



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

VIRGINIA ELECTRIC AND POWER COMPANY
DOCKET NO. 50-338
NORTH ANNA POWER STATION, UNIT NO. 1
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 42
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 (the licensee) dated June 8, 1982, 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 applications, 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.

DESIGNATED ORIGINAL

Certified By

Patricia J. Noonan

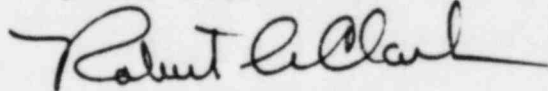
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. NPF-4 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 42, 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 the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert A. Clark, Chief -
Operating Reactors Branch #3
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: October 4, 1982

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 42 TO FACILITY OPERATING LICENSE NO. NPF-4

DOCKET NO. 50-338

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

Pages

2-8
2-9
2-10
3/4 2-15

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
13. Steam Generator Water Level--Low-Low	$\geq 13\%$ of narrow range instrument span--each steam generator	$\geq 17\%$ of narrow range instrument span--each steam generator
14. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	$< 40\%$ of full steam flow at RATED THERMAL POWER coincident with steam generator water level $\geq 25\%$ of narrow range instrument span--each steam generator	$< 42.5\%$ of full steam flow at RATED THERMAL POWER coincident with steam generator water level $\geq 24\%$ of narrow range instrument span--each steam generator
15. Undervoltage-Reactor Coolant Pump Busses	≥ 2905 volts--each bus	≥ 2870 volts--each bus
16. Underfrequency-Reactor Coolant Pump Busses	≥ 56.1 Hz - each bus	≥ 56.0 Hz - each bus
17. Turbine Trip A. Low Trip System Pressure B. Turbine Stop Valve Closure	≥ 45 psig $\geq 1\%$ open	≥ 40 psig $\geq 0\%$ open
18. Safety Injection Input from ESF	Not Applicable	Not Applicable
19. Reactor Coolant Pump Breaker Position Trip	Not Applicable	Not Applicable

NORTH ANNA-UNIT 1

2-7

Amendment No. 19

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTSNOTATION (Continued)

Operation with 3 Loops	Operation with 2 Loops (no loops isolated)*	Operation with 2 Loops (1 loop isolated)*
$K_1 = 1.113$	$K_1 = (\quad)$	$K_1 = (\quad)$
$K_2 = 0.0132$	$K_2 = (\quad)$	$K_2 = (\quad)$
$K_3 = 0.000628$	$K_3 = (\quad)$	$K_3 = (\quad)$

and $f_1(\Delta I)$ is a function of the indicated difference between top and bottom detectors of the power-range nuclear ion chambers; with gains to be selected based on measured instrument response during plant startup tests such that:

- (i) for $q_t - q_b$ between - 35 percent and + 7 percent, $f_1(\Delta I) = 0$
(where q_t and q_b are percent RATED THERMAL POWER in the top and bottom halves of the core respectively, and $q_t + q_b$ is total THERMAL POWER in percent of RATED THERMAL POWER).
- (ii) for each percent that the magnitude of $(q_t - q_b)$ exceeds - 35 percent, the ΔT trip setpoint shall be automatically reduced by 1.21 percent of its value at RATED THERMAL POWER.
- (iii) for each percent that the magnitude of $(q_t - q_b)$ exceeds + 7 percent, the ΔT trip setpoint shall be automatically reduced by 1.09 percent of its value at RATED THERMAL POWER.

* Values dependent on NRC approval of ECCS evaluation for these operating conditions.

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTSNOTATION

NOTE 1: Overtemperature $\Delta T \leq \Delta T_0 \left[K_1 - K_2 \left(\frac{1 + \tau_1 S}{1 + \tau_2 S} \right) (T - T') + K_3 (P - P') - f_1 (\Delta I) \right]$

where: ΔT_0 = Indicated ΔT at RATED THERMAL POWER

T = Average temperature, °F

T' = Indicated T_{avg} at RATED THERMAL POWER $\leq 582.8^\circ\text{F}$

P = Pressurizer pressure, psig

P' = 2235 psig (indicated RCS nominal operating pressure)

$\frac{1 + \tau_1 S}{1 + \tau_2 S}$ = The function generated by the lead-lag controller for T_{avg} dynamic compensation

τ_1 & τ_2 = Time constants utilized in the lead-lag controller for T_{avg} $\tau_1 = 25$ secs,
 $\tau_2 = 4$ secs.

S = Laplace transform operator (sec^{-1})

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTSNOTATION (Continued)

Note 2: Overpower $\Delta T \leq \Delta T_0 [K_4 - K_5 \left(\frac{\tau_3 S}{1 + \tau_3 S} \right) T - K_6 (T - T'') - f_2(\Delta I)]$

Where: ΔT_0 = Indicated ΔT at RATED THERMAL POWER

T = Average temperature, °F

T'' = Indicated T_{avg} at RATED THERMAL POWER $\leq 582.8^\circ\text{F}$

K_4 = 1.088

K_5 = 0.02/°F for increasing average temperature

K_5 = 0 for decreasing average temperatures

K_6 = 0.00119 for $T > T''$; $K_6 = 0$ for $T \leq T''$

$\frac{\tau_3 S}{1 + \tau_3 S}$ = The function generated by the rate lag controller for T_{avg} dynamic compensation

τ_3 = Time constant utilized in the rate lag controller for T_{avg}
 $\tau_3 = 10$ secs.

S = Laplace transform operator (sec^{-1})

$f_2(\Delta I) = 0$ for all ΔI

Note 3: The channel's maximum trip point shall not exceed its computed trip point by more than 2 percent span.

TABLE 3.2-1

DNB PARAMETERS

<u>PARAMETER</u>	<u>LIMITS</u>		
	<u>3 Loops In Operation</u>	<u>2 Loops In Operation** & Loop Stop Valves Open</u>	<u>2 Loops In Operation** & Isolated Loop Stop Valves Closed</u>
Reactor Coolant System T_{avg}	$\leq 587^{\circ}F$		
Pressurizer Pressure	≥ 2205 psig*		
Reactor Coolant System Total Flow Rate	$\geq 278,400$ gpm		

*Limit not applicable during either a THERMAL POWER ramp increase in excess of 5% RATED THERMAL POWER per minute or a THERMAL POWER step increase in excess of 10% RATED THERMAL POWER.

**Values dependent on NRC approval of ECCS evaluation for these conditions

POWER DISTRIBUTION LIMITS

AXIAL POWER DISTRIBUTION

LIMITING CONDITION FOR OPERATION

3.2.6 The axial power distribution shall be limited by the following relationship:

$$[F_j(Z)]_S = \frac{[2.14] [K(Z)]}{(\bar{R}_j)(P_L)(1.03)(1 + \sigma_j)(1.07)}$$

Where:

- a. $F_j(Z)$ is the normalized axial power distribution from thimble j at core elevation Z .
- b. P_L is the fraction of RATED THERMAL POWER.
- c. $K(Z)$ is the function obtained from Figure 3.2-2 for a given core height location.
- d. \bar{R}_j , for thimble j , is determined from at least $n=6$ incore flux maps covering the full configuration of permissible rod patterns above $P_m\%$ of RATED THERMAL POWER in accordance with:

$$\bar{R}_j = \frac{1}{n} \sum_{i=1}^n R_{ij}$$

Where:

$$R_{ij} = \frac{F_{Qi}^{Meas}}{[F_{ij}(Z)]_{Max}}$$

and $[F_{ij}(Z)]_{Max}$ is the maximum value of the normalized axial distribution at elevation Z from thimble j in map i which had a measured peaking factor without uncertainties or densification allowance of F_Q^{Meas} .