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U. S. NAVAL RADIOLOGICAL DEFENSE LABORATORY
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IN REPLY REFER TO FILE:
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15 MAR 1955

[redacted]

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

DEPARTMENT OF ENERGY DECLASSIFICATION
SINGLE REVIEW AUTHORITY
DETERMINATION (CIRCLE NUMBER(S))
1. CLASSIFICATION RETAINED
2. CLASSIFICATION CHANGED TO
3. CONTAINS NO DOE CLASSIFIED INFO
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5. CLASSIFICATION CANCELLED
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REVIEWER (ADDRESS)
NAME:
DATE: 4/5/94

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. Sondhaus 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 2.6a 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,

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EUGENE P. COOPER
Associate Scientific Director

Declassified by DNA, Chief, ISTS
Date: 12/7/94

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Encl 16 MEDICINE, HEALTH & SAFETY 2-8 [redacted]