



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 12 TO FACILITY LICENSE NO. R-66

UNIVERSITY OF VIRGINIA

DOCKET NO. 50-62

Introduction

By letter dated July 14, 1978, the University of Virginia (the Licensee) requested an amendment to Facility License No. R-66. The amendment would change a requirement in the Technical Specifications for the University of Virginia pool-type nuclear reactor relating to the surveillance of safety rods. Subsequently, through discussions with University of Virginia personnel, they agreed to the following revision to their proposed amendment.

Discussion and Evaluation

The current Technical Specifications require that the safety rods be visually inspected at intervals not to exceed 13 months, or intervals of 50 megawatt days, whichever comes first. The proposed amendment would delete the requirement to visually inspect the safety rods at intervals of 50 megawatt days, and replace it with a requirement to inspect the rods whenever the rod drop times exceed the limiting condition of operation specification of 700 milliseconds.

The requirement to inspect the safety rods whenever the rod drop times tests conducted every five months exceed the 700 millisecond specification provides a more valid use inspection criteria than one based on megawatt days of operation. In addition to the rod drop and 13 month visual inspection surveillance requirements, the licensee's operating procedures ensure the rods are capable of proper performance by conducting scram tests of each safety rod prior to all reactor start ups. Therefore, the 13 month visual inspection interval, the new requirement to inspect whenever the rod drop times are exceeded and the requirement to scram each safety rod prior to start up; provides adequate assurance that the safety rods are capable of proper performance.

A review by the licensee of the surveillance records covering the last 17 years and 275 megawatt days of operation has shown from the yearly visual inspection of the safety rods, that there has been no evidence of deterioration, swelling, or cracking. Review of the five-monthly rod drop time tests

also has shown no degradation in performance. This further substantiates the premise that the aforementioned visual inspection frequency and rod drop time tests will assure safety rod performance capability.

The visual inspection requires that each rod be physically removed from the guide tube and lowered into the reactor pool where it is inspected under several feet of water. During the period the rod is being removed from the guide tube and prior to being lowered in the water, operating personnel are exposed to radiation from the rod. In the past, radiation levels from the rods have been 150-200 REM/hr at contact. Precautions have been taken to limit this exposure to 0.01 Man-Rem per inspection.

If a visual inspection were required at 50 megawatt days during the 70 megawatt day experiments, previous precautions of allowing short-lived activity to decay prior to inspecting would be eliminated in order to meet experiment requirements. Therefore, as the aforementioned inspection frequencies are considered adequate, it would be incongruous to conduct an inspection that does not add to the margin of safety but increases exposure to inspectors. With the inspection frequencies as proposed by this amendment, the exposure to inspectors would be maintained at or below the 0.01 Man-Rem currently experienced per inspection. In no case would the exposure levels exceed the maximum permissible dose prescribed by 10 CFR Part 20.

Therefore, we find that the proposed deletion of the requirement to visually inspect safety rods at 50 megawatt intervals and replacing it with the requirement to visually inspect the rods whenever the rod drop times exceed the limiting conditions for operation would not reduce the margin of safety, would reduce the frequency of exposure to a minimum and is acceptable.

Environmental Consideration

We have determined that the amendment will not result in any significant environmental impact and that it does not constitute a major Commission action significantly affecting the quality of the human environment. We have also determined that this action is not one of those covered by 10 CFR § 51.5 (a) or (b). Having made these determinations, we have further concluded, that 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 this amendment.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does 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 this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: December 19, 1978