

Mallinckrodt

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NUCLEAR

January 6, 1971

Mr. Gen W. Roy
Chief, Materials Inspection &
Enforcement Branch
Division of Compliance
U. S. Atomic Energy Commission
Washington, DC 20545

Dear Mr. Roy:

The purpose of this letter is to inform you of the internal exposure of an individual to Iodine-131 radiations as a result of an incident which occurred at approximately 1015 hours on December 8, 1970.

A technician working in our quality control department was in the process of injecting a solution into a stoppered glass vial when the needle hub separated from the syringe being used. The solution was Iodine-131 in the form of Iodinated Human Serum Albumin for multiple dose vials at a concentration of approximately 0.6 microcuries/lambda. A small volume of the solution sprayed from the needle hub, some of which entered the technician's mouth. Although she immediately flushed her mouth with water, some of the activity was ingested.

A thyroid burden measurement was made after thorough decontamination of the individual and change of uniform. Approximately 0.05 microcuries were measured at 1200 hours, up from the last previous measurement of 0.01 microcuries. The uptake equipment was then used to estimate the activity present in her stomach. Approximately 0.6 microcuries were measured in the stomach. We assumed that again as much activity could be present in the mucous membranes of the esophagus and mouth. The resultant thyroid burden, assuming a 20 percent uptake, was projected to an estimated maximum of 0.24 microcuries. Additional thyroid burden measurements were made periodically during the day as the uptake progressed. Approximately 0.1 microcuries were present in the gland by 1620 hours. The uptake was essentially completed by the following morning with a final thyroid burden measurement of 0.22 microcuries, which was in good agreement with the projected estimate of 0.24 microcuries.

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Her average thyroid burden for the week ending December 13, 1970 was 0.19 microcuries. The average quarterly burden was 0.05 microcuries.

The calculated exposure for the quarter ending January 3, 1971, was 2.7 rems, which compares favorably with the 8 rems permissible exposure recommended by the ICRP.

The individual was immediately removed from further work with Iodinated compounds after the incident. The Radiological Protection Department lifted work restrictions after her thyroid burden had decreased below 0.07 microcuries.

The Quality Control Department has requested an additional glovebox, which should be in use by the end of the current month, to prevent a recurrence of a similar incident.

Sincerely yours,

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MALLINCKRODT/NUCLEAR

Donald W. Soldan
Donald W. Soldan, Chief
Radiological Protection Officer

/mt

Attachment

cc: Director, USAEC Region III

The individual referred to in this report is:

[REDACTED]

Social Security Number

[REDACTED]

Date of Birth

[REDACTED]

6-10-10