

U. S. Nuclear Regulatory Commission
Region I

Report No. 50-166/90-03
Docket No. 50-166
License No. R-70
Licensee: University of Maryland
College Park, Maryland
Facility Name: Maryland University Training Reactor
Inspection at: College Park, Maryland
Inspection Conducted: December 12-14, 1990

Inspector:

T. F. Dragoun
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Effluents Radiation Protection
Section (ERPS)

1/9/91
date

Approved by:

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1/14/91
date

Inspection Summary: Inspection on December 12-14, 1990 (Report No. 50-166/90-03)

Areas Inspected: Routine, announced safety inspection of the reactor operations and health physics programs including: organization and staffing; audits and management oversight; operator requalification; surveillances and calibrations; and routine health physics surveys.

Results: No violations or deviations were identified. The documentation and recordkeeping are excellent.

DETAILS

1.0 Individuals Contacted

- *Dr. D. Ebert, Reactor Director
 - T. Long, Manager, Radiation Safety Office
 - *Dr. F. Munno, Senior Faculty Staff
 - *Dr. G. Pertmer, Acting Director, Nuc. Eng. Program
 - *Dr. M. Wuttig, Chairman, Nuc. Eng. and Materials Department
- *Attended the Exit Interview on December 14, 1990

2.0 Facility Tour

The reactor was secured for the duration of this inspection. The inspector toured the sample preparation area, control room, reactor room, support equipment rooms and the controlled area outside of the reactor building. Housekeeping was good in all areas. Signs, postings, and access controls appeared to be adequate. The licensee recently modified the pool water filter system to eliminate cavitation of the pump. The piping was changed to place the filter train on the pump discharge rather than the suction side. This eliminated the loss of net positive suction head and resulting cavitation as the filter developed increasing pressure drop during use. The licensee's analysis of this modification showed no unreviewed safety question as defined by 10 CFR 50.59.

The reactor control console instrumentation has been replaced with new digital readout equipment. This change was previously approved by the NRC. The licensee has a project underway to develop computer software to control the reactor using the digitalized signals. However, all safety functions are still performed by the systems described in the Technical Specifications. The inspector had no further questions.

3.0 Organization and Staffing

There have been recent reorganizations within the University of Maryland system including the merger of the Nuclear Engineering Department with the Materials Department. The Reactor Director now reports to the new Chairman of the Materials and Nuclear Engineering Department. However, the impact on operation of the Training Reactor was minimal. Technical support is provided by the Nuclear Engineering Program Faculty as before. The licensee indicated that appropriate changes to Technical Specification organizational charts figures 6-1 and 6-2 will be submitted.

The reactor operations staff consists of the Facility Director, who is Senior Reactor Operator (SRO) qualified, two other SROs, two Reactor Operator (RO) qualified nuclear engineering students, and four operator trainees. There are three ex-operators on campus who are available in an emergency. The inspector concluded that staffing levels are adequate to support all phases of reactor operations.

4.0 Audits and Management Oversight

The activities of the Reactor Safety Committee were reviewed with respect to the requirements in Technical Specification 6.2, "Review and Audit". The membership of the Committee and meeting frequency were found to be in compliance with the requirements. A review of minutes of meeting for the past three years indicates that good oversight was provided. For example, the changes to the pool water filter system discussed above were thoroughly reviewed and approved by the committee. No violations or weaknesses were observed in this area.

5.0 Operator Regualification Program

The Operator Regualification Program (revision 4) was approved for use by the NRC in March 1984. The program received an in-depth audit by the NRC in 1987 after it was determined that the licensee used "take-home" exams, contrary to NRC guidance. This problem was corrected at that time. The current implementation of this program was determined from discussions with the Reactor Director and a review of training records and written exam results.

The Regualification Program is run on a fixed, two-year cycle that always begins and ends in April of even-numbered years. Elements of the program include performing reactor start-ups, attending Nuclear Engineering courses, review of documents, and an annual written exam. Records are maintained of the completion of the requirements. The inspector reviewed the regualification records for S. Wingate, M. Gavrilas, and B. White. Records were complete and well maintained. No training discrepancies were found.

6.0 Surveillances and Calibrations

Records and procedures for the performance of selected surveillances required by Technical Specification 4.0 were

reviewed. These included calculations of shutdown margin, excess reactivity, rod worth, and reactivity insertion rates. Also reviewed were the Area Radiation Monitor Calibrations for the 'bridge' and 'exhaust' monitors. The procedures and records were found to be of excellent quality. Surveillances were completed on schedule and the results were well within prescribed limits. No violations or weaknesses were observed.

7.0 Routine Health Physics Surveys

Monthly health physics surveys of the reactor facility were conducted by the full-time health physics staff. Surveys included smear checks for loose contamination, dose rates, airborne activity, the condition of warning signs, and analyses of reactor pool water for radioisotopes. Survey results were recorded on standard maps and checklists that ensured consistency. The two technicians performing the surveys were degreed and have 5 or more years of experience. Within the limited scope of this review, the routine survey program appears to be adequate.

8.0 Exit Interview

The inspector met with the personnel delineated in Section 1.0 at the conclusion of this inspection on December 14, 1990. The scope and findings of the inspection were presented at that time.