U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION V

Report No. 50-224/80-01

Docket No. 50-224 License No. R-101 Safeguards Group _____

Licensee: University of California

Berkeley, California 94720

Facility Name: Berkeley Research Reactor (TRIGA Mark III)

Inspection at: Berkeley, California

Inspection conducted: May 6-9, 1980

Inspectors: A. Johnson 6/11/80
A. Johnson, Reactor Inspector — Date Signed

A. Chaffee 6/11/80
A. Chaffee, Reactor Inspector — Date Signed

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Date Signed

Approved By: B H Faulkenberry 6/11/80
B. H. Faulkenberry, Chief, Reactors Project — Date Signed
Secetion 2, Reactor Operations and Nuclear Support Branch

Summary:

Inspection on May 6-9, 1980 (Report No. 50-224/80-01)

Areas Inspected: Routine, unannounced inspection of facility organization, logs and records; requalification training; procedures; surveillance; logs and records; requalification training, procedures; surveillance; review and audit; experiments; and independent inspection. The inspection involved 24 inspector-hours onsite by two NRC inspectors.

Results: No items of noncompliance or deviations were identified.

RV Form 219 (2)

DETAILS

1. Persons Contacted

*Professor S. Kaplan, Reactor Administrator
*Dr. T. Lim, Reactor Supervisor
*H. Braun, Chief Reactor Operator
J. Harrell, Supervisor, Electronics Shop
G. Little, Reactor Health Physicist

*Denotes those attending the exit interview.

2. Organization, Logs and Records

The organization structure and personnel responsible for the operation and administration of the Berkeley Research Reactor were unchanged from that previously reported.

Through discussions with licensee representatives and an examination of facility records, the inspector found that the qualification levels, authorities and responsibilities of licensee personnel, including members of the Reactor Hazards Committee, were consistent with the Technical Specification requirements and the Safety Analysis Report.

Facility operation and maintenance logs were examined and found to document the performance of operational and maintenance activities consistent with administrative requirements. The specific records examined were as follows:

a. Maintenance Log

b. Operations Log Books

c. Daily Reactor Startup and Shutdown Checklist

d. Power "Pulse" Log

No items of noncompliance or deviations were identified.

3. Review and Audit

The Reactor Hazards Committee had met quarterly since the previous inspection. The approved minutes of the meetings held between February 22, 1979 and the date of the inspection were reviewed.

Changes to the facility design and to a facility procedure were found by the inspector to have been completed consistent with the criteria of 10 CFR 50.59. The changes reviewed were as follows:

a. Design change - change rod position indication from electric-mechanical to L.E.D. readout.

b. Design change - add battery as backup power supply for emergency alarm.

c. Procedure change - A statement was added to the second paragraph of Section 5.4.1 and on page 52 starting on line 18 of the Berkeley Research Emergency Plan.

During this inspection period, the Reactor Hazards Committee (RHC) had reevaluated their audit program in light of the recently approved Technical Specifications. Previously this audit function was satisfactorily conducted in two parts:

a. The Reactor Health Physicist at the facility, who is an ex officio member of the RHC, whould conduct monthly log reviews.

b. Sporadically throughout the year, one or two independent audits were were done on a rotating basis by the other members of the RHC.

To conform more with the statement contained within the new Technical Specifications (T.S. 6.2.c.), the above system of audits has been replaced with quarterly audits done on a rotating basis by the members of the RHC.

The inspector reviewed the RHC Charter and noted that the Charter needed to address in more detail some aspects of RHC operations. The following areas were in question:

a. Voting rules.

b. Method of submission and content of presentation to the Committee.

c. Use of subcommittees (e.g., any use of subcommittees for audits).

d. Review, approval, and dissemination of minutes.

The licensee agreed to evaluate those areas in question and expand the RHC Charter as appropriate.

No items of noncompliance or deviations were identified.

4. Requalification Training

A review of the facility records and personnel training files by the inspector verified that the licensee had implemented the requalification program for licensed operators consistent with the program

approved by the Division of Reactor Licensing on November 4, 1974. The following operator licenses have become inactive or expired due to work assignment conflicts or termination: Dr. Ruby (License inactive due to current work assignment), Mr. Lead (License inactive due to termination), Mr. Davis (License inactive due to termination), Mr. Neely (License expired due to termination), and Mr. Kaplan (License expired due to current work assignment).

No items of noncompliance or deviations were identified.

5. Procedures

Written instructions have remained essentially unchanged since the previous inspection. The inspector directly observed an irradiation demonstration, and a shutdown of the reactor. Facility procedures were adhered to during these activities and appeared to provide adequate technical guidance to safely perform the activities.

No items of noncompliance or deviations were identified.

6. Surveillance

The inspector selected the following periodic suveillance requirements of the Technical Specifications for review:

a. Operability of all reactor control and position interlocks.

b. Maximum allowable rod drop times.

c. Channel calibration.

d. Minimum allowable reactor pool level.

e. Rod worth measurements.

f. Shutdown margin calculations.

g. Confirmation of reactor pulse characteristics.

The records which were used to substantiate the completion of these requirements were the "Research Reactor Monthly Inspection Checklist"

for May 1979 - April 1980, the "Daily Startup Checklist" for May 1979 - April 1980 and other appropriate documentation. The inspector observed that the rod drop times were being checked at less than a second with reasonable certainly without the use of any devise except personnel judgement. The licensee stated that use of a stop watch would be evaluated.

No items of noncompliance or deviations were identified.

7. Experiments

Experiments performed since the previous inspection were reviewed. Procedures for new experiments (Nos. E 347-B through E 351-B) were examined with the following findings made by the inspector.

a. The procedures had been reviewed and approved as required for "Class A" or "Class B" experiments.

b. The experiments did not involve an unreviewed safety question.

c. Potential hazards with the experiments were clearly identified.

d. The approximate reactivity effect on the reactor was predicted beforehand.

No items of noncompliance or deviations were identified.

8. Independent Inspection

The inspectors conducted a tour of selected areas of the reactor room. The following observations were made:

a. Control room operators were knowledgeable of plant operating conditions and of experiments in progress. The control room was manned in accordance with the Technical Specifications.

b. Plant housekeeping was adequate.

c. Plant equipment and systems appeared normal for the status of the plant.

No items of noncompliance or deviations were identified.

9. Exit Interview

The inspectors met with licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on May 9, 1980. The inspectors summarized the scope and findings of the inspection.