Mallinckrodt, Inc.

BOX 10172 LAMBERT FIELD • ST LOUIS MISSOURI 63145 • PHONE 314 291 0540

September 10, 1976

Mr. James M. Allan, Chief
Fuel Facility and Materials
Safety Branch
U.S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Reference: U.S. NRC License
No. 24-04206-01

Dear Mr. Allan·

A Production technician was found to have an elevated thyroid burden of Iodine-131 at 0700 on August 12, 1976. His initial burden was 0.23 microcuries which progressed to 0.25 microcuries at the end of the work day. No significant external contamination was found. Air sample analyses showed an increase from the normal air concentrations concurrent in time with the increase in thyroid burden.

The individual's integrated thyroid burden averaged for 7 consecutive days following the ' cident was 0.19 microcuries. The estimated exposure to his thyroid gland, assuming no additional uptake during the remaining weeks in the quarter, is 2.7 Rems, which is 34% of the permissible 8 Rems per quarter recommended by the ICRP.

The operation which resulted in the elevated air concentrations and subsequent thyroid uptake was the production of Iodine-131 therapy oral solution sources.

The solution for dispensing these sources was contained within a flask inside a heavy lead shield mounted on a cart. Upon completion of the production operation, the technician transferred the remaining solution back into the hotcell by means of tubing in a wall penetration. During this transfer, the closure on the flask became loose. The technician removed the top shielding, resealed the flask and completed the transfer of solution. We have concluded that this mishap caused the individual's exposure since high localized air concentrations would have been present in and about the lead shield.

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To prevent a recurrence, the glovebox for this production operation was moved against the hotcell wall. The flask is now retained within the hotcell and the solution is dispensed directly into the glovebox through inter-connecting tubing. This eliminates the step in the operation which caused the exposure.

Very truly yours,

MALLINCKRODT, INC.
MALLINCKRODT/NUCLEAR

George E. Gerth

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/lm
cc: Dir. of Inspection and Enforcement
Dir. Office of Management Info.
and Control