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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 16 TO

FACILITY LICENSE NO. R-78

THE UNIVERSITY OF KANSAS

DOCKET NO. 50-148

1.0 INTRODUCTION

By letter dated December 12, 1989, as supplemented on July 12, 1990, the University of Kansas submitted an application which requested a renewal of their possession-only license for the University of Kansas Research Reactor. The requested license expiration date is January 1, 1995. The reactor is permanently shutdown and the license is currently to possess, but not operate, the facility. The license renewal is to allow sufficient time to develop a decommissioning plan to be reviewed and approved by the NRC staff carry out the decommissioning, and terminate the license.

2.0 FACILITY STATUS

All special nuclear material and source material have been shipped off-site or transferred to a state license. The only remaining sources of radioactivity at the facility are the reactor components that were activated during reactor operation.

The reactor configuration during the possession-only status continues as follows: the aluminum tank, graphite thermal column, beam port plugs and concrete biological shield remain installed. The previously-dismantled activated components (control rods and sheaths, grid plate assembly, aluminum angles, and stainless steel bolts) are stored in a shielded vault in the hot laboratory. Nonactivated reactor components (neutron detection chambers, control rod drive motors, magnets, armatures, rod drive extension rods, and guide tubes) that have been previously dismantled are stored in the reactor facility.

The Technical Specifications and the administrative organization continue to reflect the possession-only status. Technical Specifications addressing performance, safety, surveillance and reporting related to reactor operation have been deleted. Technical Specifications addressing monitoring and surveillance, staff and public safety, and related reporting requirements have been retained.

3.0 EVALUATION

Removal and shipment of all fuel assures that the reactor cannot be operated. The shipment of other special nuclear material and source material reduces possible exposures and is consistent with the ALARA (as-low-as-is-reasonably-achievable) principle.

The activated reactor components, which are stored in a shielded vault in the hot laboratory, are accessible only to trained Radiation Safety Service personnel. The exposure rate from these components is 1.75 mR/hr at 1 meter.

The maximum exposure rate is 30mR/hr inside and at the bottom of the empty aluminum tank. The tank has been covered to limit access and reduce exposure rates. The exposure rate directly above the cover is 40 uR/hr above background. Exposure rates at the surface of the biological shield 3ft above floor level are 5uR/hr above background. The tank cover and beam port plugs are locked to prevent unauthorized access. The reactor facility will not be open for unrestricted access and shall remain locked at any time authorized personnel are not present.

The requirements for maintaining a physical security plan and an emergency plan were deleted from the license by Amendment No. 15 dated January 28, 1987.

4.0 ENVIRONMENTAL CONSIDERATION

The Commission has prepared an Environmental Assessment and Finding of No Significant Environmental Impact Notice which was published in the FEDERAL REGISTER on September 21, 1990 (55 FR 38883) for the renewal of Facility License No. R-78 and has concluded that this action will not have a significant effect on the quality of the human environment.

5.0 CONCLUSION

The staff concluded that the permanently shutdown, defueled reactor can continue to be possessed in a safe manner while decommissioning plans are formulated. We have further 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, or involve a significant reduction 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 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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Dated: October 5, 1990