



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

MAY 14 1981

DOCKET NO: 70-309

LICENSEE: Western Michigan University
Kalamazoo, Michigan

SUBJECT: REQUEST FOR LICENSE RENEWAL

I. Background

Western Michigan University (WMU) was issued Materials License No. SNM-291 in February 1959, to possess and use 80 g. of Pu-Be sealed neutron sources for a training laboratory course. The license was subsequently renewed in 1962, 1965, 1968, and 1973, and the current license remains in effect pursuant to the timely renewal provisions of 70.33(b).

During the lifetime of this license the possession limit was increased to include:

- (1) 251 g. Pu-239 metal sealed in a welded stainless steel can.
- (2) 238 g. 93.2% enriched U-235 in a welded stainless steel can.
- (3) 9 ug Pu-238, as alpha sources.
- (4) .02 μ Ci Pu plated alpha sources.

Items (1) and (2) were used to perform precision neutron total cross section measurements using WMU's tandem accelerator and were returned to Los Alamos, NM, November 7, 1979. Item (3) obtained for graduate student work was never used or removed from its sealed container, and item (4) is used in the Chemistry Department.

The renewed license grants authorization to possess 80 g. of plutonium in the form of sealed Pu-Be neutron sources, 9 μ g of plutonium including no more than 7 μ g of Pu-238 as a plated alpha source, and .02 μ Ci plutonium as plated alpha sources.

II. Scope of Review

The safety review of WMU's application for renewal includes a review of their prior applications which date from February 1959, and an evaluation of their compliance history from March 1961 to the present.

By telephone, WMU's Dr. Oppliger updated their SNM possession status and later confirmed the conversation by letter dated April 7, 1981. Also by telephone, comments from Region III IE Staff were obtained on March 6, 1981.

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III. Discussion

WMU's revised possession limit is considerably smaller than the quantity previously held. They have demonstrated that they have the necessary technical staff with the qualifications to administer an effective and safe radiological protection program.

The structure of WMU's administration is stable as a state controlled school. The radiation safety responsibility rotates among five Department of Physics Ph.D.'s, who have had extensive radiation safety experience. At WMU, education in the principles of radiation safety is required before students are allowed to use SNM, and the concept of ALARA is emphasized.

The review of IE reports revealed items of non-compliance in 1975, which concerned Pu-Be leak testing and record keeping. Subsequent inspections in 1977 and 1979 had no items of non-compliance and discussion with Region III IE elicited no expressions of concern over the renewal of this license. The program at WMU ran safely when the possession limit was much larger, and it should continue to do so.

The licensee requested permission to cease leak testing on stored material. This question is addressed in Annex A, which shall be included as a condition of the license.

Condition 11. The licensee shall comply with Annex A, "License Condition for Leak Testing Sealed Plutonium Sources," dated September 1980.

A general requirement for all our licenses governs the release of material and packages for unrestricted use. The requirement, Annex B, shall be recommended as a condition of this license.

Condition 12. Release of equipment of materials from WMU for unrestricted use shall be in accordance with the enclosed Annex B, "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Materials," published by the US NRC Division of Fuel Cycle and Material Safety, dated November 1976.

The SNM possession limit authorized under this license is insufficient to achieve accident criticality.

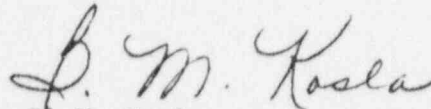
IV. Conclusion and Recommendation

Upon completion of the safety review of the licensee's applications and compliance history, the staff has concluded that issuance of a renewed license will not constitute an undue risk to the health and safety of the public.

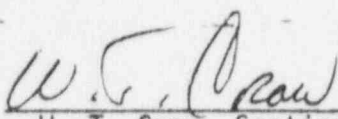
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Based on the discussion above, the staff recommends that the license be renewed for a 5-year period in accordance with their letters of application dated March 31, 1978, and April 7, 1981, and subject to the following conditions:

- Condition 11. The licensee shall comply with Annex A, "License Condition for Leak Testing Sealed Plutonium Sources," dated September 1980.
- Condition 12. Release of equipment or materials from WMU for unrestricted use shall be in accordance with the enclosed Annex B, "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use of Termination of Licenses for Byproduct, Source, or Special Nuclear Material," published by the US NRC Division of Fuel Cycle and Material Safety, dated November 1976.



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Approved by: 
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