



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 16 TO

FACILITY OPERATING LICENSE NO. R-79

UNIVERSITY OF MISSOURI, ROLLA RESEARCH REACTOR

DOCKET NO. 50-123

1.0 INTRODUCTION

By letter dated May 24, 1999, the University of Missouri, Rolla (licensee) submitted a request for extension of the license expiration date from November 20, 1999, to January 14, 2005. This extension would make the license term 20 years from the issuance date of the previous license renewal instead of 20 years from the expiration date of the previous license.

2.0 EVALUATION

The licensee indicated that it was an oversight that the requested license expiration date was for 20 years from the previous license expiration date rather than 20 years from the issuance date of the license renewal. The licensee stated ". . . that granting a license for 20 years from the date of issuance is common and had never lead to a safety problem." Further, the licensee indicated that the requested change would remove a heavy and unnecessary burden from the licensee's staff and the NRC's staff, i.e., going through a time consuming and labor intensive license renewal process only 14 years after the previous license renewal.

The licensee indicated that there are no safety considerations dependent on the duration of operations, because of the low licensed power (200 kW) and low usage (150 MW-hr since the last license renewal). Further, the licensee stated that in the 1988 to 1992-time frame, Technical Specifications and the Safety Analysis Report were reviewed and approved by the NRC staff as part of the conversion to low-enriched uranium fuel.

The NRC staff has considered the application, the safety analysis, the Technical Specifications, inspection observations, and other regulatory-required documents, and has concluded that extension of the license would maintain acceptable assurance of protection of the public health and safety and the environment. The reactor safety functions consist solely of the passive insertion of the control rods for this research reactor. The rods have been observed through inspection activities to perform as required. Further, Technical Specifications ensure both control rod reactivity values and drop times as required for safety.

No aging effects on this passive safety feature of the research reactor are considered credible for the extended period of the license. Potential aging failure of the system would result in a safe condition. The staff has reviewed maintenance and surveillance records since initial operations in 1961 and concluded that they have proved effective in ensuring that all components are acceptable as required by safety analyses and Technical Specifications. Only the fuel at this research reactor is subjected to relatively high temperatures and fluence. Fuel cladding is required to be maintained considerably below potential damaging conditions. Reactor pool water conditions are controlled to limit corrosion. Further, fuel examination by the licensee has shown that fuel condition is and will be acceptably maintained. This has been verified through the inspection program.

The staff reviewed the safety analysis and concluded that the extension would not change any key safety parameters or potential accident consequences. This 200 kilowatt, pool type research reactor design uses many fail safe and redundant and diverse design features. The extended license period would not require any reactivity limit, or instrumentation or equipment changes. The Technical Specifications would ensure that all conditions assumed in the safety analysis would be maintained during the extended license period.

The staff has renewed other licenses beginning with the term of the license at the time of expiration of the license. This practice has not resulted in any safety problem as the licensee has also noted.

Further, the staff considered that the facility has had and in all likelihood will continue to have limited use. The staff reviewed several annual reports that showed that average time at power was less than 250 hours per year and average energy generated was less than 10,000 kilowatt/hour. So that the average use of the reactor is less than 5 hours per week and, less than 50 hours of full power operation per year. The NRC staff safety evaluations in the past assume more reactor usage. Therefore, operations have been conservative in this regard. The licensee plans no changes in usage. Therefore, this conservatism should be maintained.

Additionally, the staff reviewed the programs that are already in place to maintain operator proficiency, radiation protection conditions, and emergency protection and concluded that they provide additional assurance of safety during the extended license period.

The NRC staff also finds that the change would limit unnecessary regulatory burden on the licensee and improve NRC staff effectiveness and efficiency in this regulatory process.

The NRC staff concludes that the design, operation, testing, and monitoring of the NRR facility ensures that the extended license period is acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

The Commission has prepared an Environmental Assessment and Finding of No Significant Impact (EA), which was published in the Federal Register on August 2, 1999, (64FR41975).

On the basis of the EA and this safety evaluation, the Commission has determined that no environmental impact statement is required and that issuance of this amendment approving decommissioning will have no significant adverse effect on the quality of the human environment.

4.0 CONCLUSION

The staff has 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 evaluated, or create the possibility of a new or different kind of accident from any accident previously evaluated, and does not involve a significant reduction in a margin of safety, 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 the proposed activities, 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 the health and safety of the public.

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Date: August 6, 1999