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

REGION V

Report No. 50-326/79-03

Docket No. 50-326 License No. R-116 Safeguards Group

Licensee: University of California

Irvine, California 92717

Facility Name: TRIGA Mark I

Inspection at: Irvine, California

Inspection conducted: May 9-10, 1979

Inspectors: for G. W. Johnston, Reactor Inspector — 6/29/79 Date Signed

Date Signed

Date Signed

Approved By: B. H. Faulkenberry, Chief, Reactor Projects Section 2, Reactor Operations and Nuclear Support Branch — 6/29/79 Date Signed

Summary:

Inspection on May 9-10, 1979 (Report No. 50-326/79-03)
Areas Inspected: Routine, unannounced inspection of organization, logs and records; requalification program; review and audit; procedures surveillance; experiments; and followup on licensee events and previous inspector identified problems. The inspection involved 14 inspector-hours onsite by one NRC inspector.

Results: No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

*Dr. F. S. Rowland, Reactor Administrator
*Dr. G. Miller, Reactor Supervisor
P. Jerabek, Assistant Reactor Supervisor

*Denotes those attending the exit interview.

2. Licensee Event Reports

Licensee letters of August 24, 1978 and October 23, 1978.

On August 24, 1978, the Region V office of the NRC received notice of an event in which a ballpoint pen fell into a clearance space between the reflector assembly and the bottom grid plate of the core. Further, on October 6, 1978, the Region V office was notified in a telecon and later in a letter dated October 23, 1978, that an aluminum finger ring dosimeter also fell into the same general location in the core as the ballpoint pen.

Following the second occurrence, the licensee did not operate the plant until November 8, 1978 after the removal of the ballpoint pen and the finger ring dosimeter. Routine operation commenced November 14, 1978.

As part of the August 24, 1978 submittal on the first occurrence, the licensee proposed to construct an auxiliary fuel storage rack to store off-loaded fuel during retrieval operations. The inspector's review of the safety evaluation and applicable procedures indicated that 10 CFR 50.59 requirements have been satisified and that this does not involve an unreviewed safety question.

The safety evaluation included considerations for criticality safety, fuel cooling, seismic concerns, and fission product release. The procedures had provisions for records of fuel movement, observation of instrumentation by an operator, radiation safety considerations, and detailed instructions for strip down of the core.

Core reassembly commenced October 31, 1978 with the final core configuration being reached on November 8, 1978. Core excess reactivity at this point was $2.94. The final configuration of the core has the water holes (positions in core not filled by fuel rods or graphite elements) placed underneath the reactor tank bridge; this was done to reduce the possibility of additional objects falling into the reactor core. Licensee management stated that the reactor bridge will be posted to warn individuals to secure loose articles while they are on the bridge.

This item is closed.

3. Organization, Logs, and Records

One change has occurred to the organizational structure for the operation and administration of the reactor facility. W. Wadman, the campus Radiation Safety Officer (RSO) has resigned his position. The University administration is now pursuing the recruitment of another individual. In the interim the post will remain open. A technician is available to conduct the necessary surveys at the facility.

Records of maintenance and operation of the UCI TRIGA reactor for the period June 1978 through May 1979 were reviewed by the inspector and found to document that these activities were performed consistent with the conditions of the facility license and technical specifications. The records reviewed included the following:

A. Console Log Books (June 1978 - May 1979)

B. Scram and Unusual Event Log (June 1978 - May 1979)

C. Maintenance Log Book (June 1978 - May 1979)

D. Fuel Examination Records (November 1978)

No items of noncompliance or deviations were identified.

4. Review and Audit

The minutes and records of the quarterly meetings held by the Reactor Operations Committee were reviewed and found to document the performance of review responsibilities as required by the technical specifications.

No items of noncompliance or deviations were identified.

5. Requalification Program

A review of facility records and individual training files verified that the approved requalification program for licensed operators had been complied with during the period since the last inspection.

No items of noncompliance or deviations were identified.

6. Procedures

Procedures for facility operation, addressing the activities in Technical Specification 6.3, were examined by the inspector. These procedures included: startup, operation and shutdown of the reactor; utilization of experimental facilities; installation and removal of fuel elements; and maintenance of reactor systems.

The TRIGA Reactor Operations Manual received interim approval by the Reactor Operations Committee (ROC) in July, 1977. Reviews by the inspector of ROC meeting minutes from July, 1977 to the date of this inspection revealed that no further action had been taken on final approval of the manual. The licensee representative stated that the manual would be tendered for ROC final approval at the next meeting.

No items of noncompliance or deviations were identified.

7. Experiments

The experiments program has remained essentially unchanged with no "untried" experiments since the previous inspection. The majority of experiments performed have been activation analysis irradiations for research and classroom laboratory assignments. Each irradiation request reviewed was verified by a reactor operator to be consistent with the approved experiment methods prior to irradiation in the reactor.

No items of noncompliance or deviations were identified.

8. Surveillance

Periodic calibration of instruments, reactivity measurements, control rod measurements, and safety system tests have been performed by the licensee. A review of the facility records verified that the required calibrations and tests had been performed consistent with the technical specification requirements. The following calibration/surveillance requirements were reviewed in detail to verify technical adequacy and frequency of performance.

A. Control Rod Worth Measurements

B. Control Rod Drop Time Measurements

C. Power Level Calorimetric

D. Fuel Temperature Measurement

E. Control Rod Visual Inspection

F. Fuel Element Visual Inspection

G. Fuel Element Dimensional Measurements

No items of noncompliance or deviations were identified.

9. Independent Inspection Effort

The inspector witnessed the daily startup and system check, normal operations, toured the facility, and discussed experimental activation analysis with an operator. As was noted in the inspection report of June 8-9, 1978, the reactor has had numerous unanticipated scrams caused by operator errors. The frequency has been reduced over the previous inspection period, and a continuing effort to reduce the number of scrams by operator errors is still being pursued by the licensee.

No items of noncompliance or deviations were identified.

10. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) on May 10, 1979 to summarize the scope and findings of the inspection. The licensee representatives stated that posting the reactor bridge to warn individuals to secure loose articles would be pursued as soon as possible (see Paragraph 2). No other commitments were proffered by the licensee.