenance activities inside containment. This will allow those activities to be performed concurrent with CORE ALTERATIONS or during the movement of irradiated fuel within containment.

The proposed change will also change the terminology used to describe Containment Equipment Hatch components in Technical Specification 3/4.9.4 to bring it into agreement with the terminology used in other Salem design and licensing documents.

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The proposed changes are consistent with NUREG-1431, Standard Technical Specifications - Westinghouse Plants, Revision 1, dated April 1995, with regard to the use of alternative methods to achieve containment closure. The proposed changes have been evaluated in accordance with 10CFR50.91(a)(1), using the criteria in 10CFR50.92(c), and it has been determined that this request involves no significant hazards considerations.

A description of the requested amendment, the reason for the changes and the justification for the changes are provided as Attachment 1. The basis for no significant hazards consideration determination are provided in Attachment 2. The Technical Specification pages affected by the proposed changes are provided in Attachment 3.

Amendments allowing the use of equivalent closure methods during refueling operations were approved for the Power Authority of the State of New York's Indian Point Nuclear Generating Unit No. 3 (Docket No. 50-286, October 7, 1986) and Wolf Creek Nuclear Operating Corporation's Wolf Creek Generating Station (Docket No. 50-482, July 7, 1994). In addition, the use of equivalent containment closure methods proposed in this request is more conservative than requirements approved in similar amendments for Texas Utilities Electric Company's Comanche Peak Steam Electric Station (Docket Nos. 50-445 and 50-446, March 18, 1996) and Entergy Incorporated's Arkansas Nuclear One, Unit 1 (Docket No. 50-313, September 20, 1996). In those amendments approval was granted to perform refueling operations with both Containment Personnel Airlock doors open.

PSE&G requests a 60 day implementation period after amendment approval. Approval of this change is requested by January 8, 1999 to permit implementation prior to the next scheduled Salem refueling outage.

Should you have any questions regarding this request, please contact Brooke Knieriem, Salem Licensing, at (609) 339-1782.

Louis F. Storz

/rbk
Affidavit
Attachments (3)

c Mr. H. J. Miller, Administrator - Region I
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REF: LR-N980415
LCR S98-011

STATE OF NEW JERSEY)
) SS.
COUNTY OF SALEM)

L. F. Storz, being duly sworn according to law deposes and says:
I am Senior Vice President - Nuclear Operations for the Public Service Electric & Gas Company, and as such, I find the matters set forth in the above referenced letter, concerning the Salem Generating Station, Units Nos. 1 and 2, are true to the best of my knowledge, information and belief.

L. F. Storz

Subscribed and Sworn to before me
this 24th day of Sept, 1998

Deloris D. Hadden
Notary Public of New Jersey

DELORIS D. HADDEN
Notary Public of New Jersey
My Commission Expires
03-29-2000

My Commission expires on _____

REFUELING OPERATIONS – CONTAINMENT BUILDING PENETRATIONS

I. DESCRIPTION OF THE PROPOSED CHANGES

The proposed changes will replace specification 3.9.4, Limiting Condition For Operation, with:

a. The equipment hatch inside door closed and held in place by a minimum of four bolts, or an equivalent closure device installed, and

b. A minimum of one door in each airlock is closed, and

c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be either:

1. Closed by an isolation valve, blind flange, manual valve, or equivalent, or

2. Be capable of being closed by an OPERABLE automatic containment isolation valve.

The proposed change will also revise the Bases for Specification 3/4.9.4 to state:

During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment the requirements for containment building penetration closure and OPERABILITY ensure that a release of fission product radioactivity within containment will be restricted from leaking to the environment. In MODE 6, the potential for containment pressurization as a result of an accident is not likely. Therefore, the requirements to isolate the containment from the outside atmosphere can be less stringent. The LCO requirements during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment are referred to as "containment closure" rather than containment OPERABILITY. For the containment to be OPERABLE, CONTAINMENT INTEGRITY must be maintained. Containment closure means that all potential release paths are closed or capable of being closed. Closure restrictions must be sufficient to provide an atmospheric ventilation barrier to restrict radioactive material released from a fuel element rupture during refueling operations.

The containment serves to limit the fission product radioactivity that may be released from the reactor core following an accident, such that offsite radiation exposures are maintained well within the requirements of 10CFR100. Additionally, the containment provides radiation shielding from the fission products that may be present in the containment atmosphere following accident conditions.

The Containment Equipment Hatch, which is part of the containment pressure boundary, provides a means for moving large equipment and components into or

out of containment. During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, the Containment Equipment Hatch inside door must be held in place by at least four bolts. Good engineering practice dictates that the bolts required by the LCO are approximately equally spaced.

An equivalent closure device may be installed as an alternative to installing the Containment Equipment Hatch inside door with a minimum of four bolts. Such a closure device may provide penetrations for temporary services used to support maintenance activities inside containment at times when containment closure is required; and may be installed in place of the Containment Equipment Hatch inside door or outside door. Penetrations incorporated into the design of an equivalent closure device will be considered a part of the containment boundary and as such will be subject to the requirements of Technical Specification 3/4.9.4. Any equivalent closure device used to satisfy the requirements of Technical Specification 3/4.9.4.a will be designed, fabricated, installed, tested, and utilized in accordance with established procedures to ensure that the design requirements for the mitigation of a fuel handling accident during refueling operations are met.

The containment air locks, which are also part of the containment pressure boundary, provide a means for personnel access during operation in MODES 1, 2, 3, and 4 as specified in LCO 3.6.1.3, "Containment Air Locks". Each air lock has a door at both ends. The doors are normally interlocked to prevent simultaneous opening when containment OPERABILITY is required. During periods of unit shutdown, when containment closure is not required and frequent containment entry is necessary, the air lock interlock mechanism may be disabled. This allows both doors of an airlock to remain open for extended periods. During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, containment closure is required; therefore, the door interlock mechanism may remain disabled, but one air lock door must always remain closed.

The other containment penetrations that provide direct access from containment atmosphere to outside atmosphere must be isolated on at least one side. Isolation may be achieved by an OPERABLE automatic isolation valve, or by a manual isolation valve, blind flange, or equivalent. Equivalent isolation methods may include the use of a material that can provide a temporary atmospheric pressure, ventilation barrier. Any equivalent method used to satisfy the requirements of Technical Specification 3/4.9.4.c.1 will be designed, fabricated, installed, tested, and utilized in accordance with established procedures to ensure that the design requirements for the mitigation of a fuel handling accident during refueling operations are met.

II. REASON FOR THE CHANGES

Salem Unit 1 and 2 Technical Specifications for Refueling Operations, Containment Building Penetrations (3/4.9.4), provide requirements for

containment building penetrations during refueling operations (during CORE ALTERATIONS or during movement of irradiated fuel within the containment). These requirements ensure that an atmospheric ventilation barrier (containment closure) is maintained to prevent the release of fission product radioactivity in the event of a fuel handling accident inside containment. To achieve containment closure, Technical Specification 3/4.9.4 requires that the Containment Equipment Hatch inside door be closed and held in place with a minimum of four bolts. For the Containment Airlocks, Technical Specification 3/4.9.4 requires that a minimum of one door in each air lock is closed. For penetrations providing direct access from the containment atmosphere to the outside atmosphere, Technical Specification 3/4.9.4 requires that those penetrations be closed by an isolation valve, blind flange, or manual valve, or be capable of being closed by an OPERABLE automatic containment isolation valve.

The proposed changes to Technical Specification 3/4.9.4 will permit the use of equivalent methods to provide containment closure during refueling operations for the Containment Equipment Hatch and for containment penetrations providing direct access from the containment atmosphere to the outside atmosphere. Alternative methods could include the use of an outage equipment door or other temporary containment closure devices that would provide penetrations for temporary services used to support maintenance activities inside containment. The use of these temporary closure devices will enable certain maintenance activities, such as steam generator chemical cleaning or eddy current inspection to be performed concurrent with refueling operations. This would simplify the scheduling of these and other outage activities and reduce the length of refueling outages.

In addition to the above changes, the terminology for the Containment Equipment Hatch inside door used in LCO 3.9.4.a is being changed. The term "Containment Equipment Door" is being changed to "Containment Equipment Hatch Inside Door" to bring it into agreement with the terminology used in Salem design documents.

III. JUSTIFICATION FOR CHANGES

Salem Technical Specifications define CONTAINMENT INTEGRITY and require that CONTAINMENT INTEGRITY be established during normal plant operation in Modes 1 through 4. CONTAINMENT INTEGRITY is necessary in Modes 1 through 4 to mitigate the consequences of a Design Basis Accident in those modes. Salem Technical Specification 3/4.9.4, Refueling Operations, Containment Building Penetrations, requires the establishment of containment closure during CORE ALTERATIONS and the movement of irradiated fuel inside containment (Mode 6). Establishment of containment closure is necessary to mitigate the consequences of a Fuel Handling Accident inside containment. A specific technical specification requirement for containment integrity or for containment closure in Mode 5 does not exist.

Salem Technical Specification 3/4.9.4, specifies the minimum containment closure requirements during CORE ALTERATIONS and during the movement of irradiated fuel inside containment. These requirements provide an atmospheric ventilation barrier to contain fission product radioactivity that may be released from the core following a fuel handling accident. Containment of this activity ensures that offsite radiation exposures are maintained within the limits of 10CFR100. Containment closure, vice containment integrity, is allowable during refueling operations because it is unlikely that the postulated accident, a fuel handling accident, would pressurize the containment.

The proposed Technical Specification would allow the use of an equivalent closure device, such as an outage equipment door, to provide containment closure for the Containment Equipment Hatch during refueling operations. An outage equipment door is a temporary closure device installed to provide containment closure capability for the Containment Equipment Hatch and is designed to provide penetrations for services used to support maintenance activities inside containment, allowing those activities to proceed concurrent with refueling operations.

The use of an outage equipment door would also provide the added benefit of a reduction in the time required to establish containment closure when refueling operations are not in progress, but when containment closure may be required for other reasons. For example, Salem Technical Specification 3/4.9.8, Residual Heat Removal Coolant Circulation (applicable in Mode 6) requires that with less than one loop of Residual Heat Removal in service, containment closure must be established within four hours. With an outage equipment door installed, it would be unnecessary to clear the Containment Equipment Hatch of equipment providing temporary services before closing the Containment Equipment Hatch inside door. This would reduce the delay between the cessation of Residual Heat Removal flow and the establishment of containment closure at the Containment Equipment Hatch.

The proposed change to Technical Specification 3/4.9.4 will also modify the containment closure requirements for containment penetrations. The change will permit the use of an equivalent penetration closure method as an alternative to closure by an isolation valve, blind flange, or manual valve.

Any equivalent method used to satisfy the requirements of Technical Specification 3/4.9.4 will be designed, fabricated, installed, tested, and utilized in accordance with established procedures to ensure that the design requirements for mitigation of a fuel handling accident inside containment during refueling operations are met.

Salem Units 1 and 2 were not licensed under the NUREG-800, Standard Review Plan. However, given that a fuel handling accident is unlikely to result in

pressurization of the containment, closure of the Containment Equipment Hatch or other containment penetrations by an equivalent closure device would limit the consequences of such accidents to below the criteria given in Section 15.7.4 of the Standard Review Plan. The use of equivalent closure devices is also consistent with NUREG-1431, Standard Technical Specifications, Westinghouse Plants.

Based upon the above discussion and the no significant safety hazards consideration presented in Attachment 2, the proposed change does not adversely affect or endanger the health or safety of the general public or involve a significant safety hazard.

IV. DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

Pursuant to 10CFR50.92, PSE&G reviewed the proposed amendment to determine whether our request involves a significant hazards consideration. PSE&G has determined that operation of Salem Generating Station, Unit Nos. 1 and 2, in accordance with the proposed changes:

1. **Will not involve a significant increase in the probability or consequences of an accident previously evaluated.**

In Modes 1 through 4, a Design Basis Accident would cause the release of radioactive material into the containment. The release of radioactive material from the containment to the environment is prevented during operation in Modes 1 through 4 by maintaining CONTAINMENT INTEGRITY. In Mode 5 and 6 the requirements to prevent releases from the containment to the environment from postulated accidents are less stringent because of the reduced reactor coolant pressure and temperature limitations of these modes. In all cases, the containment serves as a passive barrier to mitigate the consequences of accidents analyzed. The containment is not considered to be a contributor to the probability of those accidents. Therefore, this change, which will permit the use of equivalent methods for establishing containment closure during refueling operations, will not increase the probability of an accident previously analyzed.

During refueling operations, a release of radioactive material to the containment could occur as the result of a fuel handling accident. Actions are taken to mitigate the consequences of a fuel handling accident inside containment during refueling operations through application of technical specification requirements for Refueling Cavity water level, minimum decay time prior to CORE ALTERATIONS, and Containment Building Penetrations.

Because of the lack of containment pressurization potential and the reduced source term during a fuel handling accident, less stringent requirements are needed to isolate containment from the outside atmosphere. These requirements are applied during refueling operations by Technical Specification 3.9.4, Refueling Operations, Containment Building Penetrations. Technical Specification 3.9.4 is applicable in Mode 6 and establishes containment closure vice CONTAINMENT INTEGRITY during CORE ALTERATIONS and movement of irradiated fuel within containment. Containment closure means that all potential release paths are closed or capable of being closed to provide an atmospheric pressure, ventilation barrier. Since there is no potential for containment pressurization, establishment of a pressure tight boundary is not required.

As a part of the containment closure requirements of Technical Specification 3.9.4, the Containment Equipment Hatch inside door must be installed with a minimum of four bolts. In addition, each penetration providing direct access from

the containment atmosphere to the outside atmosphere must be closed by either an isolation valve, a blind flange, or a manual valve, or must be capable of being closed by an OPERABLE automatic containment isolation valve.

The proposed changes will modify Technical Specification 3/4.9.4 to permit the use of an equivalent closure device as an alternative to installation of the inner door with a minimum of four bolts to provide containment closure for the Containment Equipment Hatch. The proposed change will also modify Technical Specification 3.9.4 to permit the use of an equivalent method for containment closure for containment penetrations providing direct access from the containment to the outside atmosphere as an alternate method to closure by an isolation valve, blind flange, or manual valve. Any alternate method used will be designed, fabricated, installed, tested, and utilized in accordance with established procedures to ensure that it is capable of providing containment closure during a fuel handling accident to prevent the release of fission product radioactivity to the environment. Because the proposed technical specifications must provide equivalent containment closure, these changes will not increase the consequences of an accident previously evaluated.

Based upon the above, the proposed changes do not increase the probability or the consequences of an accident previously evaluated.

2. **Will not create the possibility of a new or different kind of accident from any previously evaluated.**

The proposed changes do not require any change in the operation of the plant. The proposed changes will permit the use of an equivalent method to achieve containment closure for the Containment Equipment Hatch or for individual containment penetrations that provide direct access to the outside atmosphere. However, any equivalent method used will be designed, fabricated, installed, tested, and utilized in accordance with established procedures to ensure that the closure method meets design requirements.

Based upon the above, these changes will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. **Will not involve a significant reduction in a margin of safety.**

The proposed change will not affect the existing analysis that forms the basis for the Technical Specifications, and does not violate Technical Specification and Updated Final Safety Analysis Report (UFSAR) requirements. The proposed change will not affect any design or functional requirements of the containment, the Containment Equipment Hatch, or containment penetrations or any conditions or assumptions of the applicable safety analyses.

Based upon the above, the proposed changes will not involve a significant reduction in a margin of safety.

V. CONCLUSIONS

Based on the above, Public Service Electric & Gas has determined that the proposed changes do not involve a significant hazards consideration.