

Carl Buckland, H-1

October 20, 1961

W. R. Kennedy, H-6

122518

"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^{1.2} 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

Wm. R. Kennedy

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

H

TROPO

MEAN WIND

11.5

RAND TIME
VARIANT

COST

BRAVO

DATE TIME OF POST

TEAPOT

FOR DT

Ymest

LAYER	HODO		$\frac{\ln R}{\sigma}$	$q_i \frac{YZ}{1.5\sigma}$
	θ	R		
1	141	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	95	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
$x \frac{2.4}{\sigma_a} = D \text{ Peak}$	11,900	3,700	1,620
width (mi) of 2R			
width (mi) of 2R			

TABLE OF W				$\theta_0 = 90$	
x	50	100	150		$\theta - \theta_0$
1	2200	5400	3900		+11
2	1500	4000	6300		+4
3	1810	1500	7000		0
4	6300	3000	17100		-1
5	1000	700	1200		-1
6	350	—	—		+5
$\sum W$	15,650	22,770	19,340		

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	880	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
$-\overline{\theta - \theta_0} \sum W(\theta - \theta_0)$	300	300	225
$= \sum W(\theta - \bar{\theta})^2$	850	510	355
$\div (\sum W) = (\sigma_\theta)^2$	16.4	18.4	18.4
$+ \sigma_a^2$	23.4	24.5	25.0

NO. 55911. 10 x 10 to the half inch. 5th lines accented.
Engraving, 7 x 10 in.
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KEUFFEL & ESSER CO.

$$\ln x - \ln \frac{f_i}{f_1}$$

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