

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-602/89-06

Construction Permit: CPRR-123

Docket: 50-602


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

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

Inspection At: NETL, Balcones Research Center

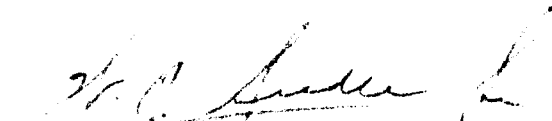
Inspection Conducted: November 14-15, 1989

Inspectors:



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

11/29/89
Date




D. L. Kelley, Reactor Inspector, Test Programs
Section, Division of Reactor Safety

11/29/89
Date

Accompanied by: W. C. Seidle, Chief, Test Programs Section
Division of Reactor Safety

Approved:



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

11/29/89
Date

Inspection Summary

Inspection Conducted November 14-15, 1989 (Report 50-602/89-06)

Areas Inspected: Routine, announced inspection of component and system
check-out and evaluation, preoperational testing, and schedule status.

Results: Within the areas inspected, no violations or deviations were identified. Final construction punch list item correction was still in progress. The NRC's construction phase inspection was not complete at the conclusion of this inspection and a finding could not be made that the reactor was ready for operation. Some component and system check-out and evaluation had been completed. Preoperational testing had started. Schedule slippage has occurred.

DETAILS

1. Persons Contacted

- B. Wehring, Director, Nuclear Engineering Teaching Laboratory
- *T. Bauer, Assistant Director, Nuclear Engineering Teaching Laboratory
- *R. Woodard, Health Physicist
- *M. Krause, Senior Reactor Operator

*Denotes attendance at exit interview.

2. Operational Readiness Review

The purpose of this inspection was to assess the overall physical plant and to determine if construction and preoperational testing has been completed. The facility construction phase is essentially complete; however, several items remain open that must be closed before the inspectors can complete the final construction phase inspection. These several items are identified in the following discussion.

a. Previously Identified Items

- o The "Test Program Manual" has not been reviewed and approved by the reactor operations committee and by licensee management.
- o The reactor operations committee charter has not been revised, reviewed, and approved for the operation of the Mark II TRIGA reactor.
- o The pool cooling and purification system FSAR diagram has not been revised to agree with the as-built configuration.
- o The reactor modes terminology between the Technical Specifications, FSAR, and operating procedures have not been resolved regarding consistency.
- o The concern for the actual differential pressure across the pool cooling heat exchanger tubes of 50 psig versus the intended differential pressure of 1-5 psig has not been resolved.
- o The final HVAC system balance has not been satisfactorily completed.

b. New Items

The joint seal between the building foundation and the lift-slab walls is allowing water leakage into the reactor bay. The leakage appears to be aggravated by the negative pressure of the building, which must be maintained to ensure that building confinement criteria are met.

There is an apparent design deficiency with the main entry door of the NETL building.

Several items were not completed in the mechanical "Facility Check-out Program." These items were:

- ° The "Key Review Points - General Construction Activity" has not been signed off.
- ° Index of check-outs has the following open items:
 - * Punchlist completion
 - * HVAC system - CPR alarms
 - * Argon purge system
 - * Fuel storage wells
 - * Fuel handling tools
 - * Radioactive waste
- ° Memorandum to the nuclear reactor committee affirming project completion has not been issued.
- ° The airborne radioactive isolation HVAC - CAM has an additional sign off; it was not initialed as complete.
- ° The fuel storage well checkoff and evaluation sheet is incomplete.
- ° The fuel handling and evaluation sheet is incomplete.
- ° The liquid radioactive waste system sheet is incomplete.
- ° Several items were not complete in the electrical and instrument and control "Facility Check-out Program." These items were:
 - * The resolution of the software control problems
 - * The resolution of the circuit noise causing spurious alarms and trips
- ° The following test and check sheets have not been completed:
 - * The applications programs (operations, diagnostics, and applications)
 - * The diagnostics or applications check cross-reference
 - * The power supply checks
 - * The data acquisition computer (DAC) 10 checks

- * The NM 1000 neutron measurement system check sign offs
- * The NPP 1000 pulse power channel check sign offs
- * The NP 1000 pulse power channel check sign offs
- * The safety channel operator checks
- * The rod drive operator check sheet
- * The water chemistry check sheet
- * The instrument, control, and safety system check-out and operation of the control system console and data acquisition computer (DAC) check-out record

c. System Walkdown

The inspectors performed a general facility walkdown. Additional inspections were performed on a random sampling of wiring connections and circuit identification tags within the control console and the data acquisition cabinet. No other problems were found beyond those previously discussed.

3. Schedule Milestones

The milestone schedule/completion dates, as published in NRC Inspection Report 50-602/89-05, have been revised and are as follows, as of November 15, 1989:

<u>Milestones</u>	<u>Scheduled Completion Dates</u>	<u>Actual</u>
Receive control room console mechanical components	October 1, 1988	October 1, 1988
Complete HVAC balancing	December 22, 1989	
Complete physical security elements	August 1, 1989	September 29, 1989
Complete pool water system (installation)	March 31, 1989	April 26, 1989
Complete preoperational test procedures (including GA installation and test)	December 22, 1989	

Install control room console	May 8, 1989	May 24, 1989
Install GA mechanical components (including purification system)	May 5, 1989	May 19, 1989
Install radiation monitoring equipment (installation by GA)	August 1, 1989	September 1, 1989
License two senior reactor operators	June 16, 1989	June 16, 1989
Complete all operation procedures	December 22, 1989	
Receive operating license	March 1990	
Load reactor fuel - achieve initial criticality	May 1990	

4 Exit Interview

The inspection scope and findings were discussed with the Assistant Director, NETL, at the conclusion of the inspection on November 15, 1989. The licensee did not identify, as proprietary, any of the material provided to, or reviewed by the inspectors.