



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. 67
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 November 14, 1980, 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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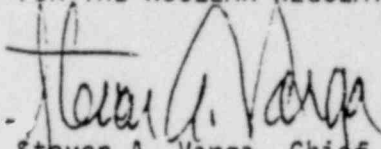
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 3.B of Facility Operating License No. DPR-32 is hereby amended to read as follows:

(B) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 67, 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



Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: MAY 12 1981



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. 67
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 November 14, 1980, 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.

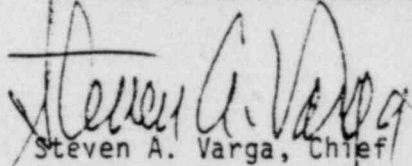
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 3.B of Facility Operating License No. DPR-37 is hereby amended to read as follows:

(B) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 67, 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


Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: MAY 12 1981

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 67 TO FACILITY OPERATING LICENSE NO. DPR-32

AMENDMENT NO. 67 TO FACILITY OPERATING LICENSE NO. DPR-37

DOCKET NOS. 50-280 AND 50-281

Revise Appendix A as follows:

Remove Pages

3.1-1
3.1-2
-
3.5-2
3.5-3
3.10-1
3.10-2
3.10-3
3.10-4
3.10-5
3.10-6
-

Insert Pages

3.1-1
3.1-2
3.1-2a
3.5-2

3.10-1
3.10-2
3.10-3
3.10-4
3.10-5
3.10-6
3.10-7

3.0 LIMITING CONDITIONS FOR OPERATION

3.1 REACTOR COOLANT SYSTEM

Applicability

Applies to the operating status of the Reactor Coolant System.

Objectives

To specify those limiting conditions for operation of the Reactor Coolant System which must be met to ensure safe reactor operation.

These conditions relate to: operational components, heatup and cooldown, leakage, reactor coolant activity, oxygen and chloride concentrations, minimum temperature for criticality, and reactor coolant system overpressure mitigation.

A. Operational Components

Specifications

1. Reactor Coolant Pumps

- a. A reactor shall not be brought critical with less than two pumps, in non-isolated loops, in operation.

- b. If an unscheduled loss of one or more reactor coolant pumps occurs while operating below 10% rated power (P-7) and results in less than two pumps in service, the affected plant shall be shutdown and the reactor made subcritical by inserting all control banks into the core. The shutdown rods may remain withdrawn.

- c. When the average reactor coolant loop temperature is greater than 350°F, the following conditions shall be met:
 - 1. At least two reactor coolant loops shall be operable.

 - 2. At least one reactor coolant loop shall be in operation.

- d. When the average reactor coolant loop temperature is less than or equal to 350°F, the following conditions shall be met:
 - 1. A minimum of two non-isolated loops, consisting of any combination of reactor coolant loops or residual heat removal loops, shall be operable, except as specified in Specification 3.10.A.6.

 - 2. At least one reactor coolant loop or one residual heat removal loop shall be in operation, except as specified in Specification 3.10.A.6.

- e. Reactor power shall not exceed 50% of rated power with only two pumps in operation unless the overtemperature ΔT trip setpoints have been changed in accordance with Section 2.3, after which power shall not exceed 60% with the inactive loop stop valves open and 65% with the inactive loop stop valves closed.
- f. When all three pumps have been idle for > 15 minutes, the first pump shall not be started unless: (1) a bubble exists in the pressurizer or (2) the secondary water temperature of each steam generator is less than 50°F above each of the RCS cold leg temperatures.

2 Steam Generator

A minimum of two steam generators in non-isolated loops shall be operable when the average reactor coolant temperature is greater than 350°F.

3. Pressurizer Safety Valves

- a. One valve shall be operable whenever the head is on the reactor vessel, except during hydrostatic tests.

1. One residual heat removal pump may be out of service, provided immediate attention is directed to making repairs.
2. One residual heat removal heat exchanger may be out of service, provided immediate attention is directed to making repairs.

Basis

The Residual Heat Removal System is required to bring the Reactor Coolant System from conditions of approximately 350°F and pressures between 400 and 450 psig to cold shutdown conditions. Heat removal at greater temperatures is by the Steam and Power Conversion System. The Residual Heat Removal System is provided with two pumps and two heat exchangers. If one of the two pumps and/or one of the two heat exchangers is not operative, safe operation of the unit is not affected; however, the time for cooldown to cold shutdown conditions is extended.

The NRC requires that the series motorized valves in the line connecting the RHRS and RCS be provided with pressure interlocks to prevent them from opening when the reactor coolant system is at pressure.

References

FSAR Section 9.3 - Residual Heat Removal System.

3.10 REFUELING

Applicability

Applies to operating limitations during refueling operations.

Objective

To assure that no accident could occur during refueling operations that would affect public health and safety.

Specification

A. During refueling operations the following conditions are satisfied:

1. The equipment door and at least one door in the personnel air lock shall be properly closed. For those systems which provide a direct path from containment atmosphere to the outside atmosphere, all automatic containment isolation valves in the unit shall be operable or at least one valve shall be closed in each line penetrating the containment.
2. The Containment Vent and Purge System and the area and airborne radiation monitors which initiate isolation of this system, shall be tested and verified to be operable immediately prior to refueling operations.

3. At least one source range neutron detector shall be in service at all times when the reactor vessel head is unbolted. Whenever core geometry or coolant chemistry is being changed, subcritical neutron flux shall be continuously monitored by at least two source range neutron detectors, each with continuous visual indication in the Main Control Room and one with audible indication within the containment. During core fuel loading phases, there shall be a minimum neutron count rate detectable on two operating source range neutron detectors with the exception of initial core loading, at which time a minimum neutron count rate need be established only when there are eight (8) or more fuel assemblies loaded into the reactor vessel.
4. Manipulator crane area radiation levels and airborne activity levels within the containment and airborne activity levels in the ventilation exhaust duct shall be continuously monitored during refueling. A manipulator crane high radiation alarm or high airborne activity level alarm within the containment will automatically stop the purge ventilation fans and automatically close the containment purge isolation valves.
5. Fuel pit bridge area radiation levels and ventilation vent exhaust airborne activity levels shall be continuously monitored during refueling. The fuel building exhaust will be continuously bypassed through the iodine filter bank during refueling procedures, prior to discharge through the ventilation vent.

6. At least one residual heat removal pump and heat exchanger shall be operable to circulate reactor coolant. The residual heat removal loop may be removed from operation for up to 1 hour per 8 hour period during the performance of core alterations or reactor vessel surveillance inspections.
7. Two residual heat removal pumps and heat exchangers shall be operable to circulate reactor coolant when the water level above the top of the reactor pressure vessel flange is less than 23 feet.
8. At least 23 feet of water shall be maintained over the top of the reactor pressure vessel flange during movement of fuel assemblies.
9. When the reactor vessel head is unbolted, a minimum boron concentration of 2,000 ppm shall be maintained in any filled portion of the Reactor Coolant System and shall be checked by sampling at least once every 8 hours.
10. Direct communication between the Main Control Room and the refueling cavity manipulator crane shall be available whenever changes in core geometry are taking place.
11. No movement of irradiated fuel in the reactor core shall be accomplished until the reactor has been subcritical for a period of at least 100 hours.

12. A spent fuel cask or heavy loads exceeding 110 percent of the weight of a fuel assembly (not including fuel handling tool) shall not be moved over spent fuel, and only one spent fuel assembly will be handled at one time over the reactor or the spent fuel pit.
 13. A spent fuel cask shall not be moved into the Fuel Building until such time as the NRC has reviewed and approved the spent fuel cask drop evaluation.
- B. If any one of the specified limiting conditions for refueling is not met, refueling of the reactor shall cease, work shall be initiated to correct the conditions so that the specified limit is met, and no operations which increase the reactivity of the core shall be made.
- C. After initial fuel loading and after each core refueling operation and prior to reactor operation at greater than 75% of rated power, the movable incore detector system shall be utilized to verify proper power distribution.

Basis

Detailed instructions, the above specified precautions and the design of the fuel handling equipment, which incorporates built-in interlocks and safety features, provide assurance that an accident, which would result in a hazard to public health and safety, will not occur during refueling operations. When no change is being made in core geometry, one neutron detector is

sufficient to monitor the core and permits maintenance of the out-of-function instrumentation. Continuous monitoring of radiation levels and neutron flux provides immediate indication of an unsafe condition. Containment high radiation levels and high airborne activity levels automatically stop and isolate the Containment Purge System. The fuel building ventilation exhaust is diverted through charcoal filters whenever refueling is in progress. At least one flow path is required for cooling and mixing the coolant contained in the reactor vessel so as to maintain a uniform boron concentration and to remove residual heat.

The shutdown margin established by Specification A-9 maintains the core subcritical, even with all of the control rod assemblies withdrawn from the core. During refueling, the reactor refueling water cavity is filled with approximately 220,000 gal of water borated to at least 2,000 ppm boron. The boron concentration of this water is sufficient to maintain the reactor subcritical by approximately 10% $\Delta k/k$ in the cold shutdown condition with all control rod assemblies inserted and also to maintain the core subcritical by approximately 1% with no control rod assemblies inserted into the reactor. Periodic checks of refueling water boron concentration assure the proper shutdown margin. Specification A-10 allows the Control Room Operator to inform the manipulator operator of any impending unsafe condition detected from the main control board indicators during fuel movement.

In addition to the above safeguards, interlocks are used during refueling to assure safe handling of the fuel assemblies. An excess weight interlock is provided on the lifting hoist to prevent movement of more than one fuel assembly at a time. The spent fuel transfer mechanism can accommodate only one fuel assembly at a time.

Upon each completion of core loading and installation of the reactor vessel head, specific mechanical and electrical tests will be performed prior to initial criticality.

The fuel handling accident has been analyzed based on the activity that could be released from fuel rod gaps of 204 rods of the highest power assembly^{*} with a 100 hour decay period following power operation at 2550 MWt for 23,000 hours. The requirements detailed in Specification 3.10 provide assurance that refueling unit conditions conform to the operating conditions assumed in the accident analysis.

Detailed procedures and checks insure that fuel assemblies are loaded in the proper locations in the core. As an additional check, the moveable incore detector system will be used to verify proper power distribution. This system is capable of revealing any assembly enrichment error or loading error which could cause power shapes to be peaked in excess of design value.

* Fuel rod gap activity from 204 rods of the highest power 15x15 assembly is greater than fuel rod gap activity from 264 rods of the highest power 17x17 demonstration assembly.

References

FSAR Section 5.2	Containment Isolation
FSAR Section 6.3	Consequence Limiting Safeguards
FSAR Section 9.12	Fuel Handling System
FSAR Section 11.3	Radiation Protection
FSAR Section 13.3	Table 13.3-1
FSAR Section 14.4.1	Fuel Handling Accidents
FSAR Supplement: Volume I: Question 3.2	