

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-602/89-02

Construction Permit: CPRR-123

Docket: 50-602

Licensee: University of Texas
College of Engineering
Department of Mechanical Engineering
Nuclear Engineering Programs
Austin, Texas 78712

Facility Name: Nuclear Engineering Teaching Laboratory (NETL)
(TRIGA Mark II)

Inspection At: NETL, Balcones Research Center, Austin, Texas

Inspection Conducted: April 27-28, 1989

Inspectors:

W. E. Seidle
M. E. Murphy, Reactor Inspector, Test Programs
Section, Division of Reactor Safety

5/6/89
Date

W. E. Seidle
R. V. Azua, Reactor Inspector, Test Programs
Section, Division of Reactor Safety

5/6/89
Date

Approved:

W. E. Seidle
W. C. Seidle, Chief, Test Programs Section
Division of Reactor Safety

5/6/89
Date

Inspection Summary

Inspection Conducted April 27-28, 1989 (Report 50-602/89-02)

Areas Inspected: Routine, announced inspection of mechanical equipment, piping, and electrical systems installation; construction progress; and schedule status.

Results: Within the areas inspected, no violations or deviations were identified. Finish work and punch list item correction are in progress. Core structure installation is essentially complete with beam tube alignments in progress. Some schedule slippage has been identified. After review and discussions of the water intrusion found in the beam tube, it was concluded that there was no further concern for the pool liner (see paragraph 3 for details).

DETAILS

1. Persons Contacted

University of Texas

*T. Bauer, Assistant Director, NETL
J. Green, Construction Inspector
M. Krause, Senior Reactor Operator

General Atomics

G. Law, Supervisory Field Engineer

*Denotes attendance at exit interview.

2. Construction Progress

The NRC inspectors toured the facility to view work in progress, review completion status, and observe general conditions. Finish work and correction of punch list items were in progress. Major construction items are complete. NETL personnel have accepted the reactor room and control room for occupancy. This will allow General Atomics (GA) personnel to proceed with mechanical and electrical installations prior to final facility acceptance by the University.

During the tour, it was noted that the pool water cooling system was complete except for the installation of the supply and return tailpieces into the pool. The problems with the cleanliness of the heat exchanger and the epoxy chipping on the large size valves were resolved. The heat exchanger was cleaned by the manufacturer's representatives. The large size valves were returned to the supplier after the NETL personnel advised them that proper protection in shipping should solve the problem. Replacement valves were received in good condition.

The skid mounted pool water purification system was installed, and the supply and return line installation was in final stages of completion. The GA representative was in the process of completing the core support structure installation. Work in progress and observed by the NRC inspectors was the beam tube alignment.

A second GA representative is expected to arrive the week of May 1. This individual will install the control room consoles and other electrical and electronic equipment.

Physical security elements have not all been received. Installation has not started pending satisfactory completion of door replacement, window lock repairs, and other deficiencies.

Items remaining to be received from GA are the Argon 41 radiation monitoring system and the detector chambers. The detector chambers are scheduled for shipment after licensing, as scheduled.

3. Water Intrusion Into Beam Tube

NETL personnel discussed with the NRC inspectors their concern when water was found in the beam tube. Apparently, the only source was from a gap between the pool aluminum liner and the concrete biological shield. It was theorized by the licensee that the gap was generated by concrete shrinkage during the curing. The water could have come from the wetting down required during the concrete curing process and/or from the recent reactor room cleaning and washdown. The pool lip seal was installed after these events. The liner has a multiple coat sealing system on the outer surface to prevent corrosion, consisting of a primer paint, epoxy coating, and a bituminous sealing material.

During the inspection, the water seepage had stopped or reduced to a rate that was less than the rate of evaporation. Subsequent to the inspection, the NRC inspector discussed the water seepage matter with the NRR program manager for the facility. The consensus was that, with the liner coating system and permanent lip seal installation, there should be no further water intrusion or aluminum corrosion concerns.

4. Schedule Milestones

The milestone schedule/completion dates, as published in NRC Inspection Report 50-602/89-01, have been revised and are as follows, as of April 28, 1989:

<u>Milestones</u>	<u>Completion Dates</u>	<u>Actual</u>
Receive control room console and mechanical components	October 1, 1988	October 1, 1988
Complete HVAC balancing	May 15, 1989	
Complete physical security elements	May 5, 1989	
Complete pool water system (installation)	March 31, 1989	April 26, 1989
Complete preoperational test procedures (including GA installation and test)	May 31, 1989	
Install control room console	May 8, 1989	

Install GA mechanical components (including purification system)	May 5, 1989
Install radiation monitoring equipment (installation by GA)	May 19, 1989
License two Senior Reactor Operators	June 12, 1989
Complete all operating procedures	Complete as required by equipment instal- lation; 98% complete as of January 24, 1989
Receive operating license	July 7, 1989
Load reactor fuel - achieve initial criticality	July 17, 1989*

*Depends on cask availability and
receipt of operating license.

4. Exit Interview

The inspection scope and findings were discussed with the Assistant Director, NETL, at the conclusion of the inspection on April 28, 1989. The licensee did not identify, as proprietary, any of the material provided to, or reviewed by, the NRC inspectors.