

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-170/84-05

Docket No. 50-170

License No. R-84 Priority - Category F

Licensee: Defense Nuclear Agency
Bethesda, Maryland 20014

Facility Name: Armed Forces Radiobiology Research Institute

Inspection At: Bethesda, Maryland

Inspection Conducted: May 10-11, 1984

Inspectors: T. C. Elsasser
L. Whitaker, Reactor Engineer

9/26/84
date

Approved by: T. C. Elsasser
T. C. Elsasser, Chief, Reactor
Projects Section No. 1B

9/26/84
date

Inspection Summary: Inspection on May 10-11, 1983 (Report No. 50-170/84-05)

Areas Inspected: Routine, unannounced inspection by a region-based inspector (12 hours) of facility operations, organization, reviews and audits, operator requalification training, surveillance activities, radiation protection, and radioactive effluents.

Results: No violations were identified. Licensee practices with respect to the facility organization (paragraph 4), procedure control (paragraph 5) and requalification training (paragraph 6) were examined. These practices will require further review during subsequent inspections.

DETAILS

1. Persons Contacted

- *Col. B. R. Adcock, Director, Armed Forces Radiobiology Research Institute
- Lt.Col. H. Reese, Administrator Officer
- *Dr. N. K. Chawla, Head, Radiation Safety Department
- Capt. C. A. Williamson, Reactor Physicist-In-Charge
- *Mr. M. L. Moore, Chief Supervisory Operator

The inspector also interviewed reactor operators and radiation safety personnel during the inspection.

*denotes those present at the exit interview.

2. Facility Tour

The inspector examined the facility with a licensee representative immediately after the entrance interview. The housekeeping of the facility was generally acceptable.

3. Facility Operation

The Armed Forces Radiobiology Research Institute (AFRRI) reactor is used as a mixed neutron and gamma source for Department of Defense radiation research. The reactor is operated during dayshift, five days a week.

4. Organization

The organization operating the reactor is as follows:

Physicist-In-Charge, Capt. C. A. Williamson, (Senior Reactor Operator)
Chief Supervisory Operator, Mr. M. L. Moore (Senior Reactor Operator)
Reactor Operator, Sgt. H. H. Spence (Senior Reactor Operator)
Reactor Operator, Sgt. W. P. Menzel (Senior Reactor Operator)
Reactor Operator, Maureen Dougherty (Senior Reactor Operator)

The inspector noted that the facility organization did not meet the requirements of the ANSI 15.4 standard in that the individual assigned to Level 2 for operational decisions did not have the required operational experience. However, the inspector was informed that the licensee had previously identified this inadequacy and that the facility organizational structure would be modified upon receipt of facility management approval. Subsequent to the inspection, the inspector was notified that the facility organizational structure had been modified to coincide with the standard. Under the new organization, Mr. M. L. Moore replaced Capt. C. A. Williamson as Physicist-In-Charge. The modified organizational structure will be reexamined during a subsequent inspection (84-05-01).

5. Procedure Control

During examination of various operational procedures the inspector determined that the licensee had not written a document which clearly defined the steps required to initiate, review, approve and revise operational procedures. Specifically, the inspector noted that handwritten changes were made to several of the operational procedures. According to the licensee, a document has been written to define the procedures required to modify operational procedures. This document will be implemented upon renewal of the facility license. This document will be reviewed during a subsequent inspection (84-05-02).

6. Operator Requalification Training

The inspector examined the requalification records for the five senior reactor operators (SROs) listed in Section 4 of this report. The licensee is currently using the "Reactor Operator Requalification Program for AFRRRI-TRIGA Reactor Facility" which was submitted to the NRC on September 14, 1980, and was approved by the Standardization and Special Projects Branch on March 16, 1981. The records included the required information in individual files for each operator licensee. These individual files included a copy of the operator's license, copies of the annual written examinations, documentation that the licensee successfully completed annual console performance and oral facility examinations, and the requalification checklist.

The inspector also examined the records of the training lectures and classes given. The inspector noted that each annual examination did not address all the subjects of the program. The licensee explained that they cover all the subjects during the two-year requalification cycle. A complete two-year requalification cycle will be examined during a subsequent inspection to insure that all subjects in the requalification program have been addressed (84-05-03).

7. Surveillance Activities

The following surveillance requirements were reviewed:

<u>Tech. Spec</u>	<u>Description</u>	<u>Frequency</u>	<u>Time Period</u>
II.C.1	Verify operability of radiation monitor instrument alarms at alarm set points	Weekly	1984 to date
II.C.1	Calibration of R-2	Quarterly	1984 to date

N/A	Operability of portable instruments	Weekly	1984 to date
N/A	Calibration of Portable Instruments	Weekly	1984 to date

The licensee had performed the surveillance items as required.

The inspector verified that, as required by Technical Specification III.C., the licensee had written instructions in effect for the surveillance activities listed above.

8. Radiation Protection

a. Preparation Area

The licensee redefined the boundary of the contamination controlled zone within the preparation area outside the exposure rooms. The controlled zone was placed closer to the exposure room and the radiation detection instrument(s) provided for personnel to use in performing personal surveys upon leaving the controlled area were suitably located at the exit.

b. Replacement of Area Radiation Monitors

The licensee installed new area radiation monitors at the locations required by the Technical Specifications. The licensee will continue to use the old monitors as the official devices required by the Technical Specifications until the new units have been proven to operate properly and reliably.

c. Radiation and Radioactive Contamination Surveys

Radiation Safety Department personnel conduct radiation surveys of the Exposure Rooms prior to the entry of other personnel. The inspector reviewed records of the radiation levels found in the rooms from January 2, 1984 through May 10, 1984. The licensee uses this information to limit personnel exposure. The radiation levels in the rooms were well below the allowable limits.

The licensee conducts weekly smear samples and radiation level measurements in the Warm Storage Room, in the preparation area, and on the reactor deck. The inspector examined the reports of the surveys conducted from January 5, through May 10, 1984. The licensee found no smearable radioactive contamination above background levels.

d. Personnel Exposure

The inspector examined the radiation exposure records for personnel associated with the AFRRRI reactor for 1983 and 1984. No annual exposure in excess of 200 mrem was received by any one individual.

9. Radioactive Effluents

The inspector examined the licensee records of the gaseous and liquid radioactive effluents from the AFRRRI facility for 1983 and 1984. The concentration of radionuclides in the effluents was within the limits specified in 10 CFR 20, Appendix B, Table II.

10. Exit Interview

The inspector met with the licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on May 11, 1983. The inspector presented the scope and findings of the inspection.