

February 12, 2004

Mr. P. M. Whaley  
Manager KSU Research Reactor  
Department of Mechanical and Nuclear Engineering  
112 Ward Hall  
Kansas State University  
Manhattan, KS 66506-2500

SUBJECT: ISSUANCE OF AMENDMENT NO. 15 TO FACILITY LICENSE  
NO. R-88 - KANSAS STATE UNIVERSITY (TAC NO. MC1847)

Dear Mr. Whaley:

The U.S. Nuclear Regulatory Commission (Commission) has issued the enclosed Amendment No. 15 to Facility License No. R-88 for the Kansas State University Research Reactor. The amendment consists of changes to the Facility Operating License in response to your application of January 22, 2004.

The amendment increases the possession limit of fully enriched uranium-235 from 20 grams to 90 grams for use in fission chambers and reactor experiments.

A copy of the safety evaluation supporting Amendment No. 15 is also enclosed.

Sincerely,

*/RA/*

Daniel E. Hughes, Project Manager  
Research and Test Reactors Section  
New, Research and Test Reactors Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket No. 50-188

Enclosures: 1. Amendment No. 15  
2. Safety Evaluation

cc w/enclosures: Please see next page

Kansas State University

Docket No. 50-188

cc:

Office of the Governor  
State of Kansas  
Topeka, KS 66612

Mayor of Manhattan  
P.O. Box 748  
Manhattan, KS 66502

Test, Research, and Training  
Reactor Newsletter  
University of Florida  
202 Nuclear Sciences Center  
Gainesville, FL 32611

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KANSAS STATE UNIVERSITY

DOCKET NO. 50-188

AMENDMENT TO FACILITY LICENSE

Amendment No. 15  
License No. R-88

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that
  - A. The application for an amendment to Facility License No. R-88 filed by Kansas State University (the licensee) on January 22, 2004, conforms to the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the regulations of the Commission as stated in Chapter I of Title 10 of the *Code of Federal Regulations* (10 CFR);
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance that (i) the activities authorized by this amendment can be conducted without endangering the health and safety of the public and (ii) such activities will be conducted in compliance with the regulations of the Commission;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public;
  - E. This amendment is issued in accordance with the regulations of the Commission as stated in 10 CFR Part 51, and all applicable requirements have been satisfied; and
  - F. Prior notice of this amendment was not required by 10 CFR 2.105 and publication of a notice for this amendment is not required by 10 CFR 2.106.

2. Accordingly, the license is amended by changes to Facility License No. R-88 and paragraph 2.B is hereby amended to read as follows:

2.B. Pursuant to the Act and Title 10, Chapter I, CFR Part 70, "Domestic Licensing of Special Nuclear Material," to receive, possess, and use up to 3.98 kilograms of contained uranium-235 at enrichments equal to or less than 20 percent in connection with operation of the reactor and up to 90 grams of fully enriched uranium-235 for use in fission chambers and reactor experiments.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA by Patrick Isaac Acting for/*

Patrick M. Madden, Section Chief  
Research and Test Reactors Section  
New, Research and Test Reactors Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Date of Issuance: February 12, 2004

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 15 TO

FACILITY LICENSE NO. R-88

THE KANSAS STATE UNIVERSITY

DOCKET NO. 50-188

1.0 INTRODUCTION

By letter dated January 22, 2004, Kansas State University (KSU or the licensee) submitted a request for amendment to Facility License No. R-88 for the KSU Research Reactor. The amendment would maintain the possession limit of contained uranium-235 with enrichment at greater than or less than 20 percent at 3.98 kg for use as reactor fuel and increase from 20 grams to 90 grams the authority to receive, possess, and use fully enriched uranium-235 for use in fission chambers and reactor experiments.

2.0 EVALUATION

KSU has requested a change to the possession limit in Facility License No. R-88 for the KSU Research Reactor. The requested change would increase the fully enriched uranium-235 possession limit in license condition 2.B. from 20 grams to 90 grams. The purpose of the increase is to allow the licensee to use the material in fission chambers and reactor experiments. This is a small increase in the fuel possession limit and is within the normal possession limits for TRIGA-type reactors. This quantity of material is small compared to other material authorized by the facility license (e.g., 3.98 kg contained uranium-235 with enrichment at greater than or less than 20 percent) and routinely handled by the licensee.

The licensee has stated that possession of the additional material does not change the classification category of the facility as described in 10 CFR Part 73. The licensee has not requested any changes to procedural controls, the reactor technical specifications, security plan, or emergency plan, which indicates that the additional material will be received, possessed, and used under the current terms of the reactor license. The increase in the special nuclear material possession limit does not impact the security requirements for the facility. The inspection program has found that the licensee has routinely used similar material safely.

The staff has determined that the licensee has shown a need for the requested material under the reactor license and that the licensee's receipt, possession, and use of this material does not introduce any accidents with consequences greater than those already analyzed. Because the requested material will be possessed under the terms of the existing license conditions

(technical specifications, security and emergency plans, and facility procedures), is within the possession limits typically found at TRIGA-type reactors, and because the licensee has shown that it can safely handle similar material, the increase in the special nuclear material possession limit is acceptable to the staff.

### 3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves changes in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or changes in inspection and surveillance requirements. The staff has determined that this amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released off site, and 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.

### 4.0 CONCLUSION

The staff has concluded, on the basis of 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, and does not involve a significant reduction in a margin of safety, 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.

Principal Contributor: Daniel Hughes

Date: February 12, 2004