

March 7, 1986

Docket Nos. 50-272  
and 50-311

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Mr. C. A. McNeill, Jr.  
Vice President - Nuclear  
Public Service Electric and Gas Company  
Post Office Box 236  
Hancocks Bridge, New Jersey 08038

Dear Mr. McNeill:

The Commission has issued the enclosed Amendment No. 72 to Facility Operating License No. DPR-70 and Amendment No. 46 to Facility Operating License No. DPR-75 for the Salem Nuclear Generating Station, Unit Nos. 1 and 2, respectively. The amendments consist of changes to the Technical Specifications in response to your application transmitted by letters dated August 30, 1985 and December 19, 1985.

These amendments permit operation with only one Service Water header operable during modes 5 and 6 during a refueling outage.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular bi-weekly Federal Register notice.

Sincerely,

/s/DFischer

Donald C. Fischer, Senior Project Manager  
PWR Project Directorate #3  
Division of PWR Licensing-A

Enclosures:

1. Amendment No. 72 to DPR-70
2. Amendment No. 46 to DPR-75
3. Safety Evaluation

cc: w/enclosures  
See next page

PAD-3  
CVogan *w*  
03/13/86

PAD-3  
DFischer/pws  
03/13/86

OELD  
M. Karwan  
03/15/86

D/PAD-3  
SVarga  
03/17/86

Mr. C. A. McNeill  
Public Service Electric & Gas Company Salem Nuclear Generating Station

cc:

Mark J. Wetterhahn, Esquire  
Conner and Wetterhahn  
Suite 1050  
1747 Pennsylvania Avenue, NW  
Washington, DC 20006

Richard Fryling, Jr., Esquire  
Assistant General Solicitor  
Public Service Electric & Gas Company  
P. O. Box 570 - Mail Code T5E  
Newark, New Jersey 07101

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

Mr. John M. Zupko, Jr.  
General Manager - Salem Operations  
Public Service Electric & Gas Company  
Post Office Box E  
Hancocks Bridge, New Jersey 08038

Robert Traae, Mayor  
Lower Alloways Creek Township  
Municipal Hall  
Hancocks Bridge, New Jersey 08038

Thomas Kenny, Resident Inspector  
Salem Nuclear Generating Station  
U.S. Nuclear Regulatory Commission  
Drawer I  
Hancocks Bridge, New Jersey 08038

Richard F. Engel  
Deputy Attorney General  
Department of Law and Public Safety  
CN-112  
State House Annex  
Trenton, New Jersey 08625

Mr. Anthony J. Pietrofitta  
General Manager  
Power Production Engineering  
Atlantic Electric  
1199 Black Horse Pike  
Pleasantville, New Jersey 08232

Richard B. McGlynn, Commission  
Department of Public Utilities  
State of New Jersey  
101 Commerce Street  
Newark, New Jersey 07102

Mr. R. L. Mittl, General Manager  
Nuclear Assurance and Regulation  
Public Service Electric & Gas Co.  
Mail Code T16D - P. O. Box 570  
Newark, New Jersey 07101

Regional Administrator, Region I  
U.S. Nuclear Regulatory Commission  
631 Park Avenue  
King of Prussia, Pennsylvania 19406

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

Mr. Edwin A. Liden, Manager  
Nuclear Licensing & Regulation  
Public Service Electric & Gas Company  
Hancocks Bridge, New Jersey 08038

Mr. Charles P. Johnson  
General Manager  
Nuclear Quality Assurance  
Public Service Electric & Gas Company  
Hancocks Bridge, New Jersey 08038

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

Frank Casolito, Action Chief  
Bureau of Radiation Protection  
Department of Environmental Protection  
380 Scotch Road  
Trenton, New Jersey 08628



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. 72  
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, Philadelphia Electric Company, Delmarva Power and Light Company and Atlantic City Electric Company (the licensees) dated August 30, 1985 and supplemented by letter dated December 19, 1985, 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.
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:

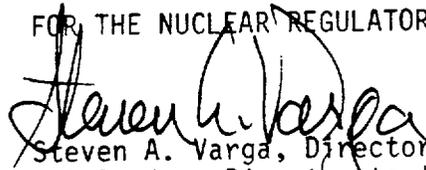
8603180437 860307  
PDR ADOCK 05000272  
P PDR

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 72, 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

  
Steven A. Varga, Director  
PWR Project Directorate #3  
Division of PWR Licensing-A

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: March 7, 1986

ATTACHMENT TO LICENSE AMENDMENT NO.72

FACILITY OPERATING LICENSE NO. DPR-70

DOCKET NO. 50-272

Revise Appendix A as follows:

Remove Pages

3/4 4-3b

3/4 9-8a

B 3/4 4-1

B 3/4 9-2

B 3/4 9-3

Insert Pages

3/4 4-3b

3/4 4-3c

3/4 9-8a

B 3/4 4-1

B 3/4 9-2

B 3/4 9-3

## REACTOR COOLANT SYSTEM

### COLD SHUTDOWN

#### LIMITING CONDITION FOR OPERATION

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3.4.1.4 Two# residual heat removal loops shall be OPERABLE\* and at least one RHR loop shall be in operation.\*\*

APPLICABILITY: MODE 5.##

#### ACTION:

- a. With less than the above required loops operable, immediately initiate corrective action to return the required loops to OPERABLE status as soon as possible.
- b. With no RHR loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to operation.

#### SURVEILLANCE REQUIREMENTS

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4.4.1.4 At least one residual heat removal loop shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

- # One RHR loop may be inoperable for up to two hours for surveillance testing, provided the other RHR loop is OPERABLE and in operation. Additionally, four filled reactor coolant loops, with at least two steam generators with their secondary side water levels greater than or equal to 5% (narrow range).
- ## A reactor coolant pump shall not be started with one or more of the RCS cold leg temperatures less than or equal to 312°F unless 1) the pressurizer water volume is less than 1650 cubic feet (equivalent to approximately 92% of level), or 2) the secondary water temperature of each steam generator is less than 50°F above each of the RCS cold leg temperatures.
- \* Systems supporting RHR loop operability may be excepted as follows:
  - a. The normal or emergency power source may be inoperable.
  - b. One service water header may be out of service provided the equipment listed in Table 3.4-3 is OPERABLE.
- \*\* The residual heat removal pumps may be de-energized for up to 2 hours provided 1) no operations are permitted that would cause dilution of the reactor coolant system boron concentration, and 2) core outlet temperature is maintained at least 10°F below saturation temperature.

REACTOR COOLANT SYSTEM

TABLE 3.4-3

MINIMUM EQUIPMENT REQUIRED FOR  
DECAY HEAT REMOVAL WITH ONE  
SERVICE WATER HEADER OUT OF  
SERVICE

- Both Residual Heat Removal Pumps, Heat Exchangers, and associated redundant flowpaths
- Two Component Cooling Pumps, one Component Cooling Heat Exchanger with operable flowpaths to each RHR Heat Exchanger
- Two Service Water Pumps
- Two Safety Grade Pumps, in addition to the RHR pumps, capable of injecting makeup flow into the core (any combination of safety injection\*\*\*, charging\*\*\* or containment spray pumps)

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\*\*\* One of the available pumps may be administratively removed from service in order to comply with the requirements of Section 3.5.3 footnote (#) and 4.5.3.2, provided that the pump can be made operable within 15 minutes.

REFUELING OPERATIONS

LOW WATER LEVEL

LIMITING CONDITION FOR OPERATION

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3.9.8.2 Two independent Residual Heat Removal (RHR) loops shall be OPERABLE.\*

APPLICABILITY: MODE 6 when water level above the top of the reactor pressure vessel flange is less than 23 feet.

ACTION:

- a. With less than the required RHR loops operable, immediately initiate corrective action to return the required RHR loops to OPERABLE status as soon as possible.
- b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

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4.9.8.2 The required Residual Heat Removal loops shall be determined OPERABLE per Specification 4.0.5.

\* Systems supporting RHR loop operability may be excepted as follows:

- a. The normal or emergency power source may be inoperable.
- b. One service water header may be out of service provided the equipment listed in Table 3.4-3 is OPERABLE.

## 3/4.4 REACTOR COOLANT SYSTEM

### BASES

#### 3/4.4.1 REACTOR COOLANT LOOPS AND COOLANT CIRCULATION

The plant is designed to operate with all reactor coolant loops in operation, and maintain DNBR above 1.30 during all normal operations and anticipated transients. In MODES 1 and 2 with less than all coolant loops in operation, this specification requires that the plant be in at least HOT STANDBY within 1 hour.

In MODE 3, a single reactor coolant loop provides sufficient heat removal for removing decay heat; but, single failure considerations require all loops be in operation whenever the rod control system is energized and at least one loop be in operation when the rod control system is deenergized.

In MODE 4, a single reactor coolant loop or RHR loop provides sufficient heat removal for removing decay heat; but, single failure considerations require that at least 2 loops be OPERABLE. Thus, if the reactor coolant loops are not OPERABLE, this specification requires that two RHR loops be OPERABLE.

In MODE 5, single failure considerations require that two RHR loops be OPERABLE. The provisions of Sections 3.4.1.4 and 3.9.8.2 [paragraph (b) of footnote (\*)] which permit one service water header to be out of service, are based on the following:

1. The period of time during which plant operations rely upon the provisions of this footnote shall be limited to a cumulative 45 days for any single outage, and

2. The Gas Turbine shall be operable, as a backup to the diesel generators, in the event of a loss of offsite power, to supply the applicable loads. The basis for OPERABILITY is one successful startup of the Gas Turbine no more than 14 days prior to the beginning of the Unit outage.

The operation of one Reactor Coolant Pump or one RHR Pump provides adequate flow to ensure mixing, prevent stratification and produce gradual reactivity changes during Boron concentration reductions in the Reactor Coolant System. The reactivity change rate associated with Boron concentration reductions will, therefore, be within the capability of operator recognition and control.

The restrictions on starting a Reactor Coolant Pump below P-7 with one or more RCS cold legs less than or equal to 312°F are provided to prevent RCS pressure transients, caused by energy additions from the secondary system, which could exceed the limits of Appendix G to 10CFR Part 50. The RCS will be protected against overpressure transients and will not exceed the limits of Appendix G by either (1) restricting the water volume in the pressurizer (thereby providing a volume into which the primary coolant can expand, or (2) by restricting the starting of Reactor Coolant Pumps to those times when secondary water temperature in each steam generator is less than 50°F above each of the RCS cold leg temperatures.

## REFUELING OPERATIONS

### BASES

#### 3/4.9.6 MANIPULATOR CRANE

The OPERABILITY requirements for the manipulator cranes ensure that: 1) manipulator cranes will be used for movement of control rods and fuel assemblies, 2) each crane has sufficient load capacity to lift a control rod or fuel assembly, and 3) the core internals and pressure vessel are protected from excessive lifting force in the event they are inadvertently engaged during lifting operations.

#### 3/4.9.7 CRANE TRAVEL - SPENT FUEL STORAGE BUILDING

The restriction on movement of loads in excess of the nominal weight of a fuel and control rod assembly and associated handling tool over other fuel assemblies in the storage pool ensures that in the event this load is dropped (1) the activity release will be limited to that contained in a single fuel assembly, and (2) any possible distortion of fuel in the storage racks will not result in a critical array. This assumption is consistent with the activity release assumed in the accident analyses.

#### 3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

The requirements that at least one residual heat removal loop be in operation ensures that (1) sufficient cooling capacity is available to remove decay heat and maintain the water in the reactor pressure vessel below 140°F as required during the REFUELING MODE, and (2) sufficient coolant circulation is maintained through the reactor core to minimize the effects of a boron dilution incident and prevent boron stratification. The requirement to have two RHR loops OPERABLE when there is less than 23 feet of water above the reactor vessel flange ensures that a single failure of the operating RHR loop will not result in a complete loss of residual heat removal capability. The provisions of Sections 3.4.1.4 and 3.9.8.2 [paragraph (b) of footnote (\*)] which permit one service water header to be out of service, are based on the following:

1. The period of time during which plant operations rely upon the provisions of this footnote shall be limited to a cumulative 45 days for any single outage, and
2. The Gas Turbine shall be operable, as a backup to the diesel generators, in the event of a loss of offsite power, to supply the applicable loads. The basis for OPERABILITY is one successful startup of the Gas Turbine no more than 14 days prior to the beginning of the Unit outage.

With the reactor vessel head removed and 23 feet of water above the reactor pressure vessel flange, a large heat sink is available for core cooling. Thus, in the event of a failure of the operating RHR loop, adequate time is provided to initiate emergency procedures to cool the core.

## REFUELING OPERATIONS

### BASES

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#### 3/4.9.9 CONTAINMENT PURGE AND PRESSURE-VACUUM RELIEF ISOLATION SYSTEM

The OPERABILITY of this system ensures that the containment vent and purge penetrations will be automatically isolated upon detection of high radiation levels within the containment. The OPERABILITY of this system is required to restrict the release of radioactive material from the containment atmosphere to the environment.

#### 3/4.9.10 and 3/4/9/11 WATER LEVEL - REACTOR VESSEL AND STORAGE POOL

The restrictions on minimum water level ensure that sufficient water depth is available to remove 99% of the assumed 10% iodine gas activity released from the rupture of an irradiated fuel assembly. The minimum water depth is consistent with the assumptions of the accident analysis.

#### 3/4.9.12 FUEL HANDLING AREA VENTILATION SYSTEM

The limitations on the fuel handling area ventilation system ensure that all radioactive material released from an irradiated fuel assembly will be filtered through the HEPA filters and charcoal adsorber prior to discharge to the atmosphere. The OPERABILITY of this system and the resulting iodine removal capacity are consistent with the assumptions of the accident analyses. ANSI N510-1975 should be used as a procedure guideline for surveillance testing.



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. 50-311

SALEM NUCLEAR GENERATING STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.46  
License No. DPR-75

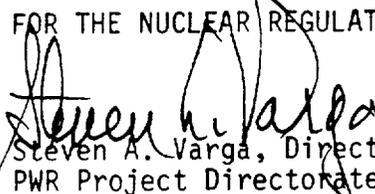
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Public Service Electric and Gas Company, Philadelphia Electric Company, Delmarva Power and Light Company and Atlantic City Electric Company (the licensees) dated August 30, 1985 and supplemented by letter dated December 19, 1985, 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.
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

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 46 , 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

  
Steven A. Varga, Director  
PWR Project Directorate #3  
Division of PWR Licensing-A

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: March 7, 1986

ATTACHMENT TO LICENSE AMENDMENT NO.46

FACILITY OPERATING LICENSE NO. DPR-75

DOCKET NO. 50-311

Revise Appendix A as follows:

Remove Pages

3/4 4-4a

3/4 9-9

B 3/4 4-1

B 3/4 9-2

B 3/4 9-3

Insert Pages

3/4 4-4a

3/4 4-4b

3/4 9-9

B 3/4 4-1

B 3/4 9-2

B 3/4 9-3

## REACTOR COOLANT SYSTEM

### COLD SHUTDOWN

#### LIMITING CONDITION FOR OPERATION

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3.4.1.4 Two# residual heat removal loops shall be OPERABLE\* and at least one RHR loop shall be in operation.\*\*

APPLICABILITY: MODE 5.##

#### ACTION:

- a. With less than the above required loops operable, immediately initiate corrective action to return the required loops to OPERABLE status as soon as possible.
- b. With no RHR loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to operation.

#### SURVEILLANCE REQUIREMENTS

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4.4.1.4 At least one residual heat removal loop shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

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# One RHR loop may be inoperable for up to two hours for surveillance testing, provided the other RHR loop is OPERABLE and in operation. Additionally, four filled reactor coolant loops, with at least two steam generators with their secondary side water levels greater than or equal to 5% (narrow range).

## A reactor coolant pump shall not be started with one or more of the RCS cold leg temperatures less than or equal to 312°F unless 1) the pressurizer water volume is less than 1650 cubic feet (equivalent to approximately 92% of level), or 2) the secondary water temperature of each steam generator is less than 50°F above each of the RCS cold leg temperatures.

\* Systems supporting RHR loop operability may be excepted as follows:

- a. The normal or emergency power source may be inoperable.
- b. One service water header may be out of service provided the equipment listed in Table 3.4-3 is OPERABLE.

\*\* The residual heat removal pumps may be de-energized for up to 2 hours provided 1) no operations are permitted that would cause dilution of the reactor coolant system boron concentration, and 2) core outlet temperature is maintained at least 10°F below saturation temperature.

REACTOR COOLANT SYSTEM

TABLE 3.4-3

MINIMUM EQUIPMENT REQUIRED FOR  
DECAY HEAT REMOVAL WITH ONE  
SERVICE WATER HEADER OUT OF  
SERVICE

- ° Both Residual Heat Removal Pumps, Heat Exchangers, and associated redundant flowpaths
- ° Two Component Cooling Pumps, one Component Cooling Heat Exchanger with operable flowpaths to each RHR Heat Exchanger
- ° Two Service Water Pumps
- ° Two Safety Grade Pumps, in addition to the RHR pumps, capable of injecting makeup flow into the core (any combination of safety injection\*\*\*, charging\*\*\* or containment spray pumps)

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\*\*\* One of the available pumps may be administratively removed from service in order to comply with the requirements of Section 3.5.3 footnote (#) and 4.5.3.2, provided that the pump can be made operable within 15 minutes.

REFUELING OPERATIONS

LOW WATER LEVEL

LIMITING CONDITION FOR OPERATION

---

3.9.8.2 Two independent Residual Heat Removal (RHR) loops shall be OPERABLE.\*

APPLICABILITY: MODE 6 when water level above the top of the reactor pressure vessel flange is less than 23 feet.

ACTION:

- a. With less than the required RHR loops operable, immediately initiate corrective action to return the required RHR loops to OPERABLE status as soon as possible.
- b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

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4.9.8.2 The required Residual Heat Removal loops shall be determined OPERABLE per Specification 4.0.5.

- 
- \* Systems supporting RHR loop operability may be excepted as follows:
- a. The normal or emergency power source may be inoperable.
  - b. One service water header may be out of service provided the equipment listed in Table 3.4-3 is OPERABLE.

## 3/4.4 REACTOR COOLANT SYSTEM

### BASES

#### 3/4.4.1 REACTOR COOLANT LOOPS AND COOLANT CIRCULATION

The plant is designed to operate with all reactor coolant loops in operation, and maintain DNBR above 1.30 during all normal operations and anticipated transients. In MODES 1 and 2 with less than all coolant loops in operation, this specification requires that the plant be in at least HOT STANDBY within 1 hour.

In MODE 3, a single reactor coolant loop provides sufficient heat removal for removing decay heat; but, single failure considerations require all loops be in operation whenever the rod control system is energized and at least one loop be in operation when the rod control system is deenergized.

In MODE 4, a single reactor coolant loop or RHR loop provides sufficient heat removal for removing decay heat; but, single failure considerations require that at least 2 loops be OPERABLE. Thus, if the reactor coolant loops are not OPERABLE, this specification requires that two RHR loops be OPERABLE.

In MODE 5, single failure considerations require that two RHR loops be OPERABLE. The provisions of Sections 3.4.1.4 and 3.9.8.2 [paragraph (b) of footnote (\*)] which permit one service water header to be out of service, are based on the following:

1. The period of time during which plant operations rely upon the provisions of this footnote shall be limited to a cumulative 45 days for any single outage, and
2. The Gas Turbine shall be operable, as a backup to the diesel generators, in the event of a loss of offsite power, to supply the applicable loads. The basis for OPERABILITY is one successful startup of the Gas Turbine no more than 14 days prior to the beginning of the Unit outage.

The operation of one Reactor Coolant Pump or one RHR Pump provides adequate flow to ensure mixing, prevent stratification and produce gradual reactivity changes during Boron concentration reductions in the Reactor Coolant System. The reactivity change rate associated with Boron concentration reductions will, therefore, be within the capability of operator recognition and control.

The restrictions on starting a Reactor Coolant Pump below P-7 with one or more RCS cold legs less than or equal to 312°F are provided to prevent RCS pressure transients, caused by energy additions from the secondary system, which could exceed the limits of Appendix G to 10CFR Part 50. The RCS will be protected against overpressure transients and will not exceed the limits of Appendix G by either (1) restricting the water volume in the pressurizer (thereby providing a volume into which the primary coolant can expand, or (2) by restricting the starting of Reactor Coolant Pumps to those times when secondary water temperature in each steam generator is less than 50°F above each of the RCS cold leg temperatures.

## REFUELING OPERATIONS

### BASES

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#### 3/4.9.7 CRANE TRAVEL - SPENT FUEL STORAGE BUILDING

The restriction on movement of loads in excess of the nominal weight of a fuel and control rod assembly and associated handling tool over other fuel assemblies in the storage pool ensures that in the event this load is dropped (1) the activity release will be limited to that contained in a single fuel assembly, and (2) any possible distortion of fuel in the storage racks will not result in a critical array. This assumption is consistent with the activity release assumed in the accident analyses.

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The requirements that at least one residual heat removal loop be in operation ensures that (1) sufficient cooling capacity is available to remove decay heat and maintain the water in the reactor pressure vessel below 140°F as required during the REFUELING MODE, and (2) sufficient coolant circulation is maintained through the reactor core to minimize the effects of a boron dilution incident and prevent boron stratification. The requirement to have two RHR loops OPERABLE when there is less than 23 feet of water above the reactor vessel flange ensures that a single failure of the operating RHR loop will not result in a complete loss of residual heat removal capability. The provisions of Sections 3.4.1.4 and 3.9.8.2 [paragraph (b) of footnote (\*)] which permit one service water header to be out of service, are based on the following:

1. The period of time during which plant operations rely upon the provisions of this footnote shall be limited to a cumulative 45 days for any single outage, and
2. The Gas Turbine shall be operable, as a backup to the diesel generators, in the event of a loss of offsite power, to supply the applicable loads. The basis for OPERABILITY is one successful startup of the Gas Turbine no more than 14 days prior to the beginning of the Unit outage.

With the reactor vessel head removed and 23 feet of water above the reactor pressure vessel flange, a large heat sink is available for core cooling. Thus, in the event of a failure of the operating RHR loop, adequate time is provided to initiate emergency procedures to cool the core.

## REFUELING OPERATIONS

### BASES

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#### 3/4.9.9 CONTAINMENT PURGE AND PRESSURE-VACUUM RELIEF ISOLATION SYSTEM

The OPERABILITY of this system ensures that the containment vent and purge penetrations will be automatically isolated upon detection of high radiation levels within the containment. The OPERABILITY of this system is required to restrict the release of radioactive material from the containment atmosphere to the environment.

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The limitations on the fuel handling area ventilation system ensure that all radioactive material released from an irradiated fuel assembly will be filtered through the HEPA filters and charcoal adsorber prior to discharge to the atmosphere. The OPERABILITY of this system and the resulting iodine removal capacity are consistent with the assumptions of the accident analyses. ANSI N510-1975 should be used as a procedure guideline for surveillance testing.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 72 TO FACILITY OPERATING LICENSE NO. DPR-70  
AND AMENDMENT NO. 46 TO FACILITY OPERATING LICENSE NO. DPR-75

PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
PHILADELPHIA ELECTRIC COMPANY  
DELMARVA POWER AND LIGHT COMPANY, AND  
ATLANTIC CITY ELECTRIC COMPANY

SALEM NUCLEAR GENERATION STATION, UNIT NOS. 1 AND 2  
DOCKET NOS. 50-272 AND 50-311

Introduction

The licensee requested changes to the Technical Specifications of Salem Units 1 and 2 that would permit a Service Water header to be made inoperable during refueling outages for inspection and upgrading. The proposed maintenance operations would be performed while the reactor was in mode 5 (cold shutdown) and mode 6 (refueling). The plant is equipped with redundant Service Water headers which among other functions provides a heat sink for the Component Cooling water. The Component Cooling Water System provides a heat sink for the Residual Heat Removal System. Redundant operability of the RHR is currently required by the Technical Specifications for Mode 5 and Mode 6 when the Reactor System water level is reduced in preparation for refueling. The current Technical Specifications for redundant RHR operability would not be met with one Service Water header out for maintenance.

Maintenance on the Service Water System during shutdown will improve the reliability of the system during subsequent operation. This is important since Service Water provides cooling for engineered safety functions which mitigate the consequences of potential accidents. These functions include a heat sink for ECCS and containment heat removal equipment.

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Evaluation and Summary

Loss of the remaining Service Water header during the proposed maintenance operations would be highly unlikely. The proposed revised technical specifications require redundant pumps to be available in the RHR, CCW and Service Water systems. Power will be removed from the RHR suction valves. Inadvertant closure of these valves has been the most frequent source of RHR failure in past PWR operating history.

Ample time would be available to fix any failures in the remaining Service Water header. The proposed operations would begin 4 days after shutdown when the decay heat rate would be relatively low. The licensee is developing procedures for discharging decay heat to the spent fuel pool and the Refueling Water Storage Tank which will prevent core boiling for a period in excess of five hours so that repairs could be made.

In the unlikely event that additional repair time would be required the core would be cooled by boiling with makeup water supplied from the RWST and Primary Water makeup. These sources would provide cooling for an indefinite period of time until either Service Water header could be returned to service. The licensee has provided reactor vessel water level instrumentation in the control room to monitor the adequacy of reactor vessel makeup.

The above methods for decay heat removal were evaluated by the licensee for off-site releases of radioactivity. The offsite dose would be much less than the 10 CFR Part 100 guidelines for postulated accidents and the radionuclide concentrations would be less than the 10 CFR Part 20.106 limits for releases to unrestricted areas.

In addition to decay heat removal the Service Water System provides the heat sink for other plant functions. The licensee evaluated each of these functions and determined that substitute means of cooling could be made available if required. Cooling for the control room, protection cabinets, relay room, CCW and RHR pump rooms and Safety Injection pump rooms would be provided using portable fans. The RHR, SI and charging pump seal heat

exchangers would be cooled using temporary hose connections. The spent fuel pit could be cooled using an existing cross connection from the other unit. The containment fan cooler units could not be operated without service water but if excessive containment pressure occurred the containment could be vented. The offsite dose consequences would be acceptable as discussed in the preceding paragraph. The diesel generators could not be operated without service water. A gas turbine generation unit is available on site to provide power in the event that both service water and offsite power were lost.

The licensee will develop procedures and operator training to implement the above protective measures and to restore service water rapidly. The staff concludes that these measures will provide adequate protection to the public during the proposed maintenance operations.

The licensee's submittal of December 19, 1985 was made as a result of NRC staff request to clarify the language of the original submittal dated August 30, 1985, and did not contain substantive changes.

#### Environmental Consideration

These amendments involve a change in the installation or use of the facilities components located within the restricted areas as defined in 10 CFR 20. The staff has determined that these 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 these amendments involve no significant hazards consideration and there has been no public comment on such finding. Accordingly, these amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR Sec 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 these amendments.

Conclusion

We have 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, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Dated: March 7, 1986

Principal Contributor:

W. Jenson