

September 14, 1999

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

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2, ISSUANCE OF
AMENDMENT RE: RELOCATION OF REQUIREMENTS FOR TURBINE
OVERSPEED PROTECTION SYSTEM INSTRUMENTATION (TAC NOS. MA6089
AND MA6090)

Dear Mr. Keiser:

The Commission has issued the enclosed Amendment Nos. 224 and 205 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 July 2, 1999.

These amendments delete TS 3/4.3.4, "Instrumentation - Turbine Overspeed Protection," and
its associated Bases and relocate the requirements to the licensee-controlled Updated Final
Safety Analysis Report.

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:

Patrick D. Milano, Sr. Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-272 and 50-311

Enclosures: 1. Amendment No.224 to
License No. DPR-70

2. Amendment No.205 to
License No. DPR-75

3. Safety Evaluation

cc w/encls: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

September 14, 1999

Mr. Harold W. Keiser
Chief Nuclear Officer & President
Nuclear Business Unit
Public Service Electric & Gas
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A copy of our safety evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

A handwritten signature in black ink, appearing to read "Patrick D. Milano", is written over a horizontal line.

Patrick D. Milano, Sr. Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-272 and 50-311

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License No. DPR-70
2. Amendment No. 205 to
License No. DPR-75
3. Safety Evaluation

cc w/encls: See next page

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

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

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

Senior Resident Inspector
Salem Nuclear Generating Station
U.S. Nuclear Regulatory Commission
Drawer 0509
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

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

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

Mr. Elbert Simpson
Senior Vice President-
Nuclear Engineering
Nuclear Department
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

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

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

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

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

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

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

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. 224
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 July 2, 1999, 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:

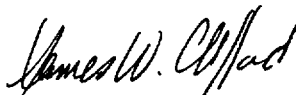
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(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 224, 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. In addition, the licensee shall include the relocated information in the Updated Final Safety Analysis Report submitted to the NRC, pursuant to 10 CFR 50.71(e), as was described in the licensee's application dated July 2, 1999, and evaluated in the staff's safety evaluation dated September 14, 1999.

FOR THE NUCLEAR REGULATORY COMMISSION



James W. Clifford, Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: September 14, 1999

ATTACHMENT TO LICENSE AMENDMENT NO. 224

FACILITY OPERATING LICENSE NO. DPR-70

DOCKET NO. 50-272

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages

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3/4 3-70
3/4 3-71
B 3/4 3-4
B 3/4 3-5

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INSTRUMENTATION

BASES

3/4.3.4 DELETED



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. 205
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 July 2, 1999, 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. 205, 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. In addition, the licensee shall include the relocated information in the Updated Final Safety Analysis Report submitted to the NRC, pursuant to 10 CFR 50.71(e), as was described in the licensee's application dated July 2, 1999, and evaluated in the staff's safety evaluation dated September 14, 1999.

FOR THE NUCLEAR REGULATORY COMMISSION



James W. Clifford, Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: September 14, 1999

ATTACHMENT TO LICENSE AMENDMENT NO. 205

FACILITY OPERATING LICENSE NO. DPR-75

DOCKET NO. 50-311

Replace the following pages of the Appendix A, Technical Specifications, with the attached revised pages as indicated. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages

IV
3/4 3-65
3/4 3-66
B 3/4 3-4
B 3/4 3-4a

Insert Pages

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Radioactive Liquid Effluent Monitoring Instrumentation	3/4 3-53
Radioactive Gaseous Effluent Monitoring Instrumentation	3/4 3-59
3/4.3.4 DELETED	

INSTRUMENTATION
BASES

CROSS REFERENCE - TABLES 3.3-13 and 4.3-13

T/S Table Item No.	Instrument Description	Acceptable RMS Channels
1a	Waste Gas Holdup System Noble Gas Activity	2R41A, B and D ^{(1) (2)}
2a	Containment Purge and Pressure - Vacuum Relief Noble Gas Activity	2R12A or 2R41A, B and D ^{(1) (2)}
3a	Plant Vent Header System Noble Gas Activity	2R16 or 2R41A, B and D ^{(1) (2)}

(1) The channels listed are required to be operable to meet a single operable channel for the Technical Specification's "Minimum Channels Operable" requirement.

(2) 2R41D is the setpoint channel. 2R41A and 2R41B are the measurement channels.

3/4.3.4 DELETED



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NOS. 224 AND 205 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 July 2, 1999, 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 delete TS 3/4.3.4, "Instrumentation - Turbine Overspeed Protection," and its associated Bases and relocate the requirements in accordance with the guidance in Generic Letter 95-10, "Relocation of Selected Technical Specifications Requirements Related to Instrumentation." The licensee has committed to relocate these requirements to the Updated Final Safety Analysis Report (UFSAR) such that future changes could be made under Section 50.59 of Title 10 of the Code of Federal Regulations (10 CFR 50.59).

Section 182a of the Atomic Energy Act, as amended (the "Act"), requires applicants for nuclear power plant operating licenses to incorporate TSs as part of the license. The Commission's regulatory requirements related to the content of the TSs are set forth in 10 CFR 50.36. That regulation requires that the TSs include items in five categories, including (1) safety limits, limiting safety system settings, and limiting control settings, (2) limiting conditions for operation, (3) surveillance requirements, (4) design features, and (5) administrative controls. The regulation does not specify the particular TSs to be included in a plant's license.

The four criteria defined by 10 CFR 50.36 for determining whether a particular matter is required to be included in the TS limiting conditions for operations (LCOs) are as follows:

- (1) installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary;
- (2) a process variable, design feature, or operating restriction that is an initial condition of a Design Basis Accident or Transient analysis that either assumes the failure of, or presents a challenge to the integrity of a fission product barrier;

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- (3) a structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a Design Basis Accident or Transient that either assumes the failure of, or represents a challenge to the integrity of a fission product barrier;
- (4) a structure, system, or component which operating experience or probabilistic safety assessment has shown to be significant to public health and safety.

Existing TS requirements which fall within or satisfy any of the criteria must be retained in the TSs; those requirements which do not fall within or satisfy these criteria may be relocated to other licensee-controlled documents.

2.0 EVALUATION

2.1 Background

2.1.1 Main Turbine

The main turbine portion of the Salem turbine generator system at each unit consists of one double-flow high pressure (HP) element in tandem with three double-flow low pressure (LP) elements. Main steam enters the HP element through four main turbine stop and control valve assemblies. The control valves regulate steam flow to the turbine, and either the stop valves or the control valves can be used to isolate steam under abnormal conditions. The exhaust from the HP element is directed through six moisture separator reheaters (MSRs) and then through six reheat stop and intercept valve assemblies prior to entering the LP elements. The reheat stop and intercept valves are provided for steam isolation of the LP elements.

2.1.2 Turbine Electro-Hydraulic Control (EHC) System

The EHC system regulates the flow of steam to the turbine by movement of the control valves. The EHC system controller positions the control valves to regulate turbine speed when the generator is not connected to the grid (wide-range speed control) and the generator electrical output (load control) after the main generator output breakers are closed.

An auxiliary governor section (overspeed protection controller or OPC) of the EHC controller also prevents turbine overspeed in the event of a complete or partial loss of load which does not result in a turbine trip. The OPC responds when (1) turbine speed exceeds 103 percent of rated speed and no turbine trip has occurred or (2) its load drop anticipator circuit senses LP reheat pressure > 30 percent of rated, the generator breakers are open, and no turbine trip has occurred. The OPC monitors LP turbine inlet pressure when the generator breakers are open since high inlet pressure is an indication of excessive steam contained in the MSRs. The OPC rapidly closes both the control valves and the reheat intercept valves to prevent the unit from reaching the mechanical overspeed trip setting.

2.1.3 Turbine Protection System

The turbine protection system monitors the operation of the main turbine and provides protection for the unit by tripping the turbine if an unsafe condition is detected. Upon the trip of one of the turbine protective devices which are independent of the EHC electronic controller, all

the turbine valves are tripped close. In addition to other protective features, this system includes independent mechanical and electrical overspeed trips. The mechanical overspeed trip mechanism will actuate at 103 percent of rated speed to initiate fast closure of all turbine valves. An electrical overspeed trip (part of the solenoid trip subsystem) provides additional protection since it will actuate at 110 percent of rated speed with both generator breakers open.

2.2 Evaluation

The current TS 3.3.4, "Turbine Overspeed Protection," states that at least one turbine overspeed protection system shall be operable in Modes 1, 2, and 3 (Power Operation, Startup, and Hot Standby). The surveillance requirements provide for periodic testing of the systems which direct observation of the movement of all turbine valves. In particular, SR 4.3.4.2 requires the overspeed protection system to be verified operable: (1) prior to admitting steam to the turbine during each startup unless performed within the past 7 days, (2) following startup, within 24 hours of attaining the manufacturer's recommended power level for performing turbine valve testing, and (3) at a frequency not to exceed 1 year. These frequencies are consistent with the methodology presented in WCAP-11525, "Probabilistic Evaluation of Reduction in Turbine Valve Test Frequency." Further, SR 4.3.4.3 requires the channel calibration of the turbine overspeed protection system at least once per 18 months and the disassembly and inspection of at least one of the turbine valves at least once per 40 months.

In its July 2, 1999, letter, the licensee proposed removing TS 3.3.4, "Turbine Overspeed Protection," and the associated surveillance requirements and Bases section and relocating the requirements to a licensee-controlled document, the UFSAR. Once located in the UFSAR, any changes to these requirements would be controlled in accordance with the requirements of 10 CFR 50.59. The licensee also stated that turbine testing would continue to be performed at a frequency consistent with WCAP-11525. Further, the licensee indicated that performance of turbine stop valve testing in accordance with WCAP-11525 permits the testing and inspection frequencies to be optimized such that unnecessary testing and inspections will be reduced; thereby reducing the probability of plant transients.

Although the analyzed design basis accidents and transients include a variety of system failures and conditions which might result from turbine overspeed events and potential missiles striking various plant systems and components, the system failures and plant conditions are much more likely to be caused by events other than turbine failures. In view of the low likelihood of turbine missiles, assumptions related to the turbine overspeed protection system are not part of an initial condition of a design basis accident or transient that either assumes failure of, or presents a challenge to, the integrity of a fission product barrier. The turbine overspeed protection system is not relied upon in the design basis accident or transient analyses as a primary success path to mitigate such events.

Operating experience and probabilistic safety assessment have demonstrated that proper maintenance of the turbine valves is important to minimize the potential for overspeed events and turbine damage. However, this experience has also shown that there is a low likelihood of significant risk to public health and safety because of turbine overspeed events. Further, the potential for and consequences of turbine overspeed events are diminished by factors such as the orientation of the turbine relative to plant structures and equipment, the proper performance of the inservice testing programs, and surveillance programs for the turbine valves derived from manufacturer's recommendations.

Accordingly, the NRC staff has concluded that the requirements for turbine overspeed controls do not meet the 10 CFR 50.36 criteria and need not be included in the TSs. Therefore, the removal of the turbine overspeed protection instrumentation requirements from the TSs and relocation to the UFSAR is acceptable. Any subsequent changes to the provisions may be controlled pursuant to 10 CFR 50.59.

The NRC staff also notes that the proposed removal of the requirements in TS 3/4.3.4 would be consistent with the guidance in NUREG-1431, "Improved Standard Technical Specifications, Westinghouse Plants."

The NRC staff has no objection to the deletion of the Bases associated with TS 3/4.3.4.

3.0 STATE CONSULTATION

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

4.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (64 FR 43776). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

5.0 CONCLUSION

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

Principal Contributor: P. Milano

Date: September 14, 1999