

Carl Buckland, H-1

October 20, 1961

W. R. Kennedy, H-6

410584

"CLOSE IN FALLOUT" FROM CASTLE BRAVO

H-6

The following measurements were made at various times at the places indicated following the March 1, 1954 detonation at Bikini Atoll. Speed of movement to all points is based on a measurement by a recording gamma meter located on Eniwetok Island, Rongerik Atoll. The meter indicated start of arrival at H + 7-3/4 hours, with an estimated peak reading at H + 8-3/4 hours. The distance is 135 nautical miles, so a mean speed of 17 knots has been used in the calculations. Extrapolated decay has been based on the T⁻² rate. No allowance has been made for weathering prior to measurement, so the values are probably low.

The bomb was a surface burst of 15 Megatons, 50% fission. The "hot line" of the fallout pattern was somewhat to the north of all the locations listed below. Kabelle Island, Rongelap Atoll, is the closest to the "hot line", but still probably some distance from it.

<u>Island Location</u>	<u>Date-time</u>	<u>Reading mr/hr</u>	<u>Distance sea miles</u>	<u>Estimated Arrival time</u>	<u>Estimated Peak reading</u>	<u>Estimated D</u>
Rongelap	D + 7	375	103	H + 6	20 R/hr	600 R
Kabelle	D + 25	1000	108	H + 6.35	235 R/hr	7500 R
Eniwetok	D + 7	280	135	H + 8	11 R/hr	440 R
Utirik	D + 3	170	276	H + 16.2	1 R/hr	81 R

Original Signed By
WILLIAM R. KENNEDY

W. R. Kennedy

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WRK:bg

cc: O.W. Stopinski
E. Bemis
File

RG 326 US ATOMIC ENERGY
COMMISSION F-23
Location LANL B-195
Collection Records Center
Folder BRAVO

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H _____
 TROPO _____
 MEAN WIND 11.5

RAND TIME
 VARIANT

DATE TIME OF FCST BRAVO
TEAPOT
 FOR DT _____
 Ymest _____

LAYER	HODO		$\frac{\ln R}{\sigma}$	$q_i \frac{YZ}{1.5\sigma}$
	θ	R		
1	101	146	2.76	212
2	94	187	3.26	332
3	90	229	3.87	380
4	89	250	4.24	112
5	89	212	4.47	42
6	85	124	4.59	15

x	50	100	150
σ_a	4.24	2.44	1.60
σ_θ	6.31	4.94	4.59

$\sum W$	39,600	14,200	6,750
$x \frac{\sigma_a}{\sigma_\theta} = D \text{ Peak}$	11,900	3,700	1,620
width (mi) of $\pm R$			
width (mi) of $\pm R$			

TABLE OF W				$\theta_0 = 90$
x	50	100	150	$\theta - \theta_0$
1	2000	5000	7000	+11
2	15000	7000	6000	+4
3	12000	15000	7000	0
4	6000	3000	1000	-1
5	2000	2000	1200	-1
6	350	—	—	+5
$\sum W$	51650	28770	19340	

TABLE OF W ($\theta - \theta_0$)			
1	97	60	43
2	62	36	25
3	—	—	—
4	-6	-3	-2
5	-2	-1	—
6	2	—	—
$\sum W(\theta - \theta_0)$	153	92	66
$\sum W(\theta - \theta_0)^2$	2.0	3.2	3.4
θ_0	90	90	90
$\bar{\theta}$	92	93.2	93.4

TABLE OF W ($\theta - \theta_0$) ²			
x	50	100	150
1	800	660	480
2	250	144	100
3	—	—	—
4	6	3	2
5	2	1	—
6	9	—	—

$\sum W(\theta - \theta_0)^2$	1150	810	580
$-\theta \cdot \theta_0 \sum W(\theta - \theta_0)$	300	300	225
$= \sum W(\theta - \theta_0)^2$	850	510	355
$\div (\sum W) = (\sigma_\theta)^2$	16.4	18.4	18.4
$+ \sigma_a^2$	20.4	19.7	2.5

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