

January 5, 1993

Docket Nos. 50-280
and 50-281

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Mr. W. L. Stewart
Senior Vice President - Nuclear
Virginia Electric and Power Company
Innsbrook Technical Center
5000 Dominion Blvd.
Glen Allen, Virginia 23060

Dear Mr. Stewart:

SUBJECT: SURRY UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS RE: LOW PRESSURE
TURBINE BLADE INSPECTIONS (TAC NOS. M87843 AND M87844)

The Commission has issued the enclosed Amendment No. 184 to Facility
Operating License No. DPR-32 and Amendment No. 184 to Facility Operating
License No. DPR-37 for the Surry Power Station, Unit Nos. 1 and 2,
respectively. The amendments consist of changes to the Technical
Specifications (TS) in response to your application transmitted by letter
dated September 29, 1993.

These amendments modify the required inspection frequency of the low pressure
turbine blades and make administrative changes to the TS.

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will
be included in the Commission's biweekly Federal Register notice.

Sincerely,

(Original Signed By Leon B. Engle For)
Bart C. Buckley, Senior Project Manager
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Amendment No. 184 to DPR-32
- 2. Amendment No. 184 to DPR-37
- 3. Safety Evaluation

NRC FILE CENTER COPY

cc w/enclosures:
See next page

| | | | | | | |
|------|------------|--------------|-----------|----------|---|---|
| OFC | :LA:PDII-2 | :PM:PDII-2 | :D:PDII-2 | : OGC | : | : |
| NAME | :E. Tana | :B. Buckley: | H. Berkow | : Clark | : | : |
| DATE | :12/15/93 | :12/15/93 | :12/27/93 | :12/3/93 | : | : |

OFFICIAL RECORD COPY - DOCUMENT NAME: C:\AUTOS\WPDOCS\SURRY\SU87843.AMD

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Mr. W. L. Stewart
Virginia Electric and Power Company

Surry Power Station

cc:
Michael W. Maupin, Esq.
Hunton and Williams
Riverfront Plaza, East Tower
951 E. Byrd Street
Richmond, Virginia 23219

Attorney General
Supreme Court Building
101 North 8th Street
Richmond, Virginia 23219

Mr. Michael R. Kansler, Manager
Surry Power Station
Post Office Box 315
Surry, Virginia 23883

Mr. M. L. Bowling, Manager
Nuclear Licensing & Programs
Innsbrook Technical Center
Virginia Electric and Power Company
5000 Dominion Blvd.
Glen Allen, Virginia 23060

Senior Resident Inspector
Surry Power Station
U.S. Nuclear Regulatory Commission
Post Office Box 166, Route 1
Surry, Virginia 23883

Mr. Sherlock Holmes, Chairman
Board of Supervisors of Surry County
Surry County Courthouse
Surry, Virginia 23683

Dr. W. T. Lough
Virginia State Corporation Commission
Division of Energy Regulation
Post Office Box 1197
Richmond, Virginia 23209

Regional Administrator, Region II
U.S. Nuclear Regulatory Commission
101 Marietta Street N.W., Suite 2900
Atlanta, Georgia 30323

Robert B. Strobe, M.D., M.P.H.
State Health Commissioner
Office of the Commissioner
Virginia Department of Health
P.O. Box 2448
Richmond, Virginia 23218

DATED: January 5, 1994

AMENDMENT NO. 184 TO FACILITY OPERATING LICENSE NO. DPR-32 - SURRY UNIT 1
AMENDMENT NO. 184 TO FACILITY OPERATING LICENSE NO. DPR-37 - SURRY UNIT 2

Docket File
NRC & Local PDRs
PDII-2 Reading
S. Varga, 14/E/4
H. Berkow
E. Tana
B. Buckley
OGC
D. Hagan, 3302 MNBB
G. Hill (2), P-137
C. Grimes, 11/F/23
ACRS (10)
OPA
OC/LFDCB
M. Sinkule, R-II



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

VIRGINIA ELECTRIC AND POWER COMPANY

DOCKET NO. 50-280

SURRY POWER STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 184
License No. DPR-32

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Virginia Electric and Power Company (the licensee) dated September 29, 1993, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 3.B of Facility Operating License No. DPR-32 is hereby amended to read as follows:

(B) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 184, 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 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Herbert N. Berkow, Director
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 5, 1994



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

VIRGINIA ELECTRIC AND POWER COMPANY

DOCKET NO. 50-281

SURRY POWER STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 184
License No. DPR-37

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Virginia Electric and Power Company (the licensee) dated September 29, 1993, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 3.B of Facility Operating License No. DPR-37 is hereby amended to read as follows:

(B) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 184, 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 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Herbert N. Berkow, Director
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 5, 1994

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 184 TO FACILITY OPERATING LICENSE NO. DPR-32

AMENDMENT NO. 184 TO FACILITY OPERATING LICENSE NO. DPR-37

DOCKET NOS. 50-280 AND 50-281

Revise Appendix A as follows:

Remove Pages

4.2-1

4.2-4

4.2-5

Insert Pages

4.2-1

4.2-4

4.2-5

4.2 AUGMENTED INSPECTIONS

Applicability

Applies to inservice inspections which augment those required by ASME Section XI.

Objective

To provide the additional assurance necessary for the continued integrity of important components involved in safety and plant operation.

Specifications

- A. Inspections shall be performed as specified in TS. Table 4.2-1. Nondestructive examination techniques and acceptance criteria shall be in compliance with the requirements of TS 4.0.5.
- B. The normal inspection interval is 10 years.
- C. Detailed records of each inspection shall be maintained to allow a continuing evaluation and comparison with future inspections.

Bases

The inspection program for ASME Section XI of the ASME Boiler and Pressure Vessel Code limits its inspection to ASME Code Class 1, 2, and 3 components and supports. Certain components, under Miscellaneous Inspections in this section, were added because of no corresponding code requirement. This added requirement provides the inspection necessary to insure the continued integrity of these components.

Item 1.4

The low pressure turbine rotor blades are normally inspected concurrent with the disk and hub inspections. The disk and hub inspection frequency is based on existing crack size, crack growth rate, and system operating conditions. ASME Section XI does not provide specific examination requirements or acceptance criteria for turbine rotor inspections. Procedures and acceptance criteria for turbine rotor inspections are consistent with general industry practices.

TABLE 4.2-1

SECTION A. MISCELLANEOUS INSPECTIONS

| <u>Item No.</u> | <u>Required Examination Area</u> | <u>Required Examination Methods</u> | <u>Tentative Inspection During 10-Year Interval</u> | <u>Remarks</u> |
|-----------------|--|-------------------------------------|---|---|
| 1.1 | Deleted | | | |
| 1.2 | Low Head SIS piping located in valve pit | Visual | Non-applicable | This pipe shall be visually inspected at each refueling shutdown. |

TABLE 4.2-1

SECTION A. MISCELLANEOUS INSPECTIONS

| <u>Item No.</u> | <u>Required Examination Area</u> | <u>Required Examination Methods</u> | <u>Tentative Inspection During 10-Year Interval</u> | <u>Remarks</u> |
|-----------------|----------------------------------|---|---|--|
| 1.3 | Primary Pump Flywheel | See remarks | See remarks | Examination to be conducted in accordance with regulatory position C.4.b of regulatory guide 1.14 Rev. 1, August 1975 |
| 1.4 | Low Pressure Turbine Rotor | Visual and Magnetic Particle or Dye Penetrant | See remark | 100% of the blades every 6 operating years. Inspections are normally performed concurrent with LP turbine rotor disk and hub inspection. |

SECTION B. SENSITIZED STAINLESS STEEL

| | | | | |
|-------|--|-----------------------|---|--|
| 2.1.1 | Circumferential and longitudinal pipe welds and branch pipe connections larger than 4 inches in diameter | Visual and Volumetric | By the end of the interval, a cumulative 75% of the circumferential welds in the piping system would have been examined, including one foot on any longitudinal weld on either side of the butt welds | A minimum of 5% of the welds will be examined every 1-2/3 years (generally each normal refueling outage). See Transcript of Hearing (pp. 303-304) and Initial Decision (p. 7, p.10) |
| 2.1.2 | Circumferential and longitudinal pipe welds and branch pipe connections | Visual | By the end of the interval, a cumulative 100% of the welds and pipe branch connections would be examined a minimum of three times | A minimum of 50% of the welds will be examined every 1-2/3 years (generally, each normal refueling outage). See Transcript of Hearing (pp. 303-304) and Initial Decision (p.7, p.10) |



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 184 TO FACILITY OPERATING LICENSE NO. DPR-32
AND AMENDMENT NO. 184 TO FACILITY OPERATING LICENSE NO. DPR-37

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION, UNIT NOS. 1 AND 2

DOCKET NOS. 50-280 AND 50-281

1.0 INTRODUCTION

By letter dated September 29, 1993, Virginia Electric and Power Company (Virginia Power) proposed to change the inspection frequency of low pressure turbine blades in Table 4.2-1 of Surry Units 1 and 2 Technical Specifications. The inspection frequency will be changed from "100% of the blades every five years" to "100% of the blades every six operating years." The proposed change is to coincide with the disk inspection which is about every six operating years.

2.0 EVALUATION

The NRC regulations and guidance relating to turbines are focused primarily on preventing the failure of low pressure turbine disks because the failure could result in turbine missiles that may damage reactor safety systems. The staff believes that periodic inspection would reduce the chance of disk failure and recommends that licensees follow the disk inspection frequency recommended by turbine manufacturers. The inspection frequency should be based on a staff-approved methodology. The staff has approved the methodology submitted by Westinghouse, the Surry turbine manufacturer. (Reference 1).

The NRC does not have inspection requirements for turbine blades. Although there have been instances of blade failures, it is generally believed in the turbine industry that the probability of failed blades damaging reactor safety systems is remote. The staff guidance pertaining to the blades is specified in Standard Review Plan (SRP) 10.2.3, Turbine Disk Integrity. SRP 10.2.3 recommends that blades should be inspected as a part of the overall turbine inspection.

The licensee stated that Westinghouse indicated that there is no set interval for inspection of turbine blades. However, Westinghouse recommended that the low pressure turbine blades be inspected every 72 operating months. Therefore, the staff finds the proposed change in inspection frequency acceptable.

Administrative changes were also proposed in this submittal. Table 4.2-1 still contained notes that should have been removed by previous amendments. The portions of the table that the notes referred to were deleted by

Amendments 128 and 128, dated May 24, 1989. Also, a note for a one-time TS change associated with low pressure turbine blade inspections was no longer necessary since the extension has been completed. For the above reasons, the notes are no longer necessary and the changes are acceptable.

3.0 STATE CONSULTATION

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

4.0 ENVIRONMENTAL CONSIDERATION

These amendments involve a change in the installation or use of a facility component located within the restricted area 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 these amendments involve no significant hazards consideration and there has been no public comment on such finding (58 FR 57860). Accordingly, these 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 these amendments.

5.0 CONCLUSION

The staff concludes that the proposed inspection frequency for low pressure turbine blades is acceptable because it is based on the turbine manufacturer's recommendation and is within general industry practices. The administrative changes are acceptable since the notes being deleted are no longer necessary.

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 these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Reference 1. Letter from B.D. Liaw of USNRC to J. A. Martin of Westinghouse Electric Corporation, Steam Turbine Division, dated December 27, 1984.

Principal Contributor: J. Tsao

Date: January 5, 1994