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ATOMIC ENERGY COMMISSION

MEETING NO. 1238

2:30 p.m., Monday, October 22, 1956

Present	Also Present
W. F. Libby	Comdr. P. F. Bankhardt
Thomas E. Murray	Lt. Col. Eugene A. Blue
Harold S. Vance	Allen V. Butterworth
	Lt. Col. Robert L. Colligan
R. W. Cook	Comdr. John W. Crawford
William Mitchell	McKay Donkin
	Dr. Charles L. Dunham
W. B. McCool	Gordon M. Dunning
William L. Oakley	Manuel Dupkin II
	Capt. Harry Hahn
	Harold A. Knapp
	Col. Carey L. O'Bryan
	Calvin Potts
	Lt. Col. Raymond I. Schnittke
	Brig. Gen. Alfred D. Starbird
	AFSWP
	Maj. Gen. A. R. Luedecke
	Col. Roy Maxwell
	Frank Shelton
	Col. D. L. Lay

(Page numbers after the item refers to the transcript of the meeting.)

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Briefing on DOD Radiation Effects Program at Operation REDWING (pp. 2-34)

After a brief introduction by General Luedecke, Colonel Maxwell of the Armed Forces Special Weapons Project briefed the Commissioners on the objectives and results of the radiation effects program at Operation REDWING. He said that the primary

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purpose of the program was to obtain as complete documentation as possible of fallout from high-yield thermonuclear detonations and that the program had been undertaken with the following objectives: (1) studying the distribution of radioactivity in the cloud; (2) collecting and characterizing fallout; (3) correlating data and extrapolating it to land surfaces.

Colonel Maxwell pointed out that although the data which he would present were preliminary, they could be used at this point for planning purposes. With the use of slides depicting charts and maps, Colonel Maxwell then reviewed the results of the program and commented on their significance.

With regard to the cloud model, Colonel Maxwell said that the major percentage of radioactivity had been observed in the lower part of the cloud and that less than three percent of the radioactivity had been found in the stem of the cloud. Also, he commented on the relatively large size of the particles which were responsible for the major part of the radioactivity. Militarily, he observed, the 100 micron size particle had been found to be the most significant, because areas in which this size particle were concentrated would be so radioactive that evasive action would have to be taken.

Colonel Maxwell showed idealized, surface radioactivity contour charts and idealized charts of the distribution of radioactivity at various distances. He then showed charts of two test shots and compared them with these idealized charts. He said it had been concluded that the areas of high intensity had been predicted to be too high and areas of low intensity had been predicted to be too low.

Colonel Maxwell concluded his presentation by remarking that the general areas of radiation intensity and the variation

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of intensity with altitude had been studied and that he believed good delineation of fallout had been made. He added that a cloud model had been established which would allow more precision in predicting areas of local fallout, although it would not be possible to predict hot spots too well because of variation in wind. Also, existing methods were suitable for predicting variations in the size of contour areas between thermonuclear weapons with a high percentage of fission yield and those with a low percentage of fission yield.

Mr. Libby requested that he be provided a copy of the report on the radiation effects program. He also inquired whether the project had studied strontium-90 fallout as well as fallout yielding gamma radiation and Colonel Maxwell replied that no data had been received on strontium-90 fallout. Mr. Libby also asked Colonel Maxwell to inform him of any studies which had been made of the tons of material taken up by a shallow water shot as opposed to a deep water shot.

Mr. Libby said that when data on the program were more complete, he believed it would be desirable to arrange another briefing.

Dr. Dunham commented briefly on the world-wide radiation fallout monitoring program which had been undertaken in conjunction with Operation REDWING and said that complete data would not be received for a few weeks. However, with regard to intermediate tropospheric fallout, he said that no reading above 10 times the background radiation level had been observed in the U.S. until August and it was believed that these readings

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resulted from U.S.S.R. tests. Most of the Operation REDWING material, he said, had gone over Mexico.

W. B. McCOOL
Secretary

Approved by the Commission: Meeting 1276, April 9, 1957.

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