

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

NUCLEAR

June 19, 1973

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 prompt telephone call was received on May 24, 1973, from our filmbadge service reporting that the whole body filmbadge worn by a production department technician had received 3600 mrem of gamma exposure during the wearing period 5/14 through 5/20/73.

The individual was immediately restricted from further exposure and an investigation was begun.

The findings were reported to the Radiation Safety Committee on June 6, 1973. The involved individual and her supervisor also attended this meeting to provide their input and to permit direct interrogation by Committee members.

A summary was presented of the individual's filmbadge and pocket chamber whole body and extremities exposures and the exposures of other individuals working in the same areas. The following contradictory results were pointed out.

1. Her whole body exposure as measured by pocket chamber was 85 mrem whereas her filmbadge measured 3600 mrem. Both devices were worn side by side.
2. Her extremities exposure as measured by filmbadge was 1350 mrem as compared to the whole body filmbadge reading of 3600 mrem contrary to all past experience.
3. No unusual or high exposures were measured for any other individuals working in the same areas during the same time period. In fact, the exposures of all individuals added together were

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considerably lower than the 3600 mrem.

4. No unusual work was performed and no unusual incident such as a spill occurred.

The Committee was informed that the filmbadge in question had been reported missing one morning and then reappeared about three hours later. It could not be determined whether this incident occurred during the wearing period starting 5/7 or 5/14.

A slide projector was used to display the filter pattern produced on the film in question as compared to the patterns produced on experimental films exposed under known conditions. The pattern most closely approximated that produced on the experimental film held in a fixed position perpendicular to the source. Also visible on the film was a light area along one edge indicating that the film had been partially shielded. It was suggested that such a pattern could have been produced by removing the lead lid from a safe containing a source and by placing the filmbadge on top of the lead safe.

The Committee came to the following conclusions based upon all available data:

1. The individual's filmbadge had been intentionally exposed by an unknown party or parties.
2. An estimate of the individual's exposure should be made based upon the relationship between previous filmbadge and pocket chamber data and that this value be entered in her radiation history records.
3. The individual should be permitted to return to work with radioactive materials effective upon adjournment of the meeting.

Two recommendations were made to prevent the recurrence of a similar incident.

1. Back up TLD's should be issued to all personnel and stored apart from the filmbadges.
2. The filmbadges should be stored in compartments which can be locked.

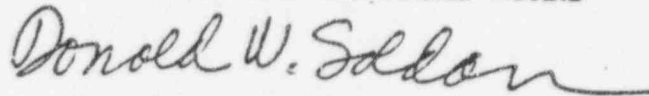
These two recommendations are being investigated and either one or the other or both will be implemented.

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The value to be entered in her radiation history record is 115 mrem for whole body exposure for the week starting 5/14/73.

Sincerely yours,

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Donald W. Soldan  
Chief, Radiological  
Protection Officer

DWS: ja

cc: Director Reg. III  
Directorate of Regulatory Operations

The individual referred to in this report is:

NAME:

[REDACTED]

SOCIAL SECURITY NUMBER:

[REDACTED]

DATE OF BIRTH:

[REDACTED]

Example 1