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

REGION I

Report No. 50-223/79-02
70-738/79-01

Docket No. 50-223
70-738 License No. R-125
SNM-714 Safeguards Group 5

Licensee: University of Lowell

1 University Avenue

Lowell, Massachusetts 01854

Facility Name: University of Lowell Nuclear Center

Inspection At: Lowell, Massachusetts

Inspection Conducted: September 5, 1979

Date of Last Material Control and Accounting Inspection: December 2, 1975

Type of Inspection: Unannounced Material Control and Accounting

Inspectors: _____ 10-25-79
Robert J. Summers, Auditor date

_____ date

_____ date

Approved by: _____ 10-25-79
J. H. Joyner, Chief, Nuclear Materia Control Support Section, Safeguards Branch date

Inspection Summary:
Area Inspected: Material Control and Accounting. The inspection involved 5 inspector-hours onsite by one NRC inspector and was begun during the regular hours.
Results: The licensee was found to be in compliance with NRC requirements in the area examined.

1689 004

Region I Form 166
(August 1979)

8001040 737

REPORT DETAILS

1. Key Persons Contacted

*Dr. L. Beghian, Acting Director Nuclear Center
*Dr. J. Phelps, Professor in Charge of Nuclear Reactor
*T. Wallace, Reactor Supervisor
*G. Chabot, Jr., Radiation Safety Officer

* Denotes those present at the exit interview.

2. Licensee Action on Previous Inspection Findings

There were no items of noncompliance noted on the previous inspection. (Report 75-04)

3. Exit Interview

The inspector met with licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on September 5, 1979. The inspector summarized the scope and findings of the inspection.

4. Unresolved Items

There were no unresolved items noted on the inspection.

5. Independent Inspection Effort

There was no independent inspection effort conducted during the inspection.

6. MC 85102B - Material Control and Accounting

No items of noncompliance noted. The inspection results were attained through a review and evaluation of all phases of the licensee's material control and accounting program and disclosed that the licensee has met the applicable regulations. The scope of the review is discussed below:

(a) Inventory Practices - The licensee conducts annual inventories under both licenses. Due to the physical nature of the materials, a simple item count and listing of the fuel elements and PuBe sources is all that is necessary. The current inventory is as follows:

License	Authorized Limit	Possession
SNM-714	300g Pu as PuBe sources	272g Pu
R-125	4.8 Kg U-235	4156.8g U-235 1/

1/ Inventory consists of 32 fuel elements

(b) Records and Reports - An audit of all Form NRC-741s and Form NRC-742s for the inspection period June 30, 1975 to March 31, 1979 was performed. The forms were reviewed for proper signature, timeliness, format and accuracy. During this review two discrepancies were noted. First, Form NRC-741 CZD-ZLU-1, a receipt of ~ 79 mg of highly enriched uranium, was shipped to both licenses. The inspector noted that this material type is not authorized under the SNM-714 license but the licensee had documentation showing that it requested the shipper to correct the form (the shipper deemed this unnecessary). The licensee stated that they would pursue this matter further. The second discrepancy was on the licensee's reporting of nuclear fission and transmutation. This will be discussed in subparagraph (d).

(c) Internal Controls - The licensee maintains a computer printout showing location of the fuel elements in the core. This historical file is used to calculate the burnup for each element. Also, this file is useful for internal control. The inspector verified that the storage locations that were to contain fuel elements in fact did, and one element was pulled out of the pool to verify the serial number. All the PuBe sources are stored in locked areas within the facility. Card files are maintained for the sources in use. Any authorized person using a source must sign for the source. The inspector verified the physical inventory listing and checked the serial numbers on the sources.

(d) Reports on Production and/or Depletion of SNM - The licensee uses a computer program to calculate burnup or loss of U-235. This number is reported to the Radiation Safety Officer who then prepares Form NRC-742. The inspector noted an error in this report in that the licensee was reporting the loss of uranium by fission and transmutation as being equal to the loss of U-235. This is not correct because one loss path for U-235 is by transmutation to U-236, which is not a net loss in the element uranium. The licensee stated that this would be corrected and it should be accurately reflected in the March 31, 1980 report.