VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

July 6, 1979

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
Attn: Mr. O. D. Parr, Chief
Light Water Reactors Branch No. 3
Division of Project Management
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Serial No. 504
LQA/ESG:esh

Docket No. 50-338

License No. NPF-4

Dear Mr. Denton:

AMENDMENT TO OPERATING LICENSE
PROPOSED TECHNICAL SPECIFICATION CHANGE NO. 21
NORTH ANNA POWER STATION UNIT NO. 1

Pursuant to 10 CFR 50.90, the Virginia Electric and Power Company hereby requests an amendment, in the form of changes to the Technical Specifications, to Operating License No. NPF-4 for the North Anna Power Station, Unit No. 1. The proposed changes are enclosed, and have been designated as Change No. 21.

Our letters, Serial No. 230, April 6, 1979, and Serial No. 241, April 10, 1979, described a deficiency which was discovered in the analysis of departure from nucleate boiling ratio following a single dropped rod event. We stated at that time that Westinghouse Electric Corporation was conducting an analysis to determine the most appropriate corrective action.

Westinghouse reported the results of its analyses to the NRC Staff during a meeting on April 12, 1979, and in a subsequent telephone conversation on May 3, 1979. Resolution of the problem is achieved by changes to the Technical Specifications concerning the power range neutron flux negative rate trip. Since the hardware generating the negative rate trip time constant also supplies the time constant for the power range positive rate trip circuit, a corresponding change to the time constant specification for the positive rate trip is also required. The necessary Technical Specification changes for North Anna Unit No. 1 are enclosed.

The positive rate trip is a secondary means of protection for rapid power excursion transients. The North Anna FSAR only takes credit for the neutron flux high/low setpoint. Consequently, there is no change in the margin of safety as presented in the FSAR.

This change has been reviewed and approved by the Station Nuclear Safety and Operating Committee and the System Nuclear Safety and Operating Committee. It has been determined that this change does not involve an unreviewed safety question as defined in 10 CFR 50.59.

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This request has been evaluated in accordance with the criteria of 10 CFR 170.22, and has been determined to be in Class III. The changes involve a single issue, and the Staff should be able to conclude that the request does not involve a significant hazards consideration. Accordingly, our check in the amount of $4,000.00 is attached in payment of the amendment fee.

Very truly yours,

C. M. Stallings

C. M. Stallings
Vice President-Power Supply
and Production Operations

Enclosures:
1. Proposed Change No. 21
2. Check in amount of $4,000.00

cc: Mr. James P. O'Reilly, Director
Office of Inspection and Enforcement
Region II

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COMMONWEALTH OF VIRGINIA)
) S. S.
CITY OF RICHMOND)

Before me, a Notary Public, in and for the City and Commonwealth aforesaid, today personally appeared C. M. Stallings, who being duly sworn, made oath and said (1) that he is Vice President-Power Supply and Production Operations, of the Virginia Electric and Power Company, (2) that he is duly authorized to execute and file the foregoing Amendment in behalf of that Company, and (3) that the statements in the Amendment are true to the best of his knowledge and belief.

Given under my hand and notarial seal this 6th day of July, 79.

My Commission expires June 7, 1983.

Betty S. Mauck
Notary Public

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TABLE 2.2-1

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
1. Manual Reactor Trip	Not Applicable	Not Applicable
2. Power Range, Neutron Flux	Low Setpoint - ≤ 25% of RATED THERMAL POWER	Low Setpoint - ≤ 26% of RATED THERMAL POWER
	High Setpoint - ≤ 109% of RATED THERMAL POWER	High Setpoint - ≤ 110% of RATED THERMAL POWER
3. Power Range, Neutron Flux, High Positive Rate	≤ 5% of RATED THERMAL POWER with a time constant ≥ 1 second	≤ 5.5% of RATED THERMAL POWER with a time constant ≥ 1 second
4. Power Range, Neutron Flux, High Negative Rate	≤ 3% of RATED THERMAL POWER with a time constant ≥ 1 second	≤ 3.5% of RATED THERMAL POWER with a time constant ≥ 1 second
5. Intermediate Range, Neutron Flux	≤ 25% of RATED THERMAL POWER	≤ 30% of RATED THERMAL POWER
6. Source Range, Neutron Flux	≤ 10^5 counts per second	≤ 1.3 x 10^5 counts per second
7. Overtemperature ΔT	See Note 1	See Note 3
8. Overpower ΔT	See Note 2	See Note 3
9. Pressurizer Pressure--Low	≥ 1870 psig	≥ 1860 psig
10. Pressurizer Pressure--High	≤ 2385 psig	≤ 2395 psig
11. Pressurizer Water Level--High	≤ 92% of instrument span	≤ 93% of instrument span
12. Loss of Flow	≥ 90% of design flow per loop*	≥ 89% of design flow per loop*

*Design flow is 92,800 gpm per loop.

BASES

The Power Range Negative Rate trip provides protection to ensure that the minimum DNBR is maintained above 1.30 for rod drop accidents. At high power a single or multiple rod drop accident could cause local flux peaking which when in conjunction with nuclear power being maintained equivalent to turbine power by action of the automatic rod control system could cause an unconservative local DNBR to exist. The Power Range Negative Rate trip will prevent this from occurring by tripping the reactor for all single or multiple dropped rods.

Intermediate and Source Range, Nuclear Flux

The Intermediate and Source Range, Nuclear Flux trips provide reactor core protection during reactor startup. These trips provide redundant protection to the low setpoint trip of the Power Range, Neutron Flux channels. The Source Range Channels will initiate a reactor trip at about 10^{+5} counts per second unless manually blocked when P-6 becomes active. The Intermediate Range Channels will initiate a reactor trip at a current level proportional to approximately 25 percent of RATED THERMAL POWER unless manually blocked when P-10 becomes active. No credit was taken for operation of the trips associated with either the Intermediate or Source Range Channels in the accident analyses; however, their functional capability at the specified trip settings is required by this specification to enhance the overall reliability of the Reactor Protection System.

Overtemperature ΔT

The Overtemperature ΔT trip provides core protection to prevent DNB for all combinations of pressure, power, coolant temperature, and axial power distribution, provided that the transient is slow with respect to piping transit delays from the core to the temperature detectors (about 4 seconds), and pressure is within the range between the High and Low Pressure reactor trips. This setpoint includes corrections for changes in density and heat capacity of water with temperature and dynamic compensation for piping delays from the core to the loop temperature detectors. With normal axial power distribution, this reactor trip limit is always below the core safety limit as shown in Figure 2.1-1. If axial peaks are greater than design, as indicated by the difference between top and bottom power range nuclear detectors, the reactor trip is automatically reduced according to the notations in Table 2.2-1.