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March 11, 1949

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Alvin Graves, J-Division Leader

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**CURRENT RADIATION LEVELS AT ENIVETOK**

**REFERENCE: LAB-4**

**CAUTION**

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Measurements of activity at Enivetek Atoll during the early part of February, 1949, agree in the main with the findings of Dr. Schlaer, in October, 1945. Levels of activity at the present time are between 1/2 and 2/3 of the values found by him. For example, on Engebi the present activity at zero is 30-40 mr/hr (Gamma), and the maximum activity found by us in the "hot" zone about 300 yards out was 75 mr/hr (Gamma). The corresponding values reported by Dr. Schlaer are 60 mr/hr and 100-150 mr/hr, respectively.

The general background activity over the entire island, exclusive of the area of intense contamination, which is believed to be due to fall-out from the Yoke shot, has however decreased to a value of from 0.1 to 0.2 mr/hr, as compared with the October level of 0.4 to 0.6. Film studies showed the activity to be due to a fairly dense distribution of particulate radioactive material on the ground surface.

Enivetek alone is presumably free, in the main, of such a generalized particulate hazard. Further film studies will clarify this point in the near future.

The ground surface at the present time is wind-stabilized; that is, all the finest material has been blown out of the superficial layer of soil, and as a result the islands are singularly free of dust. Although we did not have facilities for collecting and counting dust samples, the group concurred in the opinion that no respiratory hazard currently existed. It was also almost painfully obvious that any disturbance of the ground surface immediately resulted in producing volumes of dust and an undoubtedly serious respiratory hazard.

The levels of activity are such that little if any restriction on working time in the "hot" areas will be necessary, as far as remaining within permissible limits of external radiation exposure is concerned. Dust, however, represents an entirely different problem, and it is not possible to specify a permissible level of activity in the respired air when this activity is in the form of finely divided insoluble particles. A fraction of such material will be retained in the lung and pulmonary lymph nodes for long periods of time; the dosage level in body cells adjacent to such particles are extremely high even though the total activity of the particles is relatively low; and it is believed that the statistical chances of eventual development of lung cancer under these circumstances are markedly increased. It therefore behooves us to conduct operations in such a way that the respiratory exposure of

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REPOSITORY LOS ANGELES XL  
COLLECTION CL-2  
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FOLDER Clearbase, Enivetek Personnel

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all personnel is kept to the absolute minimum possible level.

During the conduct of decontamination procedures it will be of considerable importance to evaluate the respiratory exposure of personnel as well as to keep track of external radiation dosage. This will involve dust collecting and counting, particle size measurements, and counting of nose swipes, and will thus require a fair amount of laboratory equipment in addition to the few portable survey meters we currently have out there. If I am to be assigned to this task, I would appreciate a definite decision as soon as possible, since planning, procurement and shipment of the needed scientific instruments and necessary medical supplies will take a fair period of time.

H. O. WHIPPLE, M. D.  
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cc: Dr. F. L. Shipman

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