



*University of Lowell*  
*One University Avenue*  
*Lowell, Massachusetts 01854*

(617) 452-5000

January 28, 1985

U.S. Nuclear Regulatory Commission  
Nuclear Materials Section B  
Division of Engineering and Technical Programs  
Region I  
631 Park Avenue  
King of Prussia, PA 19406

Subject: Addendum to request of January 17, 1985 for renewal  
of Special Nuclear Material License No. SNM-714

Gentlemen:

Shortly following submission of our recent application for renewal of Special Nuclear Material License No. SNM-714, we were requested by the physics staff, involved in making delayed neutron measurements, to include a request for possession and use of uranium-233. Since our renewal request had already been submitted, the request for U-233 is made here as an addendum to that submission.

This request is for 0.6 grams of U-233 metal in thin foil form to be used in a manner almost exactly as described in our past amendment request of July 27, 1984, in which we described the use of Pu-239 in a fission chamber. The U-233 would be used to line the fission chamber as described for the Pu-239; the only difference would be that some U-233 would also be attached in the horizontal plane defining the base of the hemispherical section as shown in the enclosed figure. The total amount of U-233 would be somewhat less than 0.6 grams. The installation of the U-233 in the chamber would be carried out by the Radioisotopes Division at Oak Ridge National Laboratory. The foils will be covered with an evaporated layer of gold, 50 to 100 micrograms  $\text{cm}^{-2}$  in thickness, as was the Pu-239.

The experimental conditions would be as described for the Pu-239, and expected fission product activities are very similar to what were projected for the Pu-239. Control and surveillance would be as described for the Pu-239. The expected U-232 contamination of the U-233 metal is about 1 ppm (by weight) and is thus not anticipated to make for

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any significant health physics concerns from the point of view of external radiation levels associated with the foil mounted in the detector.

We regret the timing of this request with respect to our recent renewal request. If you require any additional information, please contact us.

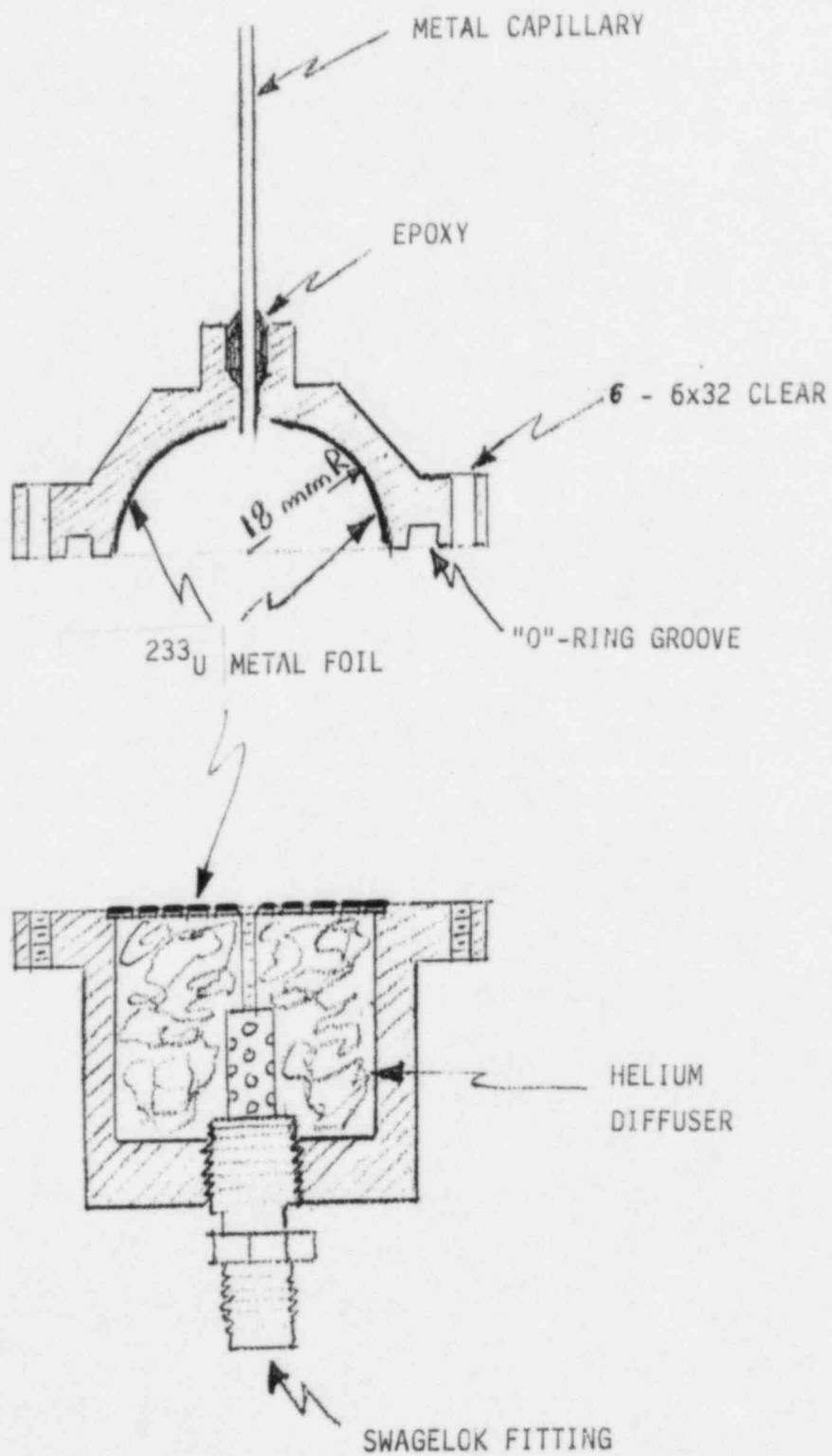
Very truly yours,

*George E. Chabot*  
George E. Chabot  
Radiation Safety Officer

GEC:dmm

Enclosure(s)

U-233 FISSION CHAMBER



BETWEEN: William O. Miller, Chief  
License Fee Management Branch  
Office of Administration

John E. Glenn, Chief  
Nuclear Materials Section B  
Division of Engineering and  
Technical Programs

LICENSE FEE TRANSMITTAL

A. REGION I

~~Fee Exempt~~ - No

1. APPLICATION ATTACHED

Applicant/Licensee: University of Lowell

Application Dated: 1/1/85

Control No.: 03360

License No.: SNM-714

2. FEE ATTACHED

Amount: 0

Check No.: 0

3. COMMENTS

Signed Brenda P. Latchek

Date 1/24/85

B. LICENSE FEE MANAGEMENT BRANCH

1. Fee Category and Amount: IJ (#120) EX 1K

2. Correct Fee Paid. Application may be processed for:

Amendment                     

Renewal ✓

License                     

Signed Frances Brown

Date 3/26/85