



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 9 TO

FACILITY OPERATING LICENSE NO. R-31

CATHOLIC UNIVERSITY OF AMERICA

DOCKET NO. 50-77

Background

The Catholic University of America (CUA) submitted an application, pursuant to 10 CFR 50.90, for a change of status from operating to possession-only for their 0.1 W AGN-201 Research and Training Reactor on October 22, 1985. The application and its supplement, dated January 14, 1986, included a description of the current facility status and revised technical specifications.

Facility Status

The fuel-bearing safety and control rods have been removed from the reactor. The polyethylene fine control rod has also been removed. The safety and control rods are stored in locked safes, located in the reactor room. The geometrical arrangement of articles in the safes will preclude criticality. The 10 mg radium-beryllium sealed neutron source will remain in the reactor. The shield tank and thermal column tank will remain filled with water.

The reactor configuration during possession-only status will be as follows: the shield tank, thermal column tank, access port liner tubes, glory hole liner tube, control rod cover plate, graphite reflector cylinder, lead shielding, access port filler plugs and neutron detectors with interconnecting instrument cables will remain installed. The power cable to the reactor console control power circuits has been disconnected and removed.

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

Evaluation

Removal of the three fuel-loaded control rods and the polyethylene fine control rod assures that the reactor and control system cannot be operated. The removal of the 42.9 g of U-235 included in the control rods assures that the remainder of the fuel in the core will be subcritical in its current configuration. Access to the glory hole tube is restricted by locked covers in order to prevent any reactivity insertion. Flooding of the glory hole with water from the shield tank would not increase reactivity sufficiently to cause criticality of the remaining fuel.

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The fuel storage scheme provides for the prevention of criticality and radioactivity releases. Maintenance of the water in the shield and thermal column tanks will provide shielding for the radium-beryllium source, serve as a containment barrier for any trace radioactivity present, and provide a physical security barrier for the removal of the fuel. The shield tank demineralizer system will remain in operation to minimize corrosion of the tank. Physical barriers housing the reactor and fuel will not be open for unrestricted access and shall remain locked at any time authorized personnel are not present. The revised technical specifications reflect the possession-only status of the reactor facility and will continue to assure the health and safety of the reactor staff and the public.

#### Environmental Consideration

This amendment involves changes in the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 and changes in inspection and surveillance requirements. The staff has determined that the amendment involves no significant hazards consideration (as discussed below), there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite, and there is no significant increase in individual or cumulative occupational radiation exposure. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

#### Conclusion

Accordingly, the staff concludes that amendment of this license to a possession-only status is appropriate. 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: March 5, 1986