

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report Nos. 50-182/92001(DRSS); 70-152/92001(DRSS)

Docket Nos. 50-182; 70-152

License Nos. R-87; SNM-142

Licensee: Purdue University  
School of Nuclear Engineering  
West Lafayette, IN 47907

Facility Name: Purdue University Reactor (PUR-1)  
Fast Breeder Blanket Facility (FBBF)

Inspection At: Nuclear Laboratories, West Lafayette, IN

Inspection Conducted: August 17-18, 1992

Inspector:

*J. E. Foster for*  
C. Cox  
Non-Power Reactor Inspector

*8/27/92*  
Date

Approved By:

*J. E. Foster for*  
J. W. McCormick-Barger, Chief  
Emergency Preparedness and  
Non-Power Reactor Section

*8/27/92*  
Date

Inspection Summary

Inspection on August 17-18, 1992 (Report Nos. 50-182/92001(DRSS); 70-152/92001(DRSS))

Areas Inspected: Routine, announced inspection to review actions on: followup on previous inspection items (92701); organization, logs, and records; review and audit functions; requalification training; emergency planning; radiation controls; radwaste management (40750); transportation activities (86740); and periodic and special reports (90713).

Results: Of the 13 areas inspected, no violations or deviations were identified. The facilities appeared to be well-maintained. Radiological Environmental Management provides good radiation protection support to the reactor staff. The Committee on Reactor Operations (CORO) provided a strong oversight function with annual audits and quarterly meetings. The Reactor Supervisor retired in December 1990 and the Laboratory Director assumed the supervisor's duties.

## DETAILS

### 1. Persons Contacted

#### Purdue University

\*Dr. F. M. Clikeman Director, Nuclear Laboratories/Reactor Supervisor

\*Dr. G. S. Born, Chairman, Radiological Control Committee

\*E. Merritt, Technician

\* Denotes those present at the Exit Meeting on August 18, 1992.

### 2. General

This inspection, which began on August 17, 1992, was conducted to examine the research reactor and Fast Breeder Blanket Facility (FBBF) program at Purdue University. The reactor room and FBBF were toured. The general housekeeping of these facilities was good. The reactor operated for about 128 hours in the past two years. Reactor operations were for student laboratory classes, irradiations of samples, or for operator proficiency. The reactor was not operated during the inspection.

No violations or deviations were identified.

### 3. Action on Previous Inspection Items

a. (Closed) Open Item (50-182/88001-01) Lack of charter governing the activities of the CORO and its subcommittee. A new charter had not been finalized. However, the CORO and its subcommittee activities and functions continued to meet the requirements in the Technical Specifications (TS). This item is closed and an Inspection Followup Item (IFI) is opened in Section 5 of this report.

b. (Closed) Open Item (50-182/88001-02) Procedures need updating by removing obsolete procedures and standardization. All procedures were reviewed and a determination made as to which procedures should be deleted. The operating procedures were then rewritten, standardized, and approved by the CORO. This item is closed.

No violations or deviations were identified.

### 4. Organization, Logs, and Records (40750)

The facility organization was reviewed and verified to be consistent with the TS and the Safety Analysis Report (SAR). Minimum staffing requirements were verified to have been met during reactor operations and fuel handling operations. The staff consisted of two licensed Senior Reactor Operators (SROs), the Nuclear Laboratories Director and a technician. The technician's license was upgraded to an SRO in 1992. The Nuclear Laboratories Director assumed the duties of the Reactor Supervisor in December 1990 upon the retirement of the Reactor

Supervisor. The retired Reactor Supervisor continued to work for the facility on a part time basis.

The reactor operator logs were reviewed for 1990-1992 and no concerns were identified. The logs were of sufficient detail and properly maintained.

No violations or deviations were identified.

5. Reviews and Audits

The CORO and its subcommittee were composed of qualified members. CORO quorum requirements and frequency of meetings were met with the minor exception of one meeting held six days beyond the specified period. Meeting minutes were thorough and complete. Items reviewed by the committee included annual audits and emergency exercises. No new experiments or design changes were submitted to the CORO since the last inspection.

Annual audits were conducted by the Chairman of the CORO. The audits were thorough and adequately covered operation of the facilities. The 1991 audit identified a concern with a late TS surveillance. That surveillance is discussed in Section 8 of this report.

Open Item 50-182/88001-01 discussed in Paragraph 3 identified that a charter did not exist for the CORO. As discussed in Inspection Report Nos. 50-182/88001 and 70-152/88001, the composition, qualifications, duties, and responsibilities of the CORO were described in the TS. The CORO continued to meet the requirements of the TS. However, the concern addressed in the open item will continue to be tracked as an Inspection Followup Item (50-182/92001-01).

No violations or deviations were identified.

6. Regualification Training (40750)

The regualification training program was in conformance with the facility's approved regualification plan. The licensee had been exempted from conducting the biennial lecture training series and written examination for the Nuclear Laboratory Director. However, the director took a written exam administered by NRC examiners during the upgrading of the technician's license from a Reactor Operator (RO) to an SRO. Both the Director and the technician met the performance requirements.

No violations or deviations were identified.

7. Procedures (40750)

Open item 50-182/88001-01 identified a concern that the facility procedures needed updating by removing obsolete procedures and standardization of the remaining procedures. The Nuclear Laboratories Director had completed the procedure review and identified most of the 69 procedures as obsolete. The remaining procedures had been rewritten, standardized, approved by the CORO and issued in accordance with the TS.

No violations or deviations were identified.

8. Surveillance (40750)

The implementation and tracking of the surveillance program remained as described in Report Nos. 50-182/90001 and 70-152/90001. The 1991 audit report indicated that the 14 month interval specified for TS 3.1.a, shim-safety rod reactivity worths surveillance, was exceeded. A review of operating records indicated that the facility had experienced maintenance problems and could not conduct the surveillance. No reactor operations took place during that period, and when operations were resumed appropriate surveillances were conducted to ensure safe reactor operations.

No violations or deviations were identified.

9. Experiments (40750)

No new experiments were performed since the last inspection.

No violations or deviations were identified.

10. Fuel Handling (40750)

Fuel handling at the facility was conducted to meet TS surveillance requirements and performed in accordance with approved procedures.

No violations or deviations were identified.

11. Emergency Planning (40750)

The licensee performed annual emergency drills as required. Drill results were reviewed by the CORO. A request to the NRC for relief to reduce the drill frequency to biennially was denied. Procedures were in place and required records were kept. The emergency kit was inventoried at the required frequency and training requirements were met.

No violations or deviations were identified.

12. Transportation Activities (40750)

No transportation activities took place since the last inspection. Radwaste was transferred to the university broad scope license for packaging and disposal.

No violations or deviations were identified.

13. Radiation Control (40750)

The Radiological and Environmental Management (REM) office administered the radiation protection program at the research reactor and the FBBF. Their activities included posting and labeling, radiation and contamination surveys, calibration of instruments, exposure records, training, and environmental monitoring. A review of records and an

interview with the Radiological Control Committee Chairman indicated strong radiological control support for the reactor facility and FBBF.

No violations or deviations were identified.

14. Radwaste Management (40750)

The radwaste program continued to be as described in Report Nos. 50-182/90001 and 70-152/90001.

No violations or deviations were identified.

15. Review of Periodic and Special Reports (90713)

The 1990 and 1991 annual reports were reviewed. No concerns were identified.

No violations or deviations were identified.

16. Fast Breeder Blanket Facility (FBBF) (40750)

The program continued to be as described in Inspection Report Nos. 50-182/90001 and 70-152/90001.

No violations or deviations were identified.

17. Inspection (30703)

The inspector met with the licensee representatives denoted in Paragraph 1.1.1 and at the conclusion of the inspection on August 18, 1992. The inspector 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.