

Mr. Harold W. Keiser  
 Chief Nuclear Officer & President  
 Nuclear Business Unit  
 Public Service Electric & Gas  
 Company  
 Post Office Box 236  
 Hancocks Bridge, NJ 08038

March 24 1999

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2 (TAC NOS. MA3628 AND MA3629)

Dear Mr. Keiser:

The Commission has issued the enclosed Amendment Nos. 219 and 201 to Facility Operating License Nos. DPR-70 and DPR-75 for the Salem Nuclear Generating Station, Unit Nos. 1 and 2. These amendments consist of changes to the Technical Specifications (TSs) in response to your application dated September 17, 1998.

These amendments revise TS 3/4.8.2, "Electrical Power Sources - Shutdown," for the AC distribution system and the 125-volt and 28-volt DC distribution systems. Specifically, the amendments change the Applicability and Action Statements, if less than the complement of equipment and buses are operable, to eliminate the need to establish containment integrity and to add the action to suspend core alterations, positive reactivity additions, and movement of irradiated fuel assemblies.

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

Sincerely,  
 original signed by R. Ennis for:  
 Patrick D. Milano, Senior Project Manager  
 Project Directorate I-2  
 Division of Licensing Project Management  
 Office of Nuclear Reactor Regulation

Docket Nos. 50-272/50-311

- Enclosures: 1. Amendment No. 219 to License No. DPR-70  
 2. Amendment No. 201 to License No. DPR-75  
 3. Safety Evaluation

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cc w/encls: See next page

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 PDR ADOCK 05000272  
 PDR

*1/1*  
*D/P*

Mr. Harold W. Keiser  
Public Service Electric & Gas  
Company

Salem Nuclear Generating Station,  
Units 1 and 2

cc:

Jeffrie J. Keenan, Esquire  
Nuclear Business Unit - N21  
P.O. Box 236  
Hancocks Bridge, NJ 08038

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

General Manager - Salem Operations  
Salem Nuclear Generating Station  
P.O. Box 236  
Hancocks Bridge, NJ 08038

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

Mr. Louis Storz  
Sr. Vice President - Nuclear Operations  
Nuclear Department  
P.O. Box 236  
Hancocks Bridge, NJ 08038

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

Senior Resident Inspector  
Salem Nuclear Generating Station  
U.S. Nuclear Regulatory Commission  
Drawer 0509  
Hancocks Bridge, NJ 08038

Director - Licensing Regulation & Fuels  
Nuclear Business Unit - N21  
P.O. Box 236  
Hancocks Bridge, NJ 08038

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

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

Maryland Office of People's Counsel  
6 St. Paul Street, 21st Floor  
Suite 2102  
Baltimore, MD 21202

Manager - Joint Generation  
Atlantic Energy  
6801 Black Horse Pike  
Egg Harbor Twp., NJ 08234-4130

Ms. R. A. Kankus  
Joint Owner Affairs  
PECO Energy Company  
965 Chesterbrook Blvd., 63C-5  
Wayne, PA 19087

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

Mr. Elbert Simpson  
Senior Vice President-  
Nuclear Engineering  
Nuclear Department  
P.O. Box 236  
Hancocks Bridge, NJ 08038

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



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

PUBLIC SERVICE ELECTRIC & GAS COMPANY

PHILADELPHIA ELECTRIC COMPANY

DELMARVA POWER AND LIGHT COMPANY

ATLANTIC CITY ELECTRIC COMPANY

DOCKET NO. 50-272

SALEM NUCLEAR GENERATING STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 219  
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 September 17, 1998, 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:

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P PDR

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 219, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

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

FOR THE NUCLEAR REGULATORY COMMISSION



Elinor G. Adensam, Director  
Project Directorate I-2  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: March 24, 1999

ATTACHMENT TO LICENSE AMENDMENT NO. 219

FACILITY OPERATING LICENSE NO. DPR-70

DOCKET NO. 50-272

Revise Appendix A as follows:

Remove Pages

3/4 8-7  
3/4 8-10  
3/4 8-13  
B 3/4 8-1  
-  
B 3/4 8-2

Insert Pages

3/4 8-7  
3/4 8-10  
3/4 8-13  
B 3/4 8-1  
B 3/4 8-1a  
B 3/4 8-2

ELECTRICAL POWER SYSTEMS

A.C. DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION

=====

3.8.2.2 As a minimum, two A.C. electrical bus trains shall be OPERABLE and energized from sources of power other than a diesel generator but aligned to an OPERABLE diesel generator with each train consisting of:

- 1 - 4 kvolt Vital Bus
- 1 - 460 volt Vital Bus and associated control centers
- 1 - 230 volt Vital Bus and associated control centers
- 1 - 115 volt Instrument Bus energized from its respective inverter connected to its respective D. C. bus train.

APPLICABILITY: MODES 5 and 6.

During movement of irradiated fuel assemblies.

ACTION:

With less than the above complement of A.C. busses and inverters OPERABLE and energized, suspend all operations involving CORE ALTERATIONS, positive reactivity changes, and movement of irradiated fuel assemblies until the minimum required A.C. electrical power sources are restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS

=====

4.8.2.2 The specified A.C. busses shall be determined OPERABLE and energized from A.C. sources other than the diesel generators at least once per 7 days by verifying correct breaker alignment and indicated power availability.

ELECTRICAL POWER SYSTEMS

125-VOLT D.C. DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION

=====

3.8.2.4 As a minimum, the following D.C. electrical equipment and bus shall be energized and OPERABLE:

- 2 - 125-volt D.C. busses, and
- 2 - 125-volt batteries, each with at least one full capacity charger, associated with each of the above D.C. busses.

APPLICABILITY: MODES 5 and 6.

During movement of irradiated fuel assemblies.

ACTION:

With less than the above complement of D.C. equipment and busses OPERABLE, suspend all operations involving CORE ALTERATIONS, positive reactivity changes, and movement of irradiated fuel assemblies until the minimum required 125Volt D.C. electrical power sources are restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS

=====

4.8.2.4.1 The above required 125-volt D.C. busses shall be determined OPERABLE and energized at least once per 7 days by verifying correct breaker alignment and indicated power availability.

4.8.2.4.2 The above required 125-volt batteries and chargers shall be demonstrated OPERABLE per Surveillance Requirement 4.8.2.3.2.

ELECTRICAL POWER SYSTEMS

28-VOLT D.C. DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION  
=====

3.8.2.6 As a minimum, the following D. C. electrical equipment and bus shall be energized and OPERABLE:

- 1 - 28-volt D.C. bus, and
- 1 - 28-volt battery and at least one full capacity charger associated with the above D.C. bus.

APPLICABILITY: MODES 5 and 6.  
During movement of irradiated fuel assemblies.

ACTION:

With less than the above complement of D.C. equipment and busses OPERABLE, suspend all operations involving CORE ALTERATIONS, positive reactivity changes, and movement or irradiated fuel assemblies until the minimum required 28Volt D.C. electrical power sources are restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS  
=====

4.8.2.6.1 The above required 28-volt D.C. bus shall be determined OPERABLE and energized at least once per 7 days by verifying correct breaker alignment and power availability.

4.8.2.6.2 The above required 28-volt batteries and charger shall be demonstrated OPERABLE per Surveillance Requirement 4.8.2.5.2.

### 3/4.8 ELECTRICAL POWER SYSTEMS

#### BASES

#### 3/4.8.1 and 3/4.8.2 A.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS

The OPERABILITY of the A.C. and D.C power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety related equipment required for 1) the safe shutdown of the facility, and 2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criterion 17 of Appendix "A" to 10 CFR Part 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the accident analyses and are based upon maintaining at least two independent sets of onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of one onsite A.C. source.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

The Applicability of specifications 3.8.2.2, 3.8.2.4, and 3.8.2.6 includes the movement of irradiated fuel assemblies. This will insure adequate electrical power is available for proper operation of the fuel handling building ventilation system during movement of irradiated fuel in the spent fuel pool.

The Surveillance Requirements for demonstrating the OPERABILITY of the diesel generators are based upon the recommendations of Regulatory Guide 1.9, "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, and Regulatory Guide 1.108, "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977. Regulatory Guide 1.108 criteria for determining and reporting valid tests and failures, and accelerated diesel generator testing, have been superseded by implementation of the Maintenance Rule for the diesel generators per 10CFR50.65. In addition to the Surveillance Requirements of 4.8.1.1.2, diesel preventative maintenance is performed in accordance with procedures based on manufacturer's recommendations with consideration given to operating experience.

The minimum voltage and frequency stated in the Surveillance Requirements (SR) are those necessary to ensure the Emergency Diesel Generator (EDG) can accept Design Basis Accident (DBA) loading while maintaining acceptable voltage and frequency levels. Stable operation at the nominal voltage and frequency values is also essential in establishing EDG OPERABILITY, but a time constraint is not imposed. The lack of a time constraint is based on the fact that a typical EDG will experience a period of voltage and frequency

### 3/4.8 ELECTRICAL POWER SYSTEMS

#### BASES (Continued)

oscillations prior to reaching steady state operation if these oscillations are not dampened out by load application. In lieu of a time constraint in the SR, controls will be provided to monitor and trend the actual time to reach stable operation within the band as a means of ensuring there is no voltage regulator or governor degradation that could cause an EDG to become inoperable.

"Standby condition" for the purpose of defining the condition of the engine immediately prior to starting for surveillance requirements requires that the lube oil temperature be between 100 °F and 170 °F. The minimum lube oil temperature for an OPERABLE diesel is 100 °F.

The thirteen second time requirement for the Emergency Diesel Generator to reach rated voltage and frequency was originally based on a Westinghouse assumption of fifteen seconds that included the delay time between the occurrence of the incident and the application of electrical power to the first sequenced safeguards pump (BURL-3011, dated November 13, 1974) and included an instrument response time of two seconds (BURL-1531, dated July 27, 1970). The times specified in UFSAR Section 15.4 bound the thirteen seconds specified in the TS.

The narrower band for frequency specified for testing performed in steady state isochronous operation will ensure the EDG will not be run in an overloaded condition (steady state) during accident conditions. Steady state is assumed to be achieved after one minute of operation in the isochronous mode with all required loads sequenced on the bus.

The narrower band for steady state voltage is specified for operation when the EDG is not synchronized to the grid to ensure the voltage regulator will protect driven equipment from over-voltages during accident conditions. Procedural controls will ensure that equipment voltages are maintained within acceptable limits during testing when paralleled to the grid.

The wider band for frequency is appropriate for testing done with the governor in the droop mode. Likewise the wider band for voltage is appropriate when paralleled to the grid.

All voltages and frequencies specified in SR 4.8.1.1.2 are representative of the analytical values and do not account for postulated instrument inaccuracy. Instrument inaccuracies for EDG voltage and frequency are administratively controlled.

Preventive maintenance includes those activities (including pre-test inspections, measurements, adjustments and preparations) performed to maintain an otherwise OPERABLE EDG in an OPERABLE status. Corrective maintenance includes those activities required to correct a condition that would cause the EDG to be inoperable.

### 3/4.8 ELECTRICAL POWER SYSTEMS

#### BASES (Continued)

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Surveillance requirement 4.8.1.2 is modified by a Note. The reason for the Note is to preclude requiring the OPERABLE DG(s) from being paralleled with the offsite power network or otherwise rendered inoperable during performance of the surveillance requirement, and to preclude de-energizing a required ESF bus or disconnecting a required offsite circuit during performance of surveillance requirements. With limited AC sources available, a single event could compromise both the required circuit and the DG. It is the intent that these surveillance requirements must still be capable of being met, but actual performance is not required during periods when the DG and offsite circuit are required to be OPERABLE. During Startup, prior to entering Mode 4, the surveillance requirements are required to be completed if the surveillance frequency has been exceeded or will be exceeded prior to the next scheduled shutdown.

#### 3/4.8.3 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

Containment electrical penetrations and penetration conductors are protected by either deenergizing circuits not required during reactor operation or by demonstrating the OPERABILITY of primary and backup overcurrent protection circuit breakers during periodic surveillance.

The surveillance frequency applicable to molded case circuit breakers and lower voltage circuit breakers provides assurance of breaker reliability by testing at least one representative sample of each manufacturer's brand of molded case and lower voltage circuit breakers. Each manufacturer's molded case circuit breakers and lower voltage circuit breakers are grouped into representative samples which are then tested on a rotating basis to ensure that all breakers are tested. If a wide variety exists within any manufacturer's brand of molded case or lower voltage circuit breakers, it is necessary to further divide that manufacturer's breakers into groups and treat each group as a separate type of breaker for surveillance purposes.

Containment penetration conductor overcurrent protective device information is provided in the UFSAR.



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

PUBLIC SERVICE ELECTRIC & GAS COMPANY

PHILADELPHIA ELECTRIC COMPANY

DELMARVA POWER AND LIGHT COMPANY

ATLANTIC CITY ELECTRIC COMPANY

DOCKET NO. 50-311

SALEM NUCLEAR GENERATING STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 201  
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 September 17, 1998, 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. 201, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

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

FOR THE NUCLEAR REGULATORY COMMISSION



Elinor G. Adensam, Director  
Project Directorate I-2  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: March 24, 1999

ATTACHMENT TO LICENSE AMENDMENT NO. 201

FACILITY OPERATING LICENSE NO. DPR-75

DOCKET NO. 50-311

Revise Appendix A as follows:

Remove Pages

3/4 8-9  
3/4 8-12  
3/4 8-15  
B 3/4 8-1  
-  
B 3/4 8-2

Insert Pages

3/4 8-9  
3/4 8-12  
3/4 8-15  
B 3/4 8-1  
B 3/4 8-1a  
B 3/4 8-2

ELECTRICAL POWER SYSTEMS

A.C. DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION

=====

3.8.2.2 As a minimum, two A.C. electrical bus trains shall be OPERABLE and energized from sources of power other than a diesel generator but aligned to an OPERABLE diesel generator with each train consisting of:

- 1 - 4 kvolt Vital Bus
- 1 - 460 volt Vital Bus and associated control centers
- 1 - 230 volt Vital Bus and associated control centers
- 1 - 115 volt Instrument Bus energized from its respective inverter connected to its respective D.C. Bus Train.

APPLICABILITY: MODES 5 and 6.

During movement of irradiated fuel assemblies.

ACTION:

With less than the above complement of A.C. busses and inverters OPERABLE and energized, suspend all operations involving CORE ALTERATIONS, positive reactivity changes, and movement of irradiated fuel assemblies until the minimum required A.C. electrical power sources are restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS

=====

4.8.2.2 The specified A.C. busses and inverters shall be determined OPERABLE and energized from A.C. sources other than the diesel generators at least once per 7 days by verifying correct breaker alignment and indicated voltage on the busses.

ELECTRICAL POWER SYSTEMS

125-VOLT D.C. DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION

=====

3.8.2.4 As a minimum, the following D.C. electrical equipment and bus shall be energized and OPERABLE:

- 2 - 125-volt D.C. busses, and
- 2 - 125-volt batteries, each with at least one full capacity charger, associated with each of the above D.C. busses.

APPLICABILITY: MODES 5 and 6.

During movement of irradiated fuel assemblies.

ACTION:

With less than the above complement of D.C. equipment and busses OPERABLE, suspend all operations involving CORE ALTERATIONS, positive reactivity changes, and movement of irradiated fuel assemblies until the minimum required 125Volt D.C. electrical power sources are restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS

=====

4.8.2.4.1 The above required 125-volt D.C. busses shall be determined OPERABLE and energized at least once per 7 days by verifying correct breaker alignment and indicated power availability.

4.8.2.4.2 The above required 125-volt batteries and chargers shall be demonstrated OPERABLE per Surveillance Requirement 4.8.2.3.2.

ELECTRICAL POWER SYSTEMS

28-VOLT D.C. DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION  
=====

3.8.2.6 As a minimum, the following D. C. electrical equipment and bus shall be OPERABLE and energized:

- 1 - 28-volt D.C. bus, and
- 1 - 28-volt battery and at least one full capacity charger associated with the above D.C. bus.

APPLICABILITY: MODES 5 and 6.  
During movement of irradiated fuel assemblies.

ACTION:

With less than the above complement of D.C. equipment and busses OPERABLE, suspend all operations involving CORE ALTERATIONS, positive reactivity changes, and movement or irradiated fuel assemblies until the minimum required 28Volt D.C. electrical power sources are restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS  
=====

4.8.2.6.1 The above required 28-volt D.C. bus shall be determined OPERABLE and energized at least once per 7 days by verifying correct breaker alignment and voltage on the bus.

4.8.2.6.2 The above required 28-volt batteries and charger shall be demonstrated OPERABLE per Surveillance Requirement 4.8.2.5.2.

ELECTRICAL POWER SYSTEMS  
BASES

3/4.8.1 and 3/4.8.2 A.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS

The OPERABILITY of the A.C. and D.C power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety related equipment required for 1) the safe shutdown of the facility, and 2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criterion 17 of Appendix "A" to 10 CFR Part 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the accident analyses and are based upon maintaining at least two independent sets of onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of one onsite A.C. source.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

The Applicability of specifications 3.8.2.2, 3.8.2.4, and 3.8.2.6 includes the movement of irradiated fuel assemblies. This will insure adequate electrical power is available for proper operation of the fuel handling building ventilation system during movement of irradiated fuel in the spent fuel pool.

The Surveillance Requirements for demonstrating the OPERABILITY of the diesel generators are based upon the recommendations of Regulatory Guide 1.9, "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, and Regulatory Guide 1.108, "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977. Regulatory Guide 1.108 criteria for determining and reporting valid tests and failures, and accelerated diesel generator testing, have been superseded by implementation of the Maintenance Rule for the diesel generators per 10CFR50.65. In addition to the Surveillance Requirements of 4.8.1.1.2, diesel preventative maintenance is performed in accordance with procedures based on manufacturer's recommendations with consideration given to operating experience.

The minimum voltage and frequency stated in the Surveillance Requirements (SR) are those necessary to ensure the Emergency Diesel Generator (EDG) can accept Design Basis Accident (DBA) loading while maintaining acceptable voltage and frequency levels. Stable operation at the nominal voltage and frequency values is also essential in establishing EDG OPERABILITY, but a time constraint is not imposed. The lack of a time constraint is based on the fact that a typical EDG will experience a period of voltage and frequency oscillations prior to reaching steady state operation if these oscillations are not dampened out by load application. In

### 3/4.8 ELECTRICAL POWER SYSTEMS

#### BASES (Continued)

lieu of a time constraint in the SR, controls will be provided to monitor and trend the actual time to reach stable operation within the band as a means of ensuring there is no voltage regulator or governor degradation that could cause an EDG to become inoperable.

"Standby condition" for the purpose of defining the condition of the engine immediately prior to starting for surveillance requirements requires that the lube oil temperature be between 100 °F and 170 °F. The minimum lube oil temperature for an OPERABLE diesel is 100 °F.

The thirteen second time requirement for the Emergency Diesel Generator to reach rated voltage and frequency was originally based on a Westinghouse assumption of fifteen seconds that included the delay time between the occurrence of the incident and the application of electrical power to the first sequenced safeguards pump (BURL-3011, dated November 13, 1974) and included an instrument response time of two seconds (BURL-1531, dated July 27, 1970). The times specified in UFSAR Section 15.4 bound the thirteen seconds specified in the TS.

The narrower band for frequency specified for testing performed in steady state isochronous operation will ensure the EDG will not be run in an overloaded condition (steady state) during accident conditions. Steady state is assumed to be achieved after one minute of operation in the isochronous mode with all required loads sequenced on the bus.

The narrower band for steady state voltage is specified for operation when the EDG is not synchronized to the grid to ensure the voltage regulator will protect driven equipment from over-voltages during accident conditions. Procedural controls will ensure that equipment voltages are maintained within acceptable limits during testing when paralleled to the grid.

The wider band for frequency is appropriate for testing done with the governor in the droop mode. Likewise the wider band for voltage is appropriate when paralleled to the grid.

All voltages and frequencies specified in SR 4.8.1.1.2 are representative of the analytical values and do not account for postulated instrument inaccuracy. Instrument inaccuracies for EDG voltage and frequency are administratively controlled.

Preventive maintenance includes those activities (including pre-test inspections, measurements, adjustments and preparations) performed to maintain an otherwise OPERABLE EDG in an OPERABLE status. Corrective maintenance includes those activities required to correct a condition that would cause the EDG to be inoperable.

### 3/4.8 ELECTRICAL POWER SYSTEMS

#### BASES (Continued)

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Surveillance requirement 4.8.1.2 is modified by a Note. The reason for the Note is to preclude requiring the OPERABLE DG(s) from being paralleled with the offsite power network or otherwise rendered inoperable during performance of the surveillance requirement, and to preclude de-energizing a required ESF bus or disconnecting a required offsite circuit during performance of surveillance requirements. With limited AC sources available, a single event could compromise both the required circuit and the DG. It is the intent that these surveillance requirements must still be capable of being met, but actual performance is not required during periods when the DG and offsite circuit are required to be OPERABLE. During Startup, prior to entering Mode 4, the surveillance requirements are required to be completed if the surveillance frequency has been exceeded or will be exceeded prior to the next scheduled shutdown.

#### 3/4.8.3 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

Containment electrical penetrations and penetration conductors are protected by either deenergizing circuits not required during reactor operation or by demonstrating the OPERABILITY of primary and backup overcurrent protection circuit breakers during periodic surveillance.

The surveillance frequency applicable to molded case circuit breakers and lower voltage circuit breakers provides assurance of breaker reliability by testing at least one representative sample of each manufacturer's brand of molded case and lower voltage circuit breakers. Each manufacturer's molded case circuit breakers and lower voltage circuit breakers are grouped into representative samples which are then tested on a rotating basis to ensure that all breakers are tested. If a wide variety exists within any manufacturer's brand of molded case or lower voltage circuit breakers, it is necessary to further divide that manufacturer's breakers into groups and treat each group as a separate type of breaker for surveillance purposes.

Containment penetration conductor overcurrent protective device information is provided in the UFSAR.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 219 AND 201 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 September 17, 1998, the Public Service Electric & Gas Company (the licensee) submitted a request for changes to the Salem Nuclear Generating Station, Unit Nos. 1 and 2, Technical Specifications (TSs). The requested changes would revise TS 3/4.8.2, "Electrical Power Sources - Shutdown," for the AC distribution system and the 125-volt and 28-volt DC distribution systems. Specifically, the amendments change the Applicability and Action Statements, if less than the complement of equipment and busses are operable, to eliminate the need to establish containment integrity and to add the action to suspend core alterations, positive reactivity additions, and movement of irradiated fuel assemblies.

2.0 EVALUATION

2.1 Discussion

The onsite power system for each Salem unit consists of the main generator; the auxiliary power and station power transformers; the diesel generators; the 40-MW gas turbine generator (one for both units); and the group, vital, and circulating water bus sections and their related distribution systems. The 4160-volt vital buses, which feed safeguard equipment, are energized by station power transformers served by the 13-kV south bus sections. Preferred power is supplied to the 13-kV bus south sections by two sources from the switchyard.

Safeguard loads are divided among the vital buses in three independent load groups. Each of these load groups is provided with a diesel generator that serves as a standby power supply in the event that the preferred source is unavailable.

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Each unit has a 125-volt dc power system to provide power to safeguard loads. This system supplies power through inverters to the 115-volt ac instrument buses. In addition, each unit is provided with a 250-volt dc power system and a 28-volt dc control system. The above systems constitute the station dc sources. Two separate 125-volt dc batteries and associated equipment are provided in the circulating water switchgear building to provide power to the switchgear and the 13.8-kV south bus section breakers.

Salem Units 1 and 2 are four-loop Westinghouse pressurized-water reactors. The limiting condition of operation (LCO) APPLICABILITY for TS 3/4.8.2.2, 3/4.8.2.4, and 3/4.8.2.6 currently indicates that the ACTION is for MODES 5 and 6. The current ACTION is to establish CONTAINMENT INTEGRITY within 8 hours if less than the specified equipment and power sources are available. In the current BASES for TS 3/4.8, the OPERABILITY of the minimum specified ac and dc power sources and associated distribution systems during shutdown and refueling ensures that (1) the facility can be maintained in the shutdown or refueling condition for an extended time period, and (2) sufficient instrumentation and control capability are available for monitoring and maintaining the unit status.

The Westinghouse Standard Technical Specifications (WSTS) for electrical power systems during shutdown modify the APPLICABILITY to include movement of irradiated fuel. The WSTS BASES add a third condition for OPERABILITY to ensure that adequate electric power is provided to mitigate events postulated during shutdown, such as a fuel-handling accident. The WSTS BASES further explain that worst case bounding events are not deemed credible in MODES 5 and 6 because the energy contained within the reactor pressure boundary, the reactor coolant temperature and pressure, and the corresponding stresses result in the probabilities of occurrence being significantly reduced or eliminated and in minimal consequences. The WSTS ACTIONS require an immediate COMPLETION TIME to suspend CORE ALTERATIONS, to suspend movement of irradiated fuel assemblies, to suspend operations involving positive reactivity addition, and to initiate actions to restore either offsite power or the affected equipment, as appropriate.

Fuel handling is limited to the placement of new fuel prior to core offload or to movement of irradiated fuel within the spent fuel pool while in MODE 5. Mitigation of a fuel-handling accident in the spent fuel pool is accomplished through TS 3.9.12, "Refueling Operations, Fuel Handling Area Ventilation System." The spent fuel pool is outside containment and the establishment of containment integrity, or closure, would not help to mitigate the consequences of a fuel-handling accident. The current TS does not contain a requirement for electrical power during fuel movement in the spent fuel pool. The proposed amendment would ensure adequate electrical power is available for proper operation of the fuel-handling area ventilation system during movement of irradiated fuel in the spent fuel pool.

TS 3.9.4, "Refueling Operations, Containment Building Penetrations," establishes containment integrity while in MODE 6 during fuel handling. During fuel movement, containment closure is required. By letter dated September 29, 1998, the licensee submitted an application to amend the operating licenses of Salem Units 1 and 2. That amendment changed TS 3/4.9.4, "Refueling Operations - Containment Building Penetrations," to allow the licensee to use an equivalent closure device to satisfy the closure requirements of the containment equipment

hatch during core alterations or movement of irradiated fuel in containment. In a Safety Evaluation dated February 26, 1999, the staff determined that the change was acceptable, including the modification to the BASES to be consistent with the WSTS, which clarifies OPERABILITY as "containment closure" during CORE ALTERATIONS. The modifications to TS 3/4.9.4, "Refueling Operations - Containment Building Penetrations," were found to be consistent with the WSTS.

The proposed change to eliminate containment integrity and replace the ACTION with the immediate suspension of all operations involving CORE ALTERATIONS, positive reactivity changes, and movement of irradiated fuel, until the minimum electrical power sources are restored, is consistent with the nature and consequences of postulated shutdown events. That change is also consistent with the WSTS.

The proposed amendment would modify the TS and the BASES for the electric power sources during shutdown to add movement of irradiated fuel to the current MODE 5 and 6 APPLICABILITY. The BASES would also include the third condition for OPERABILITY to ensure that adequate electric power is provided to mitigate events postulated during shutdown, such as a fuel handling-accident.

## 2.2 Conclusions

The staff has determined that the proposed application, dated September 17, 1998, to amend the operating licenses of Salem Units 1 and 2 is acceptable with respect to containment closure during shutdown and during irradiated fuel movement. The modifications to TS 3/4.8.2.2, "A.C. Distribution - Shutdown;" TS 3/4.8.2.4, "125-Volt D.C. Distribution - Shutdown;" and TS 3/4.8.2.6, "28-Volt D.C. Distribution - Shutdown;" and to BASES 3/4.8.1 and 3/4.8.2, "A.C. Sources and Onsite Power Distribution Systems," are acceptable. The revised APPLICABILITY, ACTION, and BASES for these TSs are consistent with NUREG-1431, "Standard Technical Specifications - Westinghouse Plants," Revision 1, April 1995.

The addition to the APPLICABILITY section to include movement of irradiated fuel assemblies to TS 3/4.8.2.2, 3/4.8.2.4, and 3/4.8.2.6 is acceptable. This modification ensures that CORE ALTERATIONS and activities related to positive reactivity changes or irradiated fuel movement are suspended until the minimum electrical power sources are restored. This change is consistent with the WSTS, and the change in BASES 3/4.8.1 and 3/4.8.2 is also consistent with the WSTS and is acceptable.

The deletion of the CONTAINMENT INTEGRITY ACTION from TS 3/4.8.2.2, 3/4.8.2.4, and 3/4.8.2.6 is acceptable. Containment closure is covered by TS 3.9.4, "Refueling Operations, Containment Building Penetrations," for fuel movement within containment. This change is also consistent with the WSTS. Fuel movement in the spent fuel pool, outside containment, is covered by TS 3.9.12, "Refueling Operations, Fuel Handling Area Ventilation System." The proposed amendment ensures that adequate electrical power is available for proper operation of the fuel-handling area ventilation system during movement of irradiated fuel in the spent fuel pool.

### 3.0 STATE CONSULTATION

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

### 4.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. 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 (63 FR 56257). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

### 5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: E. Throm  
S. Mitra

Date: March 24, 1999