

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-156/92001(DRSS)

Docket No. 50-156

License No. R-74

Licensee: University Of Wisconsin

Facility Name: TRIGA Research Reactor

Inspection At: Nuclear Reactor Laboratory, Madison, Wisconsin

Inspection Conducted: April 8-10, 1992

Inspectors: C. Cox

9/20/92
Date

T. Michael

9/20/92
Date

Approved By: J. W. McCormick-Barger, Chief
Emergency Preparedness and
Non-Power Reactors Section

Date

Inspection Summary

Inspection on April 8-10, 1992 (Report No. 50-156/92001(DRSS))

Areas Inspected: Routine, announced inspection to review actions on: organization, logs, and records; review and audit functions; requalification training; procedures; surveillance; experiments; fuel handling activities; emergency planning; radiation controls; radwaste management (40750); transportation activities (86740); periodic and special reports (90713); and followup on items of noncompliance (92702).

Results: Of the 13 areas inspected, no violations or concerns were identified. The overall program remained good. The quality of the procedures and record keeping were especially noteworthy.

DETAILS

1. Persons Contacted

University of Wisconsin

*S. M. Matusewic, Reactor Supervisor
*R. Cashwell, Reactor Director
A. Ben-Aikri, Acting Radiation Safety Officer
L. DeKock, Health Physicist

*Denotes those attending the exit meeting on April 10, 1992.

2. General (40750)

This inspection, which began on April 8, 1992, was conducted to examine the research reactor program at the University of Wisconsin. The facility was toured shortly after arrival. The general housekeeping of the facility remained good. The reactor was operated approximately 16 hours a week. Operations were primarily for student laboratory classes, irradiation of samples, experiments, and ensuring the fuel elements remained self-protecting. The reactor core consisted of high enriched uranium (HEU) fuel elements. The Department of Energy notified the university that funding for the safety analysis phase of the conversion to low enriched uranium (LEU) fuel elements was available during the fiscal year and the licensee was preparing a request for that funding.

The inspectors witnessed the performance of a pre-startup checklist, reactor startup, reactor period determination, and a power pulse demonstration for a health physics class.

No violations or deviations were identified.

3. Organization, Logs, and Records (40750)

The Nuclear Reactor Laboratory staff consisted of a Reactor Director (senior reactor operator (SRO)), Reactor Supervisor (SRO), two additional SROs, and four reactor operators (ROs). The Reactor Safety Committee (RSC) Chairman was also a qualified SRO. The staff performed its own radiation and contamination surveys. The university Health Physics Department performed periodic walkthroughs to ensure conformance with the University's health physics program. Two members of the RSC were replaced since the last inspection including the Radiation Safety Officer (RSO), who was replaced by the acting RSO. The new members of the committee appeared well qualified.

The inspectors reviewed selected reactor operator logs for 1990 through March 1992 and did not identify any concerns. The licensee records were well-maintained.

No violations or deviations were identified.

4. Reviews and Audits (40750)

The RSC met on a semiannual basis as required by Technical Specifications. The inspectors reviewed the RSC meeting minutes for 1990 through 1992. The meeting minutes were of good quality and provided a clear record of review and approval of reactor activities.

A modification to the Stack Monitoring and Continuous Air Monitoring System (CAMS) was reviewed by the inspectors. The safety evaluation was very thorough and well documented. Meeting minutes indicated that the modification and the safety evaluation were reviewed by the RSC.

No violations or deviations were identified.

5. Requalification Training (40750)

The inspectors reviewed procedures, logs, and training records; and interviewed personnel to verify that the requalification training program was being carried out in conformance with the facility's approved plan and NRC regulations. UWNR 004, "Operator Proficiency Maintenance Program," stated the requirements for ensuring an operator maintains their license. These included training lectures, performing required number of reactivity manipulations, passing written examinations, medical qualifications, remedial training if required, and record requirements. The inspectors verified that operators completed the requirements for 1990 through 1992.

No violations or deviations were identified.

6. Procedures (40750)

The licensee maintained a large number of procedures on a word processing system and were reviewed on a yearly basis and revised as required. Operators were instructed to inform a SRO of any procedural problem or question in order to obtain an adequate resolution. The contents of selected procedures were found to be of good quality with sufficient detail to perform each task as required. The quality of the procedures was a positive attribute of the licensee's program.

The inspectors accompanied an operator on the daily pre-startup checklist and reviewed selected completed daily and monthly checklists, including health physics surveys. No concerns were identified.

No violations or deviations were identified.

7. Surveillance (40750)

UWNR 100, "Surveillance Activities," listed weekly, monthly, semiannual, and annual surveillance activities that were required to be accomplished. The inspectors reviewed selected checklists for 1990 through 1992 and verified surveillances were being completed within the required time schedule. The checklist also identified preventive maintenance activities and the month they were required to be complete; no discrepancies were noted. Selected surveillance procedures were

reviewed and determined to be adequate to verify the Technical Specification requirements.

No violations or deviations were identified.

8. Experiments (40750)

UWNR 030, "Experiment Review Questions," required experimenters to submit to the Reactor Director a description of the experiment including materials involved, reactivity effects, and safety analysis. The Reactor Director would perform a safety evaluation and classify the experiment as routine, modified routine, or special to determine what level of approval was needed. New experiments were identified in 1990-92 and were classified as modified routine since similar experiments had been done in the past. As such, the experiments were approved by the Reactor Director. The descriptions and evaluations associated with those experiments were of good quality.

No violations or deviations were identified.

9. Fuel Handling (40750)

The facility fuel handling program was reviewed by the inspectors. The review included the verification of approved procedures for fuel handling and their technical adequacy in the areas of radiation protection, criticality safety, Technical Specification, and security plan requirements. The inspectors determined by records review and discussions with personnel that fuel handling operations were carried out in conformance to procedures.

No violations or deviations were identified.

10. Emergency Planning (40750)

The licensee conducted semiannual emergency drills and one of these included a practice building evacuation. The drill ensured necessary equipment was available, operators were knowledgeable in emergency procedures, and the adequacy of evacuating the building and surrounding area. Operators were trained and examined on emergency procedures yearly as part of the operator requalification program.

No violations or deviations were identified.

11. Radiation Control (40750)

A review of personnel dosimetry records for 1990-91 and 1991-92 indicated no problems. Dosimetry vendors had been changed since the past inspection, both the new and previous vendors were NAVLAP certified. The maximum whole body exposure was 20 mrem and the highest extremity exposure was 100 mrem.

Dose rate and contamination surveys had been conducted as required with no problems noted. Areas were properly posted. Instruments were properly calibrated.

No violations or deviations were identified.

12. Radwaste Management (40750)

a. Gaseous Radwaste

The Stack Monitoring system was updated since the last inspection. The update consisted mainly of changing the electronics of the system to solid state. The calibration of the monitor remained essentially the same in that the licensee would calibrate with a known concentration of argon-41. According to the licensee's calculations, the average concentration of argon-41 released in fiscal year 1990-91 was $0.0075E-6$ microcuries per milliliter.

b. Liquid Wastes

Potentially contaminated water was collected and stored in a 2000 gallon holdup tank where it was sampled prior to release to the sanitary sewer. In 1990-91, 246.7 microcuries were released at an average concentration of $2.6E-5$ microcuries per milliliter.

c. Solid Waste

The licensee had no transfers of solid waste since the last inspection.

No violations or deviations were identified.

13. Transportation Activities (86740)

The licensee discontinued transferring byproduct material to any licensee other than to the campus.

No violations or deviations were identified.

14. Review of Periodic and Special Reports (90713)

The inspectors reviewed the 1990-91 annual report for timeliness of submittal and adequacy of information submitted.

The report was submitted in a timely manner and contained the information required by Technical Specifications.

No violations or deviations were identified.

15. Followup on Items of Noncompliances (92702)

(Closed) Violation 50-156/90001-01: "Failure to declare an Unusual Event". The licensee received approval for a change to the emergency action level for low pool water level. The change clarified that an Unusual Event was to be declared upon pool level reaching or approaching 15 feet below curb level. The submitted change to the emergency action level was the actual condition which would warrant the declaration of the emergency. The corrective actions were adequate.

16. Exit Interview (30703)

The inspectors met with the Reactor Director and Reactor Supervisor at the conclusion of the inspection on April 10, 1992. The inspectors summarized the scope and results of the inspection and discussed the likely content of this inspection report. The licensee acknowledged the information and did not indicate that any of the information disclosed during the inspection could be considered proprietary in nature.