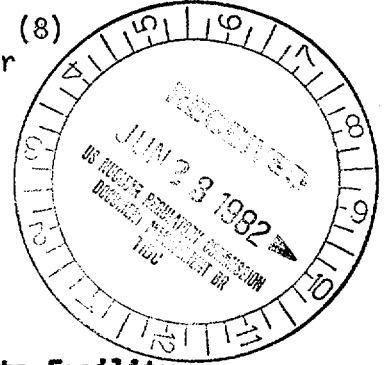


JUN 17 1982

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NRC PDR  
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C. Parrish  
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D. Brinkman  
ACRS (10)  
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NSIC  
ASLAB

Docket Nos. 50-280  
and 50-281

Mr. R. H. Leasburg  
Vice President - Nuclear Operations  
Virginia Electric and Power Company  
Post Office Box 26666  
Richmond, Virginia 23261



Dear Mr. Leasburg:

The Commission has issued the enclosed Amendment No. 78 to Facility Operating License No. DPR-32 and Amendment No. 79 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 May 10, 1982.

These amendments revise the Technical Specifications to limit control rod misalignment to no more than  $\pm 12$  steps indicated positions. This change is consistent with the Standard Technical Specifications for Westing house plants.

Copies of the Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

ORIGINAL SIGNED

Joseph D. Neighbors, Project Manager  
Operating Reactors Branch #1  
Division of Licensing

Enclosures:

1. Amendment No. 78 to DPR-32
2. Amendment No. 79 to DPR-37
3. Safety Evaluation
4. Notice of Issuance

cc: w/enclosures  
See next page

8206280590 820617  
PDR ADOCK 05000280  
P PDR

*No copy of this to  
Parrish's copy of  
Amendment. JDR  
Review not  
Requested.*

OFFICE	DL:ORB#1	DL:ORB#1	DL:ORB#1	DL:ORB#1	OELD		
SURNAME	C:Parrish:pr	J.Neighbor	Varga	T.Noyak	CUTCH		
DATE	6/11/82	6/11/82	6/11/82	6/11/82	6/9/82		

Mr. R. H. Leasburg  
Virginia Electric and Power Company

cc: Mr. Michael W. Maupin  
Hunton and Williams  
Post Office Box 1535  
Richmond, Virginia 23213

Mr. J. L. Wilson, Manager  
P. O. Box 315  
Surry, Virginia 23883

Swem Library  
College of William and Mary  
Williamsburg, Virginia 23185

Donald J. Burke, Resident Inspector  
Surry Power Station  
U. S. Nuclear Regulatory Commission  
Post Office Box 166  
Route 1  
Surry, Virginia 23883

Mr. Sherlock Holmes, Chairman  
Board of Supervisors of Surry County  
Surry County Courthouse, Virginia 23683

Commonwealth of Virginia  
Council on the Environment  
903 Ninth Street Office Building  
Richmond, Virginia 23219

Attorney General  
1101 East Broad Street  
Richmond, Virginia 23219

Mr. James R. Wittine  
Commonwealth of Virginia  
State Corporation Commission  
Post Office Box 1197  
Richmond, Virginia 23209

Regional Radiation Representative  
EPA Region III  
Curtis Building - 6th Floor  
6th and Walnut Streets  
Philadelphia, Pennsylvania 19106

Mr. J. H. Ferguson  
Executive Vice President - Power  
Virginia Electric and Power Company  
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James P. O'Reilly  
Regional Administrator - Region II  
U. S. Nuclear Regulatory Commission  
101 Marietta Street, Suite 3100  
Atlanta, Georgia 30303



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. 78  
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 May 10, 1982, 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.

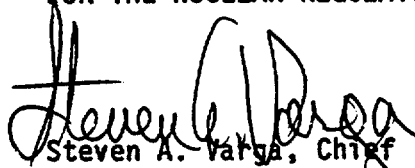
2. Accordingly, the license amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 3.B of Facility Operating License No. DPR-32 is hereby amended to read as follows:

**B. Technical Specifications**

The Technical Specifications contained in Appendix A, as revised through Amendment No. 78, 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 #1  
Division of Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: June 17, 1982



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. 79  
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 May 10, 1982, 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.

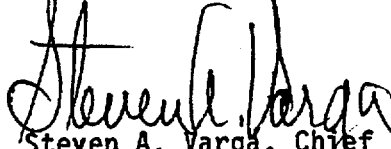
2. Accordingly, the license amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 3.B of Facility Operating License No. DPR-37 is hereby amended to read as follows:

**B. Technical Specifications**

The Technical Specifications contained in Appendix A, as revised through Amendment No. 79, 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 #1  
Division of Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: June 17, 1982

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 78 TO FACILITY OPERATING LICENSE NO. DPR-32

AMENDMENT NO. 79 TO FACILITY OPERATING LICENSE NO. DPR-37

DOCKET NOS. 50-280 AND 50-281

Revise Appendix A as follows:

Remove Pages

3.12-8  
3.12-10  
3.12-11  
3.12-12  
3.16-2

Insert Pages

3.12-8  
3.12-10  
3.12-11  
3.12-12  
3.16-2

$\Delta T$  and Overttemperature  $\Delta T$  trip settings shall be reduced by the equivalent of 2% power for every 1% quadrant to average power tilt.

C. Inoperable Control Rods

1. A control rod assembly shall be considered inoperable if the assembly cannot be moved by the drive mechanism or the assembly remains misaligned from its bank by more than 12 steps. Additionally a full-length control rod shall be considered inoperable if its rod drop time is greater than 1.8 seconds to dashpot entry.
2. No more than one inoperable control rod assembly shall be permitted when the reactor is critical.
3. If more than one control rod assembly in a given bank is out of service because of a single failure external to the individual rod drive mechanism, i.e. programming circuitry, the provisions of Specifications 3.12.C.1 and 3.12.C.2 shall not apply and the reactor may remain critical for a period not to exceed two hours provided immediate attention is directed toward making the necessary repairs. In the event the affected assemblies cannot be returned to service within this specified period the reactor will be brought to hot shutdown conditions.
4. The provisions of Specifications 3.12.C.1 and 3.12.C.2 shall not apply during physics tests in which the assemblies are intentionally misaligned.
5. The insertion limits in TS Figure 3.12-2 apply: a. If an inoperable full-length rod is located below the 200 step level and is capable of being tripped, or



2. The core quadrant power balance shall be determined by one of the following methods:
  - a. Movable detectors (at least two per quadrant)
  - b. Core exit thermocouples (at least four per quadrant)

E. Rod Position Indicator Channels

1. The rod position indication system shall be operable and capable of determining the control rod positions within  $\pm 12$  steps.
2. If a rod position indicator channel is out of service, then:
  - a. For operation above 50% of rated power, the position of the RCC shall be checked indirectly using core instrumentation (excore detectors and/or incore thermocouples and/or movable incore detectors) at least once per 8 hours and immediately after any motion of the non-indicating rod exceeding 24 steps, or
  - b. Reduce Power to less than 50% of rated power within 8 hours. During operations below 50% of rated power, no special monitoring is required.
3. If more than one rod position (RPI) indicator channel per group or two RPI channels per bank are inoperable, then the requirements of Specification 3.0.1 will be followed.

F. Misaligned or Dropped Control Rod

1. If the Rod Position Indicator Channel is functional and the associated full length control rod is misaligned from its group step demand position by more than  $\pm 12$  steps (indicating position) and cannot be realigned, the hot channel factors must be shown to be within design limits as specified by Specification 3.12.B.1 within 8 hours. If the limits of Specification 3.12.B.1 cannot be met, then power shall be reduced to less than 75% of rated power within one (1) hour, and the High Neutron Flux trip setpoint shall be reduced to less than or equal to 85% of rated power within the next four (4) hours.
2. To increase power above 75% of rated power with a full-length control rod more than  $\pm 12$  steps (indicated position) out of alignment with its group step demand position, an analysis shall first be made to determine the hot channel factors and the resulting allowable power level based on the limits of Specification 3.12.B.1.

Basis

The reactivity control concept assumed for operation is that reactivity changes accompanying changes in reactor power are compensated by control rod assembly motion. Reactivity changes associated with xenon, samarium, fuel depletion, and large changes in reactor coolant temperature (operating temperature to cold shutdown) are compensated for by changes in the soluble boron concentration. During power operation, the shutdown groups are fully withdrawn and control of power is by the control groups. A reactor trip occurring during power operation will place the reactor into the hot shutdown condition. The control rod assembly insertion limits provide for achieving hot shutdown by reactor trip at any time, assuming the highest worth control rod assembly remains fully withdrawn, with sufficient margins to meet the assumptions used in the accident analysis. In addition, they provide a limit

on the maximum inserted rod worth in the unlikely event of a hypothetical assembly ejection and provide for acceptable nuclear peaking factors. The limit may be determined on the basis of unit startup and operating data to provide a more realistic limit which will allow for more flexibility in unit operation and still assure compliance with the shutdown requirement. The maximum shutdown margin requirement occurs at end of core life and is based on the value used in the analysis of the hypothetical steam break accident. The rod insertion limits are based on end of core life conditions. The shutdown margin for the entire cycle length is established at 1.77% reactivity. All other accident analysis with the exception of the chemical and volume control system malfunction analysis are based on 1% reactivity shutdown margin. Relative positions of control rod banks are determined by a specified control rod bank overlap. This overlap is based on the consideration of axial power shape control.

The specified control rod insertion limits have been revised to limit the potential ejected rod worth in order to account for the effects of fuel densification.

The various control rod assemblies (shutdown banks, control banks A, B, C, and D) are each to be moved as a bank; that is, with all assemblies in the bank within one step (5/8 inch) of the bank position. Position indication is provided by two methods: a digital count of actuating pulses which shows the demand position of the banks, and a linear position indicator, Linear Variable Differential Transformer, which indicates the actual assembly position. The position indication accuracy of the Linear Differential Transformer is approximately +5% of span ( $\pm 12$  steps) under steady state conditions. The relative accuracy of the linear position indicator has been considered in establishing the maximum allowable deviation of a control rod assembly from its indicated group step demand position. In the event that the linear position indicator is not

4. Two physically independent circuits from the offsite transmission network to energize the 4,160 and 480 v emergency buses. One of these sources must be immediately available, i.e. primary source; and the other must be capable of being made available within 8 hours; i.e. dependable alternate source.
  5. Two operable flow paths for providing fuel to each diesel generator.
  6. Two station batteries, two chargers, and the d.c. distribution systems operable.
  7. Emergency diesel generator battery, charger and the d.c. control circuitry operable for the unit diesel generator and for the shared back-up diesel generator.
- B. During power operation or the return to power from hot shutdown conditions, the requirements of specification 3.16-A may be modified by one of the following:
1. One diesel generator may be unavailable or inoperable provided the operability of the other diesel generator is demonstrated daily. If this diesel generator is not returned to an operable status within 7 days, the reactor shall be brought to a cold shutdown condition. One diesel fuel oil flow path may be "inoperable" for 24 hours provided the other flow is proven operable. If after 24 hours, the inoperable flow path cannot be returned to service, the diesel shall be considered "inoperable". When the emergency diesel generator battery, charger or d.c. control circuitry is inoperable, the diesel shall be considered "inoperable".



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 78 TO FACILITY OPERATING LICENSE NO. DPR-32  
AND AMENDMENT NO. 79 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 letter dated May 10, 1982, Virginia Electric and Power Company (the licensee) requested amendments to the Surry Power Station, Unit Nos. 1 and 2 licenses which would revise the Technical Specifications to limit control rod misalignment indicated positions.

DISCUSSION AND EVALUATION

The staff reviewed the LER's and Technical Specification requirements related to the Control Rod Position Indication Systems (RPI) at Westinghouse PWRs and determined that a wide variation exists in the number of LER's received and the Technical Specification requirements.

Westinghouse has performed safety analyses for control rod misalignment up to 15 inches or 24 steps (one step equals 5/8 inch). Since analyses of misalignments in excess of this amount have not been submitted, we have imposed an LCO restricting continued operation with a misalignment in excess of 15 inches. Because the analog control rod position indication system has an uncertainty of 7.5 inches (12 steps), when an indicated deviation of 12 steps exists, the actual misalignment may be 15 inches. This is because one of the coils, spaced at 3.75 inches, may be failed without the operator's knowledge. The Standard Technical Specifications were written to eliminate any confusion about this, and restrict deviations to 12 indicated steps. Surveillance requirements, on the indication accuracy of 12 steps were also prepared to ensure that the 15 inch LCO is met. Since there is no difference intended in requirements issued for any Westinghouse reactor, plants with Technical Specifications written in different terms of misalignment should consider the 12 step instrument inaccuracy when monitoring rod position.

A related problem is that the installed analog control rod position indicating system equipment may not, in some areas, be adequate to maintain the control rod misalignment specification requirement because of drift problems in the calibration curves. This is evidenced by numerous LER's concerning rod

position indication accuracy. In these cases, the uncertainty may be more than 12 steps.

The licensee was requested by letter dated October 29, 1979 to review the Technical Specifications for the Surry Power Station, Unit Nos. 1 and 2 to ensure that the control rods are required to be maintained with  $\pm 12$  steps indicated position and that the rod position indication system is accurate to within  $\pm 12$  steps.

By letters dated December 4, 1979 and May 10, 1982 the licensee responded to the NRC request and provided proposed Technical Specification changes to incorporate the staff's requirements. The proposed changes revise the Technical Specifications to indicate that the control rods must be aligned within  $\pm 12$  steps indicated position instead of the present 15 inch limitation, and specify that corrective action, consistent with existing requirements must be taken if a control rod is misaligned by more than  $\pm 12$  steps

Based on our review of the licensee's submittal, we find that the proposed changes are in conformance with the staff's request and are, therefore, acceptable.

The change on page 3.16-2 corrects a typographical error. The "2" hours should be "24" hours.

#### ENVIRONMENTAL CONSIDERATION

We have determined that the amendments do not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendments involve an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of these amendments.

#### CONCLUSION

We have concluded, based on the considerations discussed above, that: (1) because the amendments do not involve a significant increase in probability or consequences of accidents previously considered and do not involve a significant decrease in a safety margin, the amendments do 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, and (3) 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.

Date: June 17, 1982

Principal Contributor: P. C. Wagner

UNITED STATES NUCLEAR REGULATORY COMMISSIONDOCKET NOS. 50-280 AND 50-281VIRGINIA ELECTRIC AND POWER COMPANYNOTICE OF ISSUANCE OF AMENDMENTS TO FACILITY  
OPERATING LICENSES

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 78 to Facility Operating License No. DPR-32 and Amendment No. 79 to Facility Operating License No. DPR-37 issued to Virginia Electric and Power Company (the licensee), which revised Technical Specifications for operation of the Surry Power Station, Unit Nos. 1 and 2, respectively, (the facilities), located in Surry County, Virginia. The amendments are effective as of the date of issuance.

These amendments revise the Technical Specifications to limit control rod misalignment to no more than  $\pm 12$  steps indicated positions. This change is consistent with the Standard Technical Specifications for Westinghouse plants.

The application for the amendments complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendments. Prior public notice of these amendments was not required since these amendments do not involve a significant hazards consideration.

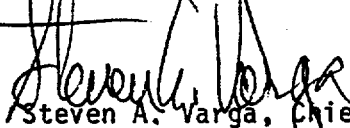
The Commission has determined that the issuance of these amendments will not result in any significant environmental impact and that pursuant to 10 CFR §1.5(d)(4) an environmental impact statement or negative

declaration and environmental impact appraisal need not be prepared in connection with issuance of these amendments.

For further details with respect to this action, see (1) the application for amendments dated May 10, 1982, (2) Amendment Nos. 78 and 79 to License Nos. DPR-32 and DPR-37, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. and at the Swem Library, College of Williamsburg, Virginia 23185. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Licensing.

Dated at Bethesda, Maryland, this 17th day of June, 1982.

FOR THE NUCLEAR REGULATORY COMMISSION

  
Steven A. Varga, Chief  
Operating Reactors Branch #1  
Division of Licensing