

HEADQUARTERS  
U.S. ARMY CHEMICAL CENTER  
AND  
CHEMICAL CORPS MATERIEL COMMAND  
ARMY CHEMICAL CENTER, MARYLAND

13 APR 1962

CCLAN-H-RA

ARM2 941209 161e

cc: The Surgeon General, ATTN: MEDPS-PO, Department of the Army, Washington 25, D. C.

Director  
Division of Licensing and Regulation  
U. S. Atomic Energy Commission  
Washington 25, D. C.

Gentlemen:

Reference is made to letter, CCLAN-H-RA, this headquarters, dated 8 March 1962 with 1 Incl - Suspected Overexposure of Personnel to Tritium.

The attached final report on this incident is submitted in accordance with paragraph 5, Inclosure 1 of the foregoing reference.

Sincerely,

1 Incl  
Final Report (3 copies)

CHARLES ROBBINS  
Colonel, G1C  
Special Asst to the CG  
for Radiological Affairs

Copies furnished:

NY Ops Ofc, AEC  
TSG, ATTN: MEDPS-PO  
GOCALC, ATTN: CCLAN-S  
CO, HRL, ATTN: HPO  
Chairman, ACC Isotope Committee  
Lt D. Thomas  
Mr. J. Goshorn  
Pvt T. Evans

Washington National Record Center  
Office of the Army Surgeon General  
Record Group 112

Accession #: 67A-4511

Box #: 43

File: Over exposure Second U.S. Army

U.S. ARMY CHEMICAL CORPS NUCLEAR DEFENSE LABORATORY  
ARMY CHEMICAL CENTER, MARYLAND

IN REPLY REFER TO:  
CMLRD-ND-HP

4 APR 1962

SUBJECT: Suspected Tritium Exposure of Nuclear Defense Laboratory  
Accelerator Personnel

THRU: Chairman, Post Isotope Committee  
Building 330A  
ATTN: Mr. J. P. Mitchell  
Army Chemical Center, Maryland

TO: Commanding General  
U. S. Army Chemical Center and Chemical Corps Materiel  
Command  
ATTN: CMLAM-M-RA  
Army Chemical Center, Maryland

1. In our letter of 7 March, 1962, we indicated that a possible over-exposure of personnel to tritium had neither been verified nor disproved. This letter comprises our final report and contains the Health Physics Operations report, statements from Lt Thomas & Mr. Goshorn, the U. S. Army Environmental Hygiene Agency Urinalysis Report and the Atomic Energy Commission Urinalysis Report.

2. The Health Physics Office surveys and investigations have revealed no conditions which could be expected to have resulted in excessive exposures of personnel to tritium. Inclosure 1 is a report from the Health Physics Operation Section which reveals that no airborne or removable surface contamination was found in either Lab 14 of Bldg. 716 or the Accelerator Room of Bldg. 714. (Only areas where H<sup>3</sup> used).

3. As pointed out in Inclosure 1, urine samples were obtained from Lt Thomas, Mr. Goshorn and Pvt Evans on the weekend following the mounting of a tritium target on a target plate in Lab 14 of Bldg. 716. The samples were collected for the 24 Hr. period from 3 February 1962 to 4 February 1962. The samples of Lt Thomas and Mr. Goshorn were turned in to the Health Physics Office on 5 February 1962, and the sample for Pvt Evans on 8 February 1962. Lt Thomas and Mr. Goshorn's samples were forwarded to U. S. Army Environmental Hygiene Agency on 6 February

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SUBJECT: Suspected Tritium Exposure of Nuclear Defense Laboratory Accelerator Personnel

1962 and were analyzed on 8 February 1962. At about 1630 Hrs. on 8 February 1962, Col Penner of U. S. Army Environmental Hygiene Agency reported to Mr. Wright that the sample of Lt Thomas contained approximately 1.13 micro c per cc of tritium. On the following day, an analysis of the sample submitted for Mr. Goshorn showed an activity of 0.344 micro c per cc. A follow-up sample was obtained from Lt Thomas on 9 February 1962 and from Mr. Goshorn on 10 February 1962. These samples were analyzed by U. S. Army Environmental Hygiene Agency on 12 February 1962 and showed no tritium contamination. The samples submitted on 12 February 1962 for Mr. Goshorn and Lt Thomas were split, and half of the samples were sent to the New York Operations Office of the Atomic Energy Commission for concurrent analysis. (Incl No. 5). New York Operations Office reported that there was no detectable tritium in any sample submitted. (Incl No. 6).

4. From the above information, we conclude that no over-exposure of personnel to tritium occurred.

6 Incls  
as

ELWOOD A. LLOYD  
Major, CmLC  
Commanding

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CMLRD-ND-HP

Events Leading to Suspected Tritium Over-  
exposure

Chief, Health Physics  
Office

Acting Operations  
Officer

9 February 62  
HAGERMAN/mrt/6196

NDL

HPO

1. On January 30, 1962, a 1.5 c tritium - zirconium target of ORNL design was mounted onto a target plate for the Cockcroft - Walton positive ion accelerator. The mounting took place in a hood in Lab 14, Bldg. 716. The operation was completed by John Goshorn with Spl Richard Katstra of the Health Physics Office monitoring. Second Lt David Thomas was in the area for a short while, but had no part in the actual mounting operation. An Atomic Instruments Tritium Sniffer was being operated by Katstra and it was noted that no activity was leaving the hood. Assurance as to the operation of the instrument was proven by a full scale deflection read at the surface of the target. Urine samples from Goshorn, Thomas and Evans were taken on the week-end following the operations. These samples were processed through AEHA on February 6, 1962. On February 8, 1962 a telephone call was received from AEHA stating that a high tritium count had been discovered in the urine of Lt Thomas.

2. In an attempt to confirm this report the air was resampled in Lab 14, Bldg. 716 where the operation had taken place and also the accelerator room at Bldg. 714 where the target was stored and used. The air in both these areas was found to be uncontaminated. Smears were taken in both areas with no contamination being found.

EDWARD M. HAGERMAN  
Spl, Acting Operations Officer  
Health Physics Office  
NDL

(Incl No. 1)

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ACTIVITIES INVOLVING TRITIUM IN WEEK OF 30 JAN - 2 FEB

The following is a summary of my activities involving tritium preceding the urine sample of 2/3/62.

- 30 Jan 62: In the morning we produced neutrons from T #1. In the afternoon I removed the target assembly from the accelerator and placed it in 714 storeroom. I had no part in the mounting of T #2.
- 31 Jan 62: I assisted John Goshorn in testing the new target assembly by placing it on the accelerator and pumping down to operating pressure. In the afternoon we put T #1 on the accelerator and again produced neutrons.
- 1 Feb 62: No work was done involving targets.
- 2 Feb 62: I had no contact with either target. In the afternoon we again produced neutrons.

*Dave Thomas*

DAVE THOMAS  
2nd Lt, CmlC

*Incl 2*

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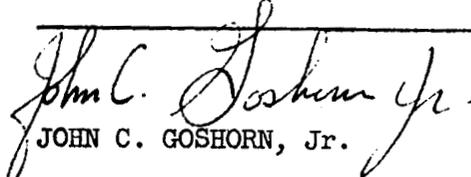
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ACTIVITIES INVOLVING TRITIUM IN WEEK 30 Jan - 2 Feb

The following is a summary of my activities involving tritium preceding the urine sample of 2/3/62.

- 30 Jan 62 - 1400: Mounted a new target (T #2) on a refrigerated target plate. The process involved tinning the back of the target with indium, setting it on the target plate and placing them both in a vacuum oven (also located in the hood). The oven was then set for 160°C, the temperature carefully monitored by myself and was turned off approximately 1½ hours later. The personnel involved were Health Physics Monitor and myself.
- 31 Jan 62 - 0930: We installed new target #2 assembly and proceeded to pump down the accelerator, confirming that there were no leaks in the target plate. I then returned target #2 to the oven. During all transfers from Bldg 716 to Bldg 714, the target was either wrapped in aluminum foil or a plastic bag. We then placed the target #1 assembly back on the accelerator and a small beam was turned up.
- 1 February 62: Nothing done with accelerator or target.
- 2 Feb 62 - 1400: I removed target assembly #2 from oven in Lab 14 and brought it to the Accelerator Room. I repaired a small leak in the refrigeration fittings of the target plate by touching the seams with a soldering iron. At no time did the target side of the target plate become too hot to touch. Terry Evens was working with me during this operation.

  
JOHN C. GOSHORN, Jr.

*Encl 3*

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