

**Office Memorandum • UNITED STATES GOVERNMENT**

TO : J. C. Bugher, M. D., Director  
Division of Biology and Medicine

DATE: August 7, 1953

FROM : Walter D. Claus, Chief, *WDC* Biophysics Branch  
Division of Biology and Medicine

512

SUBJECT: COMMENTS ON JTF-7 OPERATION ORDER 1-53

SYMBOL: BMBP:WDC

~~... contains information affecting national defense within the meaning of the espionage laws, Title 18, U.S.C., Secs. 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law.~~

Captain Tipton visited us yesterday to discuss some of the features of the subject Order. He thought that the order had probably been written by Colonel House and he was not familiar with the bases for some of the specifications.

I have reviewed the Order, particularly the part on "Radiological Safety Regulations", quite carefully and have discussed some parts of it with Dr. Western and Capt. Tipton.

Dr. Dunning's comments, given in his memorandum to you dated July 31, 1953, are valid. My further comments are attached hereto.

Enclosure:  
Comments on above subject

US DOE ARCHIVES	
326 U.S. ATOMIC ENERGY COMMISSION	
RG	<u>DOE HISTORIAN (DBM)</u>
Collection	<u>1132</u>
Box	<u>3362</u>
Folder	<u>#7</u>

CLASSIFICATION CANCELLED BY AUTHORITY OF DOE/OC DOE 5650.2, III-12 (Adm)

Jose Diaz 4/6/81  
REVIEWED BY DATE  
Wilbur A. Strauser 4/8/81  
BY: W. Trench 6/8/87

*Cy & Cheney* 8/13

~~RESTRICTED~~  
~~CONFIDENTIAL~~

This material contains information of a national defense character the disclosure of the contents of which in any manner to an unauthorized person is prohibited by law. Title 18, U.S.C. Secs. 793 and 794, the transmission or revelation of information in any manner to an unauthorized person is prohibited by law.

(513)

1. Regarding Dunning's comment on lack of clarity as to the meaning of the term "mr/hr," this is quite true until one dissects the paper into its component parts. I believe the statements would be much more comprehensible if the paper were more specific in its leading paragraphs. Thus, paragraph 1 should state that the following paragraphs, through paragraph 10, refer to gamma radiation. Paragraph 11 could say that the following paragraphs on contamination refer to the summation of beta and gamma radiation, to be observed as specified. In paragraph 12, the statements "In all cases . . . will be used as a guide" are completely out of context and result in confusion of thought. They should be relegated to paragraph 13.

2. While on the subject of these statements, Dunning's comment (3) is applicable. The phrase "without regard to radiological hazard" should be eliminated. If the rest of the statements are placed in paragraph 13, it becomes obvious that the command decision is to be based on the tactical levels which are given in paragraph 13.

3. Skin contamination values on page I-I-3 might call special attention to contamination of the eyes and gonads as on page 5 of Handbook 48. Special mention should be made that it is not profitable to abrade the skin or epilate the scalp in an attempt to remove stubborn contamination somewhat in excess of 1 mrep/hr or about 1000 counts per minute of beta plus gamma. Fortunately, it is unlikely that even rain-out of fission products will produce skin contamination which will not yield to ordinary washing with a surgical brush or which will not sweat off in a day or two.

4. Dunning's comment (2) refers to the alpha level given in paragraph 12-c-1 (page I-I-3) as unnecessarily stringent. The approximate AEC values quoted here are intended for good housekeeping purposes, for enclosed laboratories and for lifetime exposures. We have discussed this at some length and believe there is danger in setting a level so low that it cannot be met in practice and is therefore disregarded entirely. This level might very well be relaxed on shipboard by a factor of 2-5 for enclosed areas (cabins, etc.) and by a factor of 10 or more for open surfaces where ventilation is good.

5. Wouldn't paragraph 12-c-7 serve better as 12-c-1?

6. In the limits prescribed at the top of page I-I-5, the value of  $5 \times 10^{-3}$   $\mu\text{c}/\text{cc}$  for beta-gamma emitters means the value as calculated to (H  $\neq$  3) days from the presently observed value. This needs to be more specifically

	<u>Beta-Gamma Emitter</u>	<u>Long-lived Alpha Emitters</u>
Water	$5 \times 10^{-3} \mu\text{c/cc}$ (calculated to H $\neq$ 3 days)	$10^{-7} \mu\text{c/cc}$
Air (24-hour average)		
Particles less than $5 \mu$ diameter	$10^{-6} \mu\text{c/cc}$	$5 \times 10^{-12} \mu\text{c/cc}$
Particles greater " $5 \mu$ "	$10^{-4} \mu\text{c/cc}$	$5 \times 10^{-10} \mu\text{c/cc}$

It can be shown that the above limits of alpha activity for bomb products in the air, as given in the table, are reasonably consistent with the limiting values for beta-gamma emitters. Alpha activity in the air, however, is difficult to measure in the field. For both safety and convenience, one may specify a limit of contamination in terms of beta-gamma activity only.

7. Paragraph 13-e, page I-I-5. We are not agreed that there is no necessity for use of masks. Criteria should be established for use or non-use.