

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

License/Docket/Report No.: R-70/50-166/94-02

Licensee: University of Maryland
College Park, Maryland 20742

Facility Name: Maryland University Training Reactor (MUTR)

Inspection At: College Park, Maryland

Inspection Conducted: February 22 and 23, 1994

Inspector: *A. Della Ratta*
A. Della Ratta, Physical Security Inspector

03/04/94
Date

Approved By: *Edward B. King for*
E. C. McCabe, Chief
Safeguards Section
Division of Radiation Safety and Safeguards

03/04/94
Date

SCOPE

Facility Operation; Shipping and Receiving; Storage and Internal Controls; Inventory; Records and Reports; and Physical Protection Measures for Special Nuclear Material of Low Strategic Significance.

Results

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

Details

1.0 Individuals Contacted

- * A. Mosleh, Chairman, Reactor Safety Committee
- * W. Chappas, Reactor Facility Director
- * V. Adams, Associate Reactor Facility Director
- * T. Long, Radiation Safety Officer
- M. Scalingi, Senior Reactor Operator
- Lieutenant G. Savard, University of Maryland, College Park Police
- Corporal J. Goldsmith, University of Maryland, College Park Police

- * Present at the exit interview.

2.0 Material Control and Accounting Program

2.1 Facility Operation

The inspector verified through a review of records that the licensee was maintaining and implementing nuclear material control procedures that are documented in Surveillance Procedure #209, Revision 10, dated June 16, 1993. Written statements of responsibility and authority were established for those positions with responsibility of Special Nuclear Material (SNM).

2.2 Shipping and Receiving

The inspector determined through a review of records that the licensee maintained procedures to assure that all SNM shipped or received was accurately accounted for. The licensee had one receipt of SNM and made one shipment of SNM between April 1, 1991 and September 30, 1993.

2.3 Storage and Internal Controls

The inspector determined through observations and review of records that the licensee maintained a system of storage and internal controls that included the quantity, identity, and current location of all SNM within the facility. Perpetual inventory records were being maintained for all SNM. A comparison of the SNM records was performed by the inspector as described in paragraph 2.4.

2.4 Inventory

The inspector reviewed supporting records that showed physical inventories were conducted at least annually as required by 10 CFR 70.51(d).

On February 23, 1994, the inspector conducted a physical inventory of the SNM at the facility. The following inventory results were reconciled to the listing shown on the licensee's material status reports.

NRC License No. R-70

- 93 Fuel Pins - Reactor Core
- 1 Fission Chamber - Reactor Core
- 3 Fission Chambers - Reactor Room

Maryland License No. MD-33-004-02

- 1 PuBe 3 Ci neutron source - Reactor Core
- 3 PuBe sources (2 Ci, 1 Ci, 1 Ci) - Reactor Equipment Room
- 1 PuBe calibration source - Physics Building
- 1 Pu calibration source set (4 disks) - Reactor Building

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 September 30, 1993, were reviewed for compliance with 10 CFR 70.53. Total uranium and uranium-235 depletion records were also reviewed.

Leak test records for the plutonium beryllium (PuBe) sealed sources were reviewed for completeness and timeliness. No discrepancies were noted.

Exhibits I and II of this report summarize the licensee's nuclear material activity for the period April 1, 1991 - September 30, 1993.

There were no deficiencies identified in the licensee's Material Control and Accounting Program.

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 a licensee test of alarm system features. No deficiencies were noted.

The licensee was in the process of revising its physical security plan to reflect the recent upgrades made to enhance the security alarm system.

4.0 Exit Interview

The inspector met with the licensee representatives indicated in paragraph 1.0 at the conclusion of the inspection on February 23, 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

UNIVERSITY OF MARYLAND

Docket No. 50-166 License No. R-70

Material Balance Period: April 1, 1991 - September 30, 1993

Reporting Identification Symbol: ZMR Reporting Unit: grams

	<u>Enriched Uranium</u>	
	<u>Element</u>	<u>Isotope</u>
Beginning Inventory: (April 1, 1991)	16,353	3,248
Additions:		
Receipts	—*	—*
Material to Account for:	<u>16,353</u>	<u>3,248</u>
Removals:		
Shipments:	*	*
Fission and Transmutation:	<u>2</u>	<u>2</u>
Total Removals:	2	2
Ending Inventory: (September 30, 1993)	<u>16,351¹</u>	<u>3,246</u>
Material Accounted for:	<u>16,353</u>	<u>3,248</u>

* = less than one gram

¹ = 93 Fuel Pins	16,349	3,244
4 Fission Chambers	<u>2</u>	<u>2</u>
	<u>16,351</u>	<u>3,246</u>

EXHIBIT II

UNIVERSITY OF MARYLAND

Maryland License No. MD-33-004-02

Material Balance Period: April 1, 1991 - September 30, 1993

Reporting Identification Symbol: ZMR Reporting Unit: grams

	<u>Plutonium</u>	
	<u>Plutonium</u>	<u>Pu-239 & 241</u>
Beginning Inventory: (April 1, 1991)	144	133
Additions:		
Receipts	<u>0</u>	<u>0</u>
Material to Account for:	<u>144</u>	<u>133</u>
Removals:		
Shipments:	0	0
Ending Inventory: (September 30, 1993)	<u>144</u> ¹	<u>133</u>
Material Accounted for:	<u>144</u>	<u>133</u>
¹ = Five sealed sources and one calibration set of four discs		
Mound Lab #M-44	16	15
Mound Lab #M-45	16	15
Monsanto MR PuBe #222	32	29
Monsanto MR PuBe #223	48	45
Monsanto MR PuBe #384	32	29
Eberline Source Set S94-1	*	*
	<u>144</u>	<u>133</u>

* = less than one gram