December 31, 1985

Docket Nos. 50-280
and 50-281

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

DISTRIBUTION
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LRubenstein

Dear Mr. Stewart:

The Commission has issued the enclosed Amendment No. 105 to Facility Operating License No. DPR-32 and Amendment No. 105 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 August 9, 1985, as supplemented November 8, 1985.

These amendments define the minimum reactor coolant temperature for criticality to be 522°F.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular bi-weekly Federal Register notice.

Sincerely,

/s/

Terence L. Chan, Project Manager
PWR Project Directorate #2
Division of PWR Licensing-A

Enclosures:
1. Amendment No. 105 to DPR-32
2. Amendment No. 105 to DPR-37
3. Safety Evaluation

cc: w/enclosures
See next page

LA:PAD#3	PM:PAD#2	PD:PAD#2	OELD
CParrish	TLChan;bg	LSRubenstein	J.GRAY
12/19/85	12/24/85	12/31/85	12/27/85

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Virginia Corporation Commission
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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.105
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 August 9, 1985, as supplemented November 8, 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 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. 105 , 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

Bart C. Buckley for

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

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 31, 1985

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. 105
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 August 9, 1985, as supplemented November 8, 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 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. 105, 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

Bart C. Buckley for

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

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 31, 1985

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 105 FACILITY OPERATING LICENSE NO. DPR-32

AMENDMENT NO. 105 FACILITY OPERATING LICENSE NO. DPR-37

DOCKET NOS. 50-280 AND 50-281

Revise Appendix A as follows:

Remove Pages	Insert Pages
TS 3.1-18	TS 3.1-18
3.1-19	3.1-19

E. Minimum Temperature for Criticality

Specifications

1. Except during low power physics tests, the reactor shall not be made critical at any temperature above which the moderator temperature coefficient is more positive than:

   a. + 3 pcm/°F at less than 50% of rated power, or

   b. + 3 pcm/°F at 50% of rated power and linearly decreasing to 0 pcm/°F at rated power.

2. In no case shall the reactor be made critical with the reactor coolant temperature below DTT + 10°F, where the value of DTT + 10°F is as determined in Part B of this specification.

3. When the reactor coolant temperature is below the minimum temperature as specified in E-1 above, the reactor shall be subcritical by an amount equal to or greater than the potential reactivity insertion due to primary coolant depressurization.

4. The reactor shall not be made critical when the reactor coolant temperature is below 522°F.

Basis

During the early part of a fuel cycle, the moderator temperature coefficient may be calculated to be slightly positive at coolant temperatures in the power operating range. The moderator coefficient will be most positive at the beginning of cycle life, when the boron concentration in the coolant is the greatest. Later in the cycle, the boron concentration in the coolant will be lower and the moderator coefficient will be less positive or will be negative in the power operating range. At the beginning of cycle life, during pre-operational physics tests, measurements are made to determine that the moderator coefficient is less than + 3 pcm/°F in the power operating range.

The requirement that the reactor is not to be made critical when the moderator coefficient is greater than + 3 pcm/°F has been imposed to prevent any unexpected power excursion during normal operations as a result of either an increase of moderator temperature or decrease of coolant pressure. This requirement is waived during low power physics test to permit measurement of reactor moderator coefficient and other physics design parameters of interest. During physics tests, special operation precautions will be taken. In addition, the strong negative Doppler coefficient(2)(3) and the small integrated Delta k/k would limit the magnitude of a power excursion resulting from a reduction of moderator density.

The requirement that the reactor is not to be made critical with a reactor coolant temperature below DTT + 10°F provides increased assurance that the proper relationship between reactor coolant pressure and temperature will be maintained during system heatup and pressurization whenever the reactor vessel is in the nil ductility transition temperature range. Heatup to this temperature is accomplished by operating the reactor coolant pumps.

The requirement that the reactor is not to be made critical with a reactor coolant temperature below 522°F provides added assurance that the assumptions made in the safety analyses remain bounding by maintaining the moderator temperature within the range of those analyses.

If a specified shutdown reactivity margin is maintained (TS Section 3.12), there is no possibility of an accidental criticality as a result of an increase of moderator temperature or a decrease of coolant pressure.

(1) FSAR Figure 3.3-8
(2) FSAR Table 3.3-1
(3) FSAR Figure 3.3-9

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 105 TO FACILITY OPERATING LICENSE NO. DPR-32

AND AMENDMENT NO. 105 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

By letters dated August 9 and November 8, 1985, Virginia Electric and Power Company (the licensee) requested amendments to License Nos. DPR-32 and DPR-37 for the Surry Power Station, Unit Nos. 1 and 2, respectively. The proposed change would revise the Technical Specifications to define the minimum reactor coolant (RCS) temperature for criticality to be 522°F.

Discussion and Evaluation

The present Technical Specifications provide limits governing the minimum RCS temperature for criticality by the imposition of two constraints: 1) the Moderator Temperature Coefficient shall not be more positive than assumed in the safety analysis, and 2) the proper relationship between reactor coolant pressure and temperature will be maintained during system heatup and pressurization whenever the reactor vessel is in the nil ductility transition temperature range. However, a minimum RCS temperature for criticality was not explicitly defined.

The proposed minimum temperature for criticality of 522°F was established based on an evaluation of the safety and plant operation impact of achieving criticality at temperatures below 522°F. The evaluation considered the impact of reduced temperatures on the FSAR Chapter 14 accident analyses, including the effects of core kinetic parameters and peaking factors, and reactor protection and control system response. The minimum temperature limit was chosen such that all of the existing accident analysis assumptions remain bounding for the current operating cycles. Future reload evaluations will explicitly account for the possibility of achieving criticality at 522°F. In addition, studies showed acceptable results at temperatures substantially below 522°F, but the 522°F limit was chosen to provide a reasonable degree of assurance that the limit will cover all future cycles.

The November 8, 1985 submittal provides additional supporting information for the August 9, 1985 submittal, and does not alter our initial determination of the original submittal.

Thus, we find the change to Section 3.1.E of the Technical Specifications as submitted by the licensee, to be 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 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 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 these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Dated: December 31, 1985

Principal Contributor:

M. Chatterton