Mallinckrodt NUCLEAR
BOX 10172 LAMBERT FIELD • ST. LOUIS, MISSOURI 63145 • 314 AX 1-0540

May 7, 1973

Names of parties and certain other identifying details have been removed in order to prevent a clearly unwarranted invasion of the personal privacy of the individuals involved.

Mr. F. E. Kruesi, Director
Directorate of Regulatory Operations
U. S. Atomic Energy Commission
Washington, D. C. 20545

Reference: USAEC License
No. 24-04206-01

Gentlemen:

A chemist working in our tritium laboratory was found to have an elevated body burden of tritium on April 30, 1973, as determined by a routine urinalysis. A second sample obtained that afternoon was considerably higher than the morning sample. Subsequent samples taken twice daily after this initial period of rapid elimination indicate that the average concentration of tritium in his urine was approximately 49 uc/l on the first day of exposure.

A special meeting of the Radiological Protection Committee was held with the exposed individual in attendance for possible assistance in determining the cause of the exposure. A report was made to the Committee of the results of investigative actions taken by members of the Radiological Protection Department. This meeting did not result in determining a specific cause for the exposure. Several items were discussed which could have caused or contributed to the exposure. These items and corrective measures taken or planned are listed below.

1. The surface of the glovebox gloves and sleeves in contact with the individual's hands were contaminated. Frequent wipe test surveys of the gloves and sleeves will be taken to determine when change is needed.

2. A glove and sleeve was removed from the glovebox by the individual to facilitate transfer of the product to a hood. This practice has been discontinued and the airlock designed for this purpose will be used. A means to safely and conveniently convey a product from one end of the glovebox to the airlock is being investigated.

3. The linear face velocity of the hood was below design criteria. The installer is being called in to correct this deficiency.

4. Some personal habits of the individual were questionable. These habits were brought to the individual's attention for his correction.

5. A reduction in the flowrate of the tritium monitor occurred when a sampling pump overheated causing partial collapse of the polyethylene air sampling lines at the inlet to the pump. Critical portions of the air sampling lines will be replaced with copper tubing and forced ventilation will be provided for the pumps.

The individual was restricted from further work with tritium, effective May 1, 1973, until such time as his running quarterly average exposure is within permissible limits.

Sincerely yours,

MALLINCKRODT NUCLEAR
MALLINCKRODT CHEMICAL WORKS

Donald W. Soldan

Donald W. Soldan
Chief, Radiological
Protection Officer

DWS: ja

Encl:

cc: Director Region III
Directorate of Regulatory Operations

Day	Date	Measured uc/l - urine A.M.	Measured uc/l - urine P.M.	Average uc/l - urine daily	Calculated uc/l - urine (12 day T/12)
M	4-30	152	778	465	-
Tu	5-1	57	51	54	58
W	5-2	50	69	60	67
Th	5-3	43	28	35	42
F	5-4	36	29	32	41
S	5-5	31	25	28	37
S	5-6	49	34	42	59
M	5-7	25	23	24	36
Average of results corrected for decay to 4-30 excluding 4-30 results					49