

November 13, 1990

Docket Nos. 50-272/311

Mr. Steven E. Miltenberger
Vice President and Chief Nuclear
Officer
Public Service Electric & Gas Company
Post Office Box 236
Hancocks Bridge, New Jersey 08038

Dear Mr. Miltenberger:

SUBJECT: EXTENDED TURBINE VALVE SURVEILLANCE INTERVAL, SALEM GENERATING
STATION, UNIT NOS. 1 AND 2 (TAC NOS. 67418 and 67419)

The Commission has issued the enclosed Amendment Nos. 115 and 97 to Facility
Operating License Nos. DPR-70 and DPR-75 for the Salem Generating Station, Unit
Nos. 1 and 2. These amendments consist of changes to the Technical
Specifications (TSs) in response to your application dated December 24, 1987
and supplemented by letters dated February 26, 1990, June 20, 1990, June
28, 1990 and September 19, 1990. The June 20, 1990, June 28, 1990 and
September 19, 1990 supplemental letters did not increase the scope of the
original amendment request and did not affect the staff's original no
significant hazards determination.

These amendments revise Salem Unit No. 2 Technical Specification 3/4.3.4 and
the associated bases for Turbine Overspeed Protection surveillance
requirements, and the amendments add similar technical specifications to Salem
Unit No. 1 TSs. Salem Unit No. 1 currently has no technical specifications
addressing turbine overspeed protection.

You are requested to notify the Commission, in writing, when the enclosed
amendments are implemented at Salem Unit Nos. 1 and 2.

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

Sincerely,

/s/

James C. Stone, Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Amendment No. 115 to License No. DPR-70
 - 2. Amendment No. 97 to License No. DPR-75
 - 3. Safety Evaluation
- cc w/enclosures
See next page
[TAC NOS. 67418/67419]

DISTRIBUTION w/enclosures:

Docket File	MO'Brien(2)	WJones	JDyer
NRC PDR	OGC JCalvo	RBlough	Local PDR
DHagan	BBoger	PDI-2 Reading	EJordan
ACRS(10)	WButler	GPA/PA	JStone
GHill(8)	OC/LFMB	PSwetland	McCracken

PDI-2/LA
MO'Brien
10/18/90

Yes
PDI-2/PM
JStone
10/18/90

OGC *South*
10/30/90
SPLB
CMcCracken
10/23/90

PDI-2/D
WButler
11/9/90

CA
FOI
11



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

November 13, 1990

Docket Nos. 50-272/311

Mr. Steven E. Miltenberger
Vice President and Chief Nuclear
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Public Service Electric & Gas Company
Post Office Box 236
Hancocks Bridge, New Jersey 08038

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SUBJECT: EXTENDED TURBINE VALVE SURVEILLANCE INTERVAL, SALEM GENERATING
STATION, UNIT NOS. 1 AND 2 (TAC NOS. 67418 and 67419)

The Commission has issued the enclosed Amendment Nos. 115 and 97 to Facility Operating License Nos. DPR-70 and DPR-75 for the Salem Generating Station, Unit Nos. 1 and 2. These amendments consist of changes to the Technical Specifications (TSs) in response to your application dated December 24, 1987 and supplemented by letters dated February 26, 1990, June 20, 1990, June 28, 1990 and September 19, 1990. The June 20, 1990, June 28, 1990 and September 19, 1990 supplemental letters did not increase the scope of the original amendment request and did not affect the staff's original no significant hazards determination.

These amendments revise Salem Unit No. 2 Technical Specification 3/4.3.4 and the associated bases for Turbine Overspeed Protection surveillance requirements, and the amendments add similar technical specifications to Salem Unit No. 1 TSs. Salem Unit No. 1 currently has no technical specifications addressing turbine overspeed protection.

You are requested to notify the Commission, in writing, when the enclosed amendments are implemented at Salem Unit Nos. 1 and 2.

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 cursive script that reads "James C. Stone".

James C. Stone, Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 115 to
License No. DPR-70
2. Amendment No. 97 to
License No. DPR-75
3. Safety Evaluation

cc w/enclosures:
See next page

Mr. Steven E. Miltenberger
Public Service Electric & Gas Company

Salem Nuclear Generating Station

cc:

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Wayne, PA 19087

Public Service Commission of Maryland
Engineering Division
ATTN: Chief Engineer
231 E. Baltimore Street
Baltimore, MD 21202-3486



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

PUBLIC SERVICE ELECTRIC & GAS COMPANY

PHILADELPHIA ELECTRIC COMPANY

DELMARVA POWER AND LIGHT COMPANY

ATLANTIC CITY ELECTRIC COMPANY

DOCKET NO. 50-272

SALEM GENERATING STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 115
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 December 24, 1987, and supplemented by letters dated February 26, 1990, June 20, 1990, June 28, 1990 and September 19, 1990 complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-70 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 115, 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 to be implemented within 60 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/s/

Walter R. Butler, Director
Project Directorate I-2
Division of Reactor Projects - I/II

Attachment:
Changes to the Technical
Specifications

Date of Issuance: November 13, 1990

PDI-2/LA
MO'Brien
10/18/90

PDI-2/GE
JRaleigh
10/23/90

JW
PDI-2/PM
JStone
10/18/90

OGC
CS
10/30/90

PDI-2/D
WButler
11/9/90

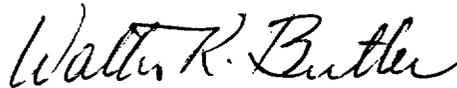
WB

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 115, 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 to be implemented within 60 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Walter R. Butler, Director
Project Directorate I-2
Division of Reactor Projects - I/II

Attachment:
Changes to the Technical
Specifications

Date of Issuance: November 13, 1990

ATTACHMENT TO LICENSE AMENDMENT NO. 115

FACILITY OPERATING LICENSE NO. DPR-70

DOCKET NO. 50-272

Revise Appendix A as follows:

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Insert Pages

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LIMITING CONDITION FOR OPERATION

3.3.4 At least one turbine overspeed protection system shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

- a. With one stop valve or one control valve per high pressure turbine steam lead inoperable and/or with one reheat stop valve or one reheat intercept valve per low pressure turbine steam lead inoperable, restore the inoperable valve(s) to the OPERABLE status within 72 hours or close at least one valve in the affected steam lead; otherwise, isolate the turbine from the steam supply within the next 6 hours.
- b. With the above required turbine overspeed protection system otherwise inoperable, within 6 hours either restore the system to OPERABLE status or isolate the turbine from the steam supply.

SURVEILLANCE REQUIREMENTS

4.3.4.1 The provisions of Specification 4.0.4 are not applicable.

4.3.4.2 The above required turbine overspeed protection system shall be demonstrated OPERABLE; (1) prior to admitting steam to the turbine during each startup unless performed within the past 7 days, (2) within 24 hours of attaining greater than or equal to 85% of RATED THERMAL POWER, and (3) at a frequency not to exceed one year* by direct observation of the movement of each of the following valves through at least one complete cycle from the running position.

- a. Four high pressure turbine stop valves.
- b. Four high pressure turbine control valves.
- c. Six low pressure hot reheat stop valves.
- d. Six low pressure hot reheat intercept valves.

* The above valves are to be tested at a frequency consistent with the methodology presented in WCAP-11525, "Probabilistic Evaluation of Reduction in Turbine Valve Test Frequency", and in accordance with the established NRC acceptance criteria for the probability of a missile ejection incident of 1.0×10^{-5} per year, in no case shall the test interval for the above valves exceed one year.

SURVEILLANCE REQUIREMENTS (Continued)

4.3.4.3 The above required turbine overspeed protection system shall be demonstrated OPERABLE:

- a. At least once per 18 months by performance of a CHANNEL CALIBRATION on the turbine overspeed protection systems.
- b. At least one per 40 months by disassembling at least one of each of the above valves and performing a visual and surface inspection of valve seats, disks and stems and verifying no unacceptable flaws or corrosion. If unacceptable flaws or excessive corrosion are found, all other valves of that type shall be inspected.

4.3.4.4 Verify the test frequency maintains the probability of a missile ejection incident within NRC guidelines by reviewing the methodology presented in WCAP-11525:

- a. At least once every two refueling outages.
- b. After modifications to the main turbine or turbine overspeed protection valves.

BASES**3/4.3.4 TURBINE OVERSPEED PROTECTION**

This specification is provided to ensure that the turbine overspeed protection instrumentation and the turbine speed control valves are OPERABLE and will protect the turbine from excessive overspeed. Protection from turbine excessive overspeed is required since excessive overspeed of the turbine could generate potentially damaging missiles which could impact and damage safety-related components, equipment or structures.

To prevent double shocking the turbine, valve testing is not required when steam is being admitted to the turbine and THERMAL POWER is less than 85% of RATED THERMAL POWER, provided the valves are tested prior to startup and within 24 hours of attaining 85% of RATED THERMAL POWER.

During normal operation, turbine valve testing is performed at a frequency consistent with the methodology presented in WCAP-11525, "Probabilistic Evaluation of Reduction in Turbine Valve Frequency." This report evaluates the contribution of failure or unavailability of the turbine valve safety function to the probability that the turbine will overspeed and eject a missile. It concludes that extended intervals between turbine valve functional tests can be achieved without exceeding the NRC acceptance criteria for the probability of a turbine missile ejection incident. Factors which affect the selected valve test interval include low pressure turbine rotor type and inspection interval; turbine valve type, arrangement and overspeed controls; and secondary side water chemistry.



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

PUBLIC SERVICE ELECTRIC & GAS COMPANY

PHILADELPHIA ELECTRIC COMPANY

DELMARVA POWER AND LIGHT COMPANY

ATLANTIC CITY ELECTRIC COMPANY

DOCKET NO. 50-311

SALEM GENERATING STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 97
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 December 24, 1987, and supplemented by letters dated February 26, 1990, June 20, 1990, June 28, 1990 and September 19, 1990 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. 97, 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 to be implemented within 60 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/s/

Walter R. Butler, Director
Project Directorate I-2
Division of Reactor Projects - I/II

Attachment:
Changes to the Technical
Specifications

Date of Issuance: November 13, 1990

PDI-2/LA
MO'Brien
10/18/90

PDI-2/GE
JRaleigh
10/23/90

PDI-2/PM
JStone
10/18/90

OGC
CBath
10/30/90

PDI-2/D
WButler
11/9/90

WB

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 97, 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 to be implemented within 60 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Walter R. Butler, Director
Project Directorate I-2
Division of Reactor Projects - I/II

Attachment:
Changes to the Technical
Specifications

Date of Issuance: November 13, 1990

ATTACHMENT TO LICENSE AMENDMENT NO. 97

FACILITY OPERATING LICENSE NO. DPR-75

DOCKET NO. 50-311

Revise Appendix A as follows:

Remove Pages

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B 3/4 3-3

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Insert Pages

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INSTRUMENTATION

3/4.3.4 TURBINE OVERSPEED PROTECTION

LIMITING CONDITION FOR OPERATION

3.3.4 At least one turbine overspeed protection system shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

- a. With one stop valve or one control valve per high pressure turbine steam lead inoperable and/or with one reheat stop valve or one reheat intercept valve per low pressure turbine steam lead inoperable, restore the inoperable valve(s) to the OPERABLE status within 72 hours or close at least one valve in the affected steam lead; otherwise, isolate the turbine from the steam supply within the next 6 hours.
- b. With the above required turbine overspeed protection system otherwise inoperable, within 6 hours either restore the system to OPERABLE status or isolate the turbine from the steam supply.

SURVEILLANCE REQUIREMENTS

4.3.4.1 The provisions of Specification 4.0.4 are not applicable.

4.3.4.2 The above required turbine overspeed protection system shall be demonstrated OPERABLE; (1) prior to admitting steam to the turbine during each startup unless performed within the past 7 days, (2) within 24 hours of attaining greater than or equal to 85% of RATED THERMAL POWER, and (3) at a frequency not to exceed one year* by direct observation of the movement of each of the following valves through at least one complete cycle from the running position.

- a. Four high pressure turbine stop valves.
- b. Four high pressure turbine control valves.
- c. Six low pressure hot reheat stop valves.
- d. Six low pressure hot reheat intercept valves.

* The above valves are to be tested at a frequency consistent with the methodology presented in WCAP-11525, "Probabilistic Evaluation of Reduction in Turbine Valve Test Frequency", and in accordance with the established NRC acceptance criteria for the probability of a missile ejection incident of 1.0×10^{-5} per year, in no case shall the test interval for the above valves exceed one year.

INSTRUMENTATION

SURVEILLANCE REQUIREMENTS (Continued)

4.3.4.3 The above required turbine overspeed protection system shall be demonstrated OPERABLE:

- a. At least once per 18 months by performance of a CHANNEL CALIBRATION on the turbine overspeed protection systems.
- b. At least one per 40 months by disassembling at least one of each of the above valves and performing a visual and surface inspection of valve seats, disks and stems and verifying no unacceptable flaws or corrosion. If unacceptable flaws or excessive corrosion are found, all other valves of that type shall be inspected.

4.3.4.4 Verify the test frequency maintains the probability of a missile ejection incident within NRC guidelines by reviewing the methodology presented in WCAP-11525:

- a. At least once every two refueling outages.
- b. After modifications to the main turbine or turbine overspeed protection valves.

INSTRUMENTATION

BASES

3/4.3.3.8 RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

The radioactive liquid effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in liquid effluents during actual or potential releases of liquid effluents. The alarm/trip setpoints for these instruments shall be calculated and adjusted in accordance with the procedures in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63, and 64 of Appendix A to 10 CFR Part 50. The purpose of tank level indicating devices is to assure the detection and control of leaks that if not controlled could potentially result in the transport of radioactive materials to UNRESTRICTED AREAS.

3/4.3.3.9 RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

The radioactive gaseous effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in gaseous effluents during actual or potential releases of gaseous effluents. The alarm/trip setpoints for these instruments shall be calculated and adjusted in accordance with the procedures in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. This instrumentation also includes provisions for monitoring (and controlling) the concentrations of potentially explosive gas mixtures in the waste gas holdup system. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63, and 64 of Appendix A to 10 CFR Part 50.

3/4.3.4 TURBINE OVERSPEED PROTECTION

This specification is provided to ensure that the turbine overspeed protection instrumentation and the turbine speed control valves are OPERABLE and will protect the turbine from excessive overspeed. Protection from turbine excessive overspeed is required since excessive overspeed of the turbine could generate potentially damaging missiles which could impact and damage safety-related components, equipment or structures.

To prevent double shocking the turbine, valve testing is not required when steam is being admitted to the turbine and THERMAL POWER is less than 85% of RATED THERMAL POWER, provided the valves are tested prior to startup and within 24 hours of attaining 85% of RATED THERMAL POWER..

INSTRUMENTATION

BASES

During normal power operation, turbine valve testing is performed at a frequency consistent with the methodology presented in WCAP-11525, "Probabilistic Evaluation of Reduction in Turbine Valve Test Frequency." This report evaluates the contribution of failure or unavailability of the turbine valve safety function to the probability that the turbine will overspeed and eject a missile. It concludes that extended intervals between turbine valve functional tests can be achieved without exceeding the NRC acceptance criteria for the probability of a turbine missile ejection incident. Factors which affect the selected valve test interval include low pressure turbine rotor type and inspection interval; turbine valve type, arrangement and overspeed control; and secondary side water chemistry.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NOS. 115 AND 97 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 GENERATING STATION, UNIT NOS. 1 AND 2
DOCKET NOS. 50-272 AND 50-311

1.0 INTRODUCTION

By letter dated December 24, 1987, and supplemented by letters dated February 26, 1990, June 20, 1990, June 28, 1990, and September 19, 1990, Public Service Electric & Gas Company (PSE&G) requested amendments to Facility Operating License Nos. DPR-70 and DPR-75 for the Salem Generating Station, Unit Nos. 1 and 2. The proposed amendments would revise Salem Unit No. 2 Technical Specification (TS) 3/4.3.4 and the associated bases for Turbine Overspeed Protection surveillance requirements. Salem Unit No. 1 currently has no technical specifications addressing turbine overspeed protection. This amendment would add these specifications to the Salem Unit No. 1 TSs.

Additional information on turbine valve test frequency was provided in the February 26, 1990 letter. The June 20, 1990 supplemental letter included an additional provision in the event unacceptable flaws or excessive corrosion are found upon turbine valve inspection, to require all other valves of that type to be inspected. The June 28, 1990 and September 19, 1990 supplemental letters forwarded the corrected and retyped TSs pages for the proposed amendments. The June 20, 1990, June 28, 1990, and September 19, 1990 supplements did not increase the scope of the original amendment request and did not affect the staff's original no significant hazards determination.

2.0 EVALUATION

The proposed amendments would change the TS surveillance test frequency for the turbine stop valves, control valves, hot-reheat stop valves, and hot-reheat intercept valves. Rather than having a specific turbine valve test frequency in the TSs, the licensee proposes to use a turbine valve testing frequency determined by the methodology presented in Westinghouse Electric Corporation Topical Report WCAP-11525, "Probabilistic Evaluation of the Reduction in the Turbine Valve Test Frequency," that meets the established NRC acceptance criteria for the probability of a missile ejection incident of less than 1.0×10^{-5} per year. However, the turbine valve test interval shall not exceed one year.

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PDR ADDCK 05000272
PDC

For the Salem Units, the licensee tests four high-pressure turbine stop valves, four high-pressure turbine control valves, six low-pressure hot reheat stop valves, and six low-pressure hot reheat intercept valves. Currently, Salem turbine valve testing is performed on a weekly basis. In order to conduct turbine valve testing, the reactor power level must be reduced to between 85 percent and 90 percent of full power due to the reduced steam flow to the turbine generator and the limited steam that can bypass the turbine. Reducing power is typically achieved by boron addition to the reactor coolant system (RCS) with control rods being used primarily for axial flux distribution (Delta I) control.

Current operating procedures call for an operator to be stationed at the valves to check for movement during turbine valve testing. Testing of the turbine valves involves movement of the stem from its position prior to testing to the full closed position and returning the valve stem to the original position. The control valves and stop valves test circuits are electrically interlocked to prevent the testing of more than one at the same time. Similarly, the test circuits for the reheat stop valves and reheat intercept valves are interlocked so that it is not possible to test the reheat stop and interceptor valves on one side of the turbine generator unit when the valves on the other side are in other than the full open position.

Upon return to full reactor power, the added boron must be removed from the RCS. The boron dilution required to return the reactor to full power involves a substantial amount of water which must be processed by plant systems. Consequently, the reactor power cycling described above (1) places unnecessary thermal and pressure cycles on plant equipment, (2) increases the probability of equipment failures which may lead to reactor trips, (3) increases the amount of liquid and solid radioactive waste that results in an increase to plant personnel exposure, and (4) places the plant operator in a vulnerable position where an inadvertent reactor trip is more likely during the transient power reduction and increase.

In support of this amendment request, the licensee references the Westinghouse Topical Report WCAP-11525. Topical Report WCAP-11525 was prepared by Westinghouse Electric Corporation for the Westinghouse Owners Group (Turbine Valve Test Frequency Evaluation Subgroup). WCAP-11525 provides a detailed probabilistic basis for extending the testing interval for turbine valves. The methodology described in WCAP-11525 for determining turbine valve test frequency has received staff approval in a supplemental safety evaluation report dated November 2, 1989. Prairie Island served as the lead plant for the extended turbine valve surveillance interval issue. Using the WCAP-11525 methodology, the licensee has calculated the probability of total turbine missile generation/ejection for each of the Salem units of less than 1.0×10^{-5} per year. The staff has determined that this meets the NRC acceptance criterion of a total turbine missile generation probability of less than 1.0×10^{-5} per year. Based on the above, the staff finds this acceptable.

The February 26, 1990 supplemental letter provided additional information on Salem turbine valve history and supplementary plant specific information. The licensee informed the staff that the Salem Unit 2 turbine valves were tested 119 times during the review period. The review period was from January 1984 through September 1989. Salem Unit 1 turbine valves were tested 103 times during the referred period although Unit 1 turbine valve tests are not subject to TS requirements. The licensee also noted that during the turbine valve test period, there were no instances of unplanned turbine design overspeed (greater than 120 percent of operating speed). Also, there were no single turbine valve failures that could have led to turbine overspeed condition.

As indicated in the February 26, 1990 supplemental letter, the licensee has committed to maintain, in an auditable manner, and share all available turbine valve failure information with Westinghouse, the manufacturer, in support of their turbine valve component failure data base. PSE&G will review turbine valve failure rate information at least once every three years and update when more than minor changes occur in the data base. The licensee has also committed to reevaluation of the Turbine Valve Testing Frequency probabilistic analysis (by the WCAP-11525 methodology) when any changes to the turbine system are made in accordance with 10 CFR 50.59 or when a significant upward trend in the valve failure data is identified. The staff finds these commitments acceptable.

The June 20, 1990 supplemental letter provided clarification of the actions to be taken following inspection of turbine valves. PSE&G has added a provision to the original license amendment request for additional inspection of valves when unacceptable flaws or excessive corrosion is found when inspecting turbine valves. The additional requirement involves the inspection of all valves of the type that were found to be unsatisfactory. PSE&G has indicated that the definitions of unacceptable flaws and excessive corrosion will be included in the station implementing procedures. The staff has determined that this added requirement is acceptable.

The September 19, 1990 letter provided a corrected and updated page XII of the Salem 1 Table of Contents. These were administrative changes that the staff finds acceptable.

In conclusion, Salem Unit Nos. 1 and 2 were primarily designed for base load operation. Load following and load reduction increases the probability of equipment failure, which may lead to reactor trips. Salem operating experience indicates that during the turbine valve test period from January 1984 to September 1989, there were no single valve failure that could have led to turbine overspeed conditions. Based on operating experience, test results, and calculated probabilities for turbine missile ejection for Salem Unit Nos. 1 and 2, the staff finds the proposed change in turbine valve testing frequency acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

These amendments involve a change to a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes to the surveillance requirements. The 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. 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.

4.0 CONCLUSION

The Commission made a proposed determination that the amendments involve no significant hazards consideration which was published in the Federal Register (55 FR 12599) on April 4, 1990 and consulted with the State of New Jersey. No public comments were received and the State of New Jersey did not have any comments.

The staff 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, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of the amendments will not be inimical to the common defense and security nor to the health and safety of the public.

Dated: November 13, 1990

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