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 $T^{-1.2}$ 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.

Island Location	Date-time	Reading mr/hr	Distance sea miles	Estimated Arrival time	Estimated Peak reading	Estimated D ∞
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

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cc: O.W. Stopinski
E. Bemis
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RG 326 US ATOMIC ENERGY COMMISSION F-23 B-195
Location LANL
Collection Records Center
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H _____

TROPO _____

MEAN WIND 11.5

RAND TIME VARIANT

SHOT BRAVO

DATE TIME OF POST TEAPOT

FOR DT _____

Ymest _____

LAYER	HODO θ	HODO R	ln R / σ	q_i YZ ~~1.5σ~~
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	95	124	4.59	15

93,750
31,250
[illegible]
36,250
43,750
31,250
18,750
6,250

x	50	100	150
σ_a	4.84	2.44	1.60
σ_θ	6.31	4.94	4.59
$\frac{\sigma_a}{\sigma_\theta}$ ΣW	39,600	14,200	6,750
$x \frac{0.4}{t^{0.2}}$ = D Peak	11,900	3,700	1,620
width (mi) of ∠R			
width (mi) of ∠R			

TABLE OF W

θ_o = 90

i \ x	50	100	150		$\theta-\theta_o$
1	[illegible]	[illegible]	[illegible]		+11
2	15[illegible]	[illegible]	6300		+4
3	18[illegible]	[illegible]	[illegible]		0
4	6300	3[illegible]	1[illegible]		-1
5	[illegible]	[illegible]	1300		-1
6	1350	—	—		+5
ΣW	51650	28770	19340		

TABLE OF W $(\theta-\theta_o)$

1	97	60	43	
2	62	36	25	
3	—	—	—	
4	-6	-3	-2	
5	-2	-1	—	
6	2	—	—	
$\Sigma W(\theta-\theta_o)$	153	92	66	
$\div(\Sigma W) = \overline{\theta-\theta_o}$	2.0	3.2	3.4	
θ_o	90	90	90	
$\bar{\theta}$	92	93.2	93.4	

TABLE OF W $(\theta-\theta_o)^2$

i \ x	50	100	150
1	880	660	480
2	250	144	100
3	—	—	—
4	6	3	2
5	2	1	—
6	9	—	—
$\Sigma W(\theta-\theta_o)^2$	1150	810	580
$-\overline{\theta-\theta_o}$ $\Sigma W(\theta-\theta_o)$	300	300	225
= $\Sigma W(\theta-\bar{\theta})^2$	850	510	355
$\div(\Sigma W) = (\sigma_\theta)^2$	16.4	18.4	18.4
+ σ_a^2	[illegible]	[illegible]	2.5[illegible]

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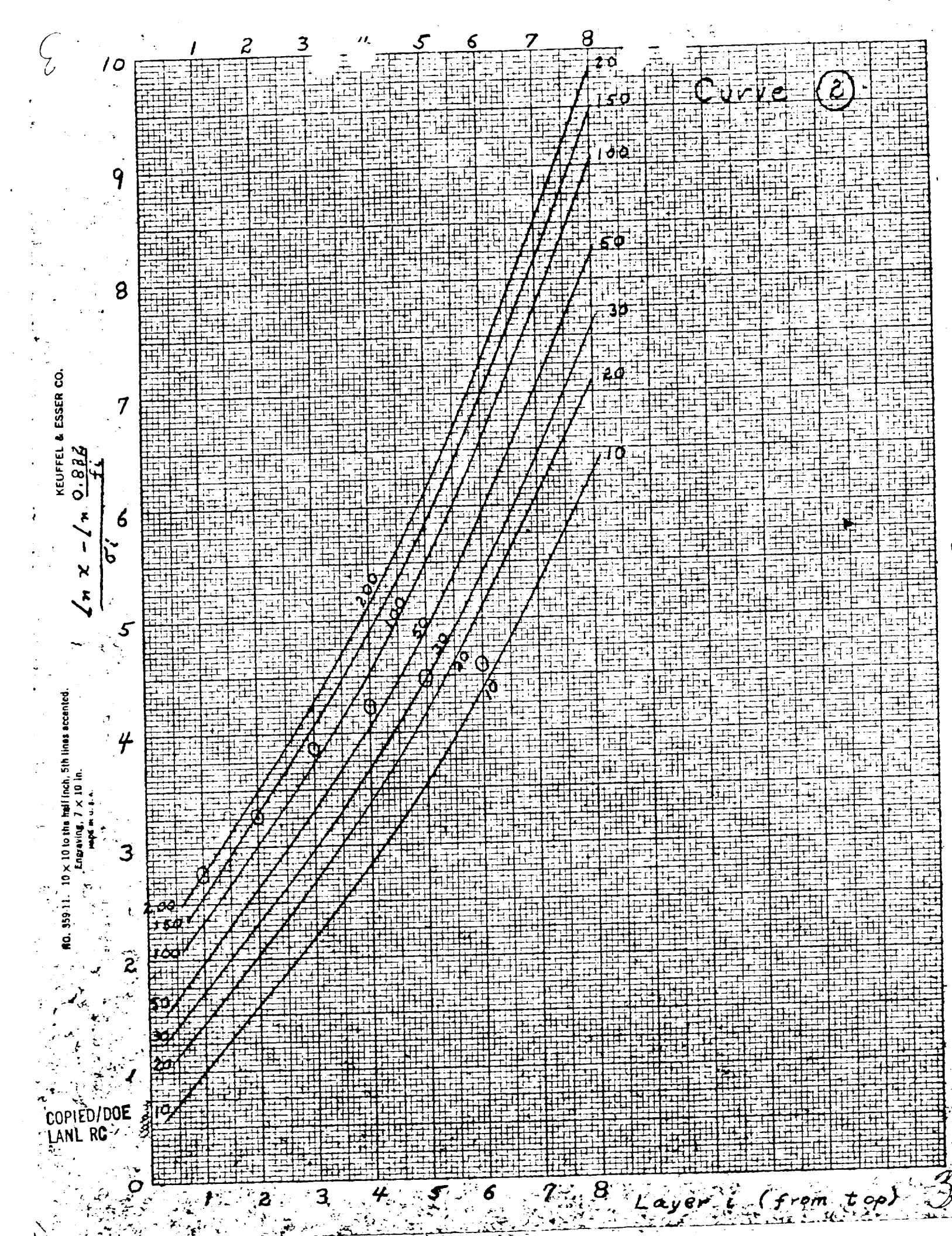

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