

August 28, 1989

Docket Nos. 50-280  
and 50-281

DISTRIBUTION  
See attached sheet

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

Dear Mr. Stewart:

SUBJECT: SURRY UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS AND RELIEF RE: INSIDE  
RECIRCULATION SPRAY PUMPS (TAC NOS. 72955 AND 72956)

The Commission has issued the enclosed Amendment No. 132 to Facility Operating License No. DPR-32 and Amendment No. 132 to Facility Operating License No. DPR-37 for the Surry Power Station, Unit Nos. 1 and 2, respectively. The amendments consist of changes to the Technical Specifications in response to your application transmitted by letter dated April 6, 1989.

These amendments add requirements to perform full flow testing of the inside recirculation spray pumps (IRSP) each refueling outage. In addition, the amendments require a visual inspection of the containment sumps each refueling outage and after major maintenance of the IRSP to verify sump component integrity and the absence of foreign debris.

Your request to change the dry rotation testing of the IRSP from monthly to quarterly was also requested in an earlier amendment application and was approved in Amendment Nos. 128 and 128 dated May 24, 1989.

Finally, relief has been granted from the ASME Code requirements as requested for the IRSP at Surry Units 1 and 2 pursuant to 10 CFR 50.55a(g)(6)(i).

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

Bart C. Buckley, Senior Project Manager  
Project Directorate II-2  
Division of Reactor Projects-I/II  
Office of Nuclear Reactor Regulation

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PDR ADDCK 05000280  
P PNU

Enclosures:

1. Amendment No. 132 to DPR-32
2. Amendment No. 132 to DPR-37
3. Safety Evaluation

cc w/enclosures:

See next page

[AMEND/SURRY TAC 72955-72956]

\*LA:PDII-2  
DMiller  
08/09/89

PM:PDII-2  
BBuckley  
8/24/89

D:PDII-2  
HBerkow  
8/27/89

\*EMEB  
TMarsh  
08/09/89

\*OGC  
08/17/89

*DFol*  
*11*

*CP-1*  
*ca*

\*SEE PREVIOUS CONCURRENCE

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

Surry Power Station

cc:

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DATED: August 28, 1989

AMENDMENT NO. 132 TO FACILITY OPERATING LICENSE NO. DPR-32 - SURRY UNIT 1  
AMENDMENT NO. 132 TO FACILITY OPERATING LICENSE NO. DPR-37 - SURRY UNIT 2

Docket File

NRC & Local PDRs

PDII-2 Reading

S. Varga, 14/E/4

G. Lainas, 14/H/3

H. Berkow

D. Miller

B. Buckley

OGC-WF

D. Hagan, 3302 MNBB

E. Jordan, 3302 MNBB

B. Grimes, 9/A/2

T. Meek (8), P1-137

Wanda Jones, P-130A

J. Calvo, 11/F/23

ACRS (10)

GPA/PA

ARM/LFMB

B. Sinkule, R-II

cc: Plant Service list



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

VIRGINIA ELECTRIC AND POWER COMPANY

DOCKET NO. 50-280

SURRY POWER STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 132  
License No. DPR-32

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Virginia Electric and Power Company (the licensee) dated April 6, 1989, 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 3.B of Facility Operating License No. DPR-32 is hereby amended to read as follows:

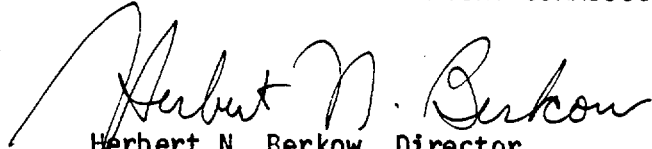
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(B) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 132, 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



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: August 28, 1989



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

VIRGINIA ELECTRIC AND POWER COMPANY

DOCKET NO. 50-281

SUPRY POWER STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 132  
License No. DPR-37

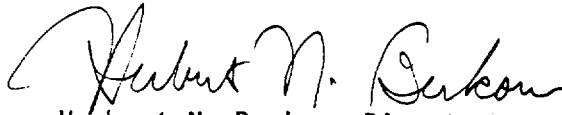
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Virginia Electric and Power Company (the licensee) dated April 6, 1989, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's 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 3.B of Facility Operating License No. DPR-37 is hereby amended to read as follows:

(B) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 132, 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



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: August 28, 1989

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 132 FACILITY OPERATING LICENSE NO. DPR-32

AMENDMENT NO. 132 FACILITY OPERATING LICENSE NO. DPR-37

DOCKET NOS. 50-280 AND 50-281

Revise Appendix A as follows:

Remove Pages

TS 4.5-2  
TS 4.5-3  
TS 4.5-4  
TS 4.11-2

Insert Pages

TS 4.5-2  
TS 4.5-3  
TS 4.5-4  
TS 4.11-2



2. By verifying that each motor-operated valve in the recirculation spray flow paths performs satisfactorily when tested in accordance with Specification 4.0.3.
  3. At least once per 5 years, coincident with the closest refueling outage, by performing on air or smoke flow test and verifying each spray nozzle is unobstructed.
- C. Each weight-loaded check valve in the containment spray and outside containment recirculation spray subsystems shall be demonstrated operable at least once per 18 months, during shutdown, by cycling the valve one complete cycle of full travel and verifying that each valve opens when the discharge line of the pump is pressurized with air and seats when a vacuum is applied.
- D. A visual inspection of the containment sump and the inside containment recirculation spray pump wells and the engineered safeguards suction inlets shall be performed at least once each refueling period and/or after major maintenance activities in the containment. The inspection should verify that the containment sump and pump wells are free of debris that could degrade system operation and that the sump components (i.e., trash racks, screens) are properly installed and show no sign of structural distress or excessive corrosion.

#### Basis

The flow testing of each containment spray pump is performed by opening the normally closed valve in the containment spray pump recirculation line returning water to the refueling water storage tank. The containment spray pump is operated and a quantity of water recirculated to the refueling water storage tank. The discharge to the tank is divided into two fractions; one for the major portion of the recirculation flow and the other to pass a small quantity of water through test nozzles which are identical with those used in the containment spray headers. The purpose of the recirculation through the test nozzles is to assure that there are no particulate material in the refueling water storage tank small enough to pass through pump suction strainers and large enough to clog spray nozzles.

Due to the physical arrangement of the recirculation spray pumps inside the containment, it is impractical to flow-test them other than on a refueling outage frequency. Flow testing of these pumps requires the physical modification of the pump discharge piping and the erection of a temporary dike to contain recirculated water. The length of time required to setup for the test, perform the test, and then reconfigure the system for normal operation is prohibitive to performing the flow-test on even the cold shutdown frequency. Therefore, the flow-test of the inside containment recirculation spray pumps will be performed on a refueling outage frequency.

The inside containment recirculation spray pumps are capable of being operated dry for approximately 60 seconds without significantly overheating and/or degrading the pump bearings. During this dry pump check, it can be determined that the pump shafts are turning by rotation sensors which indicate in the Main Control Room. In addition, motor current will be compared with an established reference value to ascertain that no degradation of pump operation has occurred. The inside recirculation spray pumps are removed and inspected periodically to verify the mechanical condition of the pumps.

The recirculation spray pumps outside the containment have the capability of being dry-run and flow tested. The test of an outside recirculation spray pump is performed by closing the containment sump suction line valve and the isolation valve between the pump discharge and the containment penetration. This allows the pump casing to be filled with water and the pump to recirculate water through a test line from the pump discharge to the pump casing.

With a system flush conducted to remove particulate matter prior to the installation of spray nozzles and with corrosion resistant nozzles and piping, it is not considered credible that a significant number of nozzles would plug during the life of the unit to reduce the effectiveness of the subsystems; therefore provisions to air-test the nozzles every 5 years, coinciding with the closest refueling outage, is sufficient to indicate that plugging of the nozzles has not occurred.

The spray nozzles in the refueling water storage tank provide means to ensure that there is no particulate matter in the refueling water storage tank and the containment spray subsystems which could plug or cause deterioration of the spray nozzles. The nozzles in the tank are identical to those used on the containment spray headers. The flow test of the containment spray pumps and recirculation to the refueling water storage will indicate any plugging of the nozzles by a reduction of flow through the nozzles.

Performing the containment sump and pump well inspections will reduce the potential for system degradation due to sump debris associated with refueling activities or major maintenance activities as well as reduce wear on the inside containment recirculation spray pumps during dry testing. Ensuring proper installation and structural integrity of the trash racks and sump screens will prevent ingress of debris generated during the DBA and will allow long term containment cooling and recirculation mode cooling of the core.

#### References

FSAR Section 6.3.1, Containment Spray Pumps  
FSAR Section 6.3.1, Recirculation Spray Pumps

- c. Verifying, by visual inspection, that each low head safety injection pump suction inlet from the containment sump is free of debris that could degrade system operation. Perform each refueling outage and/or after major maintenance activities in the containment.

### Basis

Complete system tests cannot be performed when the reactor is operating because a safety injection signal causes containment isolation. The method of assuring operability of these systems is therefore to combine system tests to be performed during refueling shutdowns, with more frequent component tests, which can be performed during reactor operation.

The system tests demonstrate proper automatic operation of the Safety Injection System. A test signal is applied to initiate automatic operation action and verification is made that the components receive the safety injection signal in the proper sequence. The test may be performed with the pumps blocked from starting. The test demonstrates the operation of the valves, pump circuit breakers, and automatic circuitry.

During reactor operation, the instrumentation which is depended on to initiate safety injection is checked periodically, and the initiating circuits are tested in accordance with Specification 4.1. In addition, the active components (pumps and valves) are to be periodically tested to check the operation of the starting circuits and to verify that the pumps are in satisfactory running order. The test interval is determined in accordance with ASME Section XI. The accumulators are a passive safeguard. In accordance with Specification 4.1, the water volume and pressure in the accumulators are checked periodically.

### References

FSAR Section 6.2, Safety Injection System



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 132 TO FACILITY OPERATING LICENSE NO. DPR-32  
AND AMENDMENT NO. 132 TO FACILITY OPERATING LICENSE NO. DPR-37  
VIRGINIA ELECTRIC AND POWER COMPANY  
SURRY POWER STATION, UNIT NOS. 1 AND 2  
DOCKET NOS. 50-280 AND 50-281

INTRODUCTION

The licensee, the Virginia Electric and Power Company, in its submittal dated April 6, 1989, proposed to amend the Technical Specifications (TS) to Facility Operating License Nos. DPR-32 and DPR-37. The proposed amendments would modify the requirement for dry rotation testing of the inside recirculation spray pumps (IRSPs) from monthly to quarterly, and add a requirement to perform full flow testing of the IRSPs each refueling outage. The approval of the full flow testing of the IRSPs on a refueling outage frequency also requires the granting of relief from the quarterly flow testing requirements of the ASME Boiler and Pressure Vessel Code which is addressed below. In addition, the proposed amendments will require a visual inspection of the containment sumps each refueling outage and after major maintenance of the IRSPs to verify sump component integrity and the absence of foreign debris.

The proposed revision to change the dry rotation testing of the IRSPs from monthly to quarterly was also requested in an earlier amendment application and was approved in Amendment Nos. 128 and 128 dated May 24, 1989. Consequently, this evaluation addresses only the remaining proposed revisions cited above.

EVALUATION

The Code of Federal Regulations in 10 CFR 50.55a(g) requires that inservice testing (IST) of ASME Code Class 1, 2 and 3 pumps and valves shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable addenda, except where specific written relief has been requested by the licensee and granted by the Commission pursuant to 10 CFR 50.55a. In requesting relief, the licensee must demonstrate that conformance with certain requirements of the applicable Code edition and addenda is impractical for its facility. Regulations in 10 CFR 50.55(g)(6)(i) and 10 CFR 50.55a(3)(i) authorize the Commission to grant relief from these requirements and approve alternatives upon making the necessary findings.

Section XI of the ASME Code requires, among other things, that the IRSPs be flow tested on a quarterly frequency. The IRSPs are located inside the subatmospheric containment. Flow testing of these pumps would require shutting down the facility as well as physical modifications of the pumps discharge piping and the erection of a temporary dike to contain the recirculated water.

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The licensee stated that the length of time required to set-up for the test, perform the test, and then reconfigure the system for normal operation is prohibitive to conducting the test on a quarterly basis or even during short duration cold shutdown periods. Alternately, the licensee has proposed to perform the flow test on a refueling outage frequency and perform an overhaul of the pumps once every 5 years as part of routine maintenance to provide further assurance of continued pump operability. Due to system design, compliance with the Code-required testing is impractical for the licensee since the testing would require quarterly shutdown and containment entry. Based on the impracticality of complying with the Code-required testing frequency, the licensee's proposed alternate testing of verifying pump operability during refueling outages, and the overhauling of the pumps every 5 years, relief is granted from the Code requirements as requested for the IRSPs at Surry Units 1 and 2 pursuant to 10 CFR 50.55a(g)(6)(i). This relief is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest given due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility. In addition, the Surry Unit 1 and Unit 2 TS do not currently require a full flow test of the IRSPs. The staff finds that the licensee's proposal to amend the TS to require a full flow test of these pumps on a refueling outage frequency to be acceptable.

The licensee has also proposed to add a TS to require that a visual inspection of the containment sump, including the inside containment recirculation spray pump wells and the engineered safeguards system suction inlets, be performed at least once each refueling period and/or after major maintenance activities in the containment. The inspection would verify that the containment sump and pump wells are free of debris that could degrade the containment spray system operation and that the sump components (i.e., trash racks, screens) are properly installed and show no sign of structural distress or excessive corrosion. The staff finds that these additional inspections will enhance pump operability and reliability and therefore finds the proposed revision to the TS to require the above-cited visual inspection acceptable.

#### ENVIRONMENTAL CONSIDERATION

These amendments involve a change in the installation or use of the facilities components located within the restricted areas as defined in 10 CFR Part 20. The staff has determined that these 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 considerations 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 these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Dated: August 28, 1989

Principal Contributor:  
B. Buckley