

April 12, 1993

DISSEMINATION  
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 UNIT 2 - ISSUANCE OF AMENDMENT RE: EMERGENCY  
TECHNICAL SPECIFICATION CHANGE FOR SURVEILLANCE REQUIREMENTS FOR  
MANUAL ENGINEERED SAFETY FEATURES (ESF) FUNCTIONAL INPUT FOR  
REACTOR TRIP SYSTEMS/NORTH ANNA POWER STATION, UNIT NO. 2 (NA-2)  
(TAC NO. M86091)

The Commission has issued the enclosed Amendment No. 150 to Facility Operating License No. NPF-7 for the North Anna Power Station, Unit No. 2 (NA-2). The amendment revises the Technical Specifications (TS) in response to your letter dated March 31, 1993.

The amendment suspends the manual ESF functional test of safety injection input to the reactor trip breakers for the remainder of the NA-2 operating Cycle 9.

The staff reviewed your request and concluded that you provided a sufficient basis for finding that the situation could not have been avoided. Therefore, in accordance with 10 CFR 50.91(a)(5), a valid emergency existed.

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance of Amendment to Facility Operating License and Final Determination of No Significant Hazards Consideration and Opportunity for Hearing 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. 150 to NPF-7
2. Safety Evaluation

cc w/enclosures:  
See next page

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DATE : 4/6/93 : 4/6/93 : 4/8/93 : 4/8/93 : 4/7/93 : 4/7/93

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Document Name: NA339.AMD

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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: April 12, 1993

AMENDMENT NO. 150 TO FACILITY OPERATING LICENSE NO. NPF-7-NORTH ANNA UNIT 2

Docket File

NRC & Local PDRs

PDII-2 Reading

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G. Hill (4), P-137

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M. Sinkule, R-II



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. 150  
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 March 31, 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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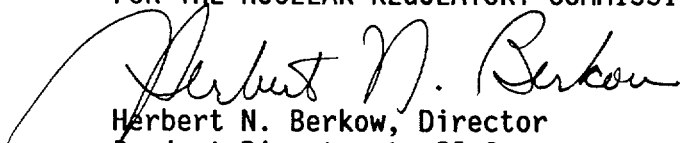
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-7 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 150, 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.

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: April 12, 1993

ATTACHMENT TO LICENSE AMENDMENT NO. 150

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.

Remove Pages

3/4 3-13  
3/4 3-14

Insert Pages

3/4 3-13  
3/4 3-14

TABLE 4.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION SUREVEILLANCE 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	NA.	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	NA.	R	M	1
17. Underfrequency - Reactor Coolant Pump Busses	NA.	R	M	1
18. Turbine Trip				
A. Low Auto Stop Oil Pressure	NA.	NA.	S/U(1)	NA.
B. Turbine Stop Valve Closure	NA.	NA.	S/U(1)	NA.
19. Safety Injection Input from ESF	NA.	NA.	M(4)** & (5)	1, 2
20. Reactor Coolant Pump Breaker Position Trip	NA.	NA.	R	1
21. A. Reactor Trip Breaker	NA.	NA.	M(5), (9), & (11)	1, 2, & *
B. Reactor Trip Bypass Breaker	NA.	NA.	M(5), (9), & R(10)	1, 2, & *
22. Automatic Trip Logic	NA.	NA.	M(5)	1, 2, & *

NORTH ANNA - UNIT 2

3/4 3-13

Amendment No. 150

**TABLE 4.3-1 (Continued)**

**NOTATION**

- - With the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal.
- • - Surveillance requirements for the manual ESF functional test of the safety injection input to the reactor trip breakers is suspended for the duration of Cycle 9 operation.
- ( 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. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 150 TO  
FACILITY OPERATING LICENSE NO. NPF-7  
VIRGINIA ELECTRIC AND POWER COMPANY  
OLD DOMINION ELECTRIC COOPERATIVE  
NORTH ANNA POWER STATION, UNIT NO. 2  
DOCKET NO. 50-339

1.0 INTRODUCTION

By letter dated March 31, 1993, the Virginia Electric and Power Company (the licensee) requested an emergency Technical Specifications (TS) change to the North Anna Power Station, Unit No. 2 (NA-2). The proposed change would suspend the manual Engineered Safety Feature (ESF) functional test of safety injection input to the reactor trip breakers for the remainder of the NA-2 operating Cycle 9.

TS 4.3.1.1.1, Table 4.3-1, Item 19, requires that the manual ESF functional input to the reactor trip system (RTS) instrumentation be verified operable every 18 months. On March 25, 1993, at 1526 hours, the licensee determined that this testing had not been properly performed for NA-2. Therefore, the requirements of TS 4.0.3 were immediately invoked which permits conducting the required surveillance test within the next 24 hours following discovery of the missed surveillance. The missed surveillance was identified by the licensee's ongoing programmatic review of TS surveillance requirements. By letter dated March 26, 1993, the licensee requested enforcement discretion associated with TS 4.3.1.1.1, Table 4.3-1, Item 19. On March 26, 1993 the NRC provided verbal and written approval of the requested enforcement discretion. Finally, the licensee's March 26, 1993 letter committed to submitting an emergency TS change by March 31, 1993. The proposed changes and basis for the emergency change are provided below.

2.0 DISCUSSION

Two independent ESF signal paths result in a reactor trip. The first is automatically generated in the Solid State Protection System (SSPS) logic by any of the four automatic safety injection signals. This signal path has been adequately tested at least once per 62 days on a staggered test basis as required by the TS.

The second signal path utilizes the two manual safety injection switches in the control room. Each of these switches directly energizes the shunt trip

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The proposed Technical Specification changes:

1. Do not involve a significant increase in the probability or consequences of an accident previously evaluated. No credit is taken for the manual safety injection input to the reactor trip breakers in the plant's accident analysis bases or Emergency Operating Procedures (EOPs). The accident analysis and EOPs require that the operators verify that a reactor/turbine trip have occurred before initiating a manual safety injection in the event of an emergency. Not testing the manual safety injection input to the reactor trip breakers until the unit shuts down and enters a refueling outage does not significantly affect the performance of the Reactor Trip System. The surveillance test must be performed when the unit is shutdown. Performing the surveillance test during power operation is not practical.
2. Do not create the possibility of a new or different kind of accident from any accident previously evaluated. Since the Technical Specification changes require no hardware modifications (i.e., alterations to the plant configuration), operation of the facility without those surveillance requirements does not create the possibility for any new or different kind of accident which has not already been evaluated in the Updated Final Safety Analysis Report (UFSAR).

The Technical Specification changes regarding the requirement for performing the manual ESF functional test of the safety injection input to the reactor trip breakers will not result in any physical alteration to any plant system and there will not be a change in the method by which any safety related system performs its function. The design and operation of the Reactor Trip System remains unchanged. No credit is taken for the manual safety injection input to the reactor trip breakers in the plant's accident analysis bases or Emergency Operating Procedures (EOPs).

3. Do not involve a significant reduction in the margin of safety. The output from one manual safety injection switch to both reactor trip breakers and one bypass breaker, and the output from the redundant manual safety injection switch to one bypass breaker have been functionally tested satisfactorily. In addition, the primary methods for tripping the reactor, which are the automatic reactor trip, the manual reactor trip, and the automatic safety injection circuitry, are fully operable and have been functionally tested satisfactorily in accordance with the Technical Specification surveillance requirements. If manual safety injection is required, EOPs require that the operators manually initiate both trains of safety injection. The operators are trained to initiate both trains of safety injection by actuating both manual safety injection switches. Therefore, the current testing assures a backup reactor trip signal is generated when the

next 24 hours following discovery of the missed surveillance.

The need for the TS changes was identified during the licensee's programmatic review of TS surveillance requirements. While reviewing the periodic test which accomplishes the surveillance requirement, the licensee determined that the output from one manual safety injection switch to one bypass breaker had not been functionally tested and the output from the redundant manual safety injection switch to both reactor trip breakers and the other bypass breaker had not been tested.

On March 26, 1993, the licensee requested enforcement discretion associated with TS 4.3.1.1.1, Table 4.3-1, Item 19, which requires that the manual ESF functional input to the RTS instrumentation be verified operable every 18 months. The NRC verbally approved the enforcement discretion, followed by a formal letter to the licensee on March 26, 1993, and requested the licensee to submit an emergency TS change by March 31, 1993, to appropriately modify the surveillance requirement.

An evaluation was performed to determine the possibility of testing the manual switches for safety injection input from ESF that provide input to the reactor trip breakers during power operation. Testing at power is not practical. The extensive lifting of leads necessary to perform the testing would require entry into TS 3.0.3 and would render the manual safety injection capability and subsequent reactor trip from the manual safety injection switches inoperable. In addition, due to the location of the leads, testing could initiate a reactor trip and/or safety injection. Therefore, the surveillance test must be performed while the unit is in a shutdown condition.

The staff concludes that failure to act in these circumstances could be reasonably expected to result in an unnecessary shutdown of NA-2 and therefore meets the criteria in 10 CFR 50.91(a)(5) for an emergency situation.

#### 5.0 Final No Significant Hazards Consideration Determination

The Commission's regulations in 10 CFR 50.92 state that the Commission may make a final determination that a license amendment involves no significant hazards consideration if operation of the facility in accordance with the amendment would not:

- (1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or
- (2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or
- (3) Involve a significant reduction in a margin of safety.

The licensee proposed that the proposed TS change did not involve a significant hazards consideration, stating as follows:

A footnote would be added to page 3/4 3-14 which reads as follows:

- \*\* Surveillance requirements for the manual ESF functional test of the safety injection input to the reactor trip breakers is suspended for the duration of Cycle 9 operation.

### 3.0 EVALUATION

No credit is taken for a reactor trip on manual initiation of safety injection in the plant's accident analysis bases. Testing performed via the existing surveillances verifies that between the two manual safety injection switches, all reactor trip and bypass breakers are verified tripped. If manual safety injection is required, EOPs require that the operators manually initiate both trains of safety injection. The operators are trained to initiate both trains of safety injection by actuating both manual safety injection switches. Further, both the EOPs and operator training require the operators to verify the reactor trip breakers are open prior to manually initiating safety injection. Sufficient redundancy exists via the reactor trip on automatic safety injection signals to compensate for the untested contacts. Also, the ability of the RITS to identify, terminate and mitigate the consequences of an accident analyzed in the Updated Final Safety Analysis Report (UFSAR) remains unchanged. Finally, in the licensee's letter dated March 26, 1993, the licensee committed that "In the event an opportunity prior to NA-2's next scheduled refueling outage in September 1993 occurs during which this testing can be safely accomplished, the appropriate test to meet the Technical Specification surveillance requirement will be conducted." Therefore, based on all of the above, the staff finds the proposed change to be acceptable.

### 4.0 EMERGENCY CIRCUMSTANCES

NRC regulations (10 CFR 50.91(a)(5)) require that whenever an emergency situation exists, a licensee must explain why this emergency situation occurred and why it could not avoid this situation, and the NRC will assess the licensee's reasons for failing to file an application sufficiently in advance of that event. An emergency situation exists when the NRC's failure to act in a timely way would result in derating or shutdown of a nuclear plant, or in prevention of either resumption of operation or of increase in power output up to the plant's licensed power level. In such cases, the NRC may issue a license amendment involving no significant hazards consideration without prior notice and opportunity for a hearing or for public comment. Also, in such cases, the regulations require that the NRC be particularly sensitive to environmental considerations. Our discussion of why this proposed change meets the conditions necessary for emergency consideration is provided below.

TS 4.3.1.1.1, Table 4.3-1, Item 19, requires that the manual ESF functional input to the RTS instrumentation be verified operable every 18 months. On March 25, 1993, at 1526 hours, it was determined that the testing had not been properly performed for NA-2. The requirements of TS 4.0.3 were immediately invoked which permits conducting the required surveillance test within the

coils of both trains of the reactor trip breakers and bypass breakers. This signal path does not pass through the SSPS logic and is designed as a backup to the automatic circuit. Safety Injection Functional Test Procedure, PT-57.4, is used to verify the operability of ESF equipment once every 18 months by manual safety injection initiation. While reviewing the requirements of PT-57.4, it was determined that the output from one manual safety injection switch to one bypass breaker had not been functionally tested and the output from the redundant manual safety injection switch to both reactor trip breakers and the other bypass breaker had not been tested.

The safety injection input to the reactor trip breakers circuitry is designed as a backup to the automatic reactor trip and safety injection signals and to the manual reactor trip circuitry. Each of these primary methods for tripping the reactor have been completely and satisfactorily tested in accordance with the TS surveillance requirements. No credit is taken for manual safety injection or the subsequent reactor trip in the NA-2 accident analysis basis. Also the testing completed for the manual safety injection circuitry for reactor trip was sufficient to assure that a reactor trip would be obtained even though all functions of the circuitry were not tested. The EOPs require that the operator verify that a reactor/turbine trip has occurred before initiating a manual safety injection in the event of an emergency. In the remote event of a failure of the reactor trip circuitry, the EOPs do not utilize the safety injection-reactor trip signal. The operators are directed to shut down the reactor by manually tripping the reactor using the reactor trip switch or by inserting the controls rods.

## 2.1 TS CHANGES

The TS changes would modify TS surveillance requirement 4.3.1.1.1, Table 4.3-1, Item 19 which currently reads as follows:

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
19. Safety Injection Input from ESF	N.A.	N.A.	M(4) & (5)	1,2

The revised TS surveillance requirement 4.3.1.1.1, Table 4.3-1, Item 19 would read as follows:

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
19. Safety Injection Input from ESF	N.A.	N.A.	M(4)** & (5)	1,2

operators manually initiate both trains of safety injection in accordance with the EOPs. In addition, no credit is taken for the manual ESF functional test of the safety injection input to the reactor trip breakers in the plant's accident analysis bases. The EOPs require that the operator verify that a reactor/turbine trip have occurred before initiating a manual safety injection in the event of an emergency. In the remote event of a failure of the reactor trip circuitry, the EOPs do not utilize the safety injection-reactor trip signal. The operators are directed to shutdown the reactor by manually inserting the control rods.

Based on its evaluation of the above, the staff concurs with the licensee's analysis and, therefore, concludes that this amendment meets the criteria, and does not involve a significant hazards consideration.

#### 6.0 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.

#### 7.0 ENVIRONMENTAL CONSIDERATION

This amendment changes the surveillance requirements. The NRC staff has determined that the amendment involves 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 made a final no significant hazards finding with respect to this amendment. Accordingly, this amendment meets 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 this amendment.

#### 8.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) the amendment does not (a) significantly increase the probability or consequences of an accident previously evaluated, (b) increase the possibility of a new or different kind of accident from any previously evaluated or (c) significantly reduce a safety margin and, therefore, the amendment does not involve a significant hazards consideration; (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner; (3) such activities will be

conducted in compliance with the Commission's regulations, and (4) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Leon Engle

Date: April 12, 1993