



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

January 5, 1993

Docket Nos. 50-272
and 50-311

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: ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION, SALEM
NUCLEAR GENERATING STATION, UNIT 1 AND 2 (TAC NOS. M84335
AND M84336)

The Commission has issued the enclosed Amendment Nos. 138 and 116 to Facility Operating License Nos. DPR-70 and DPR-75 for the Salem Nuclear Generating Station, Units, 1 and 2. These amendments consist of changes to the Technical Specifications (TSs) in response to your application dated August 14, 1992.

These amendments contain administrative changes associated with the Engineered Safety Feature Actuation System Instrumentation, to provide consistency and ensure technical accuracy between Salem, Units 1 and 2. These amendments also contain provisions to allow entry into Mode 1 with one main feedwater pump out-of-service, allow the ACTION statement in the TS 3/4.3.2 Functional Units 4.a. and 4.b. to require taking the Unit to one mode below the Mode of Applicability instead of two, and delete all references to three and four loop operation.

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Mr. Steven E. Miltenberger

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January 5, 1993

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 the 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

Enclosures:

1. Amendment No. 138 to
License No. DPR-70
2. Amendment No. 116 to
License No. DPR-75
3. Safety Evaluation

cc w/enclosures:
See next page

DISTRIBUTION w/enclosures:

Docket File	MO'Brien(2)	CGrimes, 11E21	SNewberry
NRC & Local PDRs	JStone/AKeller	ACRS(10)	
PDI-2 Reading	OGC	OPA	
SVarga	DHagan, 3206	OC/LFMB	
JCalvo	GHill(8), P1-22	EWenzinger, RGN-I	
CMiller	Wanda Jones, P-370	JWhite, RGN-I	

OFC	: PDI-2/LA	: PDI-2/PE	: PDI-2/PM	: HICB	: OGC	: PDI-2/D	:
NAME	: MO'Brien	: AKeller	: rb:JStone	: SNewberry	: R. Cochran	: CMiller	:
DATE	: 12/10/92	: 12/11/92	: 12/15/92	: 12/17/92	: 12/23/92	: 1/4/93	:

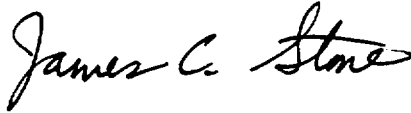
Mr. Steven E. Miltenberger

- 2 -

January 5, 1993

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 the 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. 138 to
License No. DPR-70
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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

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

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. 138
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 August 14, 1992, 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. 138, 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 120 days of the date of issuance..

FOR THE NUCLEAR REGULATORY COMMISSION

Charles L. Miller

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: January 5, 1993

ATTACHMENT TO LICENSE AMENDMENT NO. 138

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 3-15	3/4 3-15
3/4 3-16	3/4 3-16
3/4 3-17	3/4 3-17
3/4 3-18	3/4 3-18
3/4 3-19	3/4 3-19
3/4 3-20	3/4 3-20
3/4 3-20a	3/4 3-20a
3/4 3-21	3/4 3-21
3/4 3-22	3/4 3-22
-	3/4 3-22a
3/4 3-24	3/4 3-24
3-4 3-25	3/4 3-25
3/4 3-26	3/4 3-26
3/4 3-31a	3/4 3-31a
3/4 3-32	3/4 3-32
3/4 3-32a	3/4 3-32a
3/4 3-33	3/4 3-33
3/4 3-34	3/4 3-34

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	3/steam line	2/steam line any steam line	2/steam line	1,2,3##	14*
f. Steam Flow in Two Steam Lines-High	2/steam line	1/steam line any 2 steam lines	1/steam line	1,2,3##	14*
COINCIDENT WITH EITHER					
T _{avg} --Low-Low	1 T _{avg} /loop	1 T _{avg} in any 2 loops	1 T _{avg} in any 3 loops	1,2,3##	14*
OR, COINCIDENT WITH					
Steam Line Pressure-Low	1 pressure/ loop	1 pressure any 2 loops	1 pressure any 3 loops	1,2,3##	14*

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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>
2. CONTAINMENT SPRAY					
a. Manual	2 sets of 2	1 set of 2	2 sets of 2	1,2,3,4	18
b. Automatic Actuation Logic	2	1	2	1,2,3,4	13
c. Containment Pressure--High-High	4	2	3	1,2,3	16
3. CONTAINMENT ISOLATION					
a. Phase "A" Isolation					
1) Manual	2	1	2	1,2,3,4	18
2) From Safety Injection Automatic Actuation Logic	2	1	2	1,2,3,4	13

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>
b. Phase "B" Isolation					
1) Manual	2 sets of 2	1 set of 2	2 sets of 2	1,2,3,4	18
2) Automatic Actuation Logic	2	1	2	1,2,3,4	13
3) Containment Pressure--High-High	4	2	3	1,2,3	16
c. Containment Ventilation Isolation					
1) Manual	2	1	2	1,2,3,4	17
2) Automatic Actuation Logic	2	1	2	1,2,3,4	13
3) Containment Atmosphere Gaseous Radioactivity-High		per table 3.3-6			

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>
4. STEAM LINE ISOLATION					
a. Manual	2/steam line	1/steam line	1/operating steam line	1,2,3	23
b. Automatic Actuation Logic	2***	1	2	1,2,3	20
c. Containment Pressure--High-High	4	2	3	1,2,3	16
d. Steam Flow in Two Steam Lines--High	2/steam line	1/steam line any 2 steam lines	1/steam line	1,2,3##	14*
COINCIDENT WITH EITHER					
T _{avg} --Low-Low	1 T _{avg} /loop	1 T _{avg} in any 2 loops	1 T _{avg} in any 3 loops	1,2,3##	14*
OR, COINCIDENT WITH					
Steam Line Pressure-Low	1 pressure/ loop	1 pressure any 2 loops	1 pressure any 3 loops	1,2,3##	14*

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>
5. TURBINE TRIP & FEEDWATER ISOLATION					
a. Steam Generator Water level-- High-High	3/loop	2/loop in any operating loop	2/loop in each operating loop	1,2,3	14*
6. SAFEGUARDS EQUIPMENT CONTROL SYSTEM (SEC)	3	2	3	1,2,3,4	13
7. UNDERVOLTAGE, VITAL BUS					
a. Loss of Voltage	1/bus	2	3	1,2,3	14*
b. Sustained Degraded Voltage	3/bus	2/bus	3/bus	1,2,3	14*

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>
8. AUXILIARY FEEDWATER					
a. Automatic Actuation Logic **	2	1	2	1,2,3	20
b. Manual Initiation	1/pump	1/pump	1/pump	1,2,3	22
c. Steam Generator Water Level--Low-Low					
i. Start Motor Driven Pumps	3/stm. gen.	2/stm. gen. any stm. gen.	2/stm. gen.	1,2,3	14*
ii. Start Turbine Driven Pumps	3/stm. gen. generator	2/stm. gen. any 2 stm. gen.	2/stm. gen.	1,2,3	14*
d. Undervoltage - RCP Start Turbine - Driven Pump	4-1/bus	1/2 x 2	3	1,2	19
e. S.I. Start Motor-Driven Pumps	See 1 above (All S.I. initiating functions and requirements)				
f. Trip of Main Feedwater Pumps Start Motor Driven Pumps	2/pump	1/pump	1/pump	1,2	21*
g. Station Blackout	See 6 and 7 above (SEC and U/V Vital Bus)				

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 provisions of Specification 3.0.4 are not applicable.
- ** Applies to Functional Unit 8 items c and d.
- *** The automatic actuation logic includes two redundant solenoid operated vent valves for each Main Steam Isolation Valve. One vent valve on any one Main Steam Isolation Valve may be isolated without affecting the function of the automatic actuation logic provided the remaining seven solenoid vent valves remain operable. The isolated MSIV vent valve shall be returned to OPERABLE status upon the first entry into MODE 5 following determination that the vent valve is inoperable. For any condition where more than one of the eight solenoid vent valves are inoperable, entry into ACTION 20 is required.

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 2 hours 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 - NOT USED
- 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.
- ACTION 17 - With less than the Minimum Channels OPERABLE, operation may continue provided the containment purge and exhaust valves are maintained closed.
- ACTION 18 - With the number of OPERABLE Channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

TABLE 3.3-3 (Continued)

- ACTION 19 - With the number of OPERABLE Channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:
- a. The inoperable channel is placed in the tripped condition within 1 hour.
 - b. The Minimum Channels OPERABLE requirements is met; however, one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1
- ACTION 20 - With the number of OPERABLE channels one less than the Total Number of Channels, be in at least HOT STANDBY within 6 hours and in at least HOT SHUTDOWN within the following 6 hours; however, one channel may be bypassed for up to 1 hour for surveillance testing provided the other channel is OPERABLE.
- ACTION 21 - With the number of OPERABLE channels one less than the Minimum Number of Channels, operation may proceed provided that either:
- a. The inoperable channel is restored to OPERABLE within 72 hours, or
 - b. If the affected Main Feedwater Pump is expected to be out of service for more than 72 hours, the inoperable channel is jumpered so as to enable the Start Circuit of the Auxiliary Feedwater Pumps upon the loss of the other Main Feedwater Pump.
- ACTION 22 - With the number of OPERABLE channels relating directly with the number of OPERABLE auxiliary feedwater pumps, the ACTIONS of L.C.O. 3.7.1.2 apply.
- ACTION 23 - With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the 6 hours and in at least HOT SHUTDOWN within the following 6 hours.

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES INTERLOCKS

<u>DESIGNATION</u>	<u>CONDITION AND SETPOINT</u>	<u>FUNCTION</u>
P-11	With 2 of 3 pressurizer pressure channels ≥ 1925 psig.	P-11 prevents or defeats manual block of safety injection actuation on low pressurizer pressure.
P-12	With 3 of 4 T _{avg} channels ≥ 545°F.	P-12 prevents or defeats manual block of safety injection actuation high steam line flow and low steam line pressure.
	With 2 of 4 T _{avg} channels < 541°F.	Allows manual block of safety injection actuation on high steam line flow and low steam line pressure. Causes steam line isolation on high steam flow. Affects steam dump blocks.

TABLE 3.3-4
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
2. Automatic Actuation Logic	Not Applicable	Not Applicable
3. Containment Atmosphere Gaseous Radioactivity	Per Table 3.3-6	

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>
4. STEAM LINE ISOLATION		
a. Manual	Not Applicable	Not Applicable
b. Automatic Actuation Logic	Not Applicable	Not Applicable
c. Containment Pressure--High-High	≤ 23.5 psig	≤ 24 psig
d. Steam Flow in Two Steam Lines-- High Coincident with T _{avg} -- Low-Low or Steam Line Pressure Low	\leq 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.	\leq 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.
	T _{avg} $\geq 543^{\circ}\text{F}$	T _{avg} $\geq 541^{\circ}\text{F}$
	≥ 600 psig steam line pressure	≥ 579 psig steam line pressure

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>
5. TURBINE TRIP AND FEEDWATER ISOLATION		
A. Steam Generator Water Level -- High-High	$\leq 67\%$ of narrow range instrument span each steam generator	$\leq 68\%$ of narrow range instrument span each steam generator
6. SAFEGUARDS EQUIPMENT CONTROL SYSTEM (SEC)	Not Applicable	Not Applicable
7. UNDERVOLTAGE, VITAL BUS		
a. Loss of Voltage	$\geq 70\%$ of bus voltage	$\geq 65\%$ of bus voltage
b. Sustained Degraded Voltage	$\geq 91.6\%$ of bus voltage for ≤ 13 seconds	$\geq 91\%$ of bus voltage for ≤ 15 seconds
8. AUXILIARY FEEDWATER		
a. Automatic Actuation Logic	Not Applicable	Not Applicable
b. Manual Initiation	Not Applicable	Not Applicable
c. Steam Generator Water Level-- Low-Low	$\geq 16\%$ of narrow range instrument span each steam generator	$\geq 14.8\%$ of narrow range instrument span each steam generator
d. Undervoltage - RCP	$\geq 70\%$ RCP bus voltage	$\geq 65\%$ RCP bus voltage
e. S.I.	See 1 above (All S.I. setpoints)	
f. Trip of Main Feedwater Pumps	Not Applicable	Not Applicable
g. Station Blackout	See 6 and 7 above (SEC and Undervoltage, Vital Bus)	

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-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. Automatic Actuation Logic	N.A.	N.A.	M(2)	1,2,3,4
3. Containment Atmosphere Gaseous Radioactivity - High		Per table 4.3-3		

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>
4. STEAM LINE ISOLATION				
a. Manual	N.A.	N.A.	R	1,2,3
b. Automatic Actuation Logic	N.A.	N.A.	M(2)	1,2,3
c. Containment Pressure-- High-High	S	R	M(3)	1,2,3
d. Steam Flow in Two Steam Lines--High Coincident with T _{avg} --Low-Low or Steam Line Pressure--Low	S	R	M	1,2,3
5. TURBINE TRIP AND FEEDWATER ISOLATION				
a. Steam Generator Water Level--High-High	S	R	M	1,2,3
6. SAFEGUARDS EQUIPMENT CONTROL SYSTEM (SEC) LOGIC				
a. Inputs	N.A.	N.A.	M(6)	1,2,3,4
b. Logic, Timing and Outputs *	N.A.	N.A.	M(1)	1,2,3,4
7. UNDERVOLTAGE, VITAL BUS				
a. Loss of Voltage	S	R	M	1,2,3
b. Sustained Degraded Voltage	S	R	M	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>
8. AUXILIARY FEEDWATER				
a. Automatic Actuation Logic	N.A.	N.A.	M(2)	1,2,3
b. Manual Initiation	N.A.	N.A.	M(5)	1,2,3
c. Steam Generator Water Level--Low-Low	S	R	M	1,2,3
d. Undervoltage - RCP	S	R	M(2)	1,2
e. S.I.	See 1 above (All S.I. surveillance requirements)			
f. Trip of Main Feedwater Pumps	N.A.	N.A.	R	1
g. Station Blackout	See 6b and 7 above (SEC and U/V Vital Bus)			

TABLE 4.3-2 (Continued)

TABLE NOTATION

- * Outputs are up to, but not including, the output relays.
- (1) Each logic channel shall be tested at least once per 62 days on a STAGGERED TEST BASIS. The CHANNEL FUNCTION TEST of each logic channel shall verify that its associated diesel generator automatic load sequence timer is OPERABLE with the interval between each load block within 1 second of its design interval.
- (2) Each train or logic channel shall be tested at least every 62 days on a staggered basis.
- (3) The CHANNEL FUNCTIONAL TEST shall include exercising the transmitter by applying either a vacuum or pressure to the appropriate side of the transmitter.
- (4) NOT USED
- (5) The CHANNEL FUNCTIONAL TEST shall be conducted in conjunction with the SURVEILLANCE REQUIREMENT OF 4.7.1.2.a.
- (6) Inputs from Undervoltage, Vital Bus, shall be tested monthly. Inputs from Solid State Protection System shall be tested every 62 days on a STAGGERED TEST BASIS.



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

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. 116
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 August 14, 1992, 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. 116, 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 120 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Charles L. Miller

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: January 5, 1993

ATTACHMENT TO LICENSE AMENDMENT NO. 116

FACILITY OPERATING LICENSE NO. DPR-75

DOCKET NO. 50-311

Revise Appendix A as follows:

<u>Remove Pages</u>	<u>Insert Pages</u>
3/4 3-14	3/4 3-14
3/4 3-15	3/4 3-15
3/4 3-16	3/4 3-16
3/4 3-17	3/4 3-17
3/4 3-19	3/4 3-19
3/4 3-20	3/4 3-20
3/4 3-21	3/4 3-21
3/4 3-22	3/4 3-22
3/4 3-23	3/4 3-23
-	3/4 3-23a
3/4 3-25	3/4 3-25
3/4 3-26	3/4 3-26
3/4 3-27	3/4 3-27
3/4 3-34	3/4 3-34
3/4 3-35	3/4 3-35
3/4 3-36	3/4 3-36
3/4 3-37	3/4 3-37

INSTRUMENTATION

3/4.3.2 ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

=====

3.3.2.1 The Engineered Safety Feature Actuation System (ESFAS) instrumentation channels and interlocks shown in Table 3.3-3 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-4 and with RESPONSE TIMES as shown in Table 3.3-5.

APPLICABILITY: As shown in Table 3.3-3.

ACTION:

- a. With an ESFAS instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3-4, declare the channel inoperable and apply the applicable ACTION requirement of Table 3.3-3 until the channel is restored to OPERABLE status with the trip setpoint adjusted consistent with the Trip Setpoint value.
- b. With an ESFAS instrumentation channel inoperable, take the ACTION shown in Table 3.3-3.

SURVEILLANCE REQUIREMENTS

=====

4.3.2.1.1 Each ESFAS instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations for the MODES and at frequencies shown in Table 4.3-2.

4.3.2.1.2 The logic for the interlocks shall be demonstrated OPERABLE during the automatic actuation logic test. The total interlock function shall be demonstrated OPERABLE at least once per 18 months during CHANNEL CALIBRATION testing of each channel affected by interlock operation.

4.3.2.1.3 The ENGINEERED SAFETY FEATURES RESPONSE TIME of each ESFAS function shall be demonstrated to be within the limit at least once per 18 months. Each test shall include at least one logic train such that both logic trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once per N times 18 months where N is the total number of redundant channels in a specific ESFAS function as shown in the "Total No. of Channels" Column of Table 3.3-3.

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	3/steam line	2/steam line any steam line	2/steam line	1,2,3##	14*
f. Steam Flow in Two Steam Lines-High	2/steam line	1/steam line any 2 steam lines	1/steam line	1,2,3##	14*
COINCIDENT WITH EITHER					
T _{avg} --Low-Low	1 T _{avg} /loop	1 T _{avg} in any 2 loops	1 T _{avg} in any 3 loops	1,2,3##	14*
OR, COINCIDENT WITH					
Steam Line Pressure-Low	1 pressure/ loop	1 pressure any 2 loops	1 pressure any 3 loops	1,2,3##	14*

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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>
2. CONTAINMENT SPRAY					
a. Manual	2 sets of 2	1 set of 2	2 sets of 2	1,2,3,4	18
b. Automatic Actuation Logic	2	1	2	1,2,3,4	13
c. Containment Pressure--High-High	4	2	3	1,2,3	16
3. CONTAINMENT ISOLATION					
a. Phase "A" Isolation					
1) Manual	2	1	2	1,2,3,4	18
2) From Safety Injection Automatic Actuation Logic	2	1	2	1,2,3,4	13

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>
4. STEAM LINE ISOLATION					
a. Manual	2/steam line	1/steam line	1/operating steam line	1,2,3	23
b. Automatic Actuation Logic	2 ***	1	2	1,2,3	20
c. Containment Pressure-- High-High	4	2	3	1,2,3	16
d. Steam Flow in Two Steam Lines--High	2/steam line	1/steam line any 2 steam lines	1/steam line	1,2,3##	14*
COINCIDENT WITH EITHER					
T _{avg} --Low-Low	1 T _{avg} /loop	1 T _{avg} in any 2 loops	1 T _{avg} in any 3 loops	1,2,3##	14*
OR, COINCIDENT WITH					
Steam Line Pressure-Low	1 pressure/ loop	1 pressure any 2 loops	1 pressure any 3 loops	1,2,3##	14*

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>
5. TURBINE TRIP AND FEEDWATER ISOLATION					
a. Steam Generator Water level--High-High	3/loop	2/loop in any operating loop	2/loop in each operating loop	1,2,3	14*
6. SAFEGUARDS EQUIPMENT CONTROL SYSTEM (SEC)	3	2	3	1,2,3,4	13
7. UNDERVOLTAGE, VITAL BUS					
a. Loss of Voltage	1/bus	2	3	1,2,3	14*
b. Sustained Degraded Voltage	3/bus	2/bus	3/bus	1,2,3	14*

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>
8. AUXILIARY FEEDWATER					
a. Automatic Actuation Logic **	2	1	2	1,2,3	20
b. Manual Initiation	1/pump	1/pump	1/pump	1,2,3	22
c. Stm. Gen. Water Level-Low-Low					
i. Start Motor Driven Pumps	3/stm. gen.	2/stm. gen. any stm. gen.	2/stm. gen.	1,2,3	14*
ii. Start Turbine Driven Pumps	3/stm. gen.	2/stm. gen. any 2 stm. gen.	2/stm. gen.	1,2,3	14*
d. Undervoltage - RCP Start Turbine - Driven Pump	4-1/bus	1/2 x 2	3	1,2	19
e. S.I. Start Motor-Driven Pumps	See 1 above (All S.I. initiating functions and requirements)				
f. Trip of Main Feedwater Pumps Start Motor-Driven Pumps	2/pump	1/pump	1/pump	1,2	21*
g. Station Blackout	See 6 and 7 above (SEC and UV Vital Bus)				
9. SEMIAUTOMATIC TRANSFER TO RECIRCULATION					
a. RWST Level Low	4	2	3	1,2,3	16
b. Automatic Actuation Logic	2	1	2	1,2,3	13

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 provisions of Specification 3.0.4 are not applicable.
- ** Applies to Functional Unit 8 items c and d.
- *** The automatic actuation logic includes two redundant solenoid operated vent valves for each Main Steam Isolation Valve. One vent valve on any one Main Steam Isolation Valve may be isolated without affecting the function of the automatic actuation logic provided the remaining seven solenoid vent valves remain operable. The isolated MSIV vent valve shall be returned to OPERABLE status upon the first entry into MODE 5 following determination that the vent valve is inoperable. For any condition where more than one of the eight solenoid vent valves are inoperable, entry into ACTION 20 is required.

ACTION STATEMENTS

- ACTION 13 - With the number of OPERABLE Channels one less than the Total Number of Channels, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1 provided the other channel is OPERABLE.
- 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 - NOT USED
- 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 by CHANNEL CHECK within 1 hour; one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.
- ACTION 17 - With less than the Minimum Channels OPERABLE, operation may continue provided the containment purge and exhaust valves are maintained closed.
- ACTION 18 - With the number of OPERABLE Channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

TABLE 3.3-3 (Continued)

- ACTION 19 - With the number of OPERABLE Channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:
- a. The inoperable channel is placed in the tripped condition within 1 hour.
 - b. The Minimum Channels OPERABLE requirements is met; however, one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.
- ACTION 20 - With the number of OPERABLE channels one less than the Total Number of Channels, be in at least HOT STANDBY within 6 hours and in at least HOT SHUTDOWN within the following 6 hours; however, one channel may be bypassed for up to 1 hour for surveillance testing provided the other channel is OPERABLE.
- ACTION 21 - With the number of OPERABLE channels one less than the Minimum Number of Channels, operation may proceed provided that either:
- a. The inoperable channel is restored to OPERABLE within 72 hours.
 - b. If the affected Main Feedwater Pump is expected to be out of service for more than 72 hours, the inoperable channel is jumpered so as to enable the Start Circuit of the Auxiliary Feedwater Pumps upon loss of the other Main Feedwater Pump.
- ACTION 22 - With the Number of OPERABLE channels relating directly with the number of OPERABLE auxiliary feedwater pumps, the ACTIONS of L.C.O. 3.7.1.2 apply.
- ACTION 23 - With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES INTERLOCKS

<u>DESIGNATION</u>	<u>CONDITION AND SETPOINT</u>	<u>FUNCTION</u>
P-11	With 2 of 3 pressurizer pressure channels \geq 1925 psig.	P-11 prevents or defeats manual block of safety injection actuation on low pressurizer pressure.
P-12	With 3 of 4 T_{avg} channels \geq 545°F.	P-12 prevents or defeats manual block of safety injection actuation high steam line flow and low steam line pressure.
	With 2 of 4 T_{avg} channels $<$ 541°F.	Allows manual block of safety injection actuation on high steam line flow and low steam line pressure. Causes steam line isolation on high steam flow. Affects steam dump blocks.

TABLE 3.3-4

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
2. Automatic Actuation Logic	Not Applicable	Not Applicable
3. Containment Atmosphere Gaseous Radioactivity	Per Table 3.3-6	

TABLE 3.3-4

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION
TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
4. STEAM LINE ISOLATION		
a. Manual	Not Applicable	Not Applicable
b. Automatic Actuation Logic	Not Applicable	Not Applicable
c. Containment Pressure--High-High	≤ 23.5 psig	≤ 24 psig
d. Steam Flow in Two Steam Lines-- High Coincident with T_{avg} -- Low-Low or Steam Line Pressure--Low	\leq 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.	\leq a function defined as follows: 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.
	$T_{avg} \geq 543^{\circ}\text{F}$	$T_{avg} \geq 541^{\circ}\text{F}$
	≥ 600 psig steam line pressure	≥ 579 psig steam line pressure
5. TURBINE TRIP AND FEEDWATER ISOLATION		
a. Steam Generator Water Level-- High-High	$\leq 67\%$ of narrow range instrument span each steam generator	$\leq 68\%$ of narrow range instrument span each steam generator
6. SAFEGUARDS EQUIPMENT CONTROL SYSTEM (SEC)	Not Applicable	Not Applicable

TABLE 3.3-4

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION
TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
7. UNDERVOLTAGE, VITAL BUS		
a. Loss of Voltage	$\geq 70\%$ of bus voltage	$\geq 65\%$ of bus voltage
b. Sustained Degraded Voltage	$\geq 91.6\%$ of bus voltage for ≤ 13 seconds	$\geq 91\%$ of bus voltage for ≤ 15 seconds
8. AUXILIARY FEEDWATER		
a. Automatic Actuation Logic	Not Applicable	Not Applicable
b. Manual Initiation	Not Applicable	Not Applicable
c. Steam Generator Water Level-- Low-Low	$\geq 16\%$ of narrow range instrument span each steam generator	$\geq 14.8\%$ of narrow range instrument span each steam generator
d. Undervoltage - RCP	$\geq 70\%$ RCP bus voltage	$\geq 65\%$ RCP bus voltage
e. S.I.	See 1 above (all S.I. setpoints)	
f. Trip of Main Feedwater Pump	Not Applicable	Not Applicable
g. Station Blackout	See 6 and 7 above (SEC and Undervoltage, Vital Bus)	
9. SEMIAUTOMATIC TRANSFER TO RECIRCULATION		
a. RWST Low Level	15.25 ft. above Instrument taps	15.25 \pm 1 ft. above instrument taps
b. Automatic Actuation Logic	Not Applicable	Not Applicable

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) Automatic Actuation Logic	N.A.	N.A.	M(2)	1,2,3,4
3) Containment Atmosphere Gaseous Radioactivity - High			Per table 4.3-3	

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>
4. STEAM LINE ISOLATION				
a. Manual	N.A.	N.A.	R	1,2,3
b. Automatic Actuation Logic	N.A.	N.A.	M(2)	1,2,3
c. Containment Pressure-- High-High	S	R	M(3)	1,2,3
d. Steam Flow in Two Steam Lines--High Coincident with T _{avg} --Low-Low or Steam Line Pressure--Low	S	R	M	1,2,3
5. TURBINE TRIP AND FEEDWATER ISOLATION				
a. Steam Generator Water Level--High-High	S	R	M	1,2,3
6. SAFEGUARDS EQUIPMENT CONTROL SYSTEM (SEC) LOGIC				
a. Inputs	N.A.	N.A.	M(6)	1,2,3,4
b. Logic, Timing and Outputs *	N.A.	N.A.	M(1)	1,2,3,4
7. UNDERVOLTAGE, VITAL BUS				
a. Loss of Voltage	S	R	M	1,2,3
b. Sustained Degraded Voltage	S	R	M	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>
8. AUXILIARY FEEDWATER				
a. Automatic Actuation Logic	N.A.	N.A.	M(2)	1,2,3
b. Manual Initiation	N.A.	N.A.	M(5)	1,2,3
c. Steam Generator Water Level--Low-Low	S	R	M	1,2,3
d. Undervoltage - RCP	S	R	M	1,2
e. S.I.	See 1 above (All S.I. surveillance requirements)			
f. Trip of Main Feedwater Pumps	N.A.	N.A.	S/U(4)	1,2
g. Station Blackout	See 6 and 7 above (SEC and U/V Vital Bus)			
9. SEMIAUTOMATIC TRANSFER TO RECIRCULATION				
a. RWST Low Level	S	R	M	1,2,3
b. Automatic Initiation Logic	N.A.	N.A.	N.A.	1,2,3,4

TABLE 4.3-2 (Continued)

TABLE NOTATION

- * Outputs are up to, but not including, the Output Relays.
- (1) Each logic channel shall be tested at least once per 62 days on a STAGGERED TEST BASIS. The CHANNEL FUNCTION TEST of each logic channel shall verify that its associated diesel generator automatic load sequence timer is OPERABLE with the interval between each load block within 1 second of its design interval.
 - (2) Each train or logic channel shall be tested at least every 62 days on a STAGGERED TEST BASIS.
 - (3) The CHANNEL FUNCTIONAL TEST shall include exercising the transmitter by applying either a vacuum or pressure to the appropriate side of the transmitter.
 - (4) If not performed in the previous 92 days.
 - (5) The CHANNEL FUNCTIONAL TEST shall be conducted in conjunction with the SURVEILLANCE REQUIREMENT of 4.7.1.2.a
 - (6) Inputs from undervoltage, Vital Bus, shall be tested monthly. Inputs from Solid State Protection System, shall be tested every 62 days on a STAGGERED TEST BASIS.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NOS. 138 AND 116 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 August 14, 1992, 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, Units 1 and 2, Technical Specifications (TS). The requested changes would modify Technical Specification 3/4.3.2, "Engineered Safety Features Actuation System Instrumentation," Limiting Conditions for Operation, Action Requirements, and Surveillance Requirements, including associated tables. These changes provide consistency between the units, address various administrative discrepancies, and ensure technical accuracy. The requested changes would also allow entry into Mode 1 with one Main Feedwater pump out-of-service, allow the ACTION statement in Functional Units 4.a. and 4.b. to require taking the Unit to one mode below the Mode of Applicability instead of two, and delete all references to three and four loop operation.

2.0 EVALUATION

A. Renumbering of Line Items

Renumbering Limiting Condition for Operation 3.3.2 and Surveillance Requirements 4.3.2.1, 4.3.2.2, and 4.3.2.3 as 3.3.2.1, 4.3.2.1.1, 4.3.2.1.2, and 4.3.2.1.3 respectively, for Unit 2 only, is to be consistent with Salem Unit 1 and to be more consistent with other specifications in the Salem Unit 2 Instrumentation Chapter.

Renumbering of line items within a specification is an administrative change, the staff concludes the proposed Technical Specification changes are acceptable.

B. Table 3.3-3 Modifications

1. FUNCTIONAL UNITS 1.e., Differential Pressure Between Steam Lines, and 1.f. and 4.d., Steam Flow in Two Steam Lines. Remove all references to three and four loop operation. Remove three loop operation line items. Change ACTION 15 to read: "NOT USED." (Units 1 and 2).

Remove Table Notation ###. (Unit 1 only).

The current Salem Accident Analysis does not support or permit three loop operation. This change removes all references to three and four loop operation. This change removes technical specification items that are not approved for Salem. This is an administrative change and the staff finds it acceptable. In a letter dated October 16, 1992, the State of New Jersey Official noted that the marked-up TS pages 3/4 3-16 and 3/4 3-19 for Unit 2 still contained the phrase "Four Loops Operating" in Functional Units 1.f. and 4.d. With the concurrence of the licensee, the staff has corrected the oversight.

2. FUNCTIONAL UNIT 1.f., Steam Flow in Two Steam Lines. Change T_{low}--Low-Low CHANNELS TO TRIP to read: 1 T_{low} any 2 Loops." (Unit 1 only).

FUNCTIONAL UNIT 1.f. Change Steam Line Pressure-Low CHANNELS TO TRIP to read: "1 pressure any 2 loops." (Units 1 and 2).

These changes make the wording consistent with the same description in other functional units. The changes are editorial and the staff finds them acceptable.

3. FUNCTIONAL UNIT 3.c., Purge and Exhaust Isolation. Change title to "Containment Ventilation Isolation." Renumber 3.c.2. as 3.c.3. and change to read: "Containment Atmosphere Gaseous Radioactivity-High." Add new 3.c.2. "Automatic Actuation Logic." (Unit 1 only).

Rewording and renumbering titles are editorial changes to improve the clarity and consistency of the technical specification. Adding the new specification 3.c.3 is an administrative change to make Table 3.3-3 consistent with Table 4.3-2 and Unit 2. The staff finds these changes acceptable.

4. FUNCTIONAL UNIT 4.a., Manual. Change TOTAL NO. OF CHANNELS to "2/steam line." Change MINIMUM CHANNELS OPERABLE to "1/operating steam line." Change ACTION from 18 to 23. Insert new Action 23. (Unit 1 only).

Change ACTION from 21 to 23. (Unit 2 only).

Changing the TOTAL NO. OF CHANNELS ensures that the specification is consistent with actual plant conditions. Adding "steam line" to the MINIMUM CHANNELS OPERABLE is an editorial change for clarity. The present Action requires Unit 1 to be taken two modes below the mode of

applicability. Changing to the new Action 23 would take the Unit to one mode below the mode of applicability, which is consistent with the Westinghouse Standard Technical Specifications. This also makes the Unit 1 technical specification consistent with Unit 2. Changing the referenced Action for Unit 2 is editorial due to the renumbering of the Actions. The required Action remains the same. The staff finds these changes acceptable.

5. FUNCTIONAL UNIT 4.b. Automatic Actuation Logic. Change ACTION from 13 to 20. Change Notation *** to reference ACTION 20 instead of ACTION 13. (Unit 1 only).

Notation ***. Move to Table Notations page. (Units 1 and 2).

The present Action requires Unit 1 to be taken two modes below the mode of applicability. Changing to Action 20 would take the Unit to one mode below the mode of applicability, which is consistent with the Westinghouse Standard Technical Specifications. This also makes the Unit 1 technical specification consistent with Unit 2. Changing the Action referenced in the notation is editorial to address the different Action number. Relocating the notation is an editorial change to provide clarity by locating all notes on the same page. The staff finds these changes acceptable.

6. FUNCTIONAL UNIT 4.d., Steam Flow in Two Steam Lines--High. Add APPLICABLE MODES "1, 2, 3##." (Units 1 and 2).

This is an administrative change to address information that had previously been omitted. The staff finds these changes acceptable.

7. FUNCTIONAL UNIT 8.b., Manual Initiation. Change ACTION from 23 to 22. (Unit 2 only).

This is an editorial change to address the renumbering of the Actions. The required Action remains the same. The staff finds this change acceptable.

8. FUNCTIONAL UNIT 8.c.i, Start Motor Driven Pumps, and 8.c.ii, Start Turbine Driven Pumps. Change MINIMUM CHANNELS OPERABLE to "2/steam generator." (Units 1 and 2).

FUNCTIONAL UNIT 8.c.i. Change CHANNELS TO TRIP to "2/steam generator any steam generator." (Unit 1 only).

FUNCTIONAL UNIT 8.c.ii. Change CHANNELS TO TRIP to "2/steam generator any 2 steam generators." (Unit 1 only).

Adding the "per" symbol corrects a previous typographical error. Adding "any steam generator" or "any 2 steam generators" ensures the specification is consistent with actual plant conditions, and is consistent with Unit 2 terminology. The staff finds these editorial changes acceptable.

9. FUNCTIONAL UNIT 8.f., Emergency Trip of Steam Generator Feedwater Pumps Start Motor-Driven Pumps. Change title to "Trip of Main Feedwater Pumps Start Motor-Driven Pumps." Change TOTAL NO. OF CHANNELS to "2/pump." Change CHANNELS TO TRIP to "1/pump." Change MINIMUM CHANNELS OPERABLE to "1/pump." Change APPLICABLE MODES to "1,2." (Unit 1 only).

Changing the title is editorial to provide clarity and is consistent with Unit 2. Changing the criteria format is editorial to provide clarity and is consistent with Unit 2 terminology. Mode 2 is added to the Applicable Modes as an administrative change for consistency with Unit 2. The staff finds these changes acceptable.

10. FUNCTIONAL UNIT 8.f. Change ACTION from 21 to 21*. (Unit 1 only).

FUNCTIONAL UNIT 8.f. Change ACTION from 22* to 21*. Insert new Action 21. (Unit 2 only).

Adding the asterisk "*" to Action 21 for Unit 1 provides an exemption to Technical Specification 3.0.4 for Trip of the Main Feedwater Pumps. Without the exemption, one inoperable Main Feedwater Pump would prevent the unit from entering Mode 1. Two Main Feedwater Pumps are not required until greater than 50% power. This is consistent with Unit 2 which has this same exemption. Changing the Action from 22* to the new 21* for Unit 2 applies a more conservative Action requirement, that is more accurate for the Emergency Trip of Main Feedwater Pumps circuitry. This is consistent with Unit 1. Maintaining the asterisk "*" maintains Unit 2's exemption to Technical Specification 3.0.4. The staff finds these changes acceptable.

11. Add FUNCTIONAL UNIT 8.g., Station Blackout. (Unit 2 only).

This added Functional Unit references other Functional Units within the Tables. The change is for completeness and is consistent with Unit 1. The staff finds this administrative change acceptable.

12. Notation **. Reword to read "Applies to Functional Unit 8, items c and d." Move to Table Notation page. (Units 1 and 2).

Rewording the notation provides a more accurate reference to the applicable Functional Unit. Relocating the notation provides clarity by locating all notes on the same page. The staff finds these administrative changes acceptable.

13. Footnote on page 3/4 3-21. Delete footnote concerning effective date. (Unit 2 only).

This change deletes a footnote that is no longer necessary. The staff finds this administrative change acceptable.

14. Table Notation #. Delete "(Pressurizer Pressure Block of Safety Injection) setpoint.."
Table Notation ##. Delete "(T_{ms} Block of Safety Injection) setpoint.." (Unit 2 only).

This change is editorial to provide clarity and be consistent with Unit 1. The staff finds these changes acceptable.

15. Actions 13, 16, 19.b. Change referenced specification to 4.3.2.1.1. (Unit 2 only).

This change is administrative to reference the correct renumbered specification.

16. Engineered Safety Features Interlocks Table. Relocate to the end of Table 3.3-3. (Units 1 AND 2).

Action 21. Change Steam Generator Feedwater Pump to "Main Feedwater Pump." (Unit 1 only).

Actions. Delete Action 22. Renumber Action 23 as Action 22.
Renumber Action 21 as Action 23. (Unit 2 only).

These are editorial changes to provide clarity and consistency between the two Units. The staff finds these changes acceptable.

17. Action 20. Add to the end of Action 20: "...provided the other channel is OPERABLE." (Unit 1 only).

This is an administrative change to provide clarification and consistency with Unit 2. The staff finds this change acceptable.

C. Table 3.3-4 Modifications

1. FUNCTIONAL Unit 3.c, Containment Ventilation Isolation. Add new item "2. Automatic Actuation Logic." (Unit 1 only).

FUNCTIONAL Unit 8, Auxiliary Feedwater. Add new item "g. Station Blackout." (Unit 2 only).

These changes provide information that was previously omitted, and provide consistency between the Units. The staff finds these administrative changes acceptable.

2. FUNCTIONAL Unit 3.c, Containment Ventilation Isolation. Renumber item 2 as item 3. (Units 1 AND 2).

This is an editorial change due to adding a new item 2 to Unit 1 and correcting the numbering of Unit 2. The staff finds these changes acceptable.

3. FUNCTIONAL Unit 8.f, Emergency Trip of Steam Generator Feedwater Pumps. Change Title to read: "Trip of Main Feedwater Pumps." (Unit 1 only).

This is an editorial change to provide a more accurate description of the functional unit. The staff finds this change acceptable.

D. Table 4:3-2 Modifications

1. FUNCTIONAL Unit 1.f, Steam Flow in Two Steam Lines--High Coincident with T_{sw}--Low or Steam Line Pressure--Low. Change Title to read: "Steam Flow in Two Steam Lines--High Coincident with T_{sw}--Low-Low or Steam Line Pressure--Low."

FUNCTIONAL Unit 8.f., Emergency Trip of Steam Generator Feedwater Pumps. Change Title to read: "Trip of Main Feedwater Pumps." (Unit 1 only).

FUNCTIONAL Unit 3.c.3, Containment Radioactivity--High. Change Title to read: "Containment Atmosphere Gaseous Radioactivity--High." (Units 1 AND 2).

FUNCTIONAL Unit 4.d, Steam Flow in Two Steam Lines--High Coincident with T_{sw}--Low or Steam Line Pressure--Low. Change Title to read: "Steam Flow in Two Steam Lines--High Coincident with T_{sw}--Low-Low or Steam Line Pressure--Low."

These are editorial changes to provide a more accurate description of the functional unit. The setpoints have not been changed, this makes the tables consistent. The staff finds these changes acceptable.

2. FUNCTIONAL Unit 6.a, Inputs. Change CHANNEL FUNCTIONAL TEST to "M(6)."
Table Notations. Add new notation 6 to read: "Inputs from undervoltage, Vital Bus, shall be tested monthly. Inputs from Solid State Protection System, shall be tested every 62 days on a STAGGERED TEST BASIS." (Units 1 AND 2).

The proposed change references a new table notation that defines Safeguards Equipment Cabinet (SEC) input testing requirements. SEC inputs originate in the Protection System and Vital Bus Undervoltage channels. The new table notation defines testing requirements consistent with the testing requirements for the channels providing the inputs. This change is a clarification that reflects the existing equipment configuration. The staff finds these changes acceptable.

3. FUNCTIONAL Unit 6.b, Logic, Timing, and Outputs. Add "*" following Title description. Add footnote on Table Notations page to read: "* - Outputs are up to, but not including, the output relays." (Units 1 and 2)

This change references a new table notation that defines the scope of testing. This note is added for clarification only. The staff finds this change acceptable.

4. FUNCTIONAL Unit 8, Auxiliary Feedwater. Add new item "g. Station Blackout." (Unit 2 only).

This change provides information that was previously omitted. This change is consistent with Unit 1. The staff finds this administrative change 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 on the proposed no significant hazards determination. The State official had one editorial comment that has been addressed by the staff (see paragraph B.1 of this safety evaluation).

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. 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 (57 FR 45087). 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.

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