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**Title** Radiological Warfare Program

**Date** June 29, 1948

**To** K.S. Morgan

**By** J.H. Roberson

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**A-00187**

Human Subjects Project

1120123

RADIOLOGICAL WARFARE PROGRAM

A meeting to discuss Oak Ridge National Laboratory participation in Radiological Warfare program was held on June 28, 1948. Those attending were

Oak Ridge National Laboratory    A.E.C., Oak Ridge    A.E.C. Military Applications

C.N. Rucker  
M.D. Peterson  
L.B. Ealet  
E. Taylor  
J. Swartout  
J.H. Roberson

F. Belcher  
J. Shilling  
Roth

E.J. Murphy  
1 Lt. Col.  
1 Chemist

Mr. Rucker explained the importance of the project, and expressed quite strongly his desire that Oak Ridge National Laboratory help as much as possible, even to the extent of shelving present problems. A deadline for the exploratory phase was set at September 1.

Two experiments were requested by Murphy, and I was instructed by Mr. Rucker to participate in the planning as a representative of Health Physics, though the division is in no way committed as yet. You are expected to meet with the group immediately after your return, and to decide to what extent Health Physics can contribute.

A later meeting with Ealet was held for the purpose of deciding what sources could be made available, and when. The conclusion reached was that sources requested could be supplied, and at just about the time they are wanted. Health Physics is expected to recommend source strengths for one of the experiments, and also measurement techniques.

1120124

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~~CONFIDENTIAL~~

I am including herein some of my own opinions on the experiments requested by Murphy with the expectation that we will have to do the radiation measurement, and hoping that they will be of use to you in later discussions on details.

1. Measurement of the dosage rate due to a point source, from 10 ft. to 2000 ft.

Sources - Ra La 10, 50 and 1000 curies in solution of 250 ml volume.

Instruments - Electroscopes should be satisfactory. Assuming 1 rim per curie, then at 700 meters the dosage rate in mr/hr is  $10^6/49 \times 10^4$  or about 2 mr/hr. The air absorption ( $\mu = 4 \times 10^{-5} \text{ cm}^{-1}$ ), the half thickness is about 200 meters, so approximately 10% of the primary radiation is transmitted. Instrument background is <0.05 mr/hr; dosage rate is some 4 times background.

Personnel - Three readings (3, 6 and 12 ft. above the ground) are requested for each distance. Six men should be able to complete the data in one day, with time to spare. Perhaps we could bet by with less.

2. Measurement of the dosage rate in an area approximately 2000 feet square, with 1000 sources distributed in a rectangular array.

Sources - We are asked to recommend suitable strengths for the individual sources. I think 10 millicuries would be strong enough. The problem needs some consideration.

1120125

