



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 124 TO FACILITY OPERATING LICENSE NO. DPR-70

PUBLIC SERVICE ELECTRIC & GAS COMPANY

PHILADELPHIA ELECTRIC COMPANY

DELMARVA POWER AND LIGHT COMPANY

ATLANTIC CITY ELECTRIC COMPANY

SALEM NUCLEAR GENERATING STATION, UNIT NO. 1

DOCKET NO. 50-272

1.0 INTRODUCTION

By letter dated February 1, 1991, as supplemented by letters dated March 19, 1991 and April 2, 1991, the Public Service Electric & Gas Company, Philadelphia Electric Company, Delmarva Power and Light Company and Atlantic City Electric Company (the licensees) submitted a request for changes to the Salem Nuclear Generating Station, Unit No. 1, Technical Specifications (TS). The requested changes would allow the use of the eight-second main steam isolation valve (MSIV) closure time during the Salem Unit 1 tenth operating cycle. The eight-second closure time for the MSIV was previously approved for the ninth cycle of operation by Amendment 112, dated July 9, 1990. The March 19, 1991 and April 2, 1991 letters provided clarifying information that did not change the initial proposed no significant hazards consideration determination.

2.0 EVALUATION

By a letter dated April 4, 1990, (Reference 1) Public Service Electric and Gas Company (PSE&G) requested a change to the Technical Specification (TS) for Salem on an emergency basis. The requested change would increase the allowable main steam isolation valve (MSIV) closure time from five seconds to eight seconds. The letter provided a detailed description of the proposed changes, along with information to support the determination of no significant hazards consideration. Based on a preliminary review, the staff granted a temporary waiver of compliance by a letter dated April 5, 1990, (Reference 2).

In support of its emergency request to increase MSIV closure time for the ninth operating cycle, PSE&G initiated a study to determine the cause of slow MSIV closure time, and concluded that water accumulation was the sole reason for slow closure time experienced at the Salem generating station. Test data at Salem and other utilities with similar MSIVs appear to support the licensee's conclusion that condensate accumulation in the MSIV and vent path is the single probable cause of the slow closure and that without other mechanical failures, the closure time of affected MSIVs is expected to be less than eight seconds.

Based on that conclusion the staff granted, by a letter dated July 9, 1990, (Reference 3) the emergency TS change for Salem Unit No. 1's ninth operating cycle but noted that the licensee needs to pursue a permanent solution including analytical evaluations of the parameters affecting MSIV closure time, as well as appropriate corrective action.

In response to the staff's comment on pursuing a permanent solution, PSE&G has developed a calculational method to estimate the condensate formation rate and water drainage rate, which are expected to be the two most important factors affecting MSIV's closure times. The methodology confirms the hypothesis that increasing the drainage rate while reducing the condensate formation rate would improve the MSIV closure time. Based on the calculation results, an MSIV modification was proposed to increase the pressure equalization orifice diameter from 1.6 mm to approximately 11 mm. The licensee implemented the modification during the ninth refueling outage which began February 12, 1991.

Although it is the licensee's intention that the proposed MSIV modification will restore the closure time to less than five seconds, it can not be confirmed by tests during the ninth refueling outage because meaningful tests can only be conducted during power operation. Without test results, it would be premature for the licensee as well as the NRC staff to conclude that the original MSIV closure time design margin has been restored, nor can a new, revised TS closure time limit be set. As a result, by a letter dated February 1, 1991, (Reference 4) supplemented by a letter dated March 19, 1991, (Reference 5) the licensee requested an extension of the emergency TS change for the tenth operating cycle, during which time certain tests will be performed to confirm the adequacy of MSIV modifications. As indicated in the letter dated March 19, 1991, several post-modification tests will be performed in Modes 1 and 2 during the tenth operating cycle.

The staff has reviewed the proposed MSIV modifications and corrective actions, committed to by the licensee during the ninth refueling outage, and concurs in the licensee's conclusion that MSIV closure time will be improved over that of the last operating cycle, i.e., less than eight seconds. Based on the proposed MSIV modifications and corrective actions to improve MSIV closure time, the fact that meaningful tests can only be done during Modes 1 and 2 following the restart from the ninth refueling outage and since the Salem licensing basis safety analyses, which we have reviewed and found acceptable, used a 10 second stroke time and a 12 second ESF response time for steam line isolation with acceptable results, the staff finds the proposed extension of the eight-second closure time for the MSIVs through the tenth operating cycle to be acceptable. However, the staff expects a final solution to the MSIV closure time to be in place prior to restart from the tenth refueling outage.

### 3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New Jersey State official was notified of the proposed issuance of the amendment. The State official had no comments.

#### 4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

#### 5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (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.

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Date: April 16, 1991

## 6.0 REFERENCES

1. Letter from S. E. Miltenberger to NRC, "Increase of Allowable MSIV Closure Time, Request for Emergency License Amendment", dated April 4, 1990.
2. Letter from B. A. Boger, NRC, "Temporary Waiver of Compliance Relating to Main Steam Isolation Valve Closure Time", dated April 5, 1990.
3. Letter from B. A. Boger, NRC, "Emergency Technical Specification Change, Main Steam Isolation Valve Closure Time, Salem Nuclear Generating Station, Unit No. 1," July 9, 1990. (Amendment No. 112)
4. Letter from S. E. Miltenberger to NRC, "MSIV Closure Time Extension Request for License Amendment", dated February 1, 1991.
5. Letter from S. LaBruna to NRC, "Supplemental Information to MSIV Closure Time Extension Request", dated March 19, 1991.