

January 11, 2005

Mr. Richard L. Holm, Reactor Administrator
Nuclear Reactor Laboratory
University of Illinois at Urbana-Champaign
214 Nuclear Engineering Laboratory
103 South Goodwin Avenue
Urbana, IL 61801-2984

SUBJECT: UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN — AMENDMENT RE:
SPECIAL NUCLEAR MATERIAL POSSESSION LIMIT AND PHYSICAL
SECURITY PLAN (TAC NOS. MC4289 AND MC4290)

Dear Mr. Holm:

The U.S. Nuclear Regulatory Commission (NRC or Commission) has issued the enclosed Amendment No. 13 to Facility License No. R-115 for the University of Illinois at Urbana-Champaign TRIGA research reactor. This amendment modifies the facility license in response to your applications of August 26 and August 30, 2004, as supplemental on December 6, 2004.

The amendment reduces the possession limit for special nuclear material and removes the requirement from the facility license to maintain and implement a physical security plan.

A copy of the safety evaluation supporting Amendment No. 13 is also enclosed.

Sincerely,

/RA/

Alexander Adams, Jr., Senior 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. 50-151

Enclosures: 1. Amendment No. 13
2. Safety Evaluation

cc w/enclosures: See next page

University of Illinois

Docket No. 50-151

cc:

Illinois Emergency Management Agency
Bureau Chief
Bureau of Nuclear Facility Safety
1035 Outer Park Drive
Springfield, IL 62705

Dr. James Stubbins, Head
Department of Nuclear Engineering
University of Illinois at Urbana-Champaign
103 South Goodwin Avenue
Urbana, IL 61801-2984

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UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

DOCKET NO. 50-151

AMENDMENT TO FACILITY LICENSE

Amendment No. 13
License No. R-115

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that
 - A. The applications for amendment to Facility License No. R-115 filed by the University of Illinois at Urbana-Champaign (the licensee) on August 26 and 30, 2004, as supplemental on December 6, 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 be possessed in conformity with the applications, 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, Facility License No. R-115 is hereby amended, as follows:
 - a. Paragraph 2.B. of the license shall be amended to read as follows:
 - 2.B. Pursuant to the Act and 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material," to receive, possess and use up to 10 grams of contained uranium-235 of any enrichment in the form of fission chambers; and
 - b. Paragraph 3.C. of the license shall be deleted.
3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Patrick M. Madden, 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: January 11, 2005

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 13 TO

FACILITY LICENSE NO. R-115

THE UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

DOCKET NO. 50-151

1.0 INTRODUCTION

By letter dated August 26, 2004, as supplemental on December 6, 2004, the University of Illinois at Urbana-Champaign (UIUC or the licensee) requested that the U.S. Nuclear Regulatory Commission (NRC) amend Facility License No. R-115 for the TRIGA research reactor. The requested change would decrease the special nuclear material possession limit established by the facility operating license. By letter dated August 30, 2004, as supplemental on December 6, 2004, the licensee requested that the requirement to maintain and implement a physical security plan be removed from the facility license.

2.0 BACKGROUND

The UIUC is in the process of decommissioning its TRIGA research reactor. Amendment No. 10 to the UIUC facility license dated April 12, 1999, removed authority to operate the reactor, placing the reactor in a possession-only status and amended the facility technical specifications to remove or modify technical specifications related to reactor operation. Amendment No. 11 dated September 22, 1999, approved the SAFSTOR decommissioning plan. The facility was placed into a safe storage condition because the Department of Energy (DOE) was not able to receive the reactor fuel at a DOE facility at that time (fuel at university research reactors is owned by DOE). During August 2004 the fuel was removed from the facility.

2.0 EVALUATION

Paragraph 2.B. of the UIUC license concerning receipt, possession and use of special nuclear material currently reads as follows:

- 2.B. Pursuant to the Act and 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material," to receive and possess up to 9.6 kilograms of contained uranium-235, of which 7.0 kilograms of contained uranium-235 was for use in connection with the operation of the reactor and up to 2.6 kilograms of contained uranium-235 was for use in connection with operation of a subcritical assembly in the Bulk Shielding Facility of the reactor; up to 20 grams of the contained uranium-235 is of any enrichment in the form of fission chambers and the balance is contained uranium-235 enriched to less

than 20 percent in the isotope uranium-235 in the form of reactor fuel; up to 1.0E-5 grams of plutonium in the form of reactor fuel transferred from Facility Operating License No. R-117; and to possess, but not to separate, such special nuclear material as may have been produced by the operation of the facility; and

The licensee has requested that the license condition be amended to read as follows:

- 2.B. Pursuant to the Act and 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material," to receive, possess and use up to 10 grams of the contained uranium-235 of any enrichment in the form of fission chambers; and

The NRC Project Manager discussed the wording of the license condition with the Reactor Administrator on September 17, 2004. They agreed that a minor change to the wording of the license condition was an improvement. The amended wording is as follows:

- 2.B. Pursuant to the Act and 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material," to receive, possess and use up to 10 grams of contained uranium-235 of any enrichment in the form of fission chambers; and

The licensee has requested that the authority to possess special nuclear material in the form of reactor fuel be removed from the facility license. Fuel was removed from the facility on August 18, 2004. The licensee submitted copies of its DOE/NRC Form 741, "Nuclear Material Transaction Report," to document the removal of the fuel from the facility. In addition, an NRC inspector was on site to witness the shipment. The remaining special nuclear material on site is in the form of fission chambers.

Because the requested changes reflect the removal of reactor fuel from the licensee's site as discussed above and reflect the quantity of special nuclear material that remains in the licensee's possession, the staff finds the reduction in license possession limits for special nuclear material acceptable.

Paragraph 3.C. of the UIUC license concerning the physical security plan currently reads as follows:

3.C. Physical Security Plan

The licensee shall maintain and fully implement all provisions of the Commission's approved physical security plan, including amendments and changes made pursuant to the authority of 10 CFR 50.54(p). The approved security plan consists of documents withheld from public disclosure pursuant to 10 CFR 2.790, entitled, "Physical Security Plan for the University of Illinois Advanced TRIGA Reactor."

- a. Revised Edition 1, dated January 23, 1978.

- b. Physical Security Plan Additions dated May 13, 1980, submitted with letter dated September 29, 1980.

The regulations for the physical protection of plants and materials are given in 10 CFR Part 73. This includes the requirement for the licensee to maintain a physical security plan, the details of which are based on the amount of special nuclear material that the licensee is licensed to possess. The reduction in the license possession limit from 9.6 kilograms of contained uranium-235 of which 20 grams may be any enrichment to 10 grams of contained uranium-235 of any enrichment takes the licensee from possessing a quantity of special nuclear material of low strategic significance to possessing a quantity of special nuclear material of less than low strategic significance. The definition of special nuclear material of low strategic significance is more than 15 grams of uranium-235 contained in uranium enriched to 20 percent or more in the uranium-235 isotope. The regulations in 10 CFR Part 73 do not require research reactors that are licensed to possess a quantity of special nuclear material of less than low strategic significance to have physical security plans. The licensee will continue to meet the requirements of 10 CFR 20.1801 - 1802 concerning the storage and control of licensed material.

Based on the reduction in the facility special nuclear material possession limit to less than the amount of special nuclear material that defines special nuclear material of low strategic significance as discussed above, the staff finds the elimination of license condition 3.C requiring a physical security plan acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

Portions of this amendment involve 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 hazards consideration, 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.

Portions of this amendment involve changes relating solely to safeguards matters (i.e., protection against sabotage or loss or diversion of special nuclear material) or issuance of an approval of a safeguards plan. The staff has determined that the amendment or approval does not involve any significant construction impacts. The amendment or approval is confined to (i) organizational and procedural matters, (ii) modifications to systems used for security and/or materials accountability, (iii) administrative changes, and (iv) review and approval of transportation routes pursuant to 10 CFR 73.37. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(12). 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) the amendment does not involve a significant hazards consideration because the amendment does not involve a significant increase in the probability or consequences of accidents previously evaluated, create the possibility of a new kind of accident or a different kind of accident from any accident previously evaluated, or involve a significant reduction in a margin of safety; (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: A. Adams, Jr.

Date: January 11, 2005