

UNITED STATES NUCLEAR REGULATORY COMMISSION REGION II 101 MARIETTA STREET, N.W. ATLANTA, GEORGIA 30303

Report No.: 79-01 Licensee: Old Dominion University

Norfolk, Virginia 23508 Docket No.: 79-01

License No.: 45-09599-02 Inspector: R. A. Brown Approved by: J. P. Potter, Section Chief, FF&MSB

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SUMMARY

Inspection on January 30-31, 1979

Areas Inspected

This special, unannounced inspection involved eight inspector-hours onsite in the areas of determining the circumstances of a reported 14.570 Rem whole body exposure.

Results

Of the areas inspected, no apparent items of noncompliance were identified.

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DETAILS

1. Persons Contacted

Licensee Employees

D. Strom, Radiation Safety Officer *R. Olson, Graduate Student *Dr. Wyman, Associate Provost for Research and Sponsored Programs

*Attended exit interview.

2. Exit Interview

The inspection scope and findings were summarized on January 31, 1979 with those persons indicated in Paragraph 1 above. The inspector related to Dr. Wyman the preliminary findings of the inspection. Also, Dr. Wyman was informed that after further review of data, a decision would be made as to whether a Notice of Violation would be issued to the University. This decision was to be relayed to the Radiation Safety Office, preferably by February 2, 1979.

3. Licensee Action on Previous Inspection Findings

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection.

- 5. Details of Inspection
 - A. Mr. R. A. Brown discussed the circumstances of a 14.570 Rem exposure on a film badge with Mr. D. Strom, Radiation Safety Officer, and Mr. R. Olson, Graduate Student, on January 30-31, 1979. The exposure report was made by R. S. Landauer Company (film badge supplier) to Mr. D. Strom by telegram on January 25, 1979. This information was reported by Mr. Strom to the U.S. Nuclear Regulatory Commission, Region II office in Atlanta, Georgia by telephone on January 25, 1979 with a follow-up telegram on January 26, 1979.

The inspector obtained a signed statement on January 31, 1979 from the employee whose badge exhibited the 14.570 Rem exposure. The statement attested that the badge was lost on or about November 20, 1978 for a period of approximately two weeks,

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where it was found on top of a cobalt-60 source. Further, the employee believed the exposure took place while the badge was not being worn.

B. The cobalt source in question is stored in an 8-inch by 8-inch steel cylinder. The activity of the source is 1.3 mCi. Measurements of the radiation levels were made at the approximate position where the film badge was found.

The instrument used for these measurements was a Xetex portable Geiger-Muller survey meter, last calibrated on January 12, 1979. This instrument was tested with a check source prior to obtaining readings. Radiation levels of 17 mr (hr + 2 mr/hr were measured at the top of the storage container at the position where the film badge was reportedly located.

- C. Calculations based on the radiation levels measured at the source container and the length of time the badge was reportedly lost results in a total exposure to the film badge considerably lower (a factor of about 2) than that reported by the supplier. Upon request, R. S. Laudauer Company re-evaluated the film badge with the same reports. Also, no evidence of chemical or thermal damage was noted.
- D. Based on a review of data and discussions with Mr. Strom and Mr. Olson, it appears that the 14.570 Rem exposure occurred in a manner similar to that postulated by the licensee. Although differences exist in time of exposure to the film badge and exposure reported, reasonable explanations have been provided to account for these discrepancies.

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