



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NOS. 51 AND 50 TO  
FACILITY OPERATING LICENSE NOS. DPR-32 AND 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 February 21, 1978 the Virginia Electric and Power Company (the licensee) requested a change to the Technical Specifications for Surry Units 1 and 2 to eliminate a reduction in the  $F_{\Delta H}$  limit due to fuel rod bowing.

Evaluation

The current reduction in  $F_{\Delta H}$  in the Technical Specifications was imposed based on Westinghouse data which assumed fuel rods are bowed to make contact with other rods (fuel rods or thimble tubes) in a subchannel (Reference 1). Westinghouse has submitted more recent data (Reference 2) from experiments in which simulated fuel rods are not bowed to contact, but rather are bowed to a gap closure of 85%. This gap closure corresponds to the upper tolerance limit of gap closure calculated at the maximum region burnup. The reduction in DNBR for this case was significantly less than that for the contact case. In Reference 3 we approved the use of these data as being appropriate; we also approved a change in the calculational model based on these data.

The proposed change in the Technical Specifications for the Surry Units 1 and 2 to eliminate the rod bowing penalty is consistent with this staff approved model.

It should be noted that elimination of this penalty (reduction in  $F_{\Delta H}$ ) depends on certain offsetting generic credits included in the subchannel analysis. These credits in terms of DNBR are given below:

VALUES USED TO OFFSET DNBR REDUCTION DUE  
TO FUEL ROD BOWING (REFERENCE 4)

Pitch Reduction	3.3%
TDC .019 vs. .038	3.0%
<u>Fuel Densification Power Spike</u>	<u>7.0%</u>
Total	13.3%

852 124

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Any elimination of the above credits or use for other purposes will require a new determination that sufficient generic credit remains.

#### Summary

We conclude that the proposed change to the Technical Specifications to remove the the reduction in  $F_{\Delta H}$  due to fuel rod bowing is acceptable since it is consistent with approved models and the required margin has been identified as being available.

#### 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 the 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: July 27, 1979

852 125

## References

1. Nagino, et al., "Rod Bowed to Contact Departure from Nucleate Boiling Tests in Cold Wall Thimble Cell Geometry," J. of Nuclear Science and Technology, Vol. 15, No. 8, August 1976.
2. Westinghouse to NRC letter NS-CE-1580, October 24, 1977.
3. Letter from J. F. Stolz, NRC, to T. Anderson, Westinghouse April 5, 1979.
4. Westinghouse to NRC letter NS-CE-1161, August 13, 1976.

852 126