

December 20, 2007

Mr. William Bonzer, Reactor Manager  
University of Missouri–Rolla  
226 Fulton Hall  
Rolla, MO 65409-0170

SUBJECT: UNIVERSITY OF MISSOURI - ROLLA RESEARCH REACTOR (UMRR)  
FACILITY – ISSUANCE OF AMENDMENT NO. 20 TO FACILITY  
OPERATING LICENSE No. R-79 (TAC NO. MD6700)

Dear Mr. Bonzer:

The U.S. Nuclear Regulatory Commission (Commission) has issued the enclosed amendment No. 20 to Facility Operating License No. R-79 for the UMRR. The amendment changes the facility operating license in response to your application of September 7, 2007 as supplemented on October 22, 2007.

The amendment modifies the UMRR Technical Specifications, Section 6.1.1, 6.1.2, 6.2, and 6.6.2(3)(c) regarding the Level 1 position.

A copy of the safety evaluation supporting Amendment No. 20 is also enclosed. If there are any questions please contact me at 301-415-4007 or Stephen Pierce at 301-415-2261.

Sincerely,

**/RA Alexander Adams for/**

John Nguyen, Project Manager  
Research and Test Reactors Branch A  
Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation

Docket No. 50-123  
License No. R-79

Enclosures: As stated  
cc w/enclosures:  
Please see next page

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John Nguyen, Project Manager  
Research and Test Reactors Branch B  
Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation

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University of Missouri - Rolla

Docket No. 50-123

cc:

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UNIVERSITY OF MISSOURI-ROLLA

DOCKET NO. 50-123

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.20  
License No. R-79

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for an amendment to Facility Operating License No. R-79, filed by the University of Missouri-Rolla (the licensee) dated September 7, 2007, as supplemented on October 22, 2007, complies to the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the rules and regulations of the Commission set forth 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 Technical Specifications as indicated in the enclosure to this license amendment, and paragraph 2.C.2 of Facility Operating License No. R-79 is hereby amended to read as follows:

2. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 20, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

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

FOR THE NUCLEAR REGULATORY COMMISSION

**/RA Alexander Adams for/**

Daniel S. Collins, Branch Chief  
Research and Test Reactors Branch A  
Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation

Enclosure: Appendix A Technical Specifications Changes

Date of Issuance: December 20, 2007

ENCLOSURE TO LICENSE AMENDMENT NO. 20

FACILITY OPERATING LICENSE NO. R-79

DOCKET NO. 50-123

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

Remove

Page 37

Page 38

Page 40

Page 48

Insert

Page 37

Page 38

Page 40

Page 48

## 6. ADMINISTRATIVE CONTROLS

### 6.1 Organization

#### 6.1.1 Structure

The Nuclear Reactor Facility is a part of the Department of Mining and Nuclear Engineering of the University of Missouri-Rolla. The organizational structure is shown in Figure 6.1

#### 6.1.2. Responsibility

The Chair of Mining and Nuclear Engineering is the individual responsible for the reactor facility's licenses (Level 1).

The Director of the Nuclear Reactor Facility is the contact person for the NRC and will have overall responsibility for management of the facility (Level 2). The Director shall have a minimum of six years of nuclear experience. The Director shall have a Bachelor's (or higher) degree in engineering or science. Equivalent education or experience may be substituted for a degree. The degree may fulfill four years of the six years of nuclear experience required.

The Reactor Manager (Level 3) shall be responsible for the day-to-day operation and for ensuring that all operations are conducted in a safe manner and within the limits prescribed by the facility license and the provisions of the Radiation Safety Committee. During periods when the Reactor Manager is absent, his responsibilities may be delegated to a Senior Operator (Level 4).

The Reactor Manager shall have three years of nuclear related experience. A maximum of two years equivalent full-time academic training may be substituted for two of the three years of nuclear related experienced required. As soon as reasonably possible after being assigned to the position, the Reactor Manager shall obtain and maintain a NRC Senior Operators license.

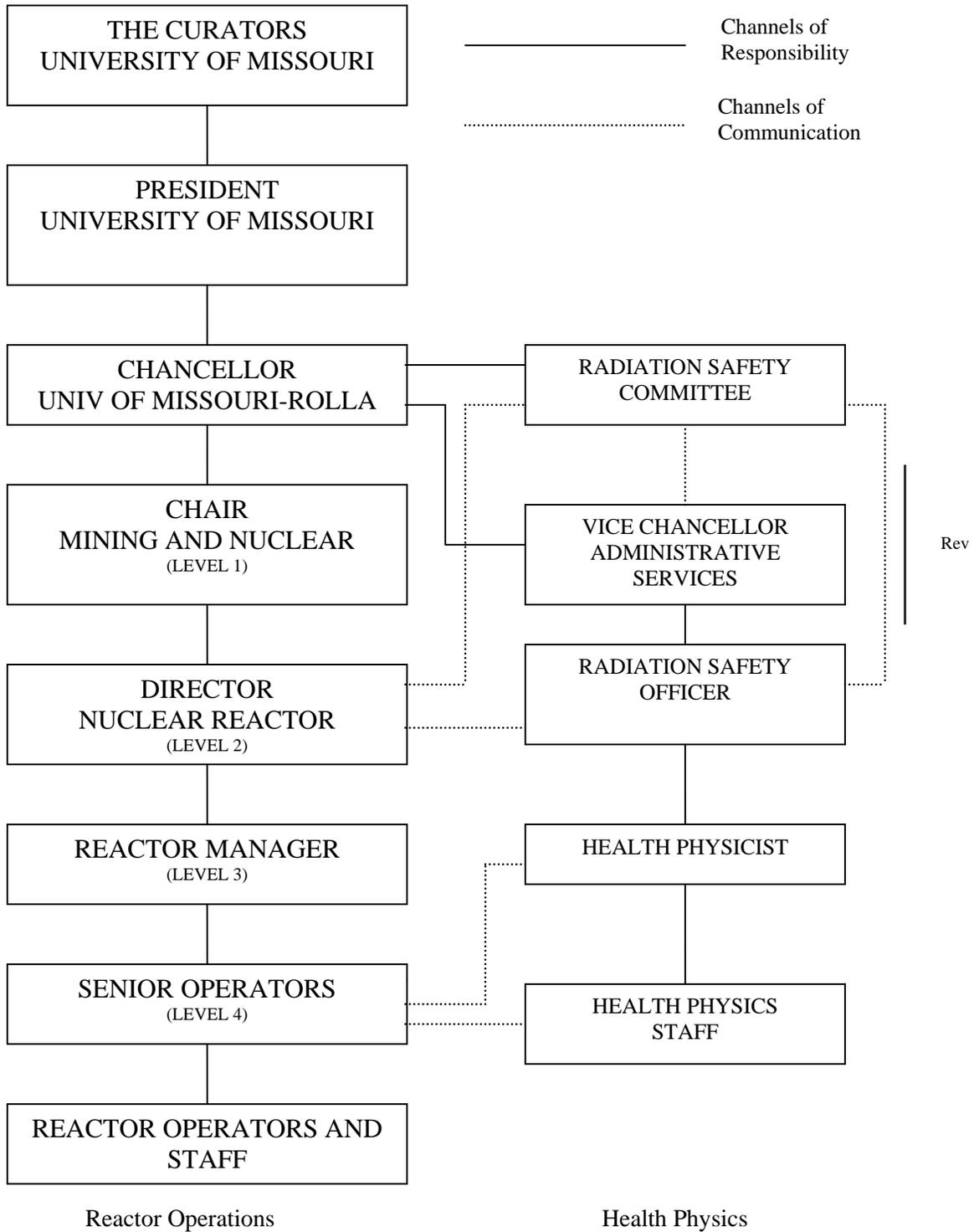


Figure 6-1. Organizational structure of the University of Missouri related to the UMR Nuclear Reactor Facility.

#### 6.1.4 Selection and Training of Personnel

The selection, training, and requalification of operations personnel shall meet or exceed the requirements of American National Standard for Selection and Training of Personnel for Research Reactors, ANSI/ANS-15.4-1977, Sections 4-6. (7)

#### 6.2 Review and Audit

There shall be a committee that reviews and audits reactor operations to ensure that the facility is operated in a manner consistent with public safety and within the terms of the facility license. The Committee shall be referred to as the Radiation Safety Committee and shall report to the Chancellor of the campus and advise the Chair of Mining and Nuclear Engineering, and the Reactor Director on those areas of responsibility specified below.

##### 6.2.1 Composition and Qualifications

The Committee shall be composed of at least five members, one of whom shall be the Radiation Safety Officer of the campus. No more than two members will be from the organization responsible for reactor operations. The membership of the Committee shall be such as to maintain a thorough knowledge in areas of relating to reactor safety and research use of radioisotopes.

##### 6.2.2 Charter and Rules

- (1) A quorum of the Committee shall consist of at least one half of the voting members.
- (2) The Committee shall meet at least quarterly. Minutes of all meetings shall be disseminated to Committee members and

section 2.1.

(c) any reportable occurrence as defined in section 6.5.2 of these specifications.

(3) A written report shall be submitted within 30 days to the Director, Office of Nuclear Reactor Regulations, U.S. NRC, with a copy to the Regional Administrator, Region III, U.S. NRC of the following:

(a) any substantial variance from performance specifications contained in these specifications or in the SAR.

(b) any significant change in the transient or accident analyses as described in the SAR

(c) changes in personnel serving as Chair of Mining and Nuclear Engineering, Reactor Facility Director, or Reactor Manager.

(4) A report shall be submitted within nine months after initial criticality of the reactor or within 90 days of completion of the startup tests programs, whichever is earlier, to the Director, Office of Nuclear Reactor Regulation, U.S. NRC upon receipt of a new facility license, an amendment to the license authorizing an increase in power level or the installation of a new core of a different fuel element type of design than previously used.

The report will include the measured values of the operating conditions or characteristics of the reactor under the new conditions, including the following:

(a) total control rod reactivity worth.

(b) reactivity worth of the single control rod of highest reactivity worth.

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
SUPPORTING AMENDMENT NO. 20 TO  
FACILITY OPERATING LICENSE NO. R-79  
UNIVERSITY OF MISSOURI-ROLLA  
DOCKET NO. 50-123

## 1.0 INTRODUCTION

By letter dated September 7, 2007, and as supplemented on October 22, 2007, the University of Missouri-Rolla (UMR or licensee) submitted a request for amendment of Facility Operating License No. R-79 for the UMR Research Reactor (UMRR). The amendment request is to modify the UMRR Technical Specifications, Section 6.1.1, 6.1.2, 6.2, and 6.6.2(3)(c) regarding the Level 1 position.

## 2.0 BACKGROUND

The UMRR is located in a separate building on the east side of the main campus in Rolla, Missouri. In December 1961, the U.S. Atomic Energy Commission (AEC) issued an operating license to the University of Missouri for operation of an MTR- type research reactor on its campus. This license, R-79, authorized the UMRR to operate at steady-state power levels up to 10 kW(t). In 1967, the license was amended to allow operation up to its current power level of 200 kW(t). The UMRR is a pool reactor that utilizes low enriched uranium (LEU) fuel for the core. Light water is used as the coolant and moderator. The low power level of the core allows for sufficient cooling by natural convection. The reactor's experimental facilities include a pneumatic transfer system, in-core irradiation tube, a beam tube, and a thermal column. The licensee has requested an amendment that changes the administrative structure.

## 3.0 REGULATORY EVALUATION

The licensee has requested changes to TS 6.0 to reflect changes made to the administrative structure at the University of Missouri – Rolla. The position of “Dean of the School of Mines and Metallurgy” has been eliminated. The University of Missouri – Rolla Reactor (UMRR) is requesting the Chair of Mining and Nuclear Engineering be the Level 1 position.

Section 6.1.1 currently reads:

The Nuclear Reactor Facility is part of the School of Mines and Metallurgy of the University of Missouri-Rolla. The organizational structure is shown in Figure 6.1.

The licensee has proposed changing this to:

The Nuclear Reactor Facility is part of the Department of Mining and Nuclear Engineering of the University of Missouri-Rolla. The organizational structure is shown in Figure 6.1

The first paragraph of Technical Specification 6.1.2 currently reads:

The Dean of the School of Mines and Metallurgy is the individual responsible for the reactor facility's licenses (Level 1).

The licensee has proposed changing this to:

The Chair of Mining and Nuclear Engineering is the individual responsible for the reactor facility's licenses (Level 1).

Figure 6-1 lists the Dean of School of Mines (Level 1) in the channels of responsibility.

The licensee has proposed to list "Chair Mining and Nuclear (Level 1)" in place of "Dean of School of Mines."

Technical Specification 6.2 review and audit currently reads:

There shall be a committee that reviews and audits reactor operations to ensure that the facility is operated in a manner consistent with public safety and within the terms of the facility license. The Committee shall be referred to as the Radiation Safety Committee and shall report to the Chancellor of the campus and advise the Dean of the School of Mines and Metallurgy, and the Reactor Director on those areas of responsibility specified below.

The licensee has proposed changing this to:

There shall be a committee that reviews and audits reactor operations to ensure that the facility is operated in a manner consistent with public safety and within the terms of the facility license. The committee shall be referred to as the Radiation Safety Committee and shall report to the Chancellor of the campus and advise the Chair of Mining and Nuclear Engineering, and the Reactor Director on those areas of responsibility specified below.

Technical Specification 6.6.2(3)(c) currently reads:

Changes in personnel serving as Dean of the School of Mines and Metallurgy, Reactor Facility Director, or Reactor Manager.

The Licensee has proposed changing this to:

Changes in personnel serving as Chair of Mining and Nuclear Engineering, Reactor Facility Director, or Reactor Manager.

The Chair of Mining and Nuclear Engineering has replaced the position Dean of the School of Mines and Metallurgy as the Level 1 position. ANS 15.1 defines Level 1 positions as those responsible for the reactor facility's licenses. As a member of upper level university management the Chair of Mining and Nuclear Engineering fits this definition of Level 1 manager and this change is therefore acceptable to the staff.

#### 4.0 ENVIRONMENTAL CONSIDERATION

This amendment involves changes in administrative structure. Accordingly, this 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, based on the considerations discussed above, that (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously evaluated, 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; (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: Stephen Pierce, NRR

Date: December 20, 2007