

September 2, 1991

ocket Nos. 50-280
and 50-281

Posted

Amdt. 161 to DPR-37

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

Dear Mr. Stewart:

SUBJECT: SURRY UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS RE: RECIRCULATION SPRAY SYSTEM (TAC NOS. 75833 AND 75834)

The Commission has issued the enclosed Amendment No. 162 to Facility Operating License No. DPR-32 and Amendment No. 161 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 (TS) in response to your application transmitted by letter dated December 22, 1989.

These amendments restore the allowed total leakage specification for the recirculation spray system that was inadvertently deleted by Amendment Nos. 127 and 128. In addition, Table 4.11-1, which showed how the estimated leakages for the safety injection system were derived, is deleted; however, the allowed total safety injection system leakage is retained. Finally, requirements have been added to periodically verify that the total system leakages are within the allowed limits.

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.

Enclosures:

1. Amendment No. 162 to DPR-32
2. Amendment No. 161 to DPR-37
3. Safety Evaluation

cc w/enclosures:
See next page

LA:PD22	: PDII-2	: PM:PD22	: SPLB	: D:PD22	: OGC
NAME : <i>[Signature]</i>	: FTaDot/jkd	: BBuckley	: CMcCracken	: HBerkow	: <i>[Signature]</i>
DATE : 11/24/91	: 7/29/91	: 7/30/91	: 8/16/91	: 8/17/91	: 8/14/91

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

Surry Power Station

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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. 162
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 December 22, 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:

(B) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 162, 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: September 2, 1991



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

VIRGINIA ELECTRIC AND POWER COMPANY

DOCKET NO. 50-281

SURRY POWER STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 161
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 December 22, 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. 161, 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: September 2, 1991

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 162 FACILITY OPERATING LICENSE NO. DPR-32

AMENDMENT NO. 161 FACILITY OPERATING LICENSE NO. DPR-37

DOCKET NOS. 50-280 AND 50-281

Revise Appendix A as follows:

Remove Pages

TS 3.3-3
TS 3.3-5
TS 3.3-9
TS 3.4-2
TS 3.4-3
TS 3.4-5
TS 4.5-2
TS 4.11-2
TS 4.11-3
through TS 4.11-5

Insert Pages

TS 3.3-3
TS 3.3-5
TS 3.3-9
TS 3.4-2
TS 3.4-3
TS 3.4-5
TS 4.5-2
TS 4.11-2
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10. The accumulator discharge valves listed below in non-isolated loops shall be blocked open by de-energizing the valve motor operator when the reactor coolant system pressure is greater than 1000 psig.

Unit No. 1

Unit No. 2

MOV 1865A
 MOV 1865B
 MOV 1865C

MOV 2865A
 MOV 2865B
 MOV 2865C

11. Power operation with less than three loops in service is prohibited. The following loop isolation valves shall have AC power removed and be locked in open position during power operation.

Unit No. 1

Unit No.2

MOV 1590
 MOV 1591
 MOV 1592
 MOV 1593
 MOV 1594
 MOV 1595

MOV 2590
 MOV 2591
 MOV 2592
 MOV 2593
 MOV 2594
 MOV 2595

12. The total system uncollected leakage from valves, flanges, and pumps located outside containment shall not exceed the limit specified by Technical Specification 4.11.A.4.d.

6. One charging pump component cooling water pump or one charging pump service water pump may be out of service provided the pump is restored to operable status within 24 hours.
7. One charging pump intermediate seal cooler or other passive component may be out of service provided the system may still operate at 100 percent capacity and repairs are completed within 48 hours.
8. Power may be restored to any valve referenced in Specifications 3.3.A.8 and 3.3.A.9 for the purpose of valve testing or maintenance provided that no more than one valve has power restored and provided that testing and maintenance is completed and power removed within 24 hours.
9. Power may be restored to any valve referenced in Specification 3.3.A.10 for the purpose of valve testing or maintenance provided that no more than one valve has power restored and provided that testing or maintenance is completed and power removed within 4 hours.
10. The total uncollected system leakage for valves, flanges, and pumps located outside containment can exceed the limit stated in Technical Specification 4.11.A.4.d provided immediate attention is directed to making repairs and system leakage is returned to within limits within 7 days.

The accumulators (one for each loop) discharge into the cold leg of the reactor coolant piping when Reactor Coolant System pressure decreases below accumulator pressure, thus assuring rapid core cooling for large breaks. The line from each accumulator is provided with a motorized valve to isolate the accumulator during reactor start-up and shutdown to preclude the discharge of the contents of the accumulator when not required. These valves receive a signal to open when safety injection is initiated.

To assure that the accumulator valves satisfy the single failure criterion, they will be blocked open by de-energizing the valve motor operators when the reactor coolant pressure exceeds 1000 psig. The operating pressure of the Reactor Coolant System is 2235 psig and safety injection is initiated when this pressure drops to 600 psig. De-energizing the motor operator when the pressure exceeds 1000 psig allows sufficient time during normal startup operation to perform the actions required to de-energize the valve. This procedure will assure that there is an operable flow path from each accumulator to the Reactor Coolant System during power operation and that safety injection can be accomplished.

The removal of power from the valves listed in the specification will assure that the systems of which they are a part satisfy the single failure criterion.

Total system uncollected leakage is controlled to limit offsite doses resulting from system leakage after a Loss-of-Coolant Accident.

2300* ppm and not greater than 2500* ppm which will assure that the reactor is in the refueling shutdown condition when all control rod assemblies are inserted.

4. The refueling water chemical addition tank shall contain not less than 4,200 gal of solution with a sodium hydroxide concentration of not less than 17 percent by weight and not greater than 18 percent by weight.
 5. All valves, piping, and interlocks associated with the above components which are required to operate under accident conditions shall be operable.
 6. The total uncollected system leakage from valves, flanges, and pumps located outside containment shall not exceed the limit specified by Technical Specification 4.5.B.4.
- B. During power operation the requirements of Specification 3.4-A may be modified to allow the following components to be inoperable. If the components are not restored to meet the requirements of Specification 3.4-A within the time period specified below, the reactor shall be placed in the hot shutdown condition. If the requirements of Specification 3.4-A are not satisfied within an additional 48 hours the reactor shall be placed in the cold shutdown condition using normal operating procedures.

*These limits apply to Cycle 12 and subsequent cycles per Unit 1, and to Cycle 11 and subsequent cycles for Unit 2. For prior operating cycles, boron concentration shall be at least 2000 ppm and not greater than 2500 ppm.

1. One Containment Spray Subsystem may be out of service, provided immediate attention is directed to making repairs and the subsystem can be restored to operable status within 24 hours. The other Containment Spray Subsystem shall be tested as specified in Specification 4.5-A to demonstrate operability prior to initiating repair of the inoperable system.
2. One outside Recirculation Spray Subsystem may be out of service provided immediate attention is directed to making repairs and the subsystem can be restored to operable status within 24 hours. The other Recirculation Spray Subsystem shall be tested as specified in Specification 4.5-A to demonstrate operability prior to initiating repair of the inoperable system.
3. One inside Recirculation Spray Subsystem may be out of service provided immediate attention is directed to making repairs and the subsystem can be restored to operable status within 72 hours. The other Recirculation Spray subsystems shall be tested as specified in Specification 4.5-A to demonstrate operability prior to initiating repair of the inoperable subsystems.
4. The total uncollected system leakage from valves, flanges, and pumps located outside containment can exceed the limit stated in Technical Specification 4.5.B.4 provided immediate attention is directed to making repairs and system leakage is returned to within limits within 7 days.

Each Recirculation Spray Subsystem draws water from the common containment sump. In each subsystem the water flows through a recirculation spray pump and recirculation spray cooler, and is sprayed into the containment atmosphere through a separate set of spray nozzles. Two of the recirculation spray pumps are located inside the containment and two outside the containment in the containment auxiliary structure.

With one Containment Spray Subsystem and two Recirculation Spray Subsystems operating together, the Spray Systems are capable of cooling and depressurizing the containment to subatmospheric pressure in less than 60 minutes following the Design Basis Accident. The Recirculation Spray Subsystems are capable of maintaining subatmospheric pressure in the containment indefinitely following the Design Basis Accident when used in conjunction with the Containment Vacuum System to remove any long term air in leakage.

In addition to supplying water to the Containment Spray System, the refueling water storage tank is also a source of water for safety injection following an accident. This water is borated to a concentration which assures reactor shutdown by approximately 5 percent $\Delta k/k$ when all control rod assemblies are inserted and when the reactor is cooled down for refueling.

Total system uncollected leakage is controlled to limit offsite doses resulting from system leakage after a Loss-of-Coolant Accident.

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 an air or smoke flow test and verifying each spray nozzle is unobstructed.
 4. At least once each refueling outage by verifying that total system uncollected leakage from valves, flanges, and pumps located outside containment does not exceed 964 cc/hr.
- C. Each weight-loaded check valve in the containment spray and outside containment recirculation spray subsystems shall be demonstrated operable at least once each refueling period, 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.

- 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.
- d. Verifying that total system uncollected leakage from valves, flanges, and pumps located outside containment does not exceed 3,836 cc/hr.

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. 162 TO FACILITY OPERATING LICENSE NO. DPR-32
AND AMENDMENT NO. 161 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

1.0 INTRODUCTION

By letter dated December 22, 1989, Virginia Electric and Power Company (the licensee) submitted proposed changes to the Technical Specifications which would restore the allowed "total" leakage specification for the recirculation spray (RS) system that was inadvertently deleted by a previous amendment. Although the total leakage specification requirement would be reinstated, Table 4.5-1, which was also inadvertently deleted and showed how the estimated system leakages were derived, would not be reinstated. Additionally, Table 4.11-1, which provides the same derivation for the safety injection (SI) system allowed leakage, would also be deleted. The licensee proposes that since these derivations are discussed in Chapter 6 of the Updated Final Safety Analysis Report, they need not be repeated as tables in the Technical Specifications. While the requirements for the total allowable leakage remains for both the RS and SI systems, these amendments would also add a requirement to periodically verify that the total system leakage is within the allowed limits. The Bases for the appropriate Technical Specifications would also be revised to state the purpose of limiting system leakage.

2.0 EVALUATION

The NRC staff has reviewed the licensee's submittal concerning Technical Specification changes which restore the total allowable leakage specification limits for the RS system and deletes Table 4.11-1, which derives estimated system leakages for the SI system. There are no requirements in the Westinghouse Standardized Technical Specifications for total leakage limits allowed for the RS system and for periodic verification of system leakage within limits for the RS and SI systems. The staff has determined that the licensee is committing to a non-required change in their Technical Specifications to further enhance safe operations of the plant during abnormal events by adding a surveillance requirement limit for total safety system leakage and by verifying compliance with this requirement through periodic surveillance. The tables deriving the estimated system leakage for the RS and SI systems are addressed in the Updated Final Safety Analysis Report, therefore, they do not need to be addressed in the Technical Specifications. The staff considers these changes acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Virginia State official was notified of the proposed issuance of the amendments. The State official had no comment.

4.0 ENVIRONMENTAL CONSIDERATION

These amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC 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 issued a proposed finding that these amendments involve no significant hazards consideration and there has been no public comment on such finding (55 FR 6123). 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.

5.0 CONCLUSION

The Commission has 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: F. Talbot

Date: September 2, 1991