

November 1, 1988

Docket No. 50-311

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

Dear Mr. Miltenberger:

SUBJECT: EMERGENCY TECHNICAL SPECIFICATION CHANGE (TAC NO. 69551)

RE: SALEM GENERATING STATION, UNIT NO. 2

The Commission has issued the enclosed Amendment No. 63 to Facility Operating License No. DPR-75 for the Salem Generating Station, Unit No. 2. This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated October 10, 1988. It was prepared and issued on an emergency basis to avoid an unnecessary lengthening of the refueling outage.

The change to the Technical Specifications will allow an alternate sampling method for steam generator tube inspections, limited to the fourth refueling outage.

The staff reviewed the circumstances associated with your request and concluded that you provided a sufficient basis for finding that the emergency situation could not have been avoided by prior application. Therefore, in accordance with 10 CFR 50.91(a)(5), a valid emergency existed.

This amendment was authorized by telephone on October 14, 1988, and confirmed by letter on October 14, 1988.

A copy of our safety evaluation is also enclosed. Notice of Issuance of Amendment to Facility Operating License and Final Determination of No Significant Hazards Consideration and Opportunity for Hearing will be included in the Commission's biweekly Federal Register notice.

Sincerely,

/S/

Bruce A. Boger, Assistant Director
for Region I Reactors
Division of Reactor Projects I/II
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 63 to License No. DPR-75
2. Safety Evaluation

cc w/enclosures:
See next page

Distribution: See Attached List

8811080222 881101
PDR ADDCK 05000311
PDC

PDI-2/LA
WOBrien
10/20/88

PDI-2/PM
JStone:mr
10/20/88

PDI-2/D
WButler
10/31/88

FORI/DRP
10/24/88
per tel con
R. Swetland

ADRI:DRPI/II
BBoger
10/31/88

DFOI
11

CP
11

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 63, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment was effective October 14, 1988.

FOR THE NUCLEAR REGULATORY COMMISSION

/S/

Bruce A. Boger, Assistant Director
for Region I Reactors
Division of Reactor Projects I/II

Attachment:
Changes to the Technical
Specifications

Date of Issuance: November 1, 1988

PDI-2/LA
JLrien
10/20/88

RI/DRP

10/24/88
for tel con
P. Sweetland

PDI-2/PM
JStone:mr
10/20/88

ADRI/DRP I/II
BBoger
10/31/88

ME/C
SCheng
10/21/88

OGC
/88

PDI-2/D
WButler
10/31/88

WB

SALEM GENERATING STATION, UNIT 2, 50-311

AMENDMENT NO. 63

DATE: November 1, 1988

DISTRIBUTION:

Docket File

NRC PDR

Local PDR

PDI-2 Reading

WButler

JStone/MThadani

MO'Brien (2)

OGC

DHagan

EJordan

BGrimes

TBarnhart (4)

Wanda Jones

EButcher

Tech Branch

ACRS (10)

CMiles, GPA/PA

RDiggs, ARM/LFMB

Brent Clayton

RGallo

TMurphy

SCheng



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

November 1, 1988

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Vice President and Chief Nuclear
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Public Service Electric & Gas Company
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The change to the Technical Specifications will allow an alternate sampling method for steam generator tube inspections, limited to the fourth refueling outage.

The staff reviewed the circumstances associated with your request and concluded that you provided a sufficient basis for finding that the emergency situation could not have been avoided by prior application. Therefore, in accordance with 10 CFR 50.91(a)(5), a valid emergency existed.

This amendment was authorized by telephone on October 14, 1988, and confirmed by letter on October 14, 1988.

A copy of our safety evaluation is also enclosed. Notice of Issuance of Amendment to Facility Operating License and Final Determination of No Significant Hazards Consideration and Opportunity for Hearing will be included in the Commission's biweekly Federal Register notice.

Sincerely,

A handwritten signature in dark ink, reading "Bruce A. Boger", is written over the typed name.

Bruce A. Boger, Assistant Director
for Region I Reactors
Division of Reactor Projects I/II
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 63 to
License No. DPR-75
2. 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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Assistant Consumer Advocate
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State of New Jersey
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

PUBLIC SERVICE ELECTRIC & GAS COMPANY

PHILADELPHIA ELECTRIC COMPANY

DELMARVA POWER AND LIGHT COMPANY

ATLANTIC CITY ELECTRIC COMPANY

DOCKET NO. 50-311

SALEM GENERATING STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 63
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 October 10, 1988, 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:

8811080224 881101
PDR ADOCK 05000311
P PDC

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 63, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment was effective October 14, 1988.

FOR THE NUCLEAR REGULATORY COMMISSION



Bruce A. Boger, Assistant Director
for Region I Reactors
Division of Reactor Projects I/II

Attachment:
Changes to the Technical
Specifications

Date of Issuance: November 1, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 63

FACILITY OPERATING LICENSE NO. DPR-75

DOCKET NO. 50-311

Revise Appendix A as follows:

Remove Page

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Insert Page

3/4-15a

**ALTERNATE INSPECTION SAMPLING PLAN
FOR SALEM UNIT 2
FOURTH REFUELING OUTAGE**

During the Salem Unit 2 Fourth Refueling Outage, indications associated with wall degradation were detected on the tubing of the No. 22 and No. 24 Steam Generators. The condition was established as occurring on the inside diameter of the Row 1 tubes in the tangential region of the u-bend.

The following alternate action may be taken in place of that required by Technical Specification Table 4.4-2 when the results of the initial sample requires that an additional sample or samples must be inspected and the condition for which the added inspection is required is limited to the Row 1 tubes. When examination results fall into a C-2 or C-3 Supplemental Sample Category, pursuant to Technical Specification Table 4.4-2 as a result of Row 1 and/or Row 2 u-bend defective or degraded tubes, additional samples may be limited to Rows 1 and 2. The results of the examination of the Row 1 and Row 2 tubes will be exempt from the additional sampling requirements of Technical Specification Table 4.4-2.

This change applies to only those steam generator eddy current inspections performed during the Salem Unit 2 Fourth Refueling Outage.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 63 TO FACILITY OPERATING LICENSE NO. DRP-75

PUBLIC SERVICE ELECTRIC & GAS COMPANY

PHILADELPHIA ELECTRIC COMPANY

DELMARVA POWER AND LIGHT COMPANY

ATLANTIC CITY ELECTRIC COMPANY

SALEM GENERATING STATION, UNIT NO. 2

DOCKET NO. 50-311

1.0 INTRODUCTION

By letter dated October 10, 1988, Public Service Electric & Gas Company (the licensee) requested a change to the Salem, Unit 2 Technical Specifications concerning steam generator (SG) tube surveillance requirements. The requested change involves relief from the supplemental tube sample inspection requirements in Table 4.4-2 of the Salem, Unit 2 Technical Specifications and would be applicable to the fourth refueling outage only.

This amendment was authorized by telephone on October 14, 1988, and confirmed by letter on October 14, 1988.

The initial SG inspection program for the fourth refueling outage called for inspection of two of the four SGs; namely, SGs 22 and 24. Based on the licensee's October 10, 1988 submittal and on information provided to the staff by phone on October 11, 1988 and October 13, 1988, the scope of the inspection program was as follows:

- SG 22:
- All row 1 tubes that were unplugged
 - 50% of all row 2 tubes
 - All peripheral tubes
 - All tubes with previous indications (approximately five tubes based on the October 10, 1988 submittal)
 - 609 tubes in rows 8 to 12, as necessary to satisfy bulletin 88-02
 - A few additional tubes randomly selected.

Total: 813 tubes

- SG 24:
- All row 1 tubes that were unplugged
 - 50% of all row 2 tubes
 - All peripheral tubes
 - All tubes with previous indications (approximately 14 tubes based on the October 10, 1988 submittal)
 - A few additional tubes, randomly selected

Total: 204 tubes

Forty-six row 1 tubes in SG 22 and 45 row 1 tubes in SG 24 were found to be defective, all with indications at the U-bend tangent point locations. No other new indications were found in any other location of either SG. The few tubes with previous indications did not show significant increase in depth of the indications and none of these indications were found to require plugging the tube.

Based on these findings the licensee has elected to plug all row 1 tubes in each of the four SGs, regardless of whether or not they exhibit indications. In addition, the licensee has expanded the initial inspection program to include all row 2 tubes in each of the four SGs. This expanded inspection scope, however, does not fully satisfy the supplemental sampling requirements in Table 4.4-2 of the Technical Specifications. Based on the number of defective tubes found (all in row 1), the Technical Specifications require that the inspection scope be expanded to include all tubes in SG 22 and 24 and an additional 6% (about 200 tubes) in each of SGs 21 and 23.

The licensee believes that the supplemental sample inspections called for by the Technical Specifications to be unnecessary and not technically justified considering that all of the defective indications found involve a degradation mechanism known to be confined to the inner rows (rows 1 and 2 tubes of Westinghouse series 51 SGs). Accordingly, the licensee has proposed a change to the Technical Specifications, applicable only to the fourth refueling outage at Salem, Unit 2, which would limit the required supplemental sample inspections to all row 1 and row 2 tubes.

2.0 EVALUATION

The row 1 U-bend tangent point indications at Salem, Unit 2 are typical of those which have been found at numerous other Westinghouse plants. These indications are attributable to primary water initiated, stress corrosion cracks (PWSCC). High residual stresses associated with the fabrication of the small radius U-bends have rendered the tangent point locations of these U-bends susceptible to PWSCC. Extensive industry experience has shown these cracks to be entirely limited to row 1 and row 2 tubes. The vast majority of these cracks have occurred in row 1 tubes because these tubes have the smallest U-bend radius and, thus, the highest residual stresses.

Based on the above and (1) that all row 1 tubes are being plugged, (2) that all row 2 tubes are being inspected, and (3) the absence of significant further degradation of the few previously observed indications for tubes located beyond row 2 (at the support plates and

anti-vibration bar supports) we find the licensee's proposed change to be acceptable.

3.0 EMERGENCY CIRCUMSTANCES

Prior history of the operation of the Salem, Unit 2 steam generators has shown an excellent record of performance with minimal tube degradation. The licensee attributes this performance record to a very effective all volatile treatment (AVT) of secondary water as well as other program enhancements. These failures have followed the classic pattern of onset, i.e., a prolonged period of operation with no apparent degradation followed by an abrupt occurrence of multiple tube defects. Also, Salem, Unit 1 has not experienced the same type of failure even though it has been in operation about five years longer than Salem, Unit 2. At the time of discovery of the defects there was insufficient time to submit an amendment request utilizing the normal procedure, obtain approval and perform the necessary inspection without impacting the restart date. Without the requested change, the required inspections would have extended the current outage by about three weeks. Accordingly, the staff concludes that the licensee has satisfied the requirement of 10 CFR 50.91(a)(5), and that a valid emergency exists.

4.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission's regulations in 10 CFR 50.92 state that the Commission may make a final determination that a license amendment involves no significant hazards consideration if operation of the facility in accordance with the amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

The licensee has determined and the staff agrees that:

1. Operation of the facility in accordance with the proposed amendment would not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed inspections are an acceptable alternative to the course of action prescribed by Table 4.4-2 of the Technical Specifications in that they are concentrated upon a more strategic area of the steam generator based on the initial eddy current examination results. The inspection method used for the proposed sampling scheme is identical to that currently employed. Accordingly, there would be no change in the probability or consequences of an accident previously evaluated.

2. Operation of the facility in accordance with the proposed amendment would not create the possibility of a new or different kind of accident from any previously evaluated.

The inspection methods used for the proposed sampling scheme are identical to those used at present. Plant operating precautions are the same as those taken for any steam generator tube eddy current inspection activity. No new or different kind of accident from any accident previously evaluated can be postulated.

3. Operation of the facility in accordance with the proposed amendment would not involve a significant reduction in a margin of safety.

Again, inspection methods used and plant operating precautions taken are identical to those taken for any steam generator tube eddy current inspection activity. Thus, no margin of safety is affected by the proposed change.

Based on the above considerations the staff concludes that the amendment involves no significant hazards consideration.

5.0 STATE CONSIDERATION

The State of New Jersey was contacted on October 14, 1988, on this matter and they had the following questions:

- (1) Q. Would the steam generators be 100% inspected at the next outage?
 - A. Relief granted with this change would not require the SGs to be 100% inspected at the next outage. Only a normal sample, in accordance with Table 4.4-2 would be required.
- (2) Q. Will the required inspection frequency now be 20 months as stated in Technical Specification 4.4.6.3.b because the inspection results fell in the Category C-3?
 - A. Yes, Technical Specification 4.4.6.3.b is applicable and the next two SG tube inspections will be at 20 month maximum interval.

The State of New Jersey had no further comments.

6.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change with respect to a surveillance requirement. The staff has determined that the amendment involves 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 made a final no significant hazards consideration finding with respect to this amendment. Accordingly, this amendment meets 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 this amendment.

7.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that: (1) the amendment does not (a) significantly increase the probability or consequences of an accident previously evaluated, (b) increase the possibility of a new or different kind of accident from any previously evaluated or (c) significantly reduce a safety margin and, therefore, the amendment does not involve significant hazards consideration; (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security nor to the health and safety of the public.

Principal Contributors: E. Murphy and J. Stone

Dated: November 1, 1988