# THE PENNSYLVANIA STATE UNIVERSITY

VICE PRESIDENT FOR RESEARCH AND DEAN OF THE GRADUATE SCHOOL
114 KERN GRADUATE BUILDING
UNIVERSITY PARK, PA 16802

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Vice President and Dean

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February 19, 1986

Director
Nuclear Reactor Regulations
Office of Administration
United States Nuclear Regulatory Commission
Washington, DC 20555

Subject: Request for amendment to The Pennsylvania State University
Penn State Breazeale Reactor R-2 License

License R-2
Docket 50-5

The Pennsylvania State University respectfully requests you to amend its R-2 facility license to allow the Penn State Breazeale Reactor (PSBR) to "receive, possess, and use a 3 curie sealed americium-beryllium source in connection with the operation of the TRIGA reactor" pursuant to title 10, CFR, Chapter 1, Part 50.

This source is no. 930-AM-155 (P-843) manufactured by Numec. The source is currently possessed by Northrup Corporation and was previously licensed for use in connection with the use of their TRIGA reactor. The source is doubly encapsulated in type 304L stainless steel with the following specifications:

| | |
|---|---|
| wall thickness: | inner capsule - 0.040 inch<br>outer capsule - 0.040 inch |
| thickness of end opposite weld: | inner capsule - 0.050 inch<br>outer capsule - 0.050 inch |
| thickness of welded end: | inner capsule - 0.075 inch<br>outer capsule - 0.050 inch |

A drawing of the neutron source is attached.

The University already possesses several neutron sources under both the R-2 license and the by-product material license. One of the sources covered under the by-product license is a 3-curie Am-Be source, so the personnel are already familiar with proper handling procedures. Instrumentation is available for radiation surveys.

A calculation was made to determine the maximum heat that could be generated in the source when in the reactor during reactor operation. Calculations show



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that the fission rate in the source, when the reactor is operating at one megawatt, will produce a power of less than 10 watts. Thus the source temperature will not rise significantly above ambient temperatures while in the TRIGA core.

Additional information, if required, may be obtained from Dr. Samuel H. Levine, Director of the Penn State Breazeale Reactor, University Park, PA 16802, 814/865-3110.

Sincerely,

C. L. Hosler

Charles L. Hosler
Vice President for Research
and Dean of the Graduate School

CLH/pka

Attachment

cc: S. H. Levine
I. B. McMaster
G. J. McMurtry
W. F. Witzig
R. W. Granlund
R. E. Totenbier