

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Allegation Followup Report No. 030-00652/85001(DRSS)

Docket No. 030-00652

License No. 12-00330-05

Priority 2

Category F(1)A

Licensee: University of Illinois at Urbana - Champaign (UIUC)
317 Mc Kinley Hospital
1109 South Lincoln Avenue
Urbana, IL 61801

Licensee Investigation Conducted: July 12 - September 10, 1985

NRC Inspector: Robert E. Burgin
Senior Radiation Specialist

9/24/85
Date

Reviewed By: Darrel G. Wiedeman, Chief
Nuclear Materials Safety Section 1

9/24/85
Date

Approved By: W. L. Axelson, Chief
Nuclear Materials Safety
and Safeguards Branch

9/23/85
Date

Allegation Followup Summary

Areas Inspected: This report contains the findings of the licensee's investigation into safety practices in their Microbiology Department, and was initiated by a request from this office following the receipt of allegations concerning mouth pipetting of radioactive materials. The licensee's investigation included a review of pertinent procedures and interviews of University Radiation Laboratory Supervisors and researchers.
Results: The licensee's investigation identified one apparent item of noncompliance: License Condition No. 28 - mouth pipetting of radioactive materials (Section 3.A.).

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DETAILS

1. Persons Contacted

- ¹Henry H. Koertge, Director, Division of Environmental Health & Safety
- ²Hector Mandel, Head, Health Physics
- ³Dr. George Konisky, Laboratory Head
- ³Dr. Stanley Maloy, Lab Supervisor

Several researchers were contacted (observed/interviewed) during investigation.

- ¹Contacted by letter dated July 12, 1985 (Attachment B).
- ²Contacted by phone during the course of the investigation and during exit interview on September 18, 1985.
- ³Contacted by UIUC personnel during investigation.

2. Purpose of Investigation

The investigation was initiated by an anonymous caller who alleged unsafe handling of radioactive materials in campus laboratories (phone log is included as Attachment A). The NRC Region III office requested (by letter dated July 12, 1985; Attachment B) that the University perform an investigation into these matters and report their findings and corrective actions (if appropriate) for evaluation to determine whether additional investigation by the NRC was warranted. The UIUC Health Physics Office responded in letter (with attachment) dated September 10, 1985 (Attachment C). The specific allegations and UIUC findings follow.

3. Specific Allegations and Findings

- A. Allegation: Individuals in the Microbiology Department routinely mouth pipette radioactive material (primarily P-32).

Findings: The licensee determined that mouth pipetting of radioactive material (as well as non-radioactive material) did occur in radioisotope laboratories. Their investigation report (letter dated September 10, 1985, Attachment C) indicates that all pipetting in Dr. Konisky's laboratory is performed mechanically. Dr. Maloy indicated that no "direct" mouth pipetting (i.e., direct contact of the mouth to a standard glass pipette tube) takes place; however, the UIUC investigation revealed that some researchers employ "mouth actuated techniques" whereby small quantities of radioactive material are transferred by capillary tubes connected to rubber hoses which contact the mouth for suction.

These "mouth actuated techniques" constitute mouth pipetting and are in noncompliance with License Condition No. 28 (referencing Radiation Safety Manual, Page 5, Section C.10 received May 11, 1983) which

specifically prohibits pipetting by mouth in any radioisotope laboratory.

This allegation was substantiated; one item of noncompliance was identified.

Corrective Actions: UIUC Health Physics personnel discussed their findings/concerns with those researchers contacted, and distributed a memorandum dated September 10, 1985 (Attachment D) to all users of radioactive material. This memorandum focused on the hazards of mouth pipetting and reinforced the University's policy that "all 'mouth actuated techniques,' including pipetting by mouth, either directly or indirectly, in the vicinity of radioactive materials are prohibited at UIUC."

- B. Allegation: The alleged stated that he/she has ingested radioactive solutions while mouth pipetting and is sure that most others in the department have also.

Findings: UIUC's investigation could not identify any researchers nor lab members who were aware of any incidents of radioactive material ingestion occurring in their labs. Since the alleged maintained anonymity, no further followup could be made.

This allegation could not be substantiated; no items of noncompliance were identified.

4. Conclusions

One of two allegations regarding mouth pipetting of radioactive materials was substantiated and resulted in one item of noncompliance. The licensee's investigation and corrective actions were evaluated by this office and were found to be adequate.

5. Attachments:

- A. Telephone Log, dtd 07/08/85 (Anonymous alleged to J. L. Lynch)
- B. Letter, dtd 07/12/85 (Hind to Koertge)
- C. Letter (Report) dtd 09/10/85 (Mandel to Hind)
- D. Memorandum, dtd 09/10/85 (Kaplan, Chairman, UIUC Radiation Hazards Committee to all users of radioactive materials).

Phone Log

7/8/85 1030

UNIV. OF ILLINOIS - URBANA

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CALL FROM ANONYMOUS INDIVIDUAL EMPLOYED IN MICROBIOLOGY DEPT., CALLER STATED THAT PERSONS IN THE DEPT. ROUTINELY MOUTH PIPETTE RADIOACTIVE MATERIAL (PRIMARY P-32). ALTHOUGH DANGERS ARE KNOWN, CERTAIN INDIVIDUALS FEEL THAT PIPETTING BY MOUTH IS THE BEST METHOD AVAILABLE. THE PRACTICE IS HIDDEN FROM INDIVIDUALS OUTSIDE OF THE DEPT. (HOSES KEPT IN DRAWERS, ETC).

AMOUNTS PIPETTED ARE IN μCi RANGE ($\approx 60 \mu\text{Ci}$ max) CALLER HAS MOUTH PIPETTED P-32 WHILE IN THE DEPT., AND KNOWS OF A NUMBER OF OTHERS WHO HAVE ALSO. THE CALLER STATED THAT OTHER LABS USE MECHANICAL PIPETTERS FOR SIMILAR PURPOSES

THE CALLER HAS INGESTED RADIOACTIVE SOLUTION WHILE USING THIS METHOD AND IS SURE MOST OTHERS IN THE DEPT. HAVE ALSO.

DR. GEORGE KONISKI IS THE LAB HEAD. SOME OF THE MOUTH PIPETTING HAS OCCURRED IN DR. STANLEY MALLOY'S LAB AND IN SEPARATE DNA SEQUENCING ROOM RUN BY MALLOY, THESE AREAS ARE LOCATED ON THE 2ND FLOOR OF BURRILL HALL.

J. Lynch