

6-7-79

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Docket No. 50-272

Mr. F. P. Librizzi, General Manager
 Electric Production
 Public Service Electric and Gas Company
 80 Park Place
 Newark, New Jersey 07101

Dear Mr. Librizzi:

The Commission has issued the enclosed Amendment No. 17 to Facility Operating License No. DPR-70 for the Salem Nuclear Generating Station Unit No. 1. The amendment consists of changes to the Appendix A Technical Specifications and is in response to your letter of May 7, 1979.

This amendment revises the Technical Specifications to require actuation of safety injection based on two out of three channels of low pressurizer pressure. As discussed with you, this plant modification is to be accomplished prior to restart for Cycle 2 operation.

Copies of the Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

A. Schwencer, Chief
 Operating Reactors Branch #1
 Division of Operating Reactors

Enclosures:

1. Amendment No. 17 to DPR-70
2. Safety Evaluation
3. Notice of Issuance

cc: w/enclosures
 See next page

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DOR: STSG
D. Brinkman
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OFFICE	DOR:ORB1	DOR:ORB1	DOR:ORB1	DOR: S&P	OELD	DOR:PSB
SURNAME	GGZech:jb	CSParrish	ASchwencer	RHoflmer	B.Smith	GLainas
DATE	06/7/79	06/1/79	06/9/79	06/7/79	06/9/79	06/6/79



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

June 7, 1979

Docket No. 50-272

Mr. F. P. Librizzi, General Manager
Electric Production
Public Service Electric and Gas Company
80 Park Place
Newark, New Jersey 07101

Dear Mr. Librizzi:

The Commission has issued the enclosed Amendment No. 17 to Facility Operating License No. DPR-70 for the Salem Nuclear Generating Station Unit No. 1. The amendment consists of changes to the Appendix A Technical Specifications and is in response to your letter of May 7, 1979.

This amendment revises the Technical Specifications to require actuation of safety injection based on two out of three channels of low pressurizer pressure. As discussed with you, this plant modification is to be accomplished prior to restart for Cycle 2 operation.

Copies of the Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

A handwritten signature in cursive script, appearing to read "A. Schwencer".

A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

Enclosures:

1. Amendment No. 17 to DPR-70
2. Safety Evaluation
3. Notice of Issuance

cc: w/enclosures
See next page

Docket

Mr. F. P. Librizzi
Public Service Electric and Gas Company

-2-

cc: Mark J. Wetterhahn, Esquire
Conner, Moore and Corber
Suite 1050
1747 Pennsylvania Avenue, NW
Washington, D. C. 20006

Richard Fryling, Jr., Esquire
Assistant General Solicitor
Public Service Electric and Gas Company
80 Park Place
Newark, New Jersey 07101

Gene Fisher, Bureau of Chief
Bureau of Radiation Protection
380 Scotch Road
Trenton, New Jersey 08628

Mr. Hank Midura, Manager
Salem Nuclear Generating Station
Public Service Electric and Gas Company
80 Park Place
Newark, New Jersey 07101

Mr. R. L. Mittl, General Manager
Licensing and Environment
Public Service Electric and Gas Company
80 Park Place
Newark, New Jersey 07101

Salem Free Library
112 West Broadway
Salem, New Jersey 08079

Leif J. Norrholm
U. S. Nuclear Regulatory Commission
Drawer I
Hancocks Bridge, New Jersey 08038



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

PUBLIC SERVICE ELECTRIC AND 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. 17
License No. DPR-70

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Public Service Electric and Gas Company, et al. (the licensee) dated May 7, 1979, 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;
 - 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.

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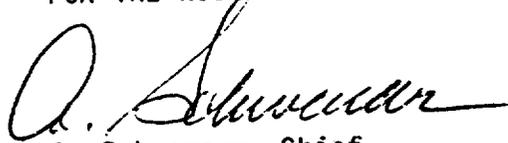
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-70 is hereby amended to read as follows:

"(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 17, 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 the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 7, 1979

ATTACHMENT TO LICENSE AMENDMENT NO. 17

FACILITY OPERATING LICENSE NO. DPR-70

DOCKET NO. 50-272

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. The corresponding overleaf pages are also provided to maintain document completeness.

Pages

3/4 3-15
3/4 3-22
3/4 3-23
3/4 3-28
3/4 3-31

TABLE 3.3-3

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
1. SAFETY INJECTION, TURBINE TRIP AND FEEDWATER ISOLATION					
a. Manual Initiation	2	1	2	1, 2, 3, 4	18
b. Automatic Actuation Logic	2	1	2	1, 2, 3, 4	13
c. Containment Pressure-High	3	2	2	1, 2, 3	14*
d. Pressurizer Pressure - Low	3	2	2	1, 2, 3#	14*
e. Differential Pressure Between Steam Lines - High				1, 2, 3##	
Four Loops Operating	3/steam line	2/steam line any steam line	2/steam line		14*
Three Loops Operating	3/operating steam line	1###/steam line, any operating steam line	2/operating steam line		15

SALEM - UNIT 1

3/4 3-15

Amendment No. 17

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
f. Steam Flow in Two Steam Lines-High				1, 2, 3 ^{##}	
Four Loops Operating	2/steam line	1/steam line any 2 steam lines	1/steam line		14*
Three Loops Operating	2/operating steam line	1 ^{###} /any operating steam line	1/operating steam line		15
COINCIDENT WITH EITHER					
T _{avg} --Low-Low				1, 2, 3 ^{##}	
Four Loops Operating	1 T _{avg} /loop	2 T _{avg} any loops	1 T _{avg} any 3 loops		14*
Three Loops Operating	1 T _{avg} /operating loop	1 ^{###} T _{avg} in any operating loop	1 T _{avg} in any two operating loops		15

TABLE 3.3-3 (Continued)

TABLE NOTATION

- # Trip function may be bypassed in this MODE below P-11.
- ## Trip function may be bypassed in this MODE below P-12.
- ### The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped mode.
- * The provisions of Specification 3.0.4 are not applicable.

ACTION STATEMENTS

- ACTION 13 - With the number of OPERABLE Channels one less than the Total Number of Channels, be in HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours; however, one channel may be bypassed for up to 1 hour for surveillance testing per Specification 4.3.2.1.1.
- ACTION 14 - With the number of OPERABLE Channels one less than the Total Number of Channels, operation may proceed until performance of the next required CHANNEL FUNCTIONAL TEST, provided the inoperable channel is placed in the tripped condition within 1 hour.
- ACTION 15 - With a channel associated with an operating loop inoperable, restore the inoperable channel to OPERABLE status within 2 hours or be in HOT SHUTDOWN within the following 12 hours; however, one channel associated with an operating loop may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.
- ACTION 16 - With the number of OPERABLE Channels one less than the Total Number of Channels, operation may proceed provided the inoperable channel is placed in the bypassed condition and the Minimum Channels OPERABLE requirement is demonstrated within 1 hour; one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.

TABLE 3.3-4

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
1. SAFETY INJECTION, TURBINE TRIP AND FEEDWATER ISOLATION		
a. Manual Initiation	Not Applicable	Not Applicable
b. Automatic Actuation Logic	Not Applicable	Not Applicable
c. Containment Pressure--High	≤ 4.7 psig	≤ 5.2 psig
d. Pressurizer Pressure--Low	≥ 1765 psig	≥ 1755 psig
e. Differential Pressure Between Steam Lines--High	≤ 100 psi	≤ 112 psi
f. Steam Flow in Two Steam Lines--High Coincident with T_{avg} --Low-Low or Steam Line Pressure--Low	<p>< A function defined as follows: A Δp corresponding to 40% of full steam flow between 0% and 20% load and then a Δp increasing linearly to a Δp corresponding to 110% of full steam flow at full load</p> <p>$T_{avg} \geq 543^{\circ}\text{F}$ ≥ 500 psig steam line pressure</p>	<p>< A function defined as follows: A Δp corresponding to 44% of full steam flow between 0% and 20% load and then a Δp increasing linearly to a Δp corresponding to 111.5% of full steam flow at full load</p> <p>$T_{avg} \geq 541^{\circ}\text{F}$ ≥ 480 psig steam line pressure</p>

TABLE 3.3-4 (Continued)ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
2. CONTAINMENT SPRAY		
a. Manual Initiation	Not Applicable	Not Applicable
b. Automatic Actuation Logic	Not Applicable	Not Applicable
c. Containment Pressure--High-High	≤ 23.5 psig	≤ 24 psig
3. CONTAINMENT ISOLATION		
a. Phase "A" Isolation		
1. Manual	Not Applicable	Not Applicable
2. From Safety Injection Automatic Actuation Logic	Not Applicable	Not Applicable
b. Phase "B" Isolation		
1. Manual	Not Applicable	Not Applicable
2. Automatic Actuation Logic	Not Applicable	Not Applicable
3. Containment Pressure--High-High	≤ 23.5 psig	≤ 24 psig
c. Containment Ventilation Isolation		
1. Manual	Not Applicable	Not Applicable

TABLE 3.3-5

ENGINEERED SAFETY FEATURES RESPONSE TIMES

<u>INITIATING SIGNAL AND FUNCTION</u>	<u>RESPONSE TIME IN SECONDS</u>
1. <u>Manual</u>	
a. Safety Injection (ECCS)	Not Applicable
Feedwater Isolation	Not Applicable
Reactor Trip (SI)	Not Applicable
Containment Isolation-Phase "A"	Not Applicable
Containment Ventilation Isolation	Not Applicable
Auxiliary Feedwater Pumps	Not Applicable
Service Water System	Not Applicable
Containment Fan Cooler	Not Applicable
b. Containment Spray	Not Applicable
Containment Isolation-Phase "B"	Not Applicable
Containment Ventilation Isolation	Not applicable
c. Containment Isolation-Phase "A"	Not Applicable
Containment Ventilation Isolation	Not Applicable
d. Steam Line Isolation	Not Applicable
2. <u>Containment Pressure-High</u>	
a. Safety Injection (ECCS)	≤ 27.0*
b. Reactor Trip (from SI)	≤ 3.0
c. Feedwater Isolation	≤ 8.0
d. Containment Isolation-Phase "A"	≤ 18.0 [#] /28.0 ^{##}
e. Containment Ventilation Isolation	Not Applicable
f. Auxiliary Feedwater Pumps	Not Applicable
g. Service Water System	≤ 13.0 [#] /48.0 ^{##}

TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

<u>INITIATING SIGNAL AND FUNCTION</u>	<u>RESPONSE TIME IN SECONDS</u>
3. <u>Pressurizer Pressure-Low</u>	
a. Safety Injection (ECCS)	≤ 27.0*/13.0#
b. Reactor Trip (from SI)	≤ 3.0
c. Feedwater Isolation	≤ 8.0
d. Containment Isolation-Phase "A"	≤ 18.0#
e. Containment Ventilation Isolation	Not Applicable
f. Auxiliary Feedwater Pumps	Not Applicable
g. Service Water System	≤ 48.0*/13.0#
4. <u>Differential Pressure Between Steam Lines-High</u>	
a. Safety Injection (ECCS)	≤ 13.0#/23.0##
b. Reactor Trip (from SI)	≤ 3.0
c. Feedwater Isolation	≤ 8.0
d. Containment Isolation-Phase "A"	≤ 18.0#/28.0##
e. Containment Ventilation Isolation	Not Applicable
f. Auxiliary Feedwater Pumps	Not Applicable
g. Service Water System	≤ 13.0#/48.0##
5. <u>Steam Flow in Two Steam Lines - High Coincident with T_{avg} --Low-Low</u>	
a. Safety Injection (ECCS)	≤ 15.0#/25.0##
b. Reactor Trip (from SI)	≤ 5.0
c. Feedwater Isolation	≤ 10.0
d. Containment Isolation-Phase "A"	≤ 20.0#/30.0##
e. Containment Ventilation Isolation	Not Applicable
f. Auxiliary Feedwater Pumps	Not Applicable
g. Service Water System	≤ 15.0#/50.0##
h. Steam Line Isolation	≤ 10.0

TABLE 4.3-2

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
1. SAFETY INJECTION, TURBINE TRIP AND FEEDWATER ISOLATION				
a. Manual Initiation	N.A.	N.A.	R	1, 2, 3, 4
b. Automatic Actuation Logic	N.A.	N.A.	M(2)	1, 2, 3, 4
c. Containment Pressure-High	S	R	M(3)	1, 2, 3
d. Pressurizer Pressure--Low	S	R	M	1, 2, 3
e. Differential Pressure Between Steam Lines--High	S	R	M	1, 2, 3
f. Steam Flow in Two Steam Lines--High Coincident with T_{avg} --Low or Steam Line Pressure--Low	S	R	M	1, 2, 3
2. CONTAINMENT SPRAY				
a. Manual Initiation	N.A.	N.A.	R	1, 2, 3, 4
b. Automatic Actuation Logic	N.A.	N.A.	M(2)	1, 2, 3, 4
c. Containment Pressure--High-High	S	R	M(3)	1, 2, 3

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
3. CONTAINMENT ISOLATION				
a. Phase "A" Isolation				
1) Manual	N.A.	N.A.	R	1, 2, 3, 4
2) From Safety Injection Automatic Actuation Logic	N.A.	N.A.	M(2)	1, 2, 3, 4
b. Phase "B" Isolation				
1) Manual	N.A.	N.A.	R	1, 2, 3, 4
2) Automatic Actuation Logic	N.A.	N.A.	M(2)	1, 2, 3, 4
3) Containment Pressure-- High-High	S	R	M(3)	1, 2, 3
c. Containment Ventilation Isolation				
1) Manual	N.A.	N.A.	R	1, 2, 3, 4
2) Containment Radio-activity-High	S	R	M	1, 2, 3, 4

SALEM UNIT 1

3/4 3-32



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 17 TO FACILITY OPERATING LICENSE DPR-70

PUBLIC SERVICE ELECTRIC AND 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

Introduction

By letter dated May 7, 1979, Public Service Electric and Gas Company (the licensee) requested an amendment to Facility Operating License No. DPR-70 for the Salem Station Unit No. 1. The proposed amendment would change the Technical Specifications to require actuation of safety injection based on two out of three channels of low pressurizer pressure.

As discussed with you, it is understood that the plant modifications necessary to achieve a two out of three logic will be made during the current outage before restart for Cycle 2 operation.

Discussion

As a result of our ongoing review of the events associated with the March 28 accident at Three Mile Island Unit 2, the NRC office of Inspection and Enforcement issued a number of IE Bulletins describing actions to be taken by licensees. IE Bulletin 79-06 (April 14, 1979) further called for these licensees to trip the low pressurizer level bistables such that, when the pressurizer pressure reaches the low setpoint, safety injection would be initiated regardless of the pressurizer level.

IE Bulletin 79-06A, Revision 1 (April 18, 1979) modified the action called for in 79-06A by allowing pressurizer level bistables to be returned to their normal (untripped) operating positions during the pressurizer pressure channel functional surveillance tests.

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The effect of tripping the pressurizer low level bistables which are normally coincident with the pressurizer low pressure bistables, has the effect of reducing this safety injection actuation logic to a one out of three logic. A single instrument failure of one of the three low pressure bistable channels could therefore result in an unwanted safety injection. To prevent this, the licensee proposed in a May 7, 1979 letter, a design modification which would align the existing pressurizer low pressure bistables in a two out of three logic.

Evaluation

The proposed modification to the safety injection actuation system entails removing the pressurizer level signal from each of the pressurizer level - pressure channel trips and converting the system to a two-out-of-three pressurizer low pressure trip. The instrumentation logic takes pressurizer pressure signals from three pressure transmitters and initiates a safety injection actuation whenever two of the three signals reach the low pressure setpoint of 1765 psig. These modifications will satisfy the requirements of IEEE 279-1971, and other standards of installation required during the plant construction stage. We find these modifications acceptable.

We have reviewed the instrumentation and controls aspect of the proposed change in accordance with IEEE-279 and other applicable standards and Regulatory Guides. The modification eliminates pressurizer level as a required initiating signal to actuate safety injection. The licensee proposes to use a two-out-of-three logic on low pressurizer pressure alone. Separation of trains will be maintained, testability will be maintained, and verification of proper actuation of the first train can be performed prior to modification of the second train.

We have reviewed the instrumentation power sources and determined that the four 115V instrument distribution panels are supplied from independent trains. The vital power is provided by inverters that are energized from auctioneered power sources (Batteries/MCC's). We find this acceptable.

The proposed Technical Specifications revise Tables 3.3-3, 3.3-4, 3.3-5, and 4.3-2 to reflect automatic safety injection actuation on a two-out-of-three pressurizer low pressure of 1765 psig. We find the changes to the Technical Specifications to be acceptable.

Based on our review of the licensee's submittal, we conclude that the modifications to the safety injection actuation system logic satisfy the requirements of IEEE 279-1971 and that the associated Technical Specifications are correct; and therefore, are acceptable.

We also conclude that the proposed change will be in accordance with the above standards and guides, and that none of the transient and accident analyses are adversely affected by the change. The only effect may be a

sooner SI actuation. Therefore, we find the proposed change to be acceptable.

Environmental Consideration

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §1.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

We have concluded, based on the consideration discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by the operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or the health and safety of the public.

Date: June 7, 1979