

June 9, 1986

Docket Nos. 50-338
and 50-339

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Mr. W. L. Stewart
Vice President - Nuclear Operations
Virginia Electric and Power Company
Post Office Box 26666
Richmond, Virginia 23261

Dear Mr. Stewart:

The Commission has issued the enclosed Amendment Nos. 81 and 69 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 12, 1985, as modified September 9, 1985. The amendments are effective within 30 days as of issuance.

The amendments revise the NA-1&2 TS for the Limiting Conditions for Operation and Surveillance Requirements for the reactor trip bypass breakers, undervoltage trip logic and shunt trip logic. The changes are in accordance with Items 10 and 13 of the NRC review of Item 4.3 of NRC Generic Letters 83-28 and 85-09 dated July 24, 1984 and May 23, 1985, respectively.

A copy of the Safety Evaluation is also enclosed. The notice of issuance will be included in the Commission's next monthly Federal Register notice.

Sincerely,

/s/

Leon B. Engle, Project Manager
PWR Project Directorate #2
Division of PWR Licensing-A
Office of Nuclear Reactor Regulation

Enclosure:

1. Amendment No. 81 to NPF-4
2. Amendment No. 69 to NPF-7
3. Safety Evaluation

cc w/enclosures:
See next page

LA:PAD#2
DM:iler
4/11/86

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D Lasher
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Quello
D:PAD#2
LRubenstein
4/3/86
PAEID
F Rosa
6/13/86

OELD
6/11/86
*No legal objection
M. Gorman*

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

June 9, 1986

Docket Nos. 50-338
and 50-339

Mr. W. I. Stewart
Vice President - Nuclear Operations
Virginia Electric and Power Company
Post Office Box 26666
Richmond, Virginia 23261

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The amendments revise the NA-1&2 TS for the Limiting Conditions for Operation and Surveillance Requirements for the reactor trip bypass breakers, undervoltage trip logic and shunt trip logic. The changes are in accordance with Items 10 and 13 of the NRC review of Item 4.3 of NRC Generic Letters 83-28 and 85-09 dated July 24, 1984 and May 23, 1985, respectively.

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Sincerely,

A handwritten signature in cursive script that reads "Leon B. Engle".

Leon B. Engle, Project Manager
PWR Project Directorate #2
Division of PWR Licensing-A
Office of Nuclear Reactor Regulation

Enclosure:

1. Amendment No. 81 to NPF-4
2. Amendment No. 69 to NPF-7
3. Safety Evaluation

cc w/enclosures:
See next page

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

North Anna Power Station
Units 1 and 2

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

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. 81
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 12, 1985, as modified September 9, 1985, 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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PDR

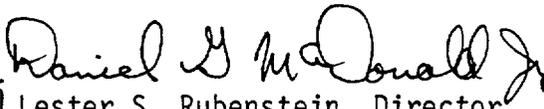
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.D.(2) of Facility Operating License No. NPF-4 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 81, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective within 30 days of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

acting for 
Lester S. Rubenstein, Director
PWR Project Directorate #2
Division of PWR Licensing-A

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 9, 1986

ATTACHMENT TO LICENSE AMENDMENT NO. 81

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.

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TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
8. Overpower ΔT					
Three Loop Operation	3	2	2	1, 2	2 [#]
Two Loop Operation	3	1**	2	1, 2	9
9. Pressurizer Pressure-Low	3	2	2	1, 2	7 [#]
10. Pressurizer Pressure--High	3	2	2	1, 2	7 [#]
11. Pressurizer Water Level--High	3	2	2	1, 2	7 [#]
12. Loss of Flow - Single Loop (Above P-8)	3/loop	2/loop in any oper- ating loop	2/loop in each oper- ating loop	1	7 [#]
13. Loss of Flow - Two Loops (Above P-7 and below P-8)	3/loop	2/loop in two oper- ating loops	2/loop each oper- ating loop	1	7 [#]
14. Steam Generator Water Level--Low-Low	3/loop	2/loop in any oper- ating loops	2/loop in each oper- ating loop	1, 2	7 [#]
15. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level ∴	2/loop-level and 2/loop-flow mismatch	1/loop-level coincident with 1/loop-flow mismatch in same loop	1/loop level and 2/loop-flow mismatch or 2/loop-level and 1/loop-flow mismatch	1, 2	7 [#]

NORTH ANNA - UNIT 1

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TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
16. Undervoltage-Reactor Coolant Pump Busses	3-1/bus	2	2	1	7#
17. Underfrequency-Reactor Coolant Pump Busses	3-1/bus	2	2	1	7#
18. Turbine Trip					
A. Low Auto Stop Oil Pressure	3	2	2	1	7#
B. Turbine Stop Valve Closure	4	4	4	1	7#
19. Safety Injection Input from ESF	2	1	2	1,2	1
20. Reactor Coolant Pump Breaker Position Trip					
A. Above P-8	1/breaker	1	1/breaker	1	10
B. Above P-7	1/breaker	2	1/breaker per operating loop	1	11
21. A. Reactor Trip Breakers	2	1	2	1,2	1,14
	2	1	2	3*,4*,5*	15
B. Reactor Trip Bypass Breakers	2	1	2	***	13
22. Automatic Trip Logic	2	1	2	1,2	1
	2	1	2	3*,4*,5*	15

NORTH ANNA - UNIT 1

3/4 3-4

Amendment No. 31

TABLE 3.3-1 (Continued)

TABLE NOTATION

- * With the reactor trip system breakers in the closed position and the control rod drive system capable of rod withdrawal.
- ** The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped condition.
- *** With the Reactor Trip Breaker open for surveillance testing in accordance with Specification Table 4.3-1 (item 21A).
- # The provisions of Specification 3.0.4 are not applicable.
- ## High voltage to detector may be de-energized above P-6.

ACTION STATEMENTS

- ACTION 1 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, be in HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1.1 provided the other channel is operable.
- ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and POWER OPERATION may proceed provided the following conditions are satisfied:
- a. The inoperable channel is placed in the tripped condition within 1 hour.
 - b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 2 hours for surveillance testing of the redundant channel(s) per Specification 4.3.1.1.1.
 - c. Either, THERMAL POWER is restricted to $\leq 75\%$ of RATED THERMAL and the Power Range, Neutron Flux trip setpoint is reduced to $\leq 85\%$ of RATED THERMAL POWER within 4 hours; or, the QUADRANT POWER TILT RATIO is monitored at least once per 12 hours.
 - d. The QUADRANT POWER TILT RATIO shall be determined to be within the limit when above 75 percent of RATED THERMAL POWER with one Power Range Channel inoperable by using the moveable incore detectors to confirm that the normalized symmetric power distribution, obtained from 2 sets of 4 symmetric thimble locations or a full-core flux map, is consistent with the indicated QUADRANT POWER TILT RATIO at least once per 12 hours.
- ACTION 3 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

TABLE 3.3-1 (Continued)

- a. Below P-6, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint.
- b. Above P-6 but below 5% of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 5% of RATED THERMAL POWER.
- c. Above 5% of RATED THERMAL POWER, POWER OPERATION may continue.

ACTION 4 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

- a. Below P-6, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint.
- b. Above P-6, operation may continue.

ACTION 5 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable, within 1 hour and at least once per 12 hours thereafter.

ACTION 6 - Not applicable.

ACTION 7 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and POWER OPERATION may proceed until performance of the next required CHANNEL FUNCTIONAL TEST provided the inoperable channel is placed in the tripped condition within 1 hour.

ACTION 8 - Not applicable

∴

TABLE 3.3-1 (Continued)

- ACTION 9 - With a channel associated with an operating loop inoperable, restore the inoperable channel to OPERABLE status within 2 hours or be in HOT STANDBY within the next 6 hours; however, one channel associated with an operating loop may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1.1.
- ACTION 10 - With one channel inoperable, restore the inoperable channel to OPERABLE status within 2 hours or reduce THERMAL POWER to below P-8 within the next 2 hours. Operation below P-8 may continue pursuant to ACTION 11.
- ACTION 11 - With less than the Minimum Number of Channels OPERABLE, operation may continue provided the inoperable channel is placed in the tripped condition within 1 hour.
- ACTION 12 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 6 hours and/or open the reactor trip breakers.
- ACTION 13 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within (1) hour or terminate testing of the Reactor Trip Breaker and open the Reactor Trip Bypass Breaker.
- ACTION 14 - With one of the diverse trip features (undervoltage or shunt trip device) inoperable, restore it to OPERABLE status within 48 hours or declare the breaker inoperable and apply Action 1. The breaker shall not be bypassed while one of the diverse trip features is inoperable except for the time required for performing maintenance to restore the breaker to OPERABLE status.
- ACTION 15 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement restore the inoperable channel to OPERABLE status within 48 hours or open the reactor trip breakers within the next hour.

TABLE 3.3-1 (Continued)
REACTOR TRIP SYSTEM INTERLOCKS

<u>DESIGNATION</u>	<u>CONDITION</u>	<u>SETPOINT</u>	<u>ALLOWABLE VALUES</u>	<u>FUNCTION</u>
P-6	1 of 2 Intermediate range above setpoint (increasing power level)	1×10^{-10}	$< 3 \times 10^{-10}$	Allows manual block of source range reactor trip
	2 of 2 Intermediate range below setpoint (decreasing power level)	5×10^{-11}	$> 3 \times 10^{-11}$	Defeats the block of source range reactor trip
P-10	2 of 4 Power range above setpoint (increasing power level)	10%	<11%	Allows manual block of power range (low setpoint) and intermediate range reactor trips and intermediate range rod stop. Blocks source range reactor trip.
	3 of 4 Power range below setpoint (decreasing power level)	8%	>7%	Defeats the block of power range (low setpoint) and intermediate range reactor trips and intermediate range rod stop.
P-7	2 of 4 Power range above setpoint	10%	<11%	Input to P-7. Allows reactor trip on: Low flow or reactor coolant pump breakers open in more than one loop, Undervoltage (RCP busses) Underfrequency (RCP busses), Turbine Trip, Pressurizer low pressure, and Pressurizer high level.
	or 1 of 2 Turbine Impulse chamber pressure above setpoint	Pressure equivalent to 10% rated turbine power	<11%	

(Power level increasing)

TABLE 3.3-2 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION RESPONSE TIMES

<u>FUNCTIONAL UNIT</u>	<u>RESPONSE TIME</u>
12. Loss of Flow - Single Loop (Above P-8)	≤ 1.0 seconds
13. Loss of Flow - Two Loops (Above P-7 and below P-8)	≤ 1.0 seconds
14. Steam Generator Water Level--Low-Low	≤ 2.0 seconds
15. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	NOT APPLICABLE
16. Undervoltage-Reactor Coolant Pump Busses	≤ 1.2 seconds
17. Underfrequency-Reactor Coolant Pump Busses	≤ 0.6 seconds
18. Turbine Trip	
A. Low Fluid Oil Pressure	NOT APPLICABLE
B. Turbine Stop Valve	NOT APPLICABLE
19. Safety Injection Input from ESF	NOT APPLICABLE
20. Reactor Coolant Pump Breaker Position Trip	NOT APPLICABLE

NORTH ANNA - UNIT 1

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TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
1. Manual Reactor Trip	N.A.	N.A.	R(7)	1,2 and *
2. Power Range, Neutron Flux	S	D(2), M(3) and Q(6)	M	1, 2
3. Power Range, Neutron Flux, High Positive Rate	N.A.	R(6)	M	1, 2
4. Power Range, Neutron Flux, High Negative Rate	N.A.	R(6)	M	1, 2
5. Intermediate Range, Neutron Flux	S	R(6)	S/U(1)	1, 2 and *
6. Source Range, Neutron Flux	N.A.	R(6)	M, S/U(1)	2, 3, 4 and 5
7. Overtemperature ΔT	S	R(6)	M	1, 2
8. Overpower ΔT	S	R(6)	M	1, 2
9. Pressurizer Pressure--Low	S	R	M	1, 2
10. Pressurizer Pressure--High	S	R	M	1, 2
11. Pressurizer Water Level--High	S	R	M	1, 2
12. Loss of Flow - Single Loop	S	R	M	1

TABLE 4.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
13. Loss of Flow - Two Loops	S	R	N.A.	1
14. Steam Generator Water Level-- Low-Low	S	R	M	1,2
15. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	S	R	M	1,2
16. Undervoltage - Reactor Coolant Pump Busses	N.A.	R	N.A.	1
17. Underfrequency - Reactor Coolant Pump Busses	N.A.	R	N.A.	1
18. Turbine Trip				
A. Low Auto Stop Oil Pressure	N.A.	N.A.	S/U(1)	1,2
B. Turbine Stop Valve Closure	N.A.	N.A.	S/U(1)	1,2
19. Safety Injection Input from ESF	N.A.	N.A.	M(4)	1,2
20. Reactor Coolant Pump Breaker Position Trip	N.A.	N.A.	R	N.A.
21. A. Reactor Trip Breaker	N.A.	N.A.	M(5),(8) and (10)	1,2 and *
B. Reactor Trip Bypass Breaker	N.A.	N.A.	M(5),(8) and R(9)	1,2 and *
22. Automatic Trip Logic	N.A.	N.A.	M(5)	1,2 and *
.		
.		

NORTH ANNA - UNIT 1

3/4 3-13

Amendment No. 2, 31

TABLE 4.3-1 (Continued)

NOTATION

- * - With the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal.
- (1) - If not performed in previous 7 days.
- (2) - Heat balance only, above 15% of RATED THERMAL POWER.
- (3) - Compare incore to excore axial offset above 15% of RATED THERMAL POWER. Adjust channel if absolute difference ≥ 3 percent.
- (4) - Manual ESF functional input check every 18 months.
- (5) - Each train or logic channel shall be tested at least every 62 days on a STAGGERED TEST BASIS.
- (6) - Neutron detectors may be excluded from CHANNEL CALIBRATION.
- (7) - The CHANNEL FUNCTIONAL TEST shall independently verify the OPERABILITY of the undervoltage and shunt trip circuits for the manual reactor trip function. The test shall also verify the operability of the Bypass Breaker Trip circuit(s).
- (8) - Local manual shunt trip prior to placing the bypass breaker into service.
- (9) - Automatic undervoltage trip.
- (10) - The CHANNEL FUNCTIONAL TEST shall independently verify the OPERABILITY of the undervoltage and shunt trip attachments of the Reactor Trip Breakers.



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

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. 69
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 12, 1985, as modified September 9, 1985, 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.

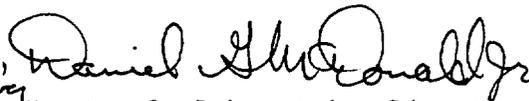
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-7 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 69, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective within 30 days of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*acting
for* 
Lester S. Rubenstein, Director
PWR Project Directorate #2
Division of PWR Licensing-A

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 9, 1986

ATTACHMENT TO LICENSE AMENDMENT NO. 69

TO FACILITY OPERATING LICENSE NO. NPF-7

DOCKET NO. 50-339

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.

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TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
8. Overpower ΔT					
Three Loop Operation	3	2	2	1, 2	7 [#]
Two Loop Operation	3	1**	2	1, 2	9
9. Pressurizer Pressure-Low	3	2	2	1, 2	7 [#]
10. Pressurizer Pressure--High	3	2	2	1, 2	7 [#]
11. Pressurizer Water Level--High	3	2	2	1, 2	7 [#]
12. Loss of Flow - Single Loop (Above P-8)	3/loop	2/loop in any oper- ating loop	2/loop in each oper- ating loop	1	7 [#]
13. Loss of Flow - Two Loops (Above P-7 and below P-8)	3/loop	2/loop in two oper- ating loops	2/loop each oper- ating loop	1	7 [#]
14. Steam Generator Water Level--Low-Low	3/loop	2/loop in any oper- ating loops	2/loop in each oper- ating loop	1, 2	7 [#]
15. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	2/loop-level and 2/loop-flow mismatch	1/loop-level coincident with 1/loop-flow mismatch in same loop	1/loop level and 2/loop-flow mismatch or 2/loop-level and 1/loop-flow mismatch	1, 2	7 [#]

TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
16. Undervoltage-Reactor Coolant Pump Busses	3-1/bus	2	2	1	7 [#]
17. Underfrequency-Reactor Coolant Pump Busses	3-1/bus	2	2	1	7 [#]
18. Turbine Trip					
A. Low Auto Stop Oil Pressure	3	2	2	1	7 [#]
B. Turbine Stop Valve Closure	4	4	4	1	7 [#]
19. Safety Injection Input from ESF	2	1	2	1, 2	1
20. Reactor Coolant Pump Breaker Position Trip					
A. Above P-8	1/breaker	1	1/breaker	1	10
B. Above P-7	1/breaker	2	1/breaker	1	11
			per operating loop		
21. A. Reactor Trip Breakers	2	1	2	1, 2	1,14
	2	1	2	3*,4*,5*	15
B. Reactor Trip Bypass Breakers	2	1	2	***	13
22. Automatic Trip Logic	2	1	2	1,2	1
	2	1	2	3*,4*,5*	15

TABEL 3.3-1 (Continued)

TABLE NOTATION

^ With the reactor trip system breakers in the closed position and the control rod drive system capable of rod withdrawal.

** The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped condition.

*** With the Reactor Trip Breaker open for surveillance testing in accordance with Specification Table 4.3-1 (item 21A).

The provisions of Specification 3.0.4 are not applicable.

High voltage to detector may be de-energized above the P-6, (Block of Source Range Reactor Trip), setpoint.

ACTION STATEMENTS

ACTION 1 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, be in HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1.1 provided the other channel is OPERABLE.

ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and POWER OPERATION may proceed provided the following conditions are satisfied:

- a. The inoperable channel is placed in the tripped condition within 1 hour.
- b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 2 hours for surveillance testing of the redundant channel(s) per Specification 4.3.1.1.1.
- c. Either, THERMAL POWER is restricted to $\leq 75\%$ of RATED THERMAL and the Power Range, Neutron Flux trip setpoint is reduced to $\leq 85\%$ of RATED THERMAL POWER within 4 hours; or, the QUADRANT POWER TILT RATIO is monitored at least once per 12 hours.
- d. The QUADRANT POWER TILT RATIO shall be determined to be within the limit when above 75 percent of RATED THERMAL POWER with one Power Range Channel inoperable by using the moveable incore detectors to confirm that the normalized symmetric power distribution, obtained from 2 sets of 4 symmetric thible locations or a full-core flux map, is consistent with the indicated QUADRANT POWER TILT RATIO at least once per 12 hours.

TABLE 3.3-1 (Continued)

- ACTION 3 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:
- a. Below the P-6, (Block of Source Range Reactor Trip) set-point, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint.
 - b. Above the P-6, (Block of Source Range Reactor Trip) set-point, but below 5% of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 5% of RATED THERMAL POWER.
 - c. Above 5% of RATED THERMAL POWER, POWER OPERATION may continue.
- ACTION 4 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:
- a. Below the P-6, (Block of Source Range Reactor Trip) set-point, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint.
 - b. Above the P-6, (Block of Source Range Reactor Trip) set-point, operation may continue.
- ACTION 5 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable, within 1 hour and at least once per 12 hours thereafter.
- ACTION 6 - Not applicable.
- ACTION 7 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and POWER OPERATION may proceed until performance of the next required CHANNEL FUNCTIONAL TEST provided the inoperable channel is placed in the tripped condition within 1 hour.
- ACTION 8 - Not applicable.

TABLE 3.3-1 (Continued)

- ACTION 9 - With a channel associated with an operating loop inoperable, restore the inoperable channel to OPERABLE status within 2 hours or be in HOT STANDBY within the next 6 hours; however, one channel associated with an operating loop may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1.1.
- ACTION 10 - With one channel inoperable, restore the inoperable channel to OPERABLE status within 2 hours or reduce THERMAL POWER to below the P-8, (Block of Low Reactor Coolant Pump Flow and Reactor Coolant Pump Breaker Position) setpoint, within the next 2 hours. Operation below the P-8, (Block of Low Reactor Coolant Pump Flow and Reactor Coolant Pump Breaker Position) setpoint, may continue pursuant to ACTION 11.
- ACTION 11 - With less than the Minimum Number of Channels OPERABLE, operation may continue provided the inoperable channel is placed in the tripped condition within 1 hour.
- ACTION 12 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 6 hours and/or open the reactor trip breakers.
- ACTION 13 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within (1) hour or terminate testing of the Reactor Trip Breaker and open the Reactor Trip Bypass Breaker.
- ACTION 14 - With one of the diverse trip features (undervoltage or shunt trip device) inoperable, restore it to OPERABLE status within 48 hours or declare the breaker inoperable and apply Action 1. The breaker shall not be bypassed while one of the diverse trip features is inoperable except for the time required for performing maintenance to restore the breaker to OPERABLE status.
- ACTION 15 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement restore the inoperable channel to OPERABLE status within 48 hours or open the reactor trip breakers within the next hour.

TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INTERLOCKS

<u>DESIGNATION</u>	<u>CONDITION</u>	<u>SETPOINT</u>	<u>ALLOWABLE VALUES</u>	<u>FUNCTION</u>
P-6	1 of 2 Intermediate range above setpoint (increasing power level)	1×10^{-10}	$< 3 \times 10^{-10}$	Allows manual block of source range reactor trip
	2 of 2 Intermediate range below setpoint (decreasing power level)	5×10^{-11}	$> 3 \times 10^{-11}$	Defeats the block of source range reactor trip
P-10	2 of 4 Power range above setpoint (increasing power level)	10%	<11%	Allows manual block of power range (low setpoint) and intermediate range reactor trips and intermediate range rod stop. Blocks source range reactor trip.
	3 of 4 Power range below setpoint (decreasing power level)	8%	>7%	Defeats the block of power range (low setpoint) and intermediate range reactor trips and intermediate range rod stop. Input to P-7.
P-7	2 of 4 Power range above setpoint or	10%	<11%	Allows reactor trip on: Low flow or reactor coolant pump breakers open in more than one loop, Undervoltage (RCP busses) Underfrequency (RCP busses), Turbine Trip, Pressurizer low pressure, and Pressurizer high level.
	1 of 2 Turbine Impulse chamber pressure above setpoint	Pressure equivalent to 10% rated turbine power	<11%	
	(Power level increasing)			

TABLE 3.3-2 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION RESPONSE TIMES

<u>FUNCTIONAL UNIT</u>	<u>RESPONSE TIME</u>
12. Loss of Flow - Single Loop (Above P-8)	≤ 1.0 seconds
13. Loss of Flow - Two Loops (Above P-7 and below P-8)	≤ 1.0 seconds
14. Steam Generator Water Level--Low-Low	≤ 2.0 seconds
15. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	NOT APPLICABLE
16. Undervoltage-Reactor Coolant Pump Busses	≤ 1.2 seconds
17. Underfrequency-Reactor Coolant Pump Busses	≤ 0.6 seconds
18. Turbine Trip	
A. Low Fluid Oil Pressure	NOT APPLICABLE
B. Turbine Stop Valve	NOT APPLICABLE
19. Safety Injection Input from ESF	NOT APPLICABLE
20. Reactor Coolant Pump Breaker Position Trip	NOT APPLICABLE
21. Reactor Trip Breakers	NOT APPLICABLE
22. Automatic Trip Logic	NOT APPLICABLE

TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
1. Manual Reactor Trip	N.A.	N.A.	R(8)	1,2 and *
2. Power Range, Neutron Flux	S	D(2), M(3) and Q(6)	M	1, 2
3. Power Range, Neutron Flux, High Positive Rate	N.A.	R(6)	M	1, 2
4. Power Range, Neutron Flux, High Negative Rate	N.A.	R(6)	M	1, 2
5. Intermediate Range, Neutron Flux	S	R(6)	S/U(1)	1, 2, and *
6. Source Range, Neutron Flux	S(7)	R(6)	M, S/U(1)	2, 3, 4, 5, and *
7. Overtemperature ΔT	S	R(6)	M	1, 2
8. Overpower ΔT	S	R(6)	M	1, 2
9. Pressurizer Pressure--Low	S	R	M	1, 2
10. Pressurizer Pressure--High	S	R	M	1, 2
11. Pressurizer Water Level--High	S	R	M	1, 2
12. Loss of Flow - Single Loop	S	R	M	1, 2

TABLE 4.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
13. Loss of Flow - Two Loops	S	R	N.A.	1
14. Steam Generator Water Level-- Low-Low	S	R	M	1, 2
15. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	S	R	M	1, 2
16. Undervoltage - Reactor Coolant Pump Busses	N.A.	R	M	1
17. Underfrequency - Reactor Coolant Pump Busses	N.A.	R	M	1
18. Turbine Trip				
A. Low Auto Stop Oil Pressure	N.A.	N.A.	S/U(1)	N.A.
B. Turbine Stop Valve Closure	N.A.	N.A.	S/U(1)	N.A.
19. Safety Injection Input from ESF	N.A.	N.A.	M(4)	1, 2
20. Reactor Coolant Pump Breaker Position Trip	N.A.	N.A.	R	1
21. A. Reactor Trip Breaker	N.A.	N.A.	M(5),(9)&(11)	1, 2, and *
B. Reactor Trip Bypass Breaker	N.A.	N.A.	M(5),(9) and R(10)	1, 2, and *
22. Automatic Trip Logic	N.A.	N.A.	M(5)	1, 2, and *

NORTH ANNA UNIT 2

3/4 3-13

Amendment No. 69

TABLE 4.3-1 (Continued)

NOTATION

- * - With the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal.
- (1) - If not performed in previous 7 days.
- (2) - Heat balance only, above 15% of RATED THERMAL POWER. Adjust channel if absolute difference >2 percent.
- (3) - Compare incore to excore axial offset above 15% of RATED THERMAL POWER. Recalibrate if absolute difference \geq 3 percent.
- (4) - Manual ESF functional input check every 18 months.
- (5) - Each train or logic channel shall be tested at least every 62 days on a STAGGERED TEST BASIS.
- (6) - Neutron detectors may be excluded from CHANNEL CALIBRATION.
- (7) - Below the P-6, (Block of Source Range Reactor Trip) Setpoint.
- (8) - The CHANNEL FUNCTIONAL TEST shall independently verify the OPERABILITY of the undervoltage and shunt trip circuits for the Manual Reactor Trip Function. The test shall also verify OPERABILITY of the Bypass Breaker trip circuit(s).
- (9) - Local manual shunt trip prior to placing the bypass breaker into service.
- (10) - Automatic undervoltage trip.
- (11) - The CHANNEL FUNCTIONAL TEST shall independently verify the OPERABILITY of the undervoltage and shunt trip attachments of the Reactor Trip Breakers.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 81 AND 69 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

Introduction:

By letter dated April 12, 1985, as modified September 9, 1985, the Virginia Electric and Power Company (the licensee) proposed changes to the Technical Specifications (TS) for the North Anna Power Station, Units No. 1 and No. 2 (NA-1&2). Specifically, the proposed changes revise the NA-1&2 TS to revise the Limiting Condition for Operation (LCO) and Surveillance Requirements (SR) for the reactor trip bypass breakers, undervoltage trip logic and shunt trip logic. The proposed changes are in accordance with Items 10 and 13 of the NRC review of Item 4.3 of Generic Letter 83-28, "Required Actions Based on Generic Implications of Salem ATWS Events," and the NRC staff's issuance on July 24, 1984, of staff Safety Evaluation Report (SER) for Auto Shunt Trip Modifications. In addition, the proposed changes are in conformance with subsequent NRC staff guidance provided in Generic Letter 85-09, "Technical Specifications for Generic Letter 83-28, Item 4.3," for the LCO and SR for the reactor trip and bypass breakers, undervoltage and shunt trip logic and manual scram switches.

Discussion:

The NRC staff review, as noted above, approved the auto shunt trip modification and indicated a need for additional testing of the reactor trip breakers and its associated equipment. To meet these requirements, the licensee has submitted TS changes for the reactor trip bypass breakers, undervoltage trip logic and shunt trip logic. Revised LCO, and SR require reactor trip bypass breaker testing prior to the routine testing of the reactor trip breakers to further assure the operability of the bypass breaker during the testing of the main breaker. Secondly, LCO's and SR's are submitted which would require operability and surveillance of both the undervoltage and shunt trip logic features. Testing of the newly installed auto shunt trip feature would be accomplished in accordance with the Westinghouse Owners Group Technique. Thirdly, existing specifications for the manual trip feature adequately assure operability and surveillance of this feature including testing at a refueling interval. Testing of the manual feature would be accomplished in accordance with approved station procedure and by the method described in NRC's SE. Finally, administrative notes would be added to clarify the surveillance testing requirements for reactor trip breakers, reactor trip bypass breakers, and the manual scram switches.

Evaluation:

The licensee's proposed changes to the NA-1&2 TS are in conformance with the NRC Generic Letters 83-28, and 85-09, Item 4.3. The proposed changes provide further definition of reactor trip breaker operability and clarification of surveillance test requirements for the reactor trip and reactor trip breakers, and the manual scram switches. As such, the proposed changes add requirements for operability and testing of reactor trip breakers and associated components thereby increasing the margin of safety in relation to the present NA-1&2 TS requirements for the reactor protection system. On this basis, therefore, we find the changes to be acceptable.

Implementation Schedule

As stated above, to meet the guidance set forth in Generic Letter 85-09, Technical Specifications for Generic Letter 83-28, Item 4.3 has been submitted by the licensee for NA-1&2 and found to be acceptable. Therefore, Item 4.3 for NA-1&2 is complete and implementation is effective within 30 days of the date specified below.

Environmental Consideration

These amendments involve a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The 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 published a proposed finding that these amendments involve no significant hazards consideration and there has been no public comment on such finding. 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.

Conclusion

We have 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, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Date: June 9, 1986

Principal Contributor: L. R. Engle