

April 7, 1994

Docket Nos. 50-272/311

Mr. Steven E. Miltenberger
Vice President and Chief Nuclear
Officer
Public Service Electric & Gas
Company
Post Office Box 236
Hancocks Bridge, New Jersey 08038

Dear Mr. Miltenberger:

SUBJECT: POWER OPERATED RELIEF VALVE AND BLOCK VALVE REQUIREMENTS (GENERIC
LETTER 90-06), SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2
(TAC NOS. M77374, M77375, M77447, AND M77448)

The Commission has issued the enclosed Amendment Nos. 150 and 130 to Facility
Operating License Nos. DPR-70 and DPR-75, respectively, for the Salem Nuclear
Generating Station, Unit Nos. 1 and 2. These amendments consist of changes to
the Technical Specifications (TSs) in response to your application dated
December 8, 1993.

These amendments incorporate the guidance of NRC Generic Letter 90-06 that
addresses power-operated relief valve and block valve reliability and
additional low-temperature overpressure protection for light water reactors.

A copy of our safety evaluation is also enclosed. Notice of Issuance will be
included in the Commission's biweekly Federal Register notice. You are
requested to notify the NRC, in writing, when these amendments have been
implemented at Salem, Units 1 and 2.

Sincerely,

/s/

James C. Stone, Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

9404180336 940407
PDR ADDCK 05000272
P PDR

Enclosures:

1. Amendment No. 150 to License No. DPR-70
2. Amendment No. 130 to License No. DPR-75
3. Safety Evaluation

REG FILE CENTER COPY

cc w/enclosures:

See next page

DISTRIBUTION:

Docket File	MO'Brien(2)	CGrimes, 11E21	RJones, 8E-23
NRC & Local PDRs	JStone	DPickett, 13D-1	
PDI-2 Reading	OGC	ACRS(10)	
SVarga	DHagan, 3206	OPA	
JCalvo	GHill(4), P1-22	OC/LFDCB	
CMiller	EWenzinger, RGN-I	JWhite, RGN-I	

OFC	: PDI-2/LA	: PDI-2/PMO	: SRXB/BC	: OGC	: PDI-2/D	: EMEB/BC
NAME	: MO'Brien	: JStone:rb	: RJones	: CMiller	: JNorberg	
DATE	: 2/14/94	: 2/15/94	: 3/19/94	: 3/25/94	: 4/6/94	: 3/22/94

130134

DFOI



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

April 7, 1994

Docket Nos. 50-272/311

Mr. Steven E. Miltenberger
Vice President and Chief Nuclear
Officer
Public Service Electric & Gas
Company
Post Office Box 236
Hancocks Bridge, New Jersey 08038

Dear Mr. Miltenberger:

SUBJECT: POWER OPERATED RELIEF VALVE AND BLOCK VALVE REQUIREMENTS (GENERIC LETTER 90-06), SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2 (TAC NOS. M77374, M77375, M77447, AND M77448)

The Commission has issued the enclosed Amendment Nos. 150 and 130 to Facility Operating License Nos. DPR-70 and DPR-75, respectively, for the Salem Nuclear Generating Station, Unit Nos. 1 and 2. These amendments consist of changes to the Technical Specifications (TSs) in response to your application dated December 8, 1993.

These amendments incorporate the guidance of NRC Generic Letter 90-06 that addresses power-operated relief valve and block valve reliability and additional low-temperature overpressure protection for light water reactors.

A copy of our safety evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice. You are requested to notify the NRC, in writing, when these amendments have been implemented at Salem, Units 1 and 2.

Sincerely,

A handwritten signature in cursive script that reads "James C. Stone".

James C. Stone, Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 150 to License No. DPR-70
2. Amendment No. 130 to License No. DPR-75
3. Safety Evaluation

cc w/enclosures:
See next page

Mr. Steven E. Miltenberger
Public Service Electric & Gas
Company

Salem Nuclear Generating Station,
Units 1 and 2

cc:

Mark J. Wetterhahn, Esquire
Winston & Strawn
1400 L Street NW
Washington, DC 20005-3502

Richard Hartung
Electric Service Evaluation
Board of Regulatory Commissioners
2 Gateway Center, Tenth Floor
Newark, NJ 07102

Richard Fryling, Jr., Esquire
Law Department - Tower 5E
80 Park Place
Newark, NJ 07101

Regional Administrator, Region I
U. S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Mr. Calvin A. Vondra
General Manager - Salem Operations
Salem Generating Station
P.O. Box 236
Hancocks Bridge, NJ 08038

Lower Alloways Creek Township
c/o Mary O. Henderson, Clerk
Municipal Building, P.O. Box 157
Hancocks Bridge, NJ 08038

Mr. J. Hagan
Vice President - Nuclear Operations
Nuclear Department
P.O. Box 236
Hancocks Bridge, New Jersey 08038

Mr. Frank X. Thomson, Jr., Manager
Licensing and Regulation
Nuclear Department
P.O. Box 236
Hancocks Bridge, NJ 08038

Mr. Charles S. Marschall, Senior
Resident Inspector
Salem Generating Station
U.S. Nuclear Regulatory Commission
Drawer I
Hancocks Bridge, NJ 08038

Mr. David Wersan
Assistant Consumer Advocate
Office of Consumer Advocate
1425 Strawberry Square
Harrisburg, PA 17120

Dr. Jill Lipoti, Asst. Director
Radiation Protection Programs
NJ Department of Environmental
Protection and Energy
CN 415
Trenton, NJ 08625-0415

Mr. J. A. Isabella
MGR. - Generation Department
Atlantic Electric Company
P.O. Box 1500
1199 Black Horse Pike
Pleasantville, NJ 08232

Maryland People's Counsel
American Building, 9th Floor
231 East Baltimore Street
Baltimore, Maryland 21202

Carl D. Schaefer
External Operations - Nuclear
Delmarva Power & Light Company
P.O. Box 231
Wilmington, DE 19899

Mr. J. T. Robb, Director
Joint Owners Affairs
PECO Energy Company
955 Chesterbrook Blvd., 51A-13
Wayne, PA 19087

Public Service Commission of Maryland
Engineering Division
Chief Engineer
6 St. Paul Centre
Baltimore, MD 21202-6806

Mr. S. LaBruna
Vice President - Nuclear Engineering
Nuclear Department
P.O. Box 236
Hancocks Bridge, New Jersey 08038



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. 150
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 December 8, 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, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-70 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 150, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Charles L. Miller, Director
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 7, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 150

FACILITY OPERATING LICENSE NO. DPR-70

DOCKET NO. 50-272

Revise Appendix A as follows:

<u>Remove Pages</u>	<u>Insert Pages</u>
3/4 4-5	3/4 4-5
-	3/4 4-5a
3/4 4-30	3/4 4-30
3/4 4-31	3/4 4-31
3/4 5-6	3/4 5-6
-	3/4 5-6a
B 3/4 4-1a	B 3/4 4-1a

REACTOR COOLANT SYSTEM

3/4.4.3 RELIEF VALVES

LIMITING CONDITION FOR OPERATION

3.4.3 Two power relief valves (PORVs) and their associated block valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

- a. With one or both PORVs inoperable and capable of being manually cycled, within 1 hour either restore the PORV(s) to OPERABLE status or close the associated block valve(s) with power maintained to the block valve(s); otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With one PORV inoperable and not capable of being manually cycled, within 1 hour either restore the PORV to OPERABLE status or close its associated block valve and remove power from the block valve; restore the PORV to OPERABLE status within the following 72 hours or be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- c. With both PORVs inoperable and not capable of being manually cycled, within 6 hours either restore at least one PORV to OPERABLE status or close the associated block valves and remove power from the block valves and be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. Restore the remaining PORV to OPERABLE status within 72 hours from failure of that valve to meet the Limiting Condition for Operation.
- d. With one block valve inoperable, within 1 hour restore the block valve to OPERABLE status or place the associated PORV in manual control; restore the block valve to operable status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- e. With both block valves inoperable, within 1 hour restore the block valves to OPERABLE status or place the associated PORVs in manual control; restore at least one block valve to OPERABLE status within the next 6 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. Restore the remaining block valve to OPERABLE status within 72 hours from failure of that valve to meet the Limiting Condition for Operation.

REACTOR COOLANT SYSTEM

3/4.4.3 RELIEF VALVES

SURVEILLANCE REQUIREMENTS

4.4.3.1 In addition to the requirements of Specification 4.0.5, each PORV shall be demonstrated OPERABLE at least once per 18 months by:

- a. Operating the PORV through one complete cycle of full travel during MODES 3 or 4, and
- b. Operating solenoid valves, air control valves, and check valves on associated air accumulators in PORV control systems through one complete cycle of full travel, and
- c. Performing a CHANNEL CALIBRATION of the actuation instrumentation.

4.4.3.2 Each block valve shall be demonstrated OPERABLE at least once per 92 days by operating the valve through one complete cycle of full travel unless the block valve is closed in order to meet the requirements of ACTION b, or c in Specification 3.4.3.

REACTOR COOLANT SYSTEM

OVERPRESSURE PROTECTION SYSTEMS

LIMITING CONDITION FOR OPERATION

3.4.9.3 At least one of the following overpressure protection systems shall be OPERABLE:

- a. Two Pressurizer Overpressure Protection System relief valves (POPS) with a lift setting of less than or equal to 375 psig, or
- b. A reactor coolant system vent of greater than or equal to 3.14 square inches.

APPLICABILITY: When the temperature of one or more of the RCS cold legs is less than or equal to 312°F, except when the reactor vessel head is removed.

ACTION:

- a. With one POPS inoperable in MODE 4 and the temperature of one or more of the RCS cold legs is less than or equal to 312°F, either restore the inoperable POPS to OPERABLE status within 7 days or depressurize and vent the RCS through a 3.14 square inch vent(s) within the next 8 hours; maintain the RCS in a vented condition until both POPSs have been restored to OPERABLE status.
- b. With one POPS inoperable in MODES 5 or 6 with the Reactor Vessel Head installed, restore the inoperable POPS to OPERABLE status within 24 hours, or complete depressurization and venting of the RCS through at least a 3.14 square inch vent(s) within the next 8 hours; maintain the RCS in a vented condition until both POPSs have been restored to OPERABLE status.
- c. With both POPSs inoperable, depressurize and vent the RCS through a 3.14 square inch vent(s) within 8 hours; maintain the RCS in a vented condition until both POPSs have been restored to OPERABLE status.
- d. In the event either the POPS or the RCS vent(s) are used to mitigate a RCS pressure transient, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 30 days. The report shall describe the circumstances initiating the transient, the effect of the POPS or vent(s) on the transient and any corrective action necessary to prevent recurrence.

REACTOR COOLANT SYSTEM

OVERPRESSURE PROTECTION SYSTEMS

SURVEILLANCE REQUIREMENTS

4.4.9.3.1 Each POPS shall be demonstrated OPERABLE by:

- a. Performance of a CHANNEL FUNCTIONAL TEST on the POPS actuation channel, but excluding valve operation, within 31 days prior to entering a condition in which the POPS is required OPERABLE.
- b. Performance of a CHANNEL CALIBRATION on the POPS actuation channel at least once per 18 months.
- c. Verifying the POPS isolation valve is open at least once per 72 hours when the POPS is being used for overpressure protection.
- d. Testing pursuant to Specification 4.0.5.

4.4.9.3.2 The RCS vent(s) shall be verified to be open at least once per 12 hours* when the vents(s) is being used for overpressure protection.

*Except when the vent pathway is provided with a valve which is locked, sealed, or otherwise secured in the open position, then verify these valves open at least once per 31 days.

EMERGENCY CORE COOLING SYSTEMS

ECCS SUBSYSTEMS - T_{avg} <350°F

LIMITING CONDITION FOR OPERATION

3.5.3 As a minimum, one ECCS subsystem comprised of the following shall be OPERABLE:

- a. One OPERABLE centrifugal charging pump[#] and associated flow path capable of taking suction from the refueling water storage tank and transferring suction to the residual heat removal pump discharge piping and;
 1. Discharging into each Reactor Coolant System (RCS) cold leg.
- b. One OPERABLE residual heat removal pump and associated residual heat removal heat exchanger and flow path capable of taking suction from the refueling water storage tank on a safety injection signal and transferring suction to the containment sump during the recirculation phase of operation and;
 1. Discharging into each RCS cold leg, and; upon manual initiation,
 2. Discharging into two RCS hot legs.

APPLICABILITY: MODE 4.

ACTION:

- a. With no ECCS subsystem OPERABLE because of the inoperability of either the centrifugal charging pump or the flow path from the refueling water storage tank, restore at least one ECCS subsystem to OPERABLE status within 1 hour or be in COLD SHUTDOWN within the next 20 hours.
- b. Within no ECCS subsystem OPERABLE because of the inoperability of either the residual heat removal heat exchanger or residual heat removal pump, restore at least one ECCS subsystem to OPERABLE status or maintain the Reactor Coolant System T_{avg} less than 350°F by use of alternate heat removal methods.
- c. In the event the ECCS is actuated and injects water into the Reactor Coolant System, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 90 days describing the circumstances of the actuation and the total accumulated actuation cycles to date.

A maximum of one safety injection pump or one centrifugal charging pump shall be OPERABLE in MODE 4 when the temperature of one or more of the RCS cold legs is less than or equal to 312°F, Mode 5, or Mode 6 when the head is on the reactor vessel.

EMERGENCY CORE COOLING SYSTEMS

ECSS SUBSYSTEMS - T_{avg} < 350°F

SURVEILLANCE REQUIREMENTS

4.5.3.1 The ECSS subsystem shall be demonstrated OPERABLE per applicable Surveillance Requirements of 4.5.2.

4.5.3.2 All safety injection pumps and centrifugal charging pumps, except the above required OPERABLE pump, shall be demonstrated to be inoperable at least once per 12 hours while in MODE 4 and the temperature of one or more of the RCS cold legs is less than or equal to 312°F, MODE 5, or MODE 6 when the head is on the reactor vessel by either of the following methods:

- a. By verifying that the motor circuit breakers have been removed from their electrical power supply circuits or,
- b. For testing purposes, by verifying that the pump is in a recirculation flow path and that the manual discharge valve is closed.

REACTOR COOLANT SYSTEM

BASES

3/4.4.2 SAFETY VALVES

The pressurizer code safety valves operate to prevent the RCS from being pressurized above its Safety Limit of 2735 psig. Each safety valve is designed to relieve 420,000 pounds per hour of saturated steam at the valve setpoint. The relief capacity of a single safety valve is adequate to relieve any overpressure condition which could occur during shutdown. In the event that no safety valves are OPERABLE, an operating RHR loop, connected to the RCS, provides overpressure relief capability and will prevent RCS overpressurization. In addition, the Overpressure Protection System provides a diverse means of protection against RCS overpressurization at low temperature. While in Mode 5 the safety valve requirement may be met by establishing a vent path of equivalent relieving capacity when no code safety valves are OPERABLE.

During operation, all pressurizer code safety valves must be OPERABLE to prevent the RCS from being pressurized above its safety limit of 2735 psig. The combined relief capacity of all of these valves is greater than the maximum surge rate resulting from a complete loss of load assuming no reactor trip until the first Reactor Protective System trip setpoint is reached (i.e., no credit is taken for a direct reactor trip on the loss of load) and also assuming no operation of the power operated relief valves or steam dump valves.

Demonstration of the safety valves lift settings will occur only during shutdown and will be performed in accordance with the provisions of Section XI of the ASME Boiler and Pressure Code.

3/4.4.3 RELIEF VALVES

The power operated relief valves (PORV) and steam bubble function to relieve RCS pressure during all design transients up to and including the design step load decrease with steam dump. Operation of the power operated relief valves minimizes the undesirable opening of the spring-loaded pressurizer code safety valves. Each power operated relief valve has a remotely operated block valve to provide positive shutoff capability should a relief valve become inoperable. Although a PORV may be inoperable, it may be able to be manually opened or closed, and therefore, able to perform its intended design function. PORV inoperability may be due to excessive seat leakage, instrumentation problems, automatic control problems, or other causes that do not prevent manual use, and do not create a possibility for a small break LOCA. The Action Statement requires that the block valve be closed, and power maintained to the valve in those circumstances when the PORV is still capable of being manually cycled.



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. 130
License No. DPR-75

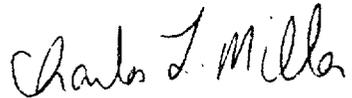
1. The Nuclear Regulatory Commission (the Commission or the NRC) has found that:
 - A. The application for amendment filed by the Public Service Electric & Gas Company, Philadelphia Electric Company, Delmarva Power and Light Company and Atlantic City Electric Company (the licensees) dated December 8, 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, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-75 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 130, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Charles L. Miller, Director
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 7, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 130

FACILITY OPERATING LICENSE NO. DPR-75

DOCKET NO. 50-311

Revise Appendix A as follows:

Remove Pages

3/4 4-8

-

3/4 4-31

3/4 5-7

3/4 5-8

B 3/4 4-2

B 3/4 4-3

Insert Pages

3/4 4-8

3/4 4-8a

3/4 4-31

3/4 5-7

3/4 5-8

B 3/4 4-2

B 3/4 4-3

REACTOR COOLANT SYSTEM

3/4.4.5 RELIEF VALVES

LIMITING CONDITION FOR OPERATION

3.4.5 Two power relief valves (PORVs) and their associated block valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

- a. With one or both PORVs inoperable and capable of being manually cycled, within 1 hour either restore the PORV(s) to OPERABLE status or close the associated block valve(s) with power maintained to the block valve(s); otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With one PORV inoperable and not capable of being manually cycled, within 1 hour either restore the PORV to OPERABLE status or close its associated block valve and remove power from the block valve; restore the PORV to OPERABLE status within the following 72 hours or be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- c. With both PORVs inoperable and not capable of being manually cycled, within 6 hours either restore at least one PORV to OPERABLE status or close the associated block valves and remove power from the block valves and be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. Restore the remaining PORV to OPERABLE status within 72 hours from failure of that valve to meet the Limiting Condition for Operation.
- d. With one block valve inoperable, within 1 hour restore the block valve to OPERABLE status or place the associated PORV in manual control; restore the block valve to operable status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- e. With both block valves inoperable, within 1 hour restore the block valves to OPERABLE status or place the associated PORVs in manual control; restore at least one block valve to OPERABLE status within the next 6 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. Restore the remaining block valve to OPERABLE status within 72 hours from failure of that valve to meet the Limiting Condition for Operation.

REACTOR COOLANT SYSTEM

3/4.4.5 RELIEF VALVES

SURVEILLANCE REQUIREMENTS

4.4.5.1 In addition to the requirements of Specification 4.0.5, each PORV shall be demonstrated OPERABLE at least once per 18 months by:

- a. Operating the PORV through one complete cycle of full travel during MODES 3 or 4, and
- b. Operating solenoid valves, air control valves, and check valves on associated air accumulators in PORV control systems through one complete cycle of full travel, and
- c. Performing a CHANNEL CALIBRATION of the actuation instrumentation.

4.4.5.2 Each block valve shall be demonstrated OPERABLE at least once per 92 days by operating the valve through one complete cycle of full travel unless the block valve is closed in order to meet the requirements of ACTION b, or c in Specification 3.4.5.

REACTOR COOLANT SYSTEM

OVERPRESSURE PROTECTION SYSTEMS

LIMITING CONDITION FOR OPERATION

3.4.10.3 At least one of the following overpressure protection systems shall be OPERABLE:

- a. Two Pressurizer Overpressure Protection System relief valves (POPS) with a lift setting of less than or equal to 375 psig, or
- b. The Reactor Coolant System (RCS) depressurized with an RCS vent of greater than or equal to 3.14 square inches.

APPLICABILITY: When the temperature of one or more of the RCS cold legs is less than or equal to 312°F, except when the reactor vessel head is removed.

ACTION:

- a. With one POPS inoperable in MODE 4 and the temperature of one or more of the RCS cold legs is less than or equal to 312°F, restore the inoperable POPS to OPERABLE status within 7 days or depressurize and vent the RCS through a 3.14 square inch vent(s) within the next 8 hours; maintain the RCS in a vented condition until both POPSs have been restored to OPERABLE status.
- b. With one POPS inoperable in MODES 5 or 6 with the Reactor Vessel Head installed, restore the inoperable POPS to OPERABLE status within 24 hours, or complete depressurization and venting of the RCS through at least a 3.14 square inch vent(s) within the next 8 hours; maintain the RCS in a vented condition until both POPSs have been restored to OPERABLE status.
- c. With both POPSs inoperable, depressurize and vent the RCS through a 3.14 square inch vent(s) within 8 hours; maintain the RCS in a vented condition until both POPSs have been restored to OPERABLE status.
- d. In the event either the POPS or the RCS vent(s) are used to mitigate a RCS pressure transient, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 30 days. The report shall describe the circumstances initiating the transient, the effect of the POPS or vent(s) on the transient and any corrective action necessary to prevent recurrence.

SURVEILLANCE REQUIREMENTS

4.4.10.3.1 Each POPS shall be demonstrated OPERABLE by:

EMERGENCY CORE COOLING SYSTEMS

ECCS SUBSYSTEMS - T_{avg} <350°F

LIMITING CONDITION FOR OPERATION

3.5.3 As a minimum, one ECCS subsystem comprised of the following shall be OPERABLE:

- a. One OPERABLE centrifugal charging pump[#] and associated flow path capable of taking suction from the refueling water storage tank and transferring suction to the residual heat removal pump discharge piping and;
 1. Discharging into each Reactor Coolant System (RCS) cold leg.
- b. One OPERABLE residual heat removal pump and associated residual heat removal heat exchanger and flow path capable of taking suction from the refueling water storage tank on a safety injection signal and transferring suction to the containment sump during the recirculation phase of operation and;
 1. Discharging into each RCS cold leg, and; upon manual initiation,
 2. Discharging into two RCS hot legs.

APPLICABILITY: MODE 4.

ACTION:

- a. With no ECCS subsystem OPERABLE because of the inoperability of either the centrifugal charging pump or the flow path from the refueling water storage tank, restore at least one ECCS subsystem to OPERABLE status within 1 hour or be in COLD SHUTDOWN within the next 20 hours.
- b. Within no ECCS subsystem OPERABLE because of the inoperability of either the residual heat removal heat exchanger or residual heat removal pump, restore at least one ECCS subsystem to OPERABLE status or maintain the Reactor Coolant System T_{avg} less than 350°F by use of alternate heat removal methods.
- c. In the event the ECCS is actuated and injects water into the Reactor Coolant System, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 90 days describing the circumstances of the actuation and the total accumulated actuation cycles to date. The current value of the usage factor for each affected safety injection nozzle shall be provided in this Special Report whenever its value exceeds 0.70.

A maximum of one safety injection pump or one centrifugal charging pump shall be OPERABLE in MODE 4 when the temperature of one or more of the RCS cold legs is less than or equal to 312°F, Mode 5, or Mode 6 when the head is on the reactor vessel.

EMERGENCY CORE COOLING SYSTEMS

ECCS SUBSYSTEMS - Tavg < 350°F

SURVEILLANCE REQUIREMENTS

4.5.3.1 The ECCS subsystem shall be demonstrated OPERABLE per applicable Surveillance Requirements of 4.5.2.

4.5.3.2 All safety injection pumps and centrifugal charging pumps, except the above required OPERABLE pump, shall be demonstrated to be inoperable at least once per 12 hours while in MODE 4 and the temperature of one or more of the RCS cold legs is less than or equal to 312°F, MODE 5, or MODE 6 when the head is on the reactor vessel by either of the following methods:

- a. By verifying that the motor circuit breakers have been removed from their electrical power supply circuits or,
- b. For testing purposes, by verifying that the pump is in a recirculation flow path and that the manual discharge valve is closed.

REACTOR COOLANT SYSTEM

BASES

3/4.4.2 and 3/4.4.3 SAFETY VALVES

The pressurizer code safety valves operate to prevent the RCS from being pressurized above its Safety Limit of 2735 psig. Each safety valve is designed to relieve 420,000 pounds per hour of saturated steam at the valve setpoint. The relief capacity of a single safety valve is adequate to relieve any overpressure condition which could occur during shutdown. In the event that no safety valves are OPERABLE, an operating RHR loop, connected to the RCS, provides overpressure relief capability and will prevent RCS overpressurization. In addition, the Overpressure Protection System provides a diverse means of protection against RCS overpressurization at low temperature. While in Mode 5 the safety valve requirement may be met by establishing a vent path of equivalent relieving capacity when no code safety valves are OPERABLE.

During operation, all pressurizer code safety valves must be OPERABLE to prevent the RCS from being pressurized above its safety limit of 2735 psig. The combined relief capacity of all of these valves is greater than the maximum surge rate resulting from a complete loss of load assuming no reactor trip until the first Reactor Protective System trip setpoint is reached (i.e., no credit is taken for a direct reactor trip on the loss of load) and also assuming no operation of the power operated relief valves or steam dump valves.

Demonstration of the safety valves lift settings will occur only during shutdown and will be performed in accordance with the provisions of Section XI of the ASME Boiler and Pressure Code.

3/4.4.4 PRESSURIZER

The limit on the maximum water volume in the pressurizer assures that the parameter is maintained within the normal steady-state envelope of operation assumed in the SAR. The limit is consistent with the initial SAR assumptions. The 12 hour periodic surveillance is sufficient to ensure that the parameter is restored to within its limit following expected transient operation. The maximum water volume also ensures that a steam bubble is formed and thus the RCS is not a hydraulically solid system. The requirement that a minimum number of pressurizer heaters be OPERABLE enhances the capability of the plant to control RCS pressure and establish natural circulation.

3/4.4.5 RELIEF VALVES

The power operated relief valves (PORV) and steam bubble function to relieve RCS pressure during all design transients up to and including the design step load decrease with steam dump. Operation of the power operated relief valves minimizes the undesirable opening of the spring-loaded pressurizer code safety valves. Each power operated relief valve has a remotely operated block valve to provide positive shutoff capability should a relief valve become inoperable. Although a PORV may be inoperable, it may be able to be manually opened or closed, and therefore, able to perform its

REACTOR COOLANT SYSTEM

BASES

3/4.4.5 RELIEF VALVES (continued)

intended design function. PORV inoperability may be due to excessive seat leakage, instrumentation problems, automatic control problems, or other causes that do not prevent manual use, and do not create a possibility for a small break LOCA. The Action Statement requires that the block valve be closed, and power maintained to the valve in those circumstances when the PORV is still capable of being manually cycled.

3/4.4.6 STEAM GENERATORS

The Surveillance Requirements for inspection of the steam generator tubes ensure that the structural integrity of this portion of the RCS will be maintained. The program for inservice inspection of steam generator tubes is based on a modification of Regulatory Guide 1.83, Revision 1. Inservice inspection of steam generator tubing is essential in order to maintain surveillance of the conditions of the tubes in the event that there is evidence of mechanical damage or progressive degradation due to design, manufacturing errors, or inservice conditions that lead to corrosion. Inservice inspection of steam generator tubing also provides a means of characterizing the nature and cause of any tube degradation so that corrective measures can be taken.

The plant is expected to be operated in a manner such that the secondary coolant will be maintained within those chemistry limits found to result in negligible corrosion of the steam generator tubes. If the secondary coolant chemistry is not maintained within these limits, localized corrosion may likely result in stress corrosion cracking. The extent of cracking during plant operation would be limited by the limitation of steam generator tube leakage between the primary coolant system and the secondary coolant system (primary-to-secondary leakage = 500 gallons per day per steam generator). Cracks having a primary-to-secondary leakage less than this limit during operation will have an adequate margin of safety to withstand the loads imposed during normal operation and by postulated accidents. Operating plants have demonstrated that primary-to-secondary leakage of 500 gallons per day per steam generator can readily be detected by radiation monitors of steam generator blowdown. Leakage in excess of this limit will require plant shutdown and an unscheduled inspection, during which the leaking tubes will be located and plugged.

Wastage-type defects are unlikely with proper chemistry treatment of the secondary coolant. However, even if a defect should develop in service, it will be found during scheduled inservice steam generator tube examinations. Plugging will be required for all tubes with imperfections exceeding the plugging limit of 40% of the tube nominal wall thickness. Steam generator tube inspections of operating plants have demonstrated the capability to reliably detect degradation that has penetrated 20% of the original tube wall thickness.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NOS. 150 AND 130 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 December 8, 1993, the Public Service Electric & Gas Company (the licensee) submitted a request for changes to the Salem Nuclear Generating Station, Unit Nos. 1 and 2, Technical Specifications (TS). The requested changes were in response to the staff's request in Generic Letter (GL) 90-06 that addressed the issues of power-operated relief valve (PORV) and block valve reliability (Generic Issue 70) and additional low temperature overpressure protection (LTOP) for light water reactors (Generic Issue 94).

2.0 EVALUATION

1. The licensee requested that Technical Specification 3/4.4.3 (for Unit 1) and 3/4.4.5 (for Unit 2), Relief Valves, be revised such that:
 - With one or both power operated relief valves (PORVs) inoperable and capable of being manually cycled, continued plant operation shall be permitted only if the associated block valve is closed with power maintained on the block valve.
 - With one PORV inoperable and not capable of being manually cycled, continued plant operation shall be permitted only if the associated block valve is closed and de-energized within 1 hour and the affected PORV is returned to operable status within 72 hours.
 - With both PORVs inoperable and not capable of being manually cycled, continued plant operation shall be permitted only if at least one PORV can be restored to operable status within 6 hours. The remaining PORV shall be restored to operable status within 72 hours from failure of that valve to meet the Limiting Condition for Operation (LCO).

- With one or both block valves(s) inoperable, either the valve(s) shall be restored to operable status or the associated PORVs shall be placed in manual control within 1 hour. If both block valves are inoperable, at least one shall be restored to operable status within the next 6 hours. The remaining block valve shall be restored to operable status within 72 hours from failure of that valve to meet the LCO.
- Each PORV shall be demonstrated operable on an 18-month test interval by: (1) operating the valve through one complete cycle of travel during Modes 3 or 4; (2) operating solenoid, control, and check valves associated with the PORV accumulators through one complete cycle of travel; and (3) performing a channel calibration of the actuation instrumentation.
- Each block valve shall be demonstrated operable on a 92-day test interval by operating the valve through one complete cycle of travel.
- A Bases change has been included to clarify that although a PORV may be inoperable, it may be able to be manually opened or closed, and therefore, able to perform its intended design function. PORV inoperability may be due to seat leakage, instrumentation problems, automatic control problems, or other causes that do not prevent manual use, and do not create a possibility for a small break loss-of-coolant accident (LOCA). It is also explained that the Action Statement requires that the block valve be closed, and power maintained to the valve if it is capable of being manually cycled.

The above changes are in response to the recommendations in GL 90-06, Enclosure A, and are discussed on pages A-8 through A-10. The technical specification changes, recommended in GL 90-06, have been fully incorporated except as follows:

- a. The surveillance requirement to test the emergency power supply for the PORVs and block valves has not been incorporated. At Salem, the PORVs and block valves receive power from the vital busses which receive emergency power from the emergency diesel generators (EDGs). The operability of the EDGs is verified by surveillance requirements applicable to the electrical power systems (Technical Specification 3.8.1.1). The staff finds this exception acceptable.
- b. The licensee has proposed to use the Action Statements from the Westinghouse Standard Technical Specifications (STS), NUREG-1431, for determining whether or not power should remain on the closed block valves.

The recommendations in GL 90-06 use PORV excessive seat leakage to determine if power should remain on the closed block valves. If excessive seat leakage was the reason the PORV was inoperable, then the block valve was to be closed with power remaining on the valve. If the PORV was inoperable for reasons other than excessive seat leakage, then the block valve was to be closed and power removed from the block valve.

However, the STS uses the ability to manually cycle the PORV to determine if power should remain on the closed block valve. If the capability to manually cycle the PORV is available, then the block valve is to be closed with power remaining on the valve. If the PORV cannot be manually cycled, then the block valve must be closed and power removed from the block valve.

By adapting the STS Action Statement requirements, if a PORV is declared inoperable, it may be able to be manually opened and closed, and therefore, able to perform its function. PORV inoperability may be due to seat leakage, instrumentation problems, automatic control problems, or other causes that do not prevent manual use and do not create a possibility for a small break LOCA. For these reasons, the block valve may be closed and power maintained to the valve. The staff finds the above exceptions to the guidance of GL 90-06 acceptable.

- c. For the case where both PORVs are inoperable in Modes 1, 2, or 3 and not capable of being manually cycled or both block valves are inoperable, the licensee has proposed to increase to allowed outage time (AOT) to restore one PORV or one block valve to operable status from 1 hour to 6 hours. By increasing the AOT from 1 hour to 6 hours, there is sufficient time for a containment entry to assess and implement, if possible, minor corrective actions to return inoperable PORV(s) or block valves to operable status. The additional time would allow the correction of minor deficiencies, and would therefore allow the plant to continue to operate without bringing the plant through a shutdown transient. Plant shutdown under these action statements would result in the entry to a lower mode of operation which requires the PORVs to be operable to provide a Low Temperature Overpressure Protection (LTOP) function. The staff finds this exception to the guidance of GL 90-06 acceptable.
2. Technical Specification 3.4.9.3 (Unit 1) and 3.4.10.3 (Unit 2), "Overpressure Protection Systems" would be revised as follows:
 - With one PORV inoperable in Mode 4 and the temperature of one or more cold legs less than or equal to 312°F, the inoperable PORV shall be restored to operable status within 7 days or the reactor coolant system shall be vented within the next 8 hours.
 - With one PORV inoperable in Modes 5 or 6 with the reactor vessel head installed, the inoperable PORV shall be restored to operable status within 24 hours or the reactor coolant system shall be vented within a total of 32 hours.
 - The reference to the specific ASME valve category is deleted for the surveillance requirements (applicable to Salem Unit 1 only).

The above changes are in response to the recommendation in GL 90-06, Enclosure B, with the following exceptions:

- Action a. has been clarified to indicate that before low temperature overpressure protection is necessary, one or more reactor coolant system cold leg temperatures must be equal to or less than 312⁰F. This is in agreement with the Applicability statement and the staff finds it acceptable.
 - Surveillance Requirement 4.4.3.3.1.d has been changed to delete the specific ASME valve category (Salem Unit 1 only). This type of information is contained in the inservice test program and is not normally included in the technical specifications. Also, this change will bring the Salem 1 technical specifications into agreement with the Salem 2 technical specifications. The staff finds this change acceptable.
3. Specification 3.5.3, "ECCS SUBSYSTEMS - $T_{ave} < 350^0F$ ", will be changed to more clearly specify the applicability of Surveillance 4.5.3.1 and the note associated with Limiting Condition for Operation 3.5.3.a. The change clarifies that the surveillance and note apply when the plant is in Mode 4 and any RCS cold leg temperature is less than or equal to 312⁰F; the plant is in Mode 5; or the plant is in Mode 6 with the reactor vessel head installed. The change also clarifies that the number of centrifugal charging pumps or safety injection pumps that can be operable in the specified Modes is one. These changes are clarifications and are consistent with the guidance provided in GL 90-06. The staff finds these changes acceptable.

3.0 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.

4.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendments involve 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 amendments involve no significant hazards consideration, and there has been no public comment on such finding (59 FR 2870). Accordingly, the amendments meet 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 amendments.

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: J. Stone

Date: April 7, 1994