

September 2, 1993

Docket Nos. 50-338
and 50-339

DISTRIBUTION
See attached sheet

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

Dear Mr. Stewart:

SUBJECT: NORTH ANNA UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS RE:
CONTAINMENT RECIRCULATION SPRAY SYSTEM (TAC NOS. M86260
AND M86261)

The Commission has issued the enclosed Amendment Nos. 172 and 153 to Facility Operating License Nos. NPF-4 and NPF-7 for the North Anna Power Station, Units No. 1 and No. 2 (NA-1&2). The amendments revise the Technical Specifications (TS) in response to your letter dated April 8, 1993.

The amendments separate the containment recirculation spray subsystems into two containment recirculation spray trains consistent with standard 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, Project Manager
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 172 to NPF-4
2. Amendment No. 153 to NPF-7
3. Safety Evaluation

cc w/enclosures:
See next page

Document Name - NA86260.AMD

LA:PDII-2
ETana *ETA*
8/12/93

PE:PDII-2
RCroteau *RC*
8/12/93

PM:PDII-2
LEngle *LE*
8/13/93

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SRXB *[Signature]* 8/26/93
SRXB *[Signature]* 8/ /93

OGC *CMARCO*
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HBerkow *[Signature]*
8/24/93

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

North Anna Power Station
Units 1 and 2

cc:

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DATED: September 2, 1993

AMENDMENT NO. 172 TO FACILITY OPERATING LICENSE NO. NPF-4-NORTH ANNA UNIT 1
AMENDMENT NO. 153 TO FACILITY OPERATING LICENSE NO. NPF-7-NORTH ANNA UNIT 2

Docket File

NRC & Local PDRs

PDII-2 Reading

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

VIRGINIA ELECTRIC AND POWER COMPANY

OLD DOMINION ELECTRIC COOPERATIVE

DOCKET NO. 50-338

NORTH ANNA POWER STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 172
License No. NPF-4

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Virginia Electric and Power Company et al., (the licensee) dated April 8, 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.

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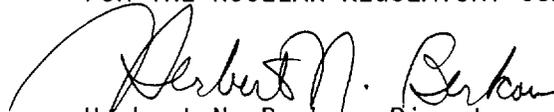
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.D.(2) of Facility Operating License No. NPF-4 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 172, 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: September 2, 1993

ATTACHMENT TO LICENSE AMENDMENT NO. 172

TO FACILITY OPERATING LICENSE NO. NPF-4

DOCKET NO. 50-338

Replace the following page of the Appendix "A" Technical Specifications with the enclosed page as indicated. The revised page is identified by amendment number and contains vertical lines indicating the area of change. The corresponding overleaf page is also provided to maintain document completeness.

Remove Page

3/4 6-12

Insert Page

3/4 6-12

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- d. At least once per 5 years by performing an air or smoke flow test through each spray header and verifying each spray nozzle is unobstructed.

CONTAINMENT SYSTEMS

CONTAINMENT RECIRCULATION SPRAY SYSTEM

LIMITING CONDITION FOR OPERATION

- 3.6.2.2 Two trains of containment recirculation spray shall be OPERABLE. Each train shall consist of:
- a.
 1. One inside containment recirculation spray subsystem composed of an inside containment recirculation spray pump, associated heat exchanger and flow path, and
 2. One outside containment recirculation spray subsystem composed of an outside containment recirculation spray pump, associated heat exchanger and flow path, and a casing cooling pump and a flow path capable of transferring fluid from the casing cooling tank to the suction of the outside recirculation spray pump.
 - b. One casing cooling tank (shared with both trains) shall be OPERABLE with:
 1. Contained borated water volume of at least 116,500 gallons.
 2. Between 2300 and 2400 ppm boron concentration.
 3. A solution temperature $\geq 35^{\circ}\text{F}$ and $\leq 50^{\circ}\text{F}$.

APPLICABILITY: Modes 1, 2, 3 and 4

ACTION:

- a. With one containment recirculation spray subsystem inoperable in one containment recirculation spray train, restore the inoperable subsystem to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours; restore the inoperable subsystem to OPERABLE status within the next 48 hours or be in COLD SHUTDOWN within the next 30 hours.
- b. With two containment recirculation spray subsystems inoperable in one containment recirculation spray train, restore one inoperable subsystem to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- c. With the casing cooling tank inoperable, restore the tank to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.



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

VIRGINIA ELECTRIC AND POWER COMPANY

OLD DOMINION ELECTRIC COOPERATIVE

DOCKET NO. 50-339

NORTH ANNA POWER STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 153
License No. NPF-7

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Virginia Electric and Power Company et al., (the licensee) dated April 8, 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.

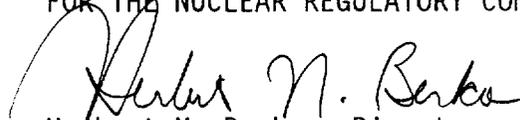
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-7 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 153, 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: September 2, 1993

ATTACHMENT TO LICENSE AMENDMENT NO. 153

TO FACILITY OPERATING LICENSE NO. NPF-7

DOCKET NO. 50-339

Replace the following page of the Appendix "A" Technical Specifications with the enclosed page as indicated. The revised page is identified by amendment number and contains vertical lines indicating the area of change. The corresponding overleaf page is also provided to maintain document completeness.

Remove Page

3/4 6-11

Insert Page

3/4 6-11

CONTAINMENT SYSTEMS

CONTAINMENT RECIRCULATION SPRAY SYSTEM

LIMITING CONDITION FOR OPERATION

- 3.6.2.2 Two trains of containment recirculation spray shall be OPERABLE. Each train shall consist of:
- a.
 1. One inside containment recirculation spray subsystem composed of an inside containment recirculation spray pump, associated heat exchanger and flow path, and
 2. One outside containment recirculation spray subsystem composed of an outside containment recirculation spray pump, associated heat exchanger and flow path, and a casing cooling pump and a flow path capable of transferring fluid from the casing cooling tank to the suction of the outside recirculation spray pump.
 - b. One casing cooling tank (shared with both trains) shall be OPERABLE with:
 1. Contained borated water volume of at least 116,500 gallons.
 2. Between 2300 and 2400 ppm boron concentration.
 3. A solution temperature $\geq 35^{\circ}\text{F}$ and $\leq 50^{\circ}\text{F}$.

APPLICABILITY: Modes 1, 2, 3 and 4

ACTION:

- a. With one containment recirculation spray subsystem inoperable in one containment recirculation spray train, restore the inoperable subsystem to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours; restore the inoperable subsystem to OPERABLE status within the next 48 hours or be in COLD SHUTDOWN within the next 30 hours.
- b. With two containment recirculation spray subsystems inoperable in one containment recirculation spray train, restore one inoperable subsystem to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- c. With the casing cooling tank inoperable, restore the tank to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

- 4.6.2.2.1 Each containment recirculation spray subsystem and casing cooling subsystem shall be demonstrated OPERABLE:
- a. At least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path that is not locked, sealed or otherwise secured in position, is in its correct position.

CONTAINMENT SYSTEMS

CONTAINMENT RECIRCULATION SPRAY SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

- b. Verifying, that on recirculation flow, each outside recirculation spray pump develops a discharge pressure of greater than or equal to 115 psig and each casing cooling pump develops a discharge pressure of greater than or equal to 46 psig when tested pursuant to Specification 4.0.5.
- c. At least once per 18 months by:
 - 1. Verifying that on a Containment Pressure--High-High signal, each casing cooling pump starts automatically without time delay, and each recirculation spray pump starts automatically with the following time delays: inside 195 ± 9.75 seconds, outside 210 ± 21 seconds.
 - 2. Verifying that each automatic valve in in the flow path actuates to its correct position on a Containment Pressure--high-high test signal.
- d. At least once per 5 years by performing an air or smoke flow test through each spray header and verifying each spray nozzle is unobstructed.

4.6.2.2.2 The casing cooling tank shall be demonstrated OPERABLE:

- a. At least once per 7 days by:
 - 1. Verifying the contained borated water volume in the tank, and
 - 2. Verifying the boron concentration of the water.
- b. At least once per 24 hours by verifying the casing cooling tank temperature.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 172 AND 153 TO

FACILITY OPERATING LICENSE NOS. NPF-4 AND NPF-7

VIRGINIA ELECTRIC AND POWER COMPANY

OLD DOMINION ELECTRIC COOPERATIVE

NORTH ANNA POWER STATION, UNITS NO. 1 AND NO. 2

DOCKET NOS. 50-338 AND 50-339

1.0 INTRODUCTION

Pursuant to 10 CFR 50.90, by letter dated April 8, 1993, the Virginia Electric and Power Company (the licensee) proposed changes to the Technical Specifications (TS) for the North Anna Power Station, Units 1 and 2. The changes would separate the containment recirculation spray (RS) subsystems into two containment RS trains.

2.0 PROPOSED TECHNICAL SPECIFICATION CHANGES

The current TS 3.6.2.2 describes the RS system as consisting of six separate and independent subsystems and a casing cooling tank. The allowable outage time (AOT) is 7 days for one subsystem. If more than one of the six subsystems becomes inoperable, then within one hour the inoperable subsystems are required to be restored to an operable status or the unit must be shut down.

TS 3.6.2.2 is being revised to separate the containment RS subsystems into two containment RS trains. Each train will consist of:

- (a) one inside RS subsystem composed of an inside RS pump, associated heat exchanger and flow path, and
- (b) one outside containment recirculation spray subsystem consisting of one outside RS pump, associated heat exchanger and flow path, and a casing cooling pump and a flow path capable of transferring fluid from the casing cooling tank to the suction of the outside RS pump.

TS 3.6.2.2 Action "a" is being revised to delete the reference to one casing cooling subsystem being inoperable since it is included in the definition of the outside RS subsystem.

TS 3.6.2.2 Action "b" is being revised to address the inoperability of two subsystems in one train and reflect an AOT of 72 hours.

TS 3.6.2.2 Action "c" is being revised to address the inoperability of the casing cooling tank and is currently Action "b" of the existing TS.

3.0 EVALUATION

The containment RS system, in conjunction with the containment quench spray system, is designed to limit the post-accident pressure and temperature in the containment to less than the design values and to depressurize the containment to subatmospheric pressure in less than 60 minutes.

The Final Safety Analysis Report states that the RS system consists of four separate but parallel RS subsystems, each of approximately 50% capacity. Two RS pumps and motors (rated at 3300 gpm) are located inside the containment structure, and two pumps and motors (rated at 3640 gpm) are located outside the containment. Following a loss of coolant accident, water accumulates in the containment sump which provides a suction for the four RS pumps. The water is continuously recirculated through the containment to remove heat from the reactor core and containment atmosphere and radioiodine from the containment atmosphere. The water is cooled when pumped through the RS heat exchanger (one downstream of each pump).

The casing cooling subsystem provides adequate net positive suction head to the outside RS pumps.

The proposed change separates the containment RS subsystems into two containment recirculation trains and defines the trains. No hardware changes are being made for this separation. The accident analysis basis assumes that one train of containment RS system fails to operate during a design basis accident. A single train of containment RS is capable of supplying 100% of the required containment RS assumed in the accident analysis basis.

TS 3.6.2.2 Action "a" will address the inoperability of one subsystem of containment RS. The change deletes the reference to a separate casing cooling subsystem since the casing cooling subsystem is considered a part of the outside RS subsystem. The remaining three subsystems still provide 150% of the required capacity assumed in the accident analysis bases and the seven day AOT to restore the subsystem to operable status is retained from the current TS.

TS 3.6.2.2 Action "b" will address the inoperability of two subsystems in one train of containment RS. The other operable train of containment RS will still provide 100% of the capacity assumed in the accident analysis bases. The 72 hour AOT to restore at least one subsystem to operable status takes into account the redundant capacity of the operable train, a reasonable amount of time for repairs, and the low probability of a design basis accident occurring during this period.

The changes will not affect the capability of the containment RS system to perform its design function. The system performance will remain bounded by the existing accident analysis basis.

4.0 SUMMARY

The changes will not affect the capability of the containment RS system to perform its design function. Since the containment will continue to meet its design basis acceptance criteria following a design basis accident, the staff finds the licensee's proposed revision to TS 3.6.2.2 to be acceptable.

5.0 STATE CONSULTATION

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

6.0 ENVIRONMENTAL CONSIDERATION

These amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that these amendments involve no significant hazards consideration and there has been no public comment on such finding (58 FR 28063). 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 the amendments.

7.0 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: R. P. Croteau

Date: September 2, 1993