

January 3, 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:
ADMINISTRATIVE REQUIREMENTS (TAC NO. MC4293)

Dear Mr. Holm:

The U.S. Nuclear Regulatory Commission (NRC or Commission) has issued the enclosed Amendment No. 14 to Facility License No. R-115 for the University of Illinois at Urbana-Champaign TRIGA research reactor. This amendment consists of changes to the technical specifications (TSs) in response to your application of September 8, 2004, as supplemented on October 26 and November 22, 2004.

The amendment removes the position of Reactor Health Physicist from the TSs and removes the 1 hour on-call requirement for designated university staff.

A copy of the safety evaluation supporting Amendment No. 14 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. 14
2. Safety Evaluation

cc w/enclosures: See next page

University of Illinois

Docket No. 50-151

cc:

The Honorable Tod Satterthwaite
Mayor of the City of Urbana
P.O. Box 219
Urbana, IL 61803

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. 14
License No. R-115

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that
 - A. The application for an amendment to Facility License No. R-115 filed by the University of Illinois at Urbana-Champaign (the licensee) on September 8, 2004, as supplemented on October 26 and November 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 be possessed 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 the Technical Specifications as indicated in the enclosure to this license amendment, and paragraph 3.B. of Facility License No. R-115 is hereby amended to read as follows:

3.B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 14, are hereby incorporated in the license. The licensee shall maintain the facility in accordance with the Technical Specifications.

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

Enclosure:
Appendix A, Technical
Specifications Changes

Date of Issuance: January 3, 2005

ENCLOSURE TO LICENSE AMENDMENT NO. 14

FACILITY OPERATING LICENSE NO. R-115

DOCKET NO. 50-151

Replace the following pages of Appendix A, "Technical Specifications," with the enclosed pages. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change.

Remove

Insert

31

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6.0 ADMINISTRATIVE CONTROLS

6.1 Organization

6.1.1 Structure and Responsibility

- a. The reactor facility shall be an integral part of the Department of Nuclear, Plasma and Radiological Engineering of the University of Illinois. The reactor shall be related to the University structure as shown in Chart I.
- b. The reactor facility shall be under the supervision of the Reactor Administrator who shall have been qualified as a licensed senior reactor operator for the reactor. He shall be responsible for assuring that all operations are conducted in a safe manner and within the limits prescribed by the facility license and the provisions of the Nuclear Reactor Committee.
- c. The Reactor Administrator, with support from the Radiation Safety Office, shall be responsible for assuring the day to day and routine radiological safety activities at the Nuclear Reactor Laboratory. The University of Illinois Radiation Safety Officer shall be responsible for monitoring, planning, and promoting radiological safety at the Nuclear Reactor Laboratory. He has the responsibility and authority to stop, secure or otherwise control as necessary any operation or activity that poses an unacceptable radiological hazard. *

CHART I

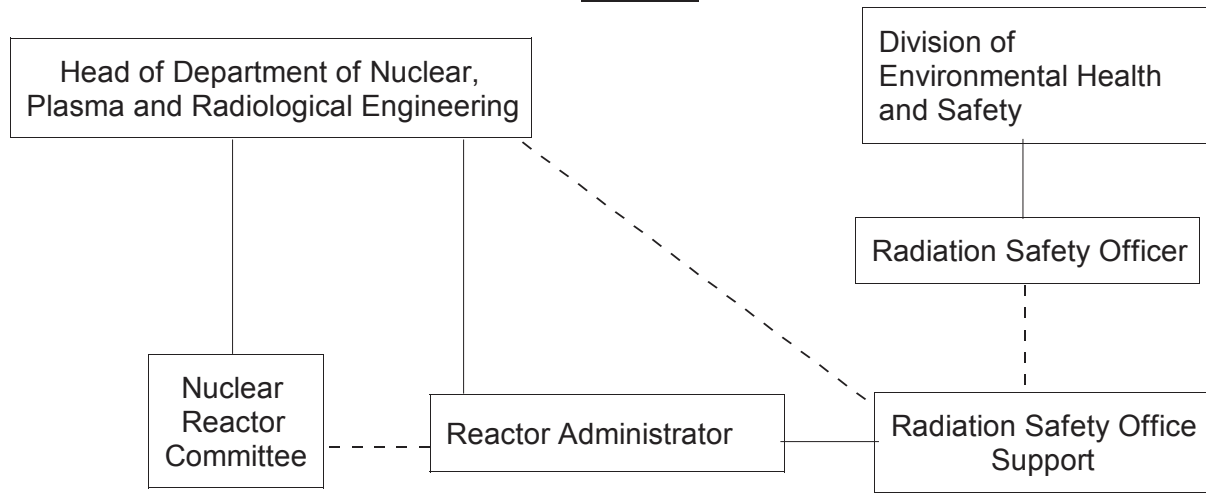


CHART I: Administrative organization of the reactor facility. Dashed lines indicate reporting paths outside the operational chain of supervision, indicated by solid lines.

6.1.2 Staffing

- a. The minimum staffing at the Nuclear Reactor Laboratory shall be:
 - 1. Reactor Administrator. This individual shall meet the requirements of ANSI/ANS-15.4-1988 “American National Standard for the Selection and Training of Personnel for Research Reactors” for a Level Two individual.

*
*

- b. A list of reactor personnel by name and telephone number shall be readily available to the UIUC Division of Public Safety dispatcher. The list shall include:

*

- 1. Campus Radiation Safety Officer
- 2. Reactor Administrator
- 3. Head, Department of Nuclear, Plasma and Radiological Engineering

*

*

- c. Events requiring the presence at the facility of a Senior Reactor Operator:
 - 1. Initial startup and approach to power.
 - 2. All fuel or control rod relocations.
 - 3. Relocation of any in-core experiment with a reactivity worth greater than one dollar.
 - 4. Recovery from unplanned or unscheduled shutdown or significant power reduction (In these instances, documented verbal concurrence from the Senior Reactor Operator is required).

6.1.3 Selection and Training of Personnel

The Reactor Administrator is responsible for the training and requalification of the facility reactor operators and senior reactor operators. The selection, training, and requalification of operations personnel shall be consistent with all current regulations and guidelines.

6.2 Review and Audit

6.2.1 Charter and Rules

- a. The Reactor Committee shall be composed of at least five voting members, one of whom shall be a Health Physicist designated by the campus Radiation Safety Officer for the University and one whom * shall be the Reactor Administrator. The remaining members shall be appointed by the Head of the * Department of Nuclear, Plasma and Radiological Engineering, so as to maintain a balanced knowledge of reactor safety and regulation.
- b. The Reactor Committee shall have a written statement defining such matters as the authority of the committee, the subjects within its purview, and other such administrative provisions as are required for the effective functioning of the Reactor Committee. Minutes of all meetings of the Reactor Committee shall be kept.
- c. A quorum of the Reactor Committee shall be a majority of not less than one half of the members and the reactor staff shall not constitute a voting majority.
- d. The Reactor Committee shall meet at least semiannually not to exceed nine months

6.2.2 Review Function

The review function of the Committee shall include, but is not limited to the following:

- a. Determinations that proposed changes in equipment, systems, tests, experiments, or procedures do not involve an unreviewed safety question.
- b. All new procedures and major revisions thereto having safety significance, proposed changes in reactor facility equipment, or systems having safety significance.
- c. All new experiments or classes of experiments for determination that an unreviewed safety question does not exist.
- d. Proposed changes in the technical specifications or license.
- e. Violations of technical specifications or license.
- f. Operating abnormalities having safety significance.
- g. Reportable occurrences as listed in 6.8.
- h. Audit reports.

A written report or minutes of the findings and recommendations of the Committee shall be submitted to the Head, Department of Nuclear, Plasma and Radiological Engineering, and the Reactor Committee members in a timely manner after each meeting.

6.3 Radiation Safety

The Reactor Administrator shall be responsible for implementing the Radiation Protection Program at the reactor such that all regulatory requirements are met and guidelines followed as applicable. *

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 14 TO

FACILITY LICENSE NO. R-115

THE UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

DOCKET NO. 50-151

1.0 INTRODUCTION

By letter dated September 8, 2004, as supplemented on October 26 and November 22, 2004, the University of Illinois at Urbana-Champaign (UIUC or the licensee) requested that the U.S. Nuclear Regulatory Commission (NRC) amend the technical specifications (TSs) in Appendix A, to Facility License No. R-115 for the TRIGA research reactor. The requested changes remove the position of Reactor Health Physicist and the 1 hour on-call requirement for designated university staff from the TSs.

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 TSs to remove or modify TSs 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 at that time the owner of the fuel used in the TRIGA Research Reactor, the Department of Energy (DOE), was not able to receive the reactor fuel at a DOE facility. However, the situation at DOE changed and during August 2004 DOE removed the fuel from the facility.

3.0 EVALUATION

The regulations in 10 CFR 50.36 require nuclear reactors to have TSs. The requirements for TSs for facilities that are decommissioning are given in 10 CFR 50.36(c)(6), which states that TSs for administrative controls will be developed on a case-by-case basis for nonpower reactor facilities which are not authorized to operate. The staff has determined that the changes proposed by the licensee continue to meet the requirements of 10 CFR 50.36.

The licensee has requested that the position of Reactor Health Physicist be removed from the TSs. TS 6.1.1.c concerning radiation safety responsibility at the reactor facility currently reads as follows:

- c. There shall be a Reactor Health Physicist responsible for assuring the day to day and routine radiological safety activities at the Nuclear Reactor

Laboratory. The University of Illinois Radiation Safety Officer shall be responsible for monitoring, planning, and promoting radiological safety at the Nuclear Reactor Laboratory. He has the responsibility and authority to stop, secure or otherwise control as necessary any operation or activity that poses an unacceptable radiological hazard.

The licensee has proposed changing this TS to read as follows:

- c. The Reactor Administrator, with support from the Radiation Safety Office, shall be responsible for assuring the day to day and routine radiological safety activities at the Nuclear Reactor Laboratory. The University of Illinois Radiation Safety Officer shall be responsible for monitoring, planning, and promoting radiological safety at the Nuclear Reactor Laboratory. He has the responsibility and authority to stop, secure or otherwise control as necessary any operation or activity that poses an unacceptable radiological hazard.

The responsibilities of the Reactor Health Physicist will be carried out by the Reactor Administrator and Radiation Safety Office staff. The Reactor Health Physicist is responsible for assuring the day-to-day and routine radiological safety activities at the Nuclear Reactor Laboratory. In a reply to a request for additional information from the NRC staff, the licensee described how the need for an onsite health physicist has been significantly reduced with the permanent shutdown of the facility and the removal of the reactor fuel from the site. No activities are being conducted at the reactor facility and the facility is effectively mothballed pending the development and approval of a final decommissioning plan. When the licensee submits its decommissioning plan, the NRC staff will review the plan to ensure that health physics staffing is commensurate with decommissioning activities. Staff trained in health physics will continue to be available at the Nuclear Reactor Laboratory. As discussed above, due to the significant decrease in activities at the Nuclear Reactor Laboratory following the cessation of reactor operations and shipment of the reactor fuel from the facility and the Radiation Safety Office's continued support of the Reactor Administrator in carrying out health physics duties, the staff finds that the removal of the position of Reactor Health Physicist from the TSs is acceptable.

The licensee has requested a change to Chart 1 of the TSs. The chart shows the administrative organization of the reactor facility. The requested change would replace the organizational position of Reactor Health Physicist with Radiation Safety Office Support to reflect the removal of the position of Reactor Health Physicist from the TSs. The staff finds this change acceptable because it is related to the removal of the position of Reactor Health Physicist from the TSs, which the staff finds acceptable as discussed above.

The licensee has requested elimination of the Reactor Health Physicist position from the minimum staffing requirements of the facility. TS 6.1.2.a currently reads as follows:

- a. The minimum staffing at the Nuclear Reactor Laboratory shall be:
 1. Reactor Administrator. This individual shall meet the requirements of ANSI/ANS-15.4-1988 "American National Standard for the Selection and Training of Personnel for Research Reactors" for a Level Two individual.
 2. Reactor Health Physicist. This individual shall meet the requirements of ANSI/ANS-15.4-1988 "American National Standard for the Selection and

Training of Personnel for Research Reactors” for a Level Three individual in addition to training in health physics.

The licensee has proposed changing this TS to read as follows:

- a. The minimum staffing at the Nuclear Reactor Laboratory shall be:
 1. Reactor Administrator. This individual shall meet the requirements of ANSI/ANS-15.4-1988 “American National Standard for the Selection and Training of Personnel for Research Reactors” for a Level Two individual.

In addition to health physics duties, the Reactor Health Physicist also was licensed as a senior reactor operator and acted as a reactor supervisor. A Level Three individual is defined by ANSI/ANS-15.4-1988 as someone who serves as a reactor or shift supervisor. With the end of reactor operations and the shipment of all reactor fuel from the facility, the licensee is no longer required to have reactor operators on staff. The regulations in 10 CFR 50.54(k) require an operator or senior operator present at the controls at all times during operation of the facility. With the removal of all reactor fuel from the facility, the reactor will never operate again. The staff finds this change acceptable because with the end of operation and the permanent removal of fuel from the facility, licensed reactor operators are no longer needed, nor is a reactor Health Physicist.

The licensee has requested changes to TS 6.1.2.b concerning personnel response to the facility. The TS currently reads as follows:

- b. A list of reactor personnel by name and telephone number shall be readily available to the UIUC Division of Public Safety dispatcher. One of these individuals shall be reachable and able to respond to the facility within approximately one hour. The list shall include:
 1. Campus Radiation Safety Officer
 2. Reactor Administrator
 3. Head, Department of Nuclear, Plasma and Radiological Engineering
 4. Reactor Health Physicist
 5. Licensed operators

The licensee has proposed changing this TS to read as follows:

- b. A list of reactor personnel by name and telephone number shall be readily available to the UIUC Division of Public Safety dispatcher. The list shall include:
 1. Campus Radiation Safety Officer
 2. Reactor Administrator

3. Head, Department of Nuclear, Plasma and Radiological Engineering

The positions of Reactor Health Physicist and licensed operators have been removed from the list. The removal of the Reactor Health Physicist position and licensed operators is discussed above and is acceptable to the NRC staff.

The licensee has proposed removing the requirement that a person on the list be reachable and able to respond to the facility within approximately 1 hour. With the removal of all reactor fuel from the facility, the remaining radioactive material and response to accident scenarios involving radioactive material are covered by the campus Radiation Safety Manual. The campus Radiation Safety Office has someone on call at all times to provide response assistance if needed on campus, including the Nuclear Reactor Laboratory. In addition, the facility emergency plan and procedures remain in effect and will be followed in the case of an emergency at the facility. The staff finds that with the permanent end of reactor operations and the removal of fuel from the facility, the continued applicability of the NRC-required facility emergency plan and the on-call requirement for personnel from the campus Radiation Safety Office, the removal of the 1-hour staff response requirement from the TSs is acceptable to the staff.

The licensee has proposed changes to TS 6.2.1.a concerning the composition of the Reactor Committee. The TS currently reads as follows:

- a. The Reactor Committee shall be composed of at least five voting members, one of whom shall be a Health Physicist designated by the campus Radiation Safety Officer for the University, one whom shall be the Reactor Administrator, and one whom shall be the Reactor Health Physicist. The remaining members shall be appointed by the Head of the Department of Nuclear, Plasma and Radiological Engineering, so as to maintain a balanced knowledge of reactor safety and regulation.

The licensee has proposed changing the TS to read as follows:

- a. The Reactor Committee shall be composed of at least five voting members, one of whom shall be a Health Physicist designated by the campus Radiation Safety Officer for the University and one whom shall be the Reactor Administrator. The remaining members shall be appointed by the Head of the Department of Nuclear, Plasma and Radiological Engineering, so as to maintain a balanced knowledge of reactor safety and regulation.

The change removes the Reactor Health Physicist from the Reactor Committee membership. The TSs for the Reactor Committee continue to meet the guidance of ANS/ANSI-15.1-1990, "The Development of Technical Specifications for Research Reactors," which is supported by the NRC for administrative TSs for research and test reactors. For this reason and the reasons discussed above for removing the position of Reactor Health Physicist from the TSs, the staff finds the removal of the position of Reactor Health Physicist from the Reactor Committee acceptable.

The licensee has proposed a change to TS 6.3 concerning radiation safety. The TS currently reads as follows:

6.3 Radiation Safety

The Reactor Health Physicist shall be responsible for implementing the Radiation Protection Program at the reactor such that all regulatory requirements are met and guidelines followed as applicable.

The licensee has proposed that the TS be amended to read as follows:

6.3 Radiation Safety

The Reactor Administrator shall be responsible for implementing the Radiation Protection Program at the reactor such that all regulatory requirements are met and guidelines followed as applicable.

The proposed change replaces the Reactor Health Physicist with the Reactor Administrator as the organizational position responsible for implementing the radiation protection program. The removal of the Reactor Health Physicist is acceptable to the staff for the reasons discussed above. The position of Reactor Administrator, as defined by TS 6.1.2 a.1, meets the qualification requirements given in ANS/ANSI-15.4-1988, "Selection and Training of Personnel for Research Reactors," for a Level Two individual (a minimum of 6 years of nuclear experience and at least a recognized baccalaureate degree in an engineering or scientific field). In addition, as required by proposed TS 6.1.1.c, the Reactor Administrator has support from the Radiation Safety Office for assuring day-to-day and routine radiological safety activities at the Nuclear Reactor Laboratory. For these reasons, the staff concludes that the Reactor Administrator is qualified to implement the Radiation Protection Program. This change is therefore acceptable to the staff.

The staff noted TS changes that were not discussed in the licensee's application. The NRC project manager discussed these changes with the Reactor Administrator and was told that the changes were typographical errors made while retyping the pages for submission to NRC. The licensee submitted corrected replacement pages by letter dated November 22, 2004.

4.0 ENVIRONMENTAL CONSIDERATION

This amendment involves changes in recordkeeping, reporting, or administrative procedures or requirements. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(10). 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.

5.0 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 3, 2005