

Howarth



DEPARTMENT OF THE ARMY
US ARMY BIOMEDICAL LABORATORY
ABERDEEN PROVING GROUND, MARYLAND 21010

REPLY TO
ATTENTION OF:

SGRD-UV-L

2 February 1981

Professor Matthew Meselson
The Biological Laboratory
Harvard University
Cambridge, MA 02138

Dear Dr. Meselson:

This is in reference to your phone conversation with me concerning your questions about human skin decontamination efficacy. Your interest originated from the article in J. of Investigative Dermatology, 68, 1977 entitled "Environmental Temperature and the Percutaneous Absorption of a Cholinesterase Inhibitor, VX" by Craig, et al.

As mentioned to you, Clorox was used in that research to decontaminate the skin because it was the best choice available at that time. You had also questioned the significance of the difference in the "PM" values of 4.14% versus 2.00% for non-decontaminated and decontaminated forearms, respectively, which appeared in table 1 of that article. Dr. Mershon does not consider this difference to be due to decontamination per se. He noted marked differences reported in the same direction before decontamination (P1 and P3) and also considers that the similar times to "PM" (16.1 vs. 16.8) are consistent with there being an absence of decontamination (at 3 hours) effects on amount of agent absorbed.

The agent VX, being an amine, reacts with the skin resulting in faster penetration compared to G agents which do not react with skin. Conversely, the useful time frame for removing mustard and lewisite from the skin is only one or two minutes because of their chemical reaction with the skin.

A VX absorption curve showing the effect of delaying decontamination is inclosed (inclosure 1) along with background information on the barrier qualities of skin (inclosure 2). Also included are copies of two soldier manuals, TM 3-4230-213-10 (inclosure 3) and FM 21-41 (inclosure 4) which give directions on using the M258 decontaminating kits. The actions of the M258 solutions I and II are described in inclosure 5. This latter inclosure talks about an improved version of the M258 (without the scrapers). This modification along with appropriate changes in the manuals will be fielded this spring.

I trust this information will be of use to you in your contractual work with the Department of the Army and I apologize for not being able to get this information to you sooner.

Sincerely,

ROBERT A. HOWARTH
LTC, VC
Chief, Operations & Liaison Office

5 Inclosures
as stated