

November 25, 2003

Dr. Barry M. Klein  
Vice Chancellor for Research  
University of California, Davis  
One Shields Avenue  
Davis, CA 95616-8558

SUBJECT: ISSUANCE OF AMENDMENT NO. 6 TO AMENDED FACILITY OPERATING  
LICENSE NO. R-130 - REGENTS OF THE UNIVERSITY OF CALIFORNIA  
(TAC NO. MB5598)

Dear Dr. Klein:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 6 to Facility Operating License No. R-130 for the McClellan Nuclear Radiation Center (MNRC) TRIGA Research Reactor. The amendment consists of changes to the Technical Specifications (TSs) in response to your submittal of March 31, 2003, and is discussed in the enclosed Safety Evaluation Report.

Sincerely,

*/RA/*

Warren J. Eresian, 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. 50-607

Enclosures: 1. Amendment No. 6  
2. Safety Evaluation Report

University of California - Davis/McClellan MNRC

Docket No. 50-607

cc:

Dr. Wade J. Richards  
5335 Price Avenue, Bldg. 258  
McClellan AFB, CA 95652-2504

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

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**TEMPLATE #: NRR-058**

OFFICE	RORP:PM	RORP:LA	OGC	RORP:SC
NAME	WEresian:rdr	EHylton	AFernandez	PMadden
DATE	10/ 30 /2003	10/ 30 /2003	11/ 24 /2003	11/ 25/2003



REGENTS OF THE UNIVERSITY OF CALIFORNIA AT

McCLELLAN NUCLEAR RADIATION CENTER

DOCKET NO. 50-607

AMENDMENT TO AMENDED FACILITY OPERATING LICENSE

Amendment No. 6  
License No. R-130

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that
  - A. The application for an amendment to Amended Facility Operating License No. R-130 filed by the Regents of the University of California at McClellan Nuclear Radiation Center (the licensee) on March 31, 2003, 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 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 2.C.(ii) of Amended Facility Operating License No. R-130 is hereby amended to read as follows:

2.C.(ii) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 6, 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/*

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

Enclosure: Appendix A, Technical  
Specification Changes

Date of Issuance: November 25, 2003

ENCLOSURE TO LICENSE AMENDMENT NO. 6  
AMENDED FACILITY OPERATING LICENSE NO. R-130  
DOCKET NO. 50-607

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

31  
32  
33  
Figure 6.1

Insert

31  
32  
33  
Figure 6.1

#### 5.4 Fissionable Material Storage

Applicability - This specification applies to the storage of reactor fuel at a time when it is not in the reactor core.

Objective - The objective is to assure that the fuel which is being stored will not become critical and will not reach an unsafe temperature.

Specification -

a. All fuel elements not in the reactor core shall be stored (wet or dry) in a geometrical array where the  $k_{\text{eff}}$  is less than 0.9 for all conditions of moderation.

b. Irradiated fuel elements shall be stored in an array which shall permit sufficient natural convection cooling by water or air such that the fuel temperature shall not exceed the safety limit.

Basis - The limits imposed by Technical Specifications 5.4.a and 5.4.b assure safe storage.

#### 6.0 Administrative Controls

6.1 Organization. The Vice Chancellor for Research shall be the licensee for the UCD/MNRC. The UCD/MNRC facility shall be under the direct control of the UCD/MNRC Director. The UCD/MNRC Director shall be accountable to the Vice Chancellor for Research for the safe operation and maintenance of the facility.

6.1.1 Structure. The management for operation of the UCD/MNRC facility shall consist of the organizational structure as shown in Figure 6.1.

6.1.2 Responsibilities. The UCD/MNRC Director shall be accountable to the Vice Chancellor for Research for the safe operation and maintenance of the facility. The UCD/MNRC Director, or his designated alternate, shall review and approve all experiments and experiment procedures prior to their use in the reactor. Individuals in the management organization (e.g., Operations Manager, Reactor Supervisor, Health Physics Supervisor) shall be responsible for implementing UCD/MNRC policies and for operation of the facility, and shall be responsible for safeguarding the public and facility personnel from undue radiation exposures and for adhering to the operating license and technical specifications. The Operations Manager shall report directly to the UCD/MNRC Director, and shall immediately report all items involving safety and licensing to the Director for a final decision. The Reactor Supervisor and health Physics Supervisor report directly to the Operations Manager.

#### 6.1.3 Staffing

6.1.3.1 The minimum staffing when the reactor is not shutdown shall be:

- a. A reactor operator in the control room;
- b. A second person in the facility who can perform prescribed instructions;
- c. A senior reactor operator readily available. The available senior reactor operator should be within thirty (30) minutes of the facility and reachable by telephone, and;
- d. A senior reactor operator shall be present whenever a reactor startup is performed, fuel is being moved, or experiments are being placed in the reactor tank.

6.1.3.2 A list of reactor facility personnel by name and telephone number shall be available to the reactor operator in the control room. The list shall include:

- a. Management personnel.
- b. Health Physics personnel.
- c. Reactor Operations personnel.

6.1.4 Selection and Training of Personnel. The selection, training and requalification of operations personnel shall meet or exceed the requirements of the American National Standard for Selection and Training of Personnel for Research Reactors (ANS 15.4). Qualification and requalification of licensed operators shall be subject to an approved Nuclear Regulatory Commission (NRC) program.

## 6.2 Review, Audit, Recommendation and Approval

General Policy. Nuclear facilities shall be designed, constructed, operated, and maintained in such a manner that facility personnel, the general public, and both university and non-university property are not exposed to undue risk. These activities shall be conducted in accordance with applicable regulatory requirements.

The UCD Vice Chancellor for Research shall institute the above stated policy as the facility license holder. The Nuclear Safety Committee (NSC) has been chartered to assist in meeting this responsibility by providing timely, objective, and independent reviews, audits, recommendations and approvals on matters affecting nuclear safety. The following describes the composition and conduct of the NSC.

6.2.1 NSC Composition and Qualifications. The UCD Vice Chancellor for Research shall appoint the Chairperson of the NSC. The NSC Chairperson shall appoint a Nuclear Safety Committee (NSC) of at least seven (7) members knowledgeable in fields which relate to nuclear safety. The NSC shall evaluate and review nuclear safety associated with the operation and use of the UCD/MNRC.

6.2.2 NSC Charter and Rules. The NSC shall conduct its review and audit (inspection) functions in accordance with a written charter. This charter shall include provisions for:

- a. Meeting frequency (The committee shall meet at least semiannually.)
- b. Voting rules.
- c. Quorums (For the full committee, a quorum will be at least seven (7) members.
- d. A committee review function and an audit/inspection function.
- e. Use of subcommittees.
- f. Review, approval and dissemination of meeting minutes.

6.2.3 Review Function. The responsibilities of the NSC, or a designated subcommittee thereof, shall include but are not limited to the following:

- a. Review approved experiments utilizing UCD/MNRC nuclear facilities.
- b. Review and approve all proposed changes to the facility license, the Technical Specifications and the Safety Analysis Report, and any new or changed Facility Use Authorizations and proposed Class I modifications, prior to implementing (Class I) modifications, prior to taking action under the preceding documents or prior to forwarding any of these documents to the Nuclear Regulatory Commission for approval.
- c. Review and determine whether a proposed change, test, or experiment would constitute an unreviewed safety question or require a change to the license, to a Facility Use Authorization, or to the Technical Specifications. This determination may be in the form of verifying a decision already made by the UCD/MNRC Director.

- d. Review reactor operations and operational maintenance, Class I modification records, and the health physics program and associated records for all UCD/MNRC nuclear facilities.
- e. Review the periodic updates of the Emergency Plan and Physical Security Plan for UCD/MNRC nuclear facilities.
- f. Review and update the NSC Charter every two (2) years.
- g. Review abnormal performance of facility equipment and operating anomalies.
- h. Review all reportable occurrences and all written reports of such occurrences prior to forwarding the final written report to the Nuclear Regulatory Commission.
- i. Review the NSC annual audit/inspection of the UCD/MNRC nuclear facilities and any other inspections of these facilities conducted by other agencies.

6.2.4 Audit/Inspection Function. The NSC or a subcommittee thereof, shall audit/inspect reactor operations and health physics annually. The annual audit/inspection shall include, but not be limited to the following:

- a. Inspection of the reactor operations and operational maintenance, Class I modification records, and the health physics program and associated records, including the ALARA program, for all UCD/MNRC nuclear facilities.
- b. Inspection of the physical facilities at the UCD/MNRC.
- c. Examination of reportable events at the UCD/MNRC.
- d. Determination of the adequacy of UCD/MNRC standard operating procedures.
- e. Assessment of the effectiveness of the training and retraining programs at the UCD/MNRC.
- f. Determination of the conformance of operations at the UCD/MNRC with the facility's license and Technical Specifications, and applicable regulations.
- g. Assessment of the results of actions taken to correct deficiencies that have occurred in nuclear safety related equipment, structures, systems, or methods of operations.
- h. Inspection of the currently active Facility Use Authorizations and associated experiments.
- i. Inspection of future plans for facility modifications or facility utilization.
- j. Assessment of operating abnormalities.
- k. Determination of the status of previous NSC recommendations.

6.3 Radiation Safety. The Health Physics Supervisor shall be responsible for implementation of the UCD/MNRC Radiation Safety Program. The program should use the guidelines of the American National Standard for Radiation Protection at Research Reactor Facilities (ANSI/ANS 15.11). The Health Physics Supervisor shall report to the Operations Manager.

6.4 Procedures. Written procedures shall be prepared and approved prior to initiating any of the activities listed in this section. The procedures shall be approved by the UCD/MNRC Director. A periodic review of procedures shall be performed and documented in a timely manner by the UCD/MNRC staff to assure that procedures are current. Procedures shall be adequate to assure the safe operation of the

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 6 TO

AMENDED FACILITY OPERATING LICENSE NO. R-130

REGENTS OF THE UNIVERSITY OF CALIFORNIA AT

McCLELLAN NUCLEAR RADIATION CENTER

DOCKET NO. 50-607

1.0 INTRODUCTION

By letter dated March 31, 2003, the Regents of the University of California (the licensee) submitted a request for amendment of the Technical Specifications (TSs), Appendix A, to Facility Operating License No. R-130 for the McClellan Nuclear Radiation Center (MNRC) TRIGA research reactor. The request provides for the following changes, which if implemented, will result in Revision 13 of the TSs:

1. Incorporate a new management position, the "Operations Manager" into the Technical Specifications and change the UCD/MNRC Organization Chart to reflect this change.
2. Change the appointing authority of the Chairperson of the Nuclear Safety Committee (NSC) from the Director of the UCD/MNRC to the UCD Vice Chancellor for Research, and change the Technical Specifications and UCD/MNRC Organization Chart to reflect this change.

Each of these requests is discussed below.

2.0 EVALUATION

The current organization structure includes an UCD/MNRC Director to whom reports a Site Manager. The proposed organization structure, as reflected in Figure 6.1, replaces the Site Manager position with the position of Operations Manager, who reports directly to the UCD/MNRC Director, and to whom reports the Health Physics Branch and the Reactor Operations Branch. Since the proposed organization structure does not alter or reduce lines of authority and oversight, the staff concludes that it is acceptable.

In the current organization structure, the UCD/MNRC Director is responsible for appointing the Chairperson of the NSC. In the proposed organization structure, that responsibility is given to the UCD Vice Chancellor for Research, who is also the licensee for the UCD/MNRC. Since this proposed change increases the level of oversight from the licensee's staff to the licensee, the staff concludes that it is acceptable.

The staff has reviewed the proposed changes to the TSs and concluded that they are administrative in nature and do not impact the licensee's ability to continue to meet the relevant requirements of 10 CFR 50.36.

### 3.0 ENVIRONMENTAL CONSIDERATION

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 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 changes; and (3) such changes are 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: Warren J. Eresian

Date: November 25, 2003