

70-299

**Mallinckrodt**

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**NUCLEAR**

February 14, 1975

Director of Regulatory Operations  
Nuclear Regulatory Commission  
Washington, D.C. 20545

Gentlemen:

This report is to inform you of an uptake of I-131 to the thyroid of one of our employees. The total uptake was in excess of that expected for forty (40) hours exposure to concentrations listed in Table I, Appendix B of 10 CFR, Part '1.

The exposure occurred as the result of ingestion and resulted in an uptake to the thyroid of 0.27 uCi and to the body of between 0.5 and 0.9 uCi as indicated in the attached data table.

The cause of the exposure was a contaminated hand, which came in contact with the employee's mouth during the sorting of paperwork. The hand became contaminated when the employee's glove tore while changing the gloves to a glovebox. The exposure resulted from the failure by the employee to follow two of our rules for radiation safety:

1. No objects into the mouth in laboratory areas.
2. Hands are to be checked and washed after each suspected contact with radioactive materials.

The employee did follow rules for safe practices in checking for contamination before leaving the work area and in notifying the Health Physicist when the contamination was noted.

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Information in this record was deleted  
in accordance with the Freedom of Information  
Act, exemptions 6  
FOIA- 96-343

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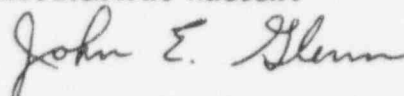
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The Dispensing supervisor in consultation with the Health Physicist has instituted the following explicit procedures to prevent a recurrence:

1. If a technician experiences any difficulty in changing gloves, the technician will request assistance to avoid contamination to parts of the body and to prevent the spreading of contamination to other laboratory areas.
2. Personnel monitoring is to be done after the changing of each glove.
3. Should a technician's own gloves tear for any reason, the technician will immediately stop and monitor hands.
4. Personnel have been reminded again of the necessity to break bad habits which can lead to ingestion of radioactive material or contamination of parts of the body.

Very truly yours,

Mallinckrodt Nuclear



(Dr.) John E. Glenn  
Radiation Safety Officer

JEG/b

cc. Director of Regulatory Operations  
Region I  
Nuclear Regulatory Commission  
631 Park Avenue  
King of Prussia, Pa.

# THYROID BURDEN DATA

(1) $t$ Sample time (days)	(2) Thyroid Burden (uCi)	(3) $*R(t)$	(4) Body uptake (uCi) (2) $\div$ (3)
1	0.235	0.273	0.86
4	0.188	0.206	0.91
5	0.158	0.188	0.84
6	0.144	0.171	0.84
7	0.130	0.155	0.84
8	0.117	0.141	0.83
11	0.095	0.107	0.89
12	0.089	0.097	0.92
13	0.078	0.088	0.89
14	0.082	0.080	1.025
15	0.068	0.073	0.93
18	0.052	0.055	0.94

Average = 0.89 uCi  
initial uptake to body

or 0.27 uCi initial uptake to thyroid

$*R(t)$  = retention function =  $0.3 \exp(-0.094t)$

# URINALYSIS DATA

(1) $t$ sample time (days)	(2) dpm/ml	(3) Excretion rate uCi/day	(4) $*y(t)$	Body Uptake (uCi) (3) $\div$ (4)
0.21	811.1	0.511	0.908	0.56
0.31	591.4	0.373	0.737	0.51
1.00	157.3	0.099	0.178	0.56
1.33	65.4	0.041	0.091	0.45

Average = 0.52 uCi

uptake to body

$*y(t)$  = Fractional excretion equation

THE EMPLOYEE REFERRED TO IN THIS REPORT IS:

[REDACTED]  
S.S.# [REDACTED]  
date of birth: [REDACTED]

Exemption 6

EXPOSURE:

Single uptake of I-131 to the thyroid  
of 0.27 uCi.

Estimated dose to thyroid as result of  
this exposure is 1.5 rem.