U.S. NUCLEAR REGULATORY COMMISSION
REGION I
INSPECTION REPORT

License/Docket/Report Nos. R-84/50-170/94-02; 19-08330-02/030-04545/94-01

Licensee: **Defense Nuclear Agency**
Bethesda, Maryland 20814-5145

Facility: **Armed Forces Radiobiology Research Institute (AFRRI)**

Inspection At: Bethesda, Maryland

Dates: May 25 - 26, 1994

Inspector: Ebe C. McCabe, Jr., for — 6/8/94
A. Della Ratta, Physical Security Inspector — Date

Approved By: Ebe C. McCabe, Jr. — 6/8/94
E. C. McCabe, Chief, Safeguards Section — Date

Scope: Announced inspection of nuclear material control and accounting and physical security, including: organization and operation; shipping and receiving; storage and internal controls; inventory; records and reports; and physical protection measures for special nuclear material (SNM) of low strategic significance.

Results: The licensee's programs were found to be directed toward the protection of public health and safety. No safety concerns or violations of NRC requirements were identified in the areas inspected.

DETAILS

1.0 Key Persons Contacted

The persons contacted included the following.

C. Galley, Head, Radiation Sources Department
* M. Moore, Reactor Facility Director
* H. Spence, Senior Reactor Operator
* R. George, Reactor Operations Supervisor
* L. Alt, Senior Staff Engineer
T. O'Brien, Radiation Safety Officer
E. Wampler, Health Physicist

* Present at the exit interview on May 26, 1994.

2.0 Material Control and Accounting

2.1 Organization and Operation

The inspector verified, through a review of records, that the licensee maintained nuclear material control procedures. The procedures were documented in a manual entitled "Special Nuclear Material Accountability," dated May 15, 1991. Custody of all special nuclear material (SNM) and management of the nuclear material control and accountability program were the responsibility of the Reactor Facility Director.

2.2 Shipping and Receiving

The inspector determined through a review of records that the licensee maintained procedures to assure that all nuclear material shipped or received was accurately accounted for.

The inspector performed a review of all DOE/NRC Forms-741 generated during the period April 1, 1991 through March 31, 1994. Based on the review, it was determined that each form was properly signed, timely dispatched, and contained accurate data.

2.3 Storage and Internal Control

The inspector determined through observations and record reviews that the licensee was maintaining a system of storage and internal control which provided knowledge of the quantity, identity, and current location of all SNM within the facility. Perpetual inventory records were being maintained for all SNM.

2.4 Inventory

The licensee had conducted a physical inventory of all special nuclear material in its possession at intervals not exceeding twelve months. That was substantiated by the inspector by review of the physical inventory results for the years 1992 through 1994.

On May 25 and 26, 1994, the inspector verified the presence of selected items in the licensee's inventory by piece count, compared the results to the licensee's fuel element history cards and foil and source accountability sheets that consisted of the following:

License R-84	License 19-08330-02
84 - Fuel Elements - Reactor Core	1 - PuBe Source - Room 2166
11 - Fuel Elements - Reactor Pool	4 - Pu Sources - Room 2166
3 - Fuel Follower Control Rods - Reactor Core	29 - Pu Foils - Room 2166
5 - Fission Chambers - 1 in-core, 4 in Reactor Room 3161	

2.5 Records and Reports

The inspector reviewed the licensee's records, reports and source data. All Material Balance Reports (DOE/NRC Form-742) submitted by the licensee for the period April 1, 1991 through March 31, 1994, were reviewed for compliance with 10 CFR 70.53. Total uranium and uranium-235 depletion records were also reviewed. Leak test records for the five plutonium sealed sources were reviewed for completeness and timeliness. No discrepancies were noted.

Exhibit I, appended to this report, summarizes the licensee's nuclear material activity for the period April 1, 1991 - March 31, 1994.

In summary, no Material Control and Accounting Program deficiencies were identified.

3.0 General Physical Security Requirements for SNM of Low Strategic Significance

The licensee's program for the physical protection of SNM of low strategic significance was reviewed by the inspector and found to conform to NRC requirements and the licensee's implementing procedures. Specific components of the program that were reviewed included: records and reports; security organization; access controls; key control; detection aids; physical barriers; written procedures; and observation of licensee testing of alarm system features. No deficiencies were noted.

4.0 Exit Interview

The inspector met with the licensee representatives indicated in paragraph 1.0 at the conclusion of the inspection on May 26, 1994. At that time, the purpose and scope of the inspection were reviewed and the findings were presented. The licensee acknowledged the findings.

EXHIBIT I

ARMED FORCES RADIOBIOLOGICAL RESEARCH INSTITUTE

Docket No. 50-170 License No. R-84
Docket No. 030-04545 License No. 19-08330-02

Material Balance for Period April 1, 1991 - March 31, 1994

Reporting Identification Symbol: YAE Reporting Unit: Grams

	Enriched Uranium		Plutonium	
	Element	Isotope	Element	Isotope
Physical Inventory: April 1, 1991	18,083	3,587	186	172
Receipts	462	92	0	0
Material to Account For:	18,545	3,679	186	172
Removals:				
Shipments:	0	0	0	0
Fission and Transmutation:	5	5	0	0
Inventory Difference (Rounding):			(3)	(2)
Total Removals:	5	5	(3)	(2)
Physical Inventory: (March 31, 1994)	18,540	3,674	189	174
Material Accounted For:	18,545	3,679	186	172