

U. S. NAVAL RADIOLOGICAL DEFENSE LABORATORY  
SAN FRANCISCO 24, CALIFORNIA

IN REPLY REFER  
TO FILE:

3-901-258  
EPC:icm  
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15 MAR 1956

Dr. Gordon M. Dunning, Health Physicist  
Biophysics Branch  
Division of Biology and Medicine  
Atomic Energy Commission  
Washington 25, D. C.

Dear Dr. Dunning:

BEST COPY AVAILABLE

This is a very late response indeed to a letter that you wrote on September 9, 1955, asking for comments on the points you discussed relative to my letter of August 23rd in connection with the beta-gamma problem. On the assumption that a response may still be of some historical interest, I should like to mention the following:

a. It was not our intent to criticize the actual value of 100 to 1 beta-gamma ratio which appeared in your paper. We were merely attempting to point out that there might be some ramifications which needed explanation or discussion, and for this we suggested reference material such as USNRDL Technical Memoranda 218 and 24.

b. As far as the variation of the beta-gamma ratio with time is concerned, I would suggest that you refer to a paper by Mr. C. Sonzhaus of this Laboratory, namely, USNRDL-394(1952). This paper presents (for fission products) a plot of a calculated beta-gamma ratio versus time and also on the same graph shows effective gamma and beta energy curve as a function of time.

c. The deviations from the  $t^{-1.2}$  decay law have been obtained in field operations - See, for example, Project 2.6a2 Operation CASTLE Final Report, WT-917.

d. We have not seen any definitive results on the amount of non-fission product activities for the CASTLE Bravo type contaminant.

e. The experimental work on the penetration of radioactive particles into clothing has not been done at this Laboratory. We would appreciate any reference you might give us on this subject.

2. As was also in my letter of August 23rd, the above comments were primarily formulated by Drs. J. D. Teresi and A. Breido.

Sincerely yours,

*Eugene P. Cooper*  
EUGENE P. COOPER  
Associate Scientific Director

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DEPARTMENT OF ENERGY DECLASSIFICATION
1. DETERMINATION OF AUTHORITY AND SCOPE (S)
2. CLASSIFICATION REVIEW
3. CLASSIFICATION REVIEW TO BE CLASSIFIED TO
4. COMMENTS AND REVISIONS
5. CLASSIFICATION CANCELLED
6. CLASSIFIED INFO BRACKETED
DEPARTMENT OF ENERGY AUTHORITY BY
AA Simons/LL 3/1/94
REVIEWER (ADD)
NAME: MSJ
DATE: 7/5/94

Declassified by DNA, Chief, ISTS

Date: 12/7/94