

Mr. Leon R. Eliason  
Chief Nuclear Officer & President-  
Nuclear Business Unit  
Public Service Electric & Gas  
Company  
Post Office Box 236  
Hancocks Bridge, NJ 08038

March 16, 1995

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNITS 1 AND 2 (TAC NOS. M86266 AND M86267)

Dear Mr. Eliason:

The Commission has issued the enclosed Amendment Nos. 164 and 145 to Facility Operating License Nos. DPR-70 and DPR-75 for the Salem Nuclear Generating Station, Unit Nos. 1 and 2. These amendments consist of changes to the Updated Final Safety Analysis Report (UFSAR) in response to your application dated April 16, 1993.

These amendments revise the UFSAR to reflect the fact that the air-operated outboard isolation valves in the containment penetration for lines supplying control air to equipment in the containment, unlike other isolation valves, do not fail closed on loss of 125 Volt DC power to their control solenoids. These amendments are being issued pursuant to the requirements of 10 CFR 50.59(c) because your review has identified the changes as an unreviewed safety question. No changes to the Technical Specifications are required by these amendments.

A copy of our safety evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,  
/s/

Leonard N. Olshan, Senior Project Manager  
Project Directorate I-2  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

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PDR ADOCK 05000272  
P PDR

Docket Nos. 50-272/50-311

Enclosures:

1. Amendment No. 164 to License No. DPR-70
2. Amendment No. 145 to License No. DPR-75
3. Safety Evaluation

cc w/encls:  
See next page

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JStolz		

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

March 16, 1995

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Sincerely,

A handwritten signature in cursive script, reading "Leonard N. Olshan", is written over the typed name.

Leonard N. Olshan, Senior Project Manager  
Project Directorate I-2  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Docket Nos. 50-272/50-311

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1. Amendment No. 164 to License No. DPR-70
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3. Safety Evaluation

cc w/encs:  
See next page

Mr. Leon R. Eliason  
Public Service Electric & Gas  
Company

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Units 1 and 2

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

PUBLIC SERVICE ELECTRIC & GAS COMPANY

PHILADELPHIA ELECTRIC COMPANY

DELMARVA POWER AND LIGHT COMPANY

ATLANTIC CITY ELECTRIC COMPANY

DOCKET NO. 50-272

SALEM NUCLEAR GENERATING STATION, UNIT NO. 1

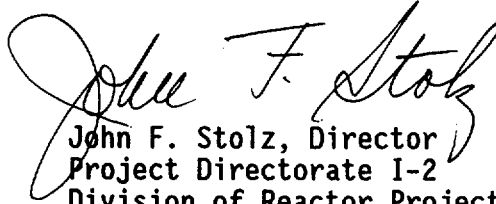
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 164  
License No. DPR-70

1. The Nuclear Regulatory Commission (the Commission or the NRC) has found that:
  - A. The application for amendment filed by the Public Service Electric & Gas Company, Philadelphia Electric Company, Delmarva Power and Light Company and Atlantic City Electric Company (the licensees) dated April 16, 1993, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, by Amendment No. 164, the license is amended to authorize revision of the Updated Final Safety Analysis Report (UFSAR) as set forth in the application for amendment by PSE&G dated April 16, 1993. PSE&G shall update the UFSAR to reflect the revisions authorized by this amendment in accordance with 10 CFR 50.71(e).

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in cursive script, reading "John F. Stolz". The signature is written in dark ink and is positioned above the printed name and title.

John F. Stolz, Director  
Project Directorate I-2  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Date of Issuance: March 16, 1995



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

PUBLIC SERVICE ELECTRIC & GAS COMPANY

PHILADELPHIA ELECTRIC COMPANY

DELMARVA POWER AND LIGHT COMPANY

ATLANTIC CITY ELECTRIC COMPANY

DOCKET NO. 50-311

SALEM NUCLEAR GENERATING STATION, UNIT NO. 2

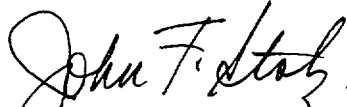
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 145  
License No. DPR-75

1. The Nuclear Regulatory Commission (the Commission or the NRC) has found that:
  - A. The application for amendment filed by the Public Service Electric & Gas Company, Philadelphia Electric Company, Delmarva Power and Light Company and Atlantic City Electric Company (the licensees) dated April 16, 1993, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, by Amendment No. 145, the license is amended to authorize revision of the Updated Final Safety Analysis Report (UFSAR) as set forth in the application for amendment by PSE&G dated April 16, 1993. PSE&G shall update the UFSAR to reflect the revisions authorized by this amendment in accordance with 10 CFR 50.71(e).

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in cursive script, reading "John F. Stolz".

John F. Stolz, Director  
Project Directorate I-2  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Date of Issuance: March 16, 1995



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NOS. 164 AND 145 TO FACILITY OPERATING

LICENSE NOS. DPR-70 AND DPR-75

PUBLIC SERVICE ELECTRIC & GAS COMPANY

PHILADELPHIA ELECTRIC COMPANY

DELMARVA POWER AND LIGHT COMPANY

ATLANTIC CITY ELECTRIC COMPANY

SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2

DOCKET NOS. 50-272 AND 50-311

**1.0 INTRODUCTION**

By letter dated April 16, 1993, the Public Service Electric & Gas Company (the licensee) requested staff approval of a proposed change to the Salem Nuclear Generating Station, Units 1 and 2, Updated Final Safety Analysis Report (UFSAR). The proposed UFSAR change would add an exception to a general statement in the containment isolation system description. The general statement is that automatic containment isolation valves that receive signals to close, fail closed on loss of air or power. The proposed exception would apply to the outboard isolation valves for the control air system. These four valves (11, 12, 21 and 22CA330, collectively identified as CA-330) fail closed on loss of air but fail as-is upon loss of the vital 125 VDC power supply to their solenoid control valves.

**2.0 DISCUSSION**

**2.1 DESCRIPTION OF SALEM CONTROL AIR SYSTEM**

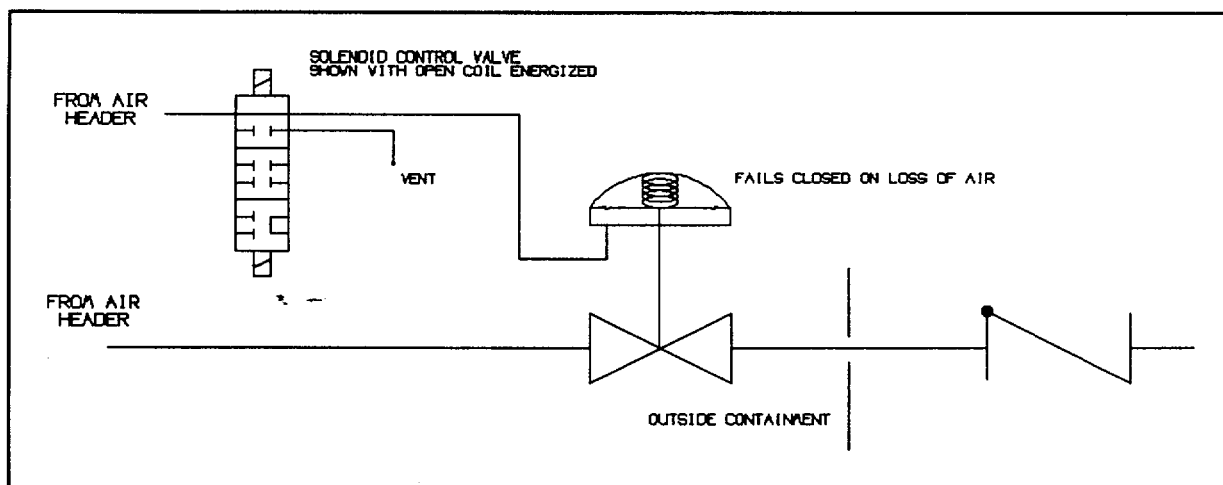
The Salem Control Air System consists of two headers. Each header has a 2-inch penetration through each containment by which control air is supplied to equipment in the containments. An emergency control air compressor (ECAC) is provided for each header. Each ECAC operates automatically in the event of failure of the normal supply of air from the non-safety-grade station service air system. The ECAC and portions of the control air system are safety-grade. The control air headers can be manually cross-connected if desired. The ECACs are not subject to Technical Specifications. However, the licensee has administrative controls that preclude ECAC preventative maintenance if the other ECAC is unavailable. The station air system which provides the normal air supply to the control air systems has three 100% capacity air compressors.



## 2.2 DESCRIPTION OF SALEM 1 & 2 COMPRESSED AIR LINE CONTAINMENT ISOLATION PROVISIONS

Each of the 2-inch control air header containment penetrations has two isolation valves: (1) a check valve (CA-360) located inside containment and, (2) an air-diaphragm operated, solenoid-controlled valve (CA-330) located outside containment. The design of CA-330 is such that it will open when air pressure is applied to its air operator. When the air pressure is released, it will close under spring action. Application of air pressure to, or venting of air pressure from each CA-330 operator is controlled by a pilot solenoid valve. The solenoid valves are energized from a panel that is powered from a 125 VDC vital power bus. The air supply for each CA-330 air operator is taken from its associated air header. The CA-330 valves are designed to close on a Phase A containment isolation signal. Control air is not required in containment to mitigate a design basis accident (DBA) as the equipment using control air will fail to the accident position on loss of control air.

The solenoid valves that control the CA-330 air operators are three-way valves, each having two 125 VDC coils. One coil, when energized (the normal condition), causes control air pressure to be applied to the associated CA-330 air operator in the open direction. The other coil, when energized, causes the solenoid to vent the air operator allowing the valve to close. If neither coil is energized, the solenoid valve ports are sealed and the isolation valve is locked in its current position. Should a DBA occur, the Phase A isolation signal resulting from high containment pressure will apply 125 VDC power to the close coil which shifts the solenoid valve to the position that vents air from CA-330 air operator diaphragm.



## 2.3 REGULATORY CRITERIA REGARDING FAILURE POSITION OF CONTAINMENT ISOLATION VALVES

Section 6.2.4 of the Standard Review Plan (SRP) specifies the regulatory criteria for containment isolation systems. The SRP states, *In the event of power failure to a valve operator, the valve position should be the position of greater safety, which is normally the postaccident position. However, special cases may arise and these will be considered on an individual basis in determining the acceptability of the prescribed valve positions.*

## 3.0 EVALUATION

The staff has examined the design of the isolation system for the control air header piping penetration. With the exception of the failure position for valve CA-330 on loss of its 125 VDC power supply, the design meets all applicable criteria. Failure of the 125 VDC power supply results in a slight degradation in containment isolation reliability. Upon failure of the 125 VDC power supply, the valve will remain in the "as is" position. Since the valve is normally open, this means that the valve will stay open and will not close on an isolation signal. For all other single failures, the valve will automatically close upon either loss of air or an isolation signal.

The staff has evaluated the conditions for the "as is" failure and finds that the reduction in safety margin due to this condition is acceptably small. First of all, there is a check valve in series with the air operated valve so that containment integrity is maintained at all times. Secondly, the probability of loss of air pressure is quite low since the normal air supply is backed up with a safety grade supply which is activated automatically upon sensing low air pressure. With an operable air supply, the penetration is not a containment leak path since the air pressure is greater than the peak calculated containment pressure.

Although the valve does not fail in the position of greater safety (an SRP 6.2.4 criterion) for a loss of 125 VDC power supply, the staff finds the degradation acceptably small for the reasons provided above.

## 4.0 STATE CONSULTATION

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

## 5.0 ENVIRONMENTAL CONSIDERATION

Pursuant to 10 CFR 51.21, 51.32, and 51.35, an environmental assessment and finding of no significant impact have been prepared and published (60 FR 10617) in the Federal Register on February 27, 1995. Accordingly, based upon the environmental assessment, the staff has determined that issuance of the amendment will not have a significant effect on the quality of the human environment.

## 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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: W. Long

Date: March 16, 1995