U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

Region I

Report No. 50-97/78-02; 50-157/78-02; 70-211/78-01

Docket No. 50-97; 50-157; 70-211

License No. R-80; R-89; SNM-187 Category F Safeguards Group 5

Licensee: Cornell University
Ithaca, New York

Facility Name: Ward Laboratory of Nuclear Engineering

Inspection at: Ithaca, New York

Inspection conducted: September 7-8, 1978

Inspectors: R. J. Summers — 10-3-78
R. J. Summers, Safeguards Auditor — date signed

for E. Woltner — 10-3-78
D. J. Holody, Mathematical Statistician — date signed

_____ — date signed

Approved by: for E. Woltner — 10-3-78
J. H. Joyner, Chief, Nuclear Material Control Support Section, Safeguards Branch — date signed

Inspection Summary:

Inspection on September 7-8, 1978 (Combined Report Nos. 50-97/78-02; 50-157/78-02; and, 70-211/78-01)

Areas Inspected: Routine, unannounced inspection by two NRC regional based inspectors of material control and accounting program including: organization and operation; measurements and controls; shipping and receiving; records and reports. The inspection involved 24 inspector-hours onsite by two NRC regional based inspectors.

Results: Of the six areas inspected, no items of noncompliance were identified in five areas, and one apparent item of noncompliance was identified in one area (Infraction - failure to perform a complete physical inventory within required twelve months - paragraph 6).

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Region I Form 12
(Rev. April 77)

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DETAILS

1. Persons Contacted

*Dr. D. Clark, Director, Ward Reactor Laboratory
H. Aderhold, Reactor Supervisor, Ward Laboratory
R. Gardner, Supervisor, Health Physics

* denotes those present at the exit interview.

2. Facility Organization and Operation

An organizational structure has been established by the licensee that is responsive to nuclear material control and accounting requirements. Custody of SNM and the management of the nuclear material control and accountability program is the responsibility of the Reactor Supervisor.

The licensee's reactor and special nuclear material are located within one area (Ward Laboratory) and physical and administrative controls have been established for access to this area.

No items of noncompliance were identified.

3. Measurements and Controls

The inspectors utilized the thermal output data from the TRIGA reactor log book to independently determine the uranium and uranium-235 depletion for the July 1, 1975 - March 31, 1978 material balance periods reviewed. The inspector's results agreed with the licensee's reported depletion of 7 grams uranium and 7 grams U-235 for the period reviewed.

No appreciable depletion (< 1 gram uranium) has occurred for the Z PR reactor. The total thermal output to date is approximately 100 watt hours.

No items of noncompliance were identified.

4. Shipping and Receiving

The licensee has established procedures to assure that all special nuclear material received or shipped is accurately accounted for. There was one shipment during the period covered by this inspection.

No items of noncompliance were identified.

5. Storage and Internal Control

A system of storage and internal control of SNM has been established by the licensee which provides for current knowledge of the quantity and identity of all SNM within the facility.

The licensee has two PuBe sources, TRIGA fuel elements and various foils, powders, and pellets in a locked, restricted access storage area. Any material removed from this area must be documented in the Radioactive Material Storage Log. All other materials are in the reactor core or fuel storage areas.

No items of noncompliance were identified.

6. Inventory

The licensee conducts annual physical inventories in accordance with the regulations. The licensee had documentation for physical inventories performed in August, 1975, June, 1976 and June, 1977. However, no documentation existed for the 1978 inventory. Further, the licensee stated that a physical inventory had been taken but not a complete inventory and that documentation had not yet been completed. This is considered to be an item of noncompliance (70-211/78-01-01).

7. Records and Reports

A 100% audit of the Material Status Reports (Form NRC-742) submitted since December 31, 1975, was conducted to determine proper signature, time of submission, and accuracy. One Material Transaction Report (Form NRC-741) was generated during the period and this was also audited. Exhibits I and II show the material balance summary for the period July 1, 1975 to March 31, 1978.

8. Exit Interview

The inspectors met with the licensee's representatives (denoted in paragraph 1) at the conclusion of the inspection on September 8, 1978. The inspectors summarized the scope and findings of the inspection.

Exhibit I

CORNELL UNIVERSITY

Material Balance Summary
Enriched Uranium

July 1, 1975 to March 31, 1978

RIS:ZES

	Grams	
	Uranium	U-235
Beginning Inventory, 7/1/75	1747971	39528
Receipts	0	0
Material to Account For:	1747971	39528
Removals:		
Shipments	0	0
Burn-Up	7	7
Total Removals:	7	7
Ending Inventory, 3/31/78	1747964	39521
Material Accounted For:	1747971	39528

Exhibit II

CORNELL UNIVERSITY

Material Balance Summary
Plutonium

July 1, 1975 to March 31, 1978

RIS:ZES

	Grams	
	Plutonium	Pu-239 + 241
Beginning Inventory, 7/1/75	112	94.9
Receipts	0	0.0
Material to Account For:	112	94.9
Removals:		
Shipments	64	50.9
Total Removals:	64	50.9
Ending Inventory. 3/31/78	48	44
Material Accounted For:	112	94.9