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410674

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CLASSIFIED NOTEBOOK NO. 541 -L

ISSUED BY: Info. Div. UCRL Liv.

ISSUED TO: DeWitt Allen
L-Division Operations
Livermore

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RG 326 US ATOMIC ENERGY
COMMISSION

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DeWITT ALLEN, L-Division/V&V
Shelton,
Operations

LLNL

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8/29/88
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OF AMERICA

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100	115
150	173

THIS DOCUMENT CONSISTS OF 2 PAGES
NO. 1 OF 1 SERIES

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*For [unclear]
D. Allen
2*

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CIL-10764

Received Feb 21, 1955

PAGE ONE OF TWO PARTS

FM JAMES E REEVES TEST MGR USAEC MERCURY NEV

TO /ZEN/USAEC DIVISION OF MILITARY APPLICATION WASH DC

BRIG GEN KE FIELDS

INFO/ZEN/USAEC SFOO ALBQ NMEX - ATTN D J LEEHEY

INFO/ZEN/DR N E BRADBURY LASL LOS ALAMOS NMEX

INFO DIR UCRL LIVERMORE CALIF - ATTN DR HERBERT YORK

INFO / ZEN/ CHIEF AFSWP WASH DC

INFO /ZEN/ USAEC SAN OAKLAND CALIF - ATTN H A FIDLER MGR

INFO /ZEN/ CG FC AFSWP SANDIA BASE ALBQ NMEX

C-158 FEB 551922347 GRNC

This material contains information affecting the National
Defense of the United States within the meaning of the
Espionage Laws, Title 18, U.S.C., Sections 793 and 794, the
transmission or revelation of information in any manner to an
unauthorized person is prohibited by law.

THIS IS THE SECOND AND H PLUS TWENTY FOUR HOURS REPORT ON WASP PD
PRELIMINARY ANALYSIS INDICATES ACTUAL BURST HEIGHT WAS SEVEN FIVE FIVE
FEET ABOVE TARGET AT FOUR THREE ONE FEET WEST AND FORTY FEET NORTH
PARA RADIOLOGICAL PATTERN CLN A PHYSICIAN IN YUMA CMA ARIZONA REPORTED
READINGS OF ONE TO TWO MILLIROENTGEN

END OF PAGE ONE

PAGE TWO OF TWO PARTS

PER HOUR AT H PLUS TEN HOURS PD AEC AND PHS REPRESENTATIVES PRESENTLY
IN ROUTE TO YUMA AREA TO CHECK LEVELS AND DISCUSS WITH LOCAL OFFICIALS
PARA PARKER CMA ARIZONA REPORTED OFFSCALE READINGS ON THE TWO TENTHS
MILLIROENTGEN PER HOUR SCALE AT H PLUS FIVE HOURS PD PARKER
LEVELS CHECKED THIS MORNING BY AEC AND PHS REPRESENTATIVES SHOW MAXIMUM
READINGS TO TWO ONE HUNDREDTHS PER HOUR AT H PLUS EIGHTEEN HOURS TO
H PLUS TWENTY HOURS PD LOCAL OFFICIALS REPORTING CONDITIONS ARE
CONVINCED LEVELS DO NOT REPEAT NOT CREATE ANY CAUSE FOR ALARM PARA
AEC AND PHS REPRESENTATIVES WILL DISCUSS PROGRAM AND RADIATION LEVELS
WITH ARIZONA PUBLIC HEALTH AND STATE CIVIL DEFENSE OFFICIALS WHILE IN
THE AREA PARA THIS IS THE LAST PERIODIC REPORT ON WASP UNLESS FURTHER
PRELIMINARY ANALYSIS INDICATES DIFFERENT OR ADDITIONAL RESULTS PD
REF TM-GHC
END OF MESSAGE

LLNL

[REDACTED]

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[REDACTED]

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PRIORITY

FROM JAMES REEVES TEST MGR CONTL TEST OPNS USAEC MERCURY NEVADA
TO ZEN/USAEC DIVISION OF MIL APPL WASHDC/ATTN BRIG GEN K E FIELDS/
INFO ZEN/USAEC SANTA FE OPNS ALBUQ NMEX/ATTN D J LEEHEY/
ZEN/LOS ALAMOS SCIENTIFIC LAB LOS ALAMOS NMEX/ATTN DR N E BRADBURY/
DIR UCRL LIVERMORE CALIF/ATTN DR HERBERT YORK/
ZEN/CHIEF ARMED FORCES SPECIAL WEAPONS PROJECT WASHDC
ZEN/USAEC SAN FRAN OPNS OFF OAKLAND CALIF/ATTN H A FIDLER/
ZEN/CG FC ARMED FORCES SPECIAL WEAPONS PROJECT SANDIA BASE NMEX

NR S-134

DTG 1903017 FEB

AEC GR340

~~SECRET~~ /WASP DEVICE ~~SECRET~~
DETONATED AT ELEVEN CLN FIVE NINE CLN FIVE NINE
POINT TWO PST IN TEST AREA SEVEN FOUR PD DEVICE DROPPED FROM BAKER
THIRTY SIX AIRCRAFT FLYING AT TWENTY THOUSAND TWO HUNDRED FEET MSL
PD BURST HEIGHT SET AT EIGHT HUNDRED FEET ABOVE TARGET PD NOT YET
VERIFIED BUT ACTUAL BURST APPROXIMATELY THIS POSITION PD ESTIMATED
TIME OF FALL THREE ONE POINT FOUR SIX SECONDS PD ACTUAL TIME
THREE ONE POINT SIX NINE SECONDS PD PLANNED DROP TIME ZERO SEVEN THREE
ZERO PST BUT FIRE WHICH OCCURRED IN DROP AIRCRAFT ENGINE JUST PRIOR
TO TAKEOFF REQUIRED TRANSFER OF DEVICE TO STANDBY BAKER THIRTY SIX
(PAGE TWO)

RESULTING ESTIMATED RELEASE TIME ELEVEN THIRTY PST PD DURING THIS
OPERATIONAL DELAY SPOTTY CLOUD CONDITIONS DEVELOPED NECESSITATING
TWO NEGATIVE RUNS PRIOR TO DROP TIME PD DROP MADE ON THIRD PASS
OVER TARGET PD ESTIMATED YIELD ONE OR TWO KT PD TOTAL OF TWENTY
EIGHT EXPERIMENTAL PROJECTS PARTICIPATED IN MILITARY EFFECTS CMM
CIVIL EFFECTS CMM AND LASL DEVELOPMENT PROGRAMS PD NO UCRL
PARTICIPATION PD PRELIMINARY REPORTS INDICATE GOOD DATE OBTAINED
ON CIVIL EFFECTS AND MILITARY EFFECTS TESTS PD VERY PRELIMINARY
RESULTS OF LASL DEVELOPMENT TESTS ALSO INDICATE SATISFACTORY
RESULTS PD DUE TO FACT THAT POSSIBILITY EXISTS TO DETONATE TURK
AT ZERO FIVE FOUR FIVE PST FEBRUARY NINETEEN NO FURTHER ANALYSIS
MADE AND ALL EFFORT DIRECTED TOWARD PREPARATION FOR TURK PARA FOR
REASONS OF SAFETY DESERT ROCK DID NOT PUT TROOPS IN TRENCHES PD
APPROXIMATELY ELEVEN HUNDRED TROOPS OBSERVED DETONATION FROM NEWS
KNOB PARA METEOROLOGICAL CONDITIONS CLN

A. WINDS CLN SURFACE NORTHWEST AT SIXTEEN KNOTS CLN TEN THOUSAND
FEET NORTH NORTHWEST AT THIRTY SIX KNOTS CMM TWENTY THOUSAND
FEET NORTHWEST AT NINETY TWO KNOTS PD

B. CLOUDS CLN SEVEN TENTHS STROTOCUMULUS AT FIVE THOUSAND FEET
LEVEL PD

C. PRECIPITATION CLN NONE

RADIOLOGICAL PATTERN CLN NO SIGNIFICANT OFFSITE FALLOUT PD HIGHEST
(PAGE THREE)

READINGS FIVE POINT FIVE MILLIROENTGEN AT AZIMUTH ONE HUNDRED
SIXTH DEGREES CMM DISTANCE EIGHTY MILES FROM YUCCA FLAT AT THREE
AND ONE HALF HOURS PARA OFFSITE MICROBAROGRAPH READINGS INDICATE
NO DAMAGING EFFECTS PD REF TM/WWA

LLNL

END MESSAGE

~~RESTRICTED DATA~~

This document contains data as
defined in the Atomic Energy Act of 1946.
Its transmission or disclosure in any
manner to an unauthorized person
is prohibited.

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[REDACTED]

WEATHER - PPG

CLIMATOLOGY OF THE ENIWETOK-BIKINI AREA FOR THE MONTHS OF JANUARY, FEBRUARY, MARCH AND APRIL.

This period of the year is generally known as the "dry season" in the Marshall Island Area, particularly in the Eniwetok-Bikini area. It is better known as the "Trade" season. Over this area east-northeast to northeast winds prevail in the lower levels, the wind speeds ranging between 10 to 20 knots. Small amounts of cumulus clouds, usually not exceeding 4/8 coverage, are found in this current and the cloud tops do not usually extend above 8,000 feet. Rain sometimes falls from these clouds, usually as showers. No extensive upper middle cloud decks are found. Although the lower winds are northeast and quite fresh, as one goes aloft one finds that the winds turn more westerly with elevation, until at about 26,000 feet they lie between northwest and southwest. The westerlies then extend upwards to the tropopause increasing in speed to about 35 knots at 45,000 feet. If the upper winds are mainly southwesterly, rain from the trade cumulus is likely and the amount of cloud may increase to 6/8 or 7/8. If the upper winds are however chiefly northwesterly, the cumulus clouds will decrease to as little as 1/8 or 2/8 and showers are less likely.

Occasionally during this period, the wind throughout the entire Marshall Islands will show speeds of less than 10 knots from the northeast or east-northeast. Cloud cover will, however, be only 2/8 or 3/8 with tops below 4,000 feet, interspersed with stationary lines of cumulonimbus and heavy showers and occasional thunderstorms. There will be an extensive sheet of alto-stratus and alto-cumulus which will make aircraft operations above 20,000 feet difficult and occasionally hazardous. This situation is more particularly true in late March and April. Again, as during the normal trade flow, which is found during this time of year, the easterly winds will vary in height, becoming very strong westerlies above 38,000 feet and reaching as high as 100 knots at 45,000 feet on occasions. These winds are associated with a weather system aloft which can become quite intense and which can persist for periods in excess of a week. This situation is the one to be most wary of during this period of operations.

LLNL

Eniwetok -

Climate - Tropical - Mean Temp. 81°F. Highest - 1300 - 1400 hours. Lowest 0500 - 0600 hours.
Deviation only about 1° many months. Variation between high & low daily temp. - 10° to 12°F. Humidity - Very high - mean about 85%

Wind -

Strongest - 0600 hours - most moderate - early evening.
- North-east TRADE Wind.

DDG Weather - 1pg. - Rough Draft

Red from John Flynn. Φ 7/8/54

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[REDACTED]

and a black and white photo

and a black and white photo

LLNL

[REDACTED]

PRIORITY

FM JAMES E. REEVES, TEST MGR USAEC MERCURY NEV.
TO USAEC DIV OF MIL APL WASHDC - ATTN COMDR G J ANDERSON
INFO - USAEC SFOO ALBQ NMEX - ATTN DONALD J LEEHEY
INFO - CH AFSWP WASHDC
INFO - LASL LOS ALAMOS NMEX - ATTN N E BRADBURY
INFO - USAEC SAN OAKLAND CALIF - ATTN H A FIDLER
INFO - UCRL LIVERMORE CALIF - ATTN E O LAWRENCE
INFO - CG FC AFSWP ALBQ NMEX
MSG NR S-348 MAR 55071955Z GRNC

~~RESTRICTED DATA~~

This document contains restricted data as defined in the Atomic Energy Act of 1946. Its transmission or the disclosure of its contents in any manner to an unauthorized person is prohibited.

This is the First and H/5 Hours report on Turk. Turk was detonated at 0520 Hours PST, March 7, in Test Area 2 from a 500 foot tower. Preliminary estimates of yield by Bhangmeter 42 KT. Indications are that successful results were obtained from diagnostic experiments. Desert Rock participation of 550 armed forces personnel in trenches at 5500 yards from ground zero, however, initial entrenchment area was moved to alternate position due to anticipated fallout. O and T projects participated.

Cloud height at top was 42500 feet moving at about 35 knots along 105° azimuth; cloud at 31000 feet moving at about 45 knots along 75° azimuth; cloud at 28000 feet moving about 40 knots along the 275° azimuth; cloud at 23000 feet moving about 22 knots along 315° azimuth and cloud at 10000 to 12000' moving about 20 knots along 340° azimuth. Above winds indicate very favorable shear. No ground readings of fallout reported from off site at this time.

No observed reading at Sarcobatus.

Metereological Conditions:

- a. Winds; surface, west northwest 5 knots, ten thousand feet north NE at 15 knots; 30000 feet east NE at 12 knots; 40000 feet west at 60 knots; 50000 feet west at 40 knots.
- b. Clouds; clear.
- c. Precipitation; none.

LLNL

Microbarograph; report received from Salt Lake City area that foundation had been damaged, however, distance from Yucca appears to make this impossible. Investigation will be made. Ref TM-GHC

End of message

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CIL-11042
CIL-N-1955

OFFICE OF THE TEST DIRECTOR
NEVADA TEST SITE
P.O. BOX "0"
Mercury, Nevada

12 March 1955

TEST DIRECTOR'S INFORMATION LETTER NO. 25

TO : Distribution
SUBJECT: TEAPOT SCHEDULE
SYMBOL : J3C-191

1. Reference is made to Test Director's Information Letter No. 24 dated 26 February 1955, subject: "TEAPOT SCHEDULE".
2. The following revised schedule is announced for planning purposes. The dates shown are the ready dates and those shots marked with an asterisk are Group A. When the weather is acceptable, the Group A shots will be given priority.

The ready dates listed below are based on APPLE. If APPLE is fired on 14 March, then BEE will be ready 20 March and ESS 22 March, etc. If APPLE is fired on 15 March then BEE will be ready 21 March and ESS 22 March, etc.

<u>SHOT</u>	<u>READY DATES</u>	<u>SHOT POINT</u>
*APPLE	14 15 16 March	4a
*BEE	20 21 22 March	7-1a
ESS	22 22 22 March	10a
HADR	23 24 25 March	5
WASP (800' Airdrop)	25 26 27 March	7-4
HA	1 2 3 April	5
*MET	2 2 2 April	F
POST	8 8 8 April	9c
*ZUCCHINI	15 15 15 April	1

LLNL

FOR THE TEST DIRECTOR:

WTK:hck

~~CONFIDENTIAL~~

/s/ W. T. Kerwin
Plans & Operations

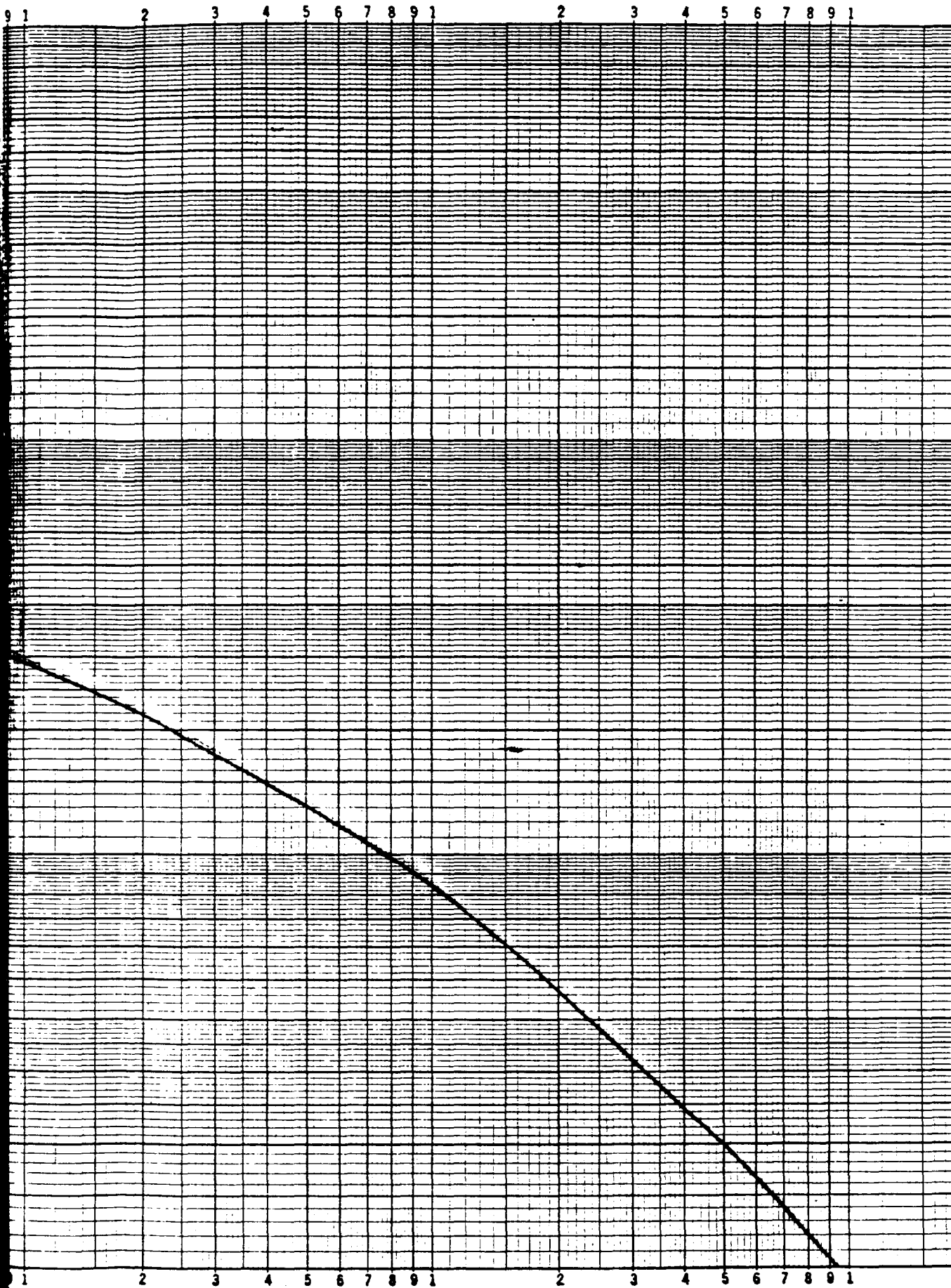
This material is information of the National
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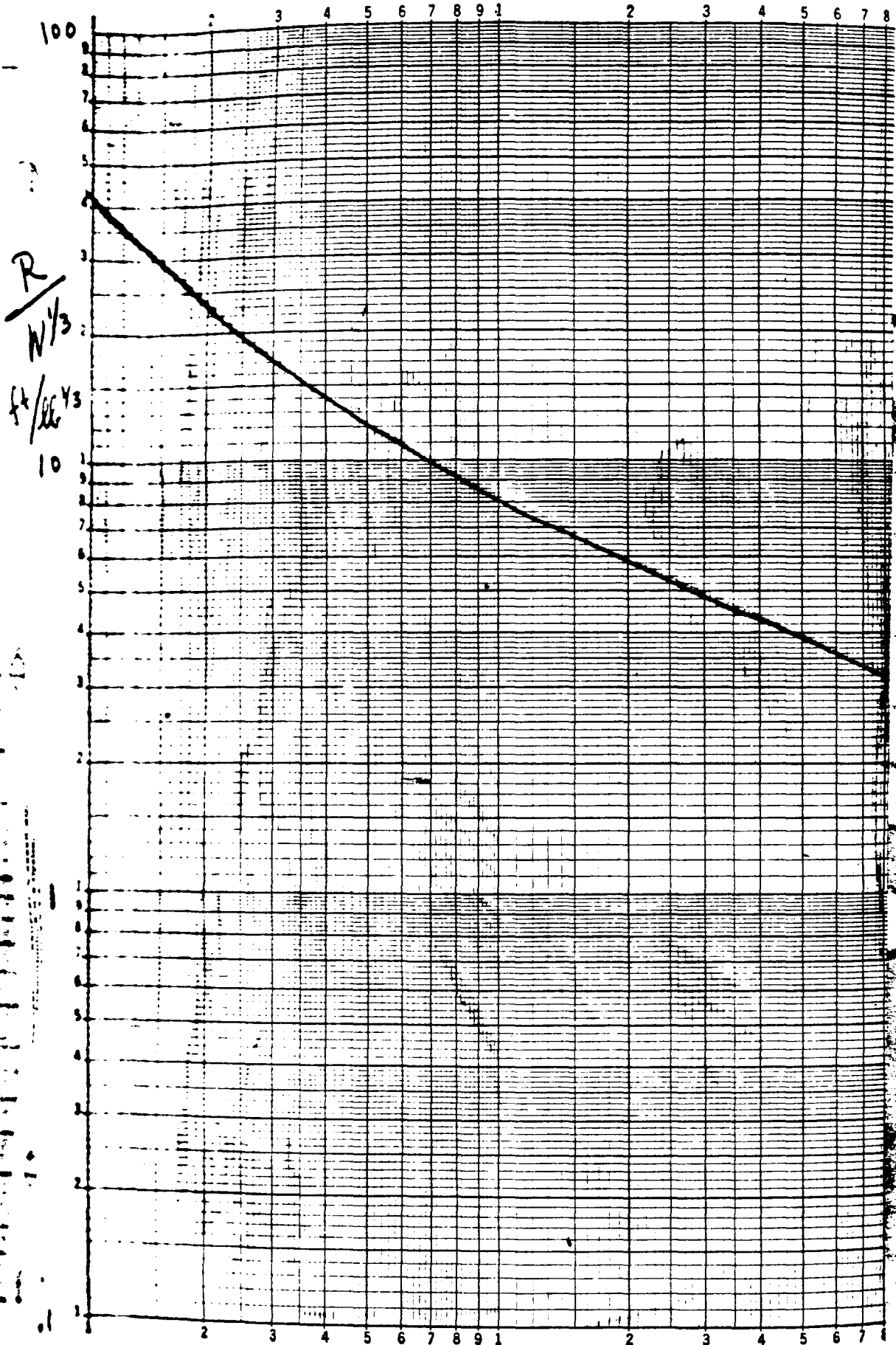


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Pressure P:

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Climatic Data for Amchitka AFB, Alaska - CIL 07225
 prepared by HQ Air Weather Service - May 1951
 requested by Naval Gun Factory.

18
19

Assume a favorable hour has .4 or less cloud cover & any cloudiness above 20,000 not considered.

Operation One: Wind from N. thru W. (45° either side of NW)

Operation Two: Wind from NW thru SW. (45° either side of W)

165th Meridian Time used. GCT = 11 hrs. later.

Data period = 8 years. Amt Cloudiness = tenths. cloud height = hundreds feet.

% = absence of clouds.

Table 1. Climatic Data for Amchitka AFB, Alaska (6 yrs. record)

	August	Sep	Oct	
Temperature (°F)				
Mean	48	46	41	
" Max.	51	49	45	
" Min.	45	43	38	
Highest	58	57	50	
Lowest	38	37	29	
Ceiling - Visibility (% of time)			LLNL	
<100' and/or < 1 mile	55.9	22.6	5.7	
<500' " < 2 "	66.6	30.1	10.0	
<1,000' " < 3 "	78.2	43.0	19.3	
<3,000' " < 6 "	89.6	70.6	73.7	
≥ " and ≥ 6 miles	10.4	29.4	26.3	
Sky Condition (% of Time)				LLNL
clear	0.8 ↓	2.6 ↓	3.2 ↓	
scattered	4.8	12.2	24.3	
broken	8.1	17.9	27.6	
overcast	37.4	47.5	39.0	
obscured	48.9	19.8	5.9	

10035 0208

20

(Continued)

* = LESS THAN 0.1%
 T = Trace

	Aug	Sep	Oct	
Precipitation (% occurrence)				
Rain	11.7	11.2	10.1	
Drizzle	29.7	14.6	10.0	
Rain Showers	0.1	0.3	2.1	
Snow	0.0	0.0	0.4	
Snow Showers	0.0	0.0	0.3	
Snow pellets	0.0	0.0	0.1	
Hail	0.0	0.0	0.1	
Snow Squalls	0.0	0.0	*	
Precipitation (inches)				
Snowfall	0.0	0.0	T	
Precipitation	4.32	3.04	3.51	
Obstructions to Vision (≥ 6 mi) (% occurrence)				
Fog	73.9	46.1	23.4	
Ground Fog	0.8	0.8	0.2	
Blowing Snow	0.0	0.0	*	
Haze	0.0	0.3	0.2	
Wind (mph)				
Extreme speed	62	80	78	

Subsequent to the tabulation of data, the desired Conditions were changed. The new Criteria common to both operations were clouds not to exceed .3 & no-clouds below 3,000'. In operation One the wind had to be from the west. Those observations which met these requirements were marked with a red "X".

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Surface Wind Roses
Amchitka Island

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23

45
37

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23

LCR 0203

3⁴ Range ~ 2.2 - 4.5 g./kg dry air.

← This corresponds to 10% R.H. on ...

Convert to lbs. H₂O / ft³ Air. @ 850 mb

10°C

45
69
2/114
57°F.

pg 116 Handbook of Meteor B.B.B.

"Density of Air"
Kg/m³

Press. mb	Virt. Temp °C			
	-10	0	10	20
800	1.059	1.020	0.986	0.952
900	1.192	1.148	1.108	1.071
1000	1.325	1.276	1.230	1.190

0.986
1.108

1 m³ = 35.315 ft³

1 Kg = 2.205 lbs.

2/2.094
1.047

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$$\text{Kg/m}^3 = \frac{1.047}{35.3} = .0297 \text{ Kg/ft}^3$$

LLNL

$$\left. \begin{array}{l} 2.2 \times .0297 = .065 \text{ g./ft}^3 \\ 4.5 \times .0297 = .134 \text{ g./ft}^3 \end{array} \right\} \text{Air @ 850 mb } 10^\circ \text{C}$$

Shipped to Bob Vetterlein 3/14/57

For Robert J. Vetterlein [REDACTED] 3/12/57 #3
Bldg. 141 Room 270 Ext. 7014

Design Air Drier for Nevada Such that will be saturated after 4 hrs. Work 80% of time Year Round.

What amt H₂O per lb. Air or ft³ air?

15 May 55 0515 PDT R.H.

Zucchini Burst @ 4,745' MSC 851 mb.

Ht.	press	Temp	D.P.	R.H.	$\frac{g. H_2O}{kg. a}$
Sfc	878	3.5	-8.2	41%	-
4000	874	3.4	-8.3	41	2.3
4783	850	2.0	-9.0	43	-
5000	842	1.7	-9.3	43	2.2
5840	818	0.3	-10.0	44	-

12 March 55 0530 PST BEST AVAILABLE COPY

Sfc	884	-1.8	-8.4	60	
4000	881	-1.0	-7.6	60	2.5
4593	864	5.7	-0.8	60	
4790	856	7.4	0.3	59	
4970	850	7.2	0.1	59	LLNL
5000	849	7.2	0.1	59	4.0

15 April 1955 1130 PST

4000	877	18.2	-4.2	21	3.0
	847		-5.1	21	

LC 35 0205

25



LLNL



Wind & Temp. Summary NPG furnished by R.H. Campbell J-6 Las Plamas

Letter 10 Dec 53 by George J. Newgarden III. Basis of Summary = 11,796 obs

taken during 1951, 52, 53. Less representative during summer due few obs avail.

Greatest % Northerly winds winter, Southerly winds summer. Strongest

winds Southerly. Greatest % Calm during night. Mod. or Strong winds

during PM. When winds light < 5 mph during night, winds predominate

Northerly = Air Drainage.

TEMPS °F

FEBRUARY 1952-1953

MONTH	MEAN	MEAN MAX	MEAN MIN	ABS MAX	ABS MIN	WIND DIR.	MPH 1-10	11-22	22-33	34-45	46-56	Calm	TOTAL OBS	%
JAN	40	50	29	67	13	N	260	149	53	9			471	37
FEB	41	55	29	67	15	NE	109	35	4				148	12
MAR	45	56	33	74	11	E	43	8					51	4
APR	56	68	44	84	23	SE	31	18	1				50	4
MAY	62	75	49	91	43	S	49	42	8				99	8
JUN*	66	80	52	89	42	SW	52	42	6	8			37	3
JUL	82	93	72	98	62	W	19	7					26	2
AUG	80	92	69	102	60	NW	55	82	21	3	1		162	13
SEP	71	88	57	100	45	Calm						162	162	13
OCT	57	69	46	81	33									
NOV	44	55	32	73	17	Totals	618	383	93	20	1	162	1277	
DEC	39	47	30	64	19									
ANNUAL	57	69	45	102	11	%	48	29	7	2		13		14

18

* Only a few obs available for June.

LLNL

Also see file USWB "Local Climatological Data" for 1953 & 1952

Gives Daily "Average Wind" plus "fastest mile" daily for the 2 yrs. of Data

40

NPG

August 1951

WIND DIR	MPH 1-10	11-22	23-33	34-45	46-56		TOTAL OBS	%
N	13	18					31	4
NE	9	6					15	2
E	6						6	
SE	3						3	
S	1						1	
SW	169	92	13	5			279	38
W	21	10	7				38	5
NW	20	2					22	3
Calm						344	344	47
Totals	242	128	20	5		Calm 344	739	
%	33	17	3			Calm 47		

CIL 05355

NPG Surface Wind Summary

bound in RR 1.6

NPG ANNUAL COMPOSITE

WIND DIR	MPH 1-10	11-22	23-33	34-45	46-56	57-68		TOTAL OBS	%
N	1459	697	141	16				2313	20
NE	723	276	36	4				1039	9
E	254	35						289	2
SE	337	121	18	2				478	4
S	717	531	193	75	5			1521	13
SW	924	704	132	44	9	1		1814	15
W	236	114	23	2				375	3
NW	735	603	71	6	1			1416	12
Calm							2551	2551	22
Totals	5385	3081	614	149	15	1	Calm 2551	11,796	
%	46	26	5	1			Calm 22		

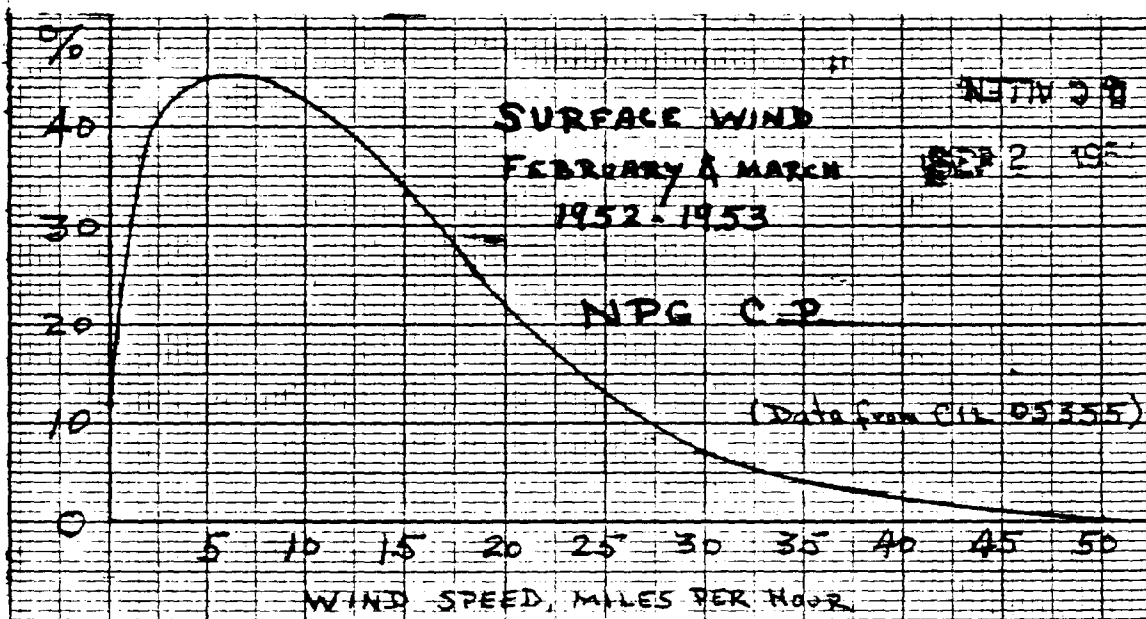
LLNL

NPG MARCH 1952-1953

WIND DIR	MPH 1-10	11-22	23-33	34-45	46-56	TOTAL OBS	%
N	229	179	42	3		453	29
NE	70	36	11	1		118	8
E	58	7				65	4
SE	34	11	2			47	3
S	87	105	27	31	1	251	16
SW	93	119	22	7		241	15
W	57	51	14	2		124	8
NW	43	49	6			98	6
Calm						162	10
Totals	671	557	124	44	1	1559	
%	43	36	8	3			

SEP 2 105

~~SECRET~~



LLNL

Note: Data shown is a compilation of surface observations at the Command

Post each hour of the day for the months of Feb & Mar 1952-3.

It is not representative of shot time conditions at Ground

See: NPG Sfc Wind analysis - Letter to Dick Werner 9-2-54 29

[REDACTED]

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2005 1210

[REDACTED]

SEP 2 1954

December 10, 1953

FILE: 5354

TO: R. W. Newman or R. H. Campbell, J-6
FROM: G. J. Newgarden, 3rd, H-6
SUBJECT: NPG Climate Summary
SYMBOL: H-6

1. Per request of Mr. Newman, J-6, there is attached hereto a climatic summary of surface winds and temperatures for the Nevada Proving Grounds. The summary is based on 11,796 observations which were taken at the CP during 1951, 1952, and 1953. The summary is believed to be more representative for the fall, spring, and winter months, and least representative for the summer months as only a few observations were available for the summer months. Wind directions used in the summary represent the directions from which the wind was blowing.

2. In summary, it was noted that the greatest percentage of winds with a northerly component occurred during the winter months, while southerly winds were predominate during the summer months. Regardless of season, however, the strongest winds were predominately southerly. It was also noted that the greatest percentage of the calm winds occurred during the night and the moderate or strong winds occurred during the afternoon. Also of interest is the fact that when the winds were light; i.e., less than 5MPH, during the night, the winds were predominately northerly. This gives evidence to air drainage from the higher elevations over the dry lake beds which probably slope slightly in a north-south direction. It is believed that the enclosed temperature study is self-explanatory.

/s/G.J.N.

LLNL

GEORGE J. NEWGARDEN, 3rd
Phone 2-2983

Encs: NPG Wind Summary (3)
NPG Temp. Summary (3)

LLNL

September 6, 1954

41
SITE:

COL 4462

MEMORANDUM

TO: DISTRIBUTION:

FROM: Dewitt Allen

SUBJECT: Gustiness of Wind at 500' above open terrain

1. Gustiness is short period variation in wind speed and exist at all levels from the surface to extreme altitudes. Its value at 500' above open terrain for winds

of 10-30 mph is close to 30 percent, where ,
$$\text{percent gustiness} = \frac{\text{highest-lowest}}{\text{average wind speed}} \times 100$$

2. The period of variation increases with altitude and decreases with stability of the air (i.e. gustiness will be greatest in mid-afternoon close to the surface) At 500' the period varies between 15 seconds and 2 minutes.

Dewitt Allen, Effects
Operations Division

Distribution:

Dick Warner 1
Harb Weidner 1
Dewitt Allen 1
L- Division 2

LLNL

Unclassified

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[REDACTED]

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[REDACTED]

46
E.F.C. p.53

The inner boundary of the first abnormal audibility zone immediately beyond which the highest concentration of blast energy is most likely to occur seems to be a regular function of the season or month of the year. As shown in fig 24 the inner boundary is farthest from the source in July and August (about 120 mi.) and nearest to the source in January and February (about 65 miles). Outer boundaries of abnormal audibility zones are much less easily determined; in fact Cox shows that the acoustic energy in abnormal audibility zones may simply decrease with distance from the source; the real outer boundary for each abnormal zone occurs at infinity.

Some of the damage in Las Vegas during Operation Ranger on Feb 2 and 6, 1951, may have been caused by ozonosphere signals. No accurate transit-time observations were made, so there is now no way to decide whether ozonosphere signals made any contribution to the damaging blast energy supply which struck Las Vegas.

EFC p.95

Weather predictions, then RAOB soundings, and finally the 1.2 ton TNT shot fired 1/2 hour prior to the scheduled firing time of the Buster Dog Shot gave real cause for concern. Figures 40c,e, and f show that very little energy would be transmitted toward Beatty, and that no toposphere signal need be expected northwest and northeast from the firing site. On the other hand, focusing conditions existed toward the south, toward the east and especially toward the southeast. The advance shot produced very strong troposphere signals at all our stations to the southeast and quite strong ozonosphere signals at both Caliente and St. George. Figure 21d shows the magnitudes of the signals, where they remained on scale; the Test Director was warned that damage would likely occur southeast from the blast point.

Fig 40j shows some of the sound ray tracks toward the southeast. The distribution of energy bounded by rays having incidence angles between 0 deg and 13 deg 32' is similar to that shown in Fig. 7a. An extremely heavy concentration of energy would therefore occur about 35 kilofeet southeast of ground zero. The dip in the V vs h curve between 8 and 18 kilofeet would produce a second, more distant focus. Its heavy concentration of energy would land very near the half-way point to Las Vegas and one bounce would send it smashing into that city.

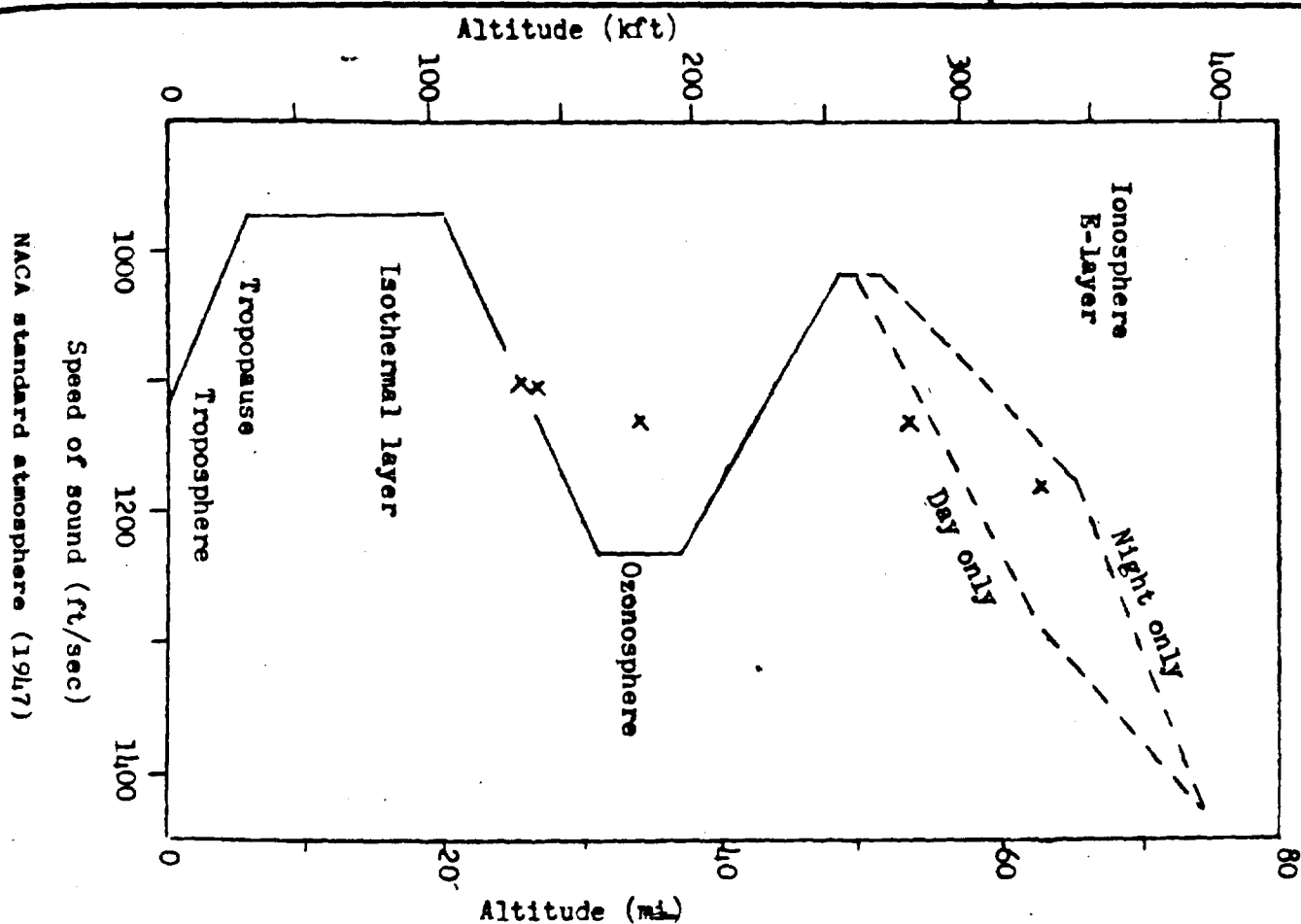
LLNL

In spite of the fact that we predicted that damage would be done on this date if the fission weapon were fired, the Test Director felt compelled to go ahead with the operation since thousands of visitors were present for Exercise Desert Rock. Unfortunately all results were as predicted. Measured signal strengths are shown in Fig. 21d. The noise was heard at all our stations except Beatty and Goldfield, and in Prescott, Arizona. It is believed that in Las Vegas the signal strength was about 5 pounds per square foot. Since the other inhabited areas reported no significant damage, their signal strengths must have been somewhat less.

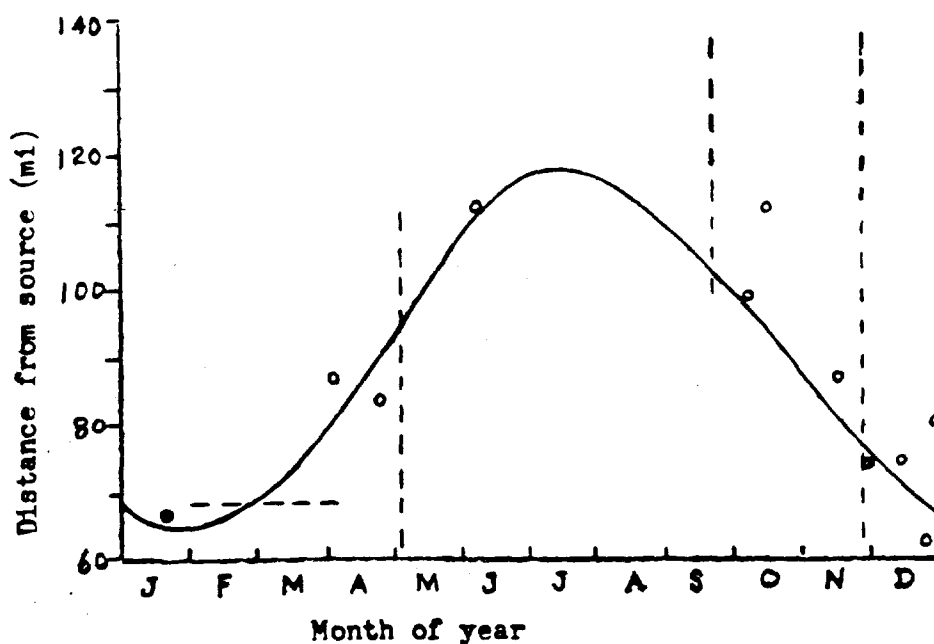
ENGINEERING NOTE

NAME

DATE



OZONOSPHERE SIGNALS (E.F.C. p.53)



Distance from explosion to inner boundary of first abnormal audibility zone.

(after A. Wegener, 1925)

MERCURY WEATHER STATION
MERCURY, NEVADA

28 April 1955

FORECAST FOR YUCCA FLATS

VALID: 29 0515 PDT

PREPARED: 28 0730 PDT

SYNOPTIC SITUATION: Cold front approaching Mercury from NW expected to pass area prior to noon.

CLOUDS: Layered cirrus base 22000 ft MSL tops 29000 ft MSL, 6/10 AC base 13000 ft MSL tops 16000 ft MSL.

WEATHER: Scattered snow showers in higher elevations after frontal passage. Few light scattered rain showers over lower terrain, after frontal passage.

TROPOPAUSE: 35000 ft MSL.

CONTRAILS: persistent 29000 to 35000 ft MSL, nonpersistent above.

SURFACE WINDS: SW 10-15, gusts to 30.

WINDS AND TEMPERATURES ALOFT:

<u>ALTITUDE (MSL)</u>	<u>WIND</u>	<u>TEMP</u>
SFC	200/10	5
5000	210/20	12
10000	220/30	2 LLNL
15000	230/40	-8
20000	230/55	-21
25000	230/65	-31
30000	240/75	-44
35000	240/85	-57
40000	240/80	-58
45000	250/60	-60
50000	250/50	-63

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RALPH J. SPEELE
LT. COL., USAF
Chief Forecaster

LLNL

CIL-111163 - 29 MARCH 1955

CONFIDENTIAL//Following revised schedule for remainder of Teapot is established for planning purposes. When weather is acceptable, the Group A shots will be given priority:

GROUP A	GROUP B	READY DATE
Apple	Wasp'	Now
Met	HA	April 3
Zucchini	Post	April 6
		April 8
		April 26

Preparations are continuing to fire both, repeat both, Apple and Wasp' March 29. The following comments apply to scheduling: HA to be Wasp' plus 5 days. Met to be HA plus 3 days.

LLNL

~~RESTRICTED DATA~~

This document contains information of a classified nature. It is to be controlled in the same manner as the information of its contents in any manner to the authorized

50

[REDACTED]

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[REDACTED]

10035 0319

~~26~~
51

DEED

~~SECRET~~

This document contains information defined in the Atomic Energy Act of 1946. Its transmission in any manner to an unauthorized person is prohibited.

LLNL

32

[REDACTED]

LLNL

[REDACTED]

41

LOG 35 0211

CIL-11170 - 29 March 1955

SECRET/RESTRICTED DATA//This is the first and H + 6 hours report on Apple. Apple was detonated at 0455 hours. pst March 29 in Teast Area 4 form a 500' tower. Preliminary estimate of yield by Bhangometer was about 15KT. Desert Rock participation included 6004 armed forces personnel in trenches at 3500 yards, O&T project 40.18 field artillery participated.

Meteorological conditions:

A. Winds: Surface calm, 10,000' south at 19 knots.
20,000' west at 35 knots.
30,000' west at 46 knots.
40,000' west at 50 knots.

B. Clouds: Clear

C. Precipitation: None

Cloud Trajectory: Cloud height at top was 31,000' and moved along the 90° Azimuth at about 40 knots per hour.

Fallout pattern was along the 70° Azimuth with following values given in calculated infinite dosage: Alamo - 2.2R, Caliente - 200 Mr, Panaca 80 Mr.

These infinite dosages enumerated in populated areas only. No reports received as to any off-site blast damage. End Ref TM:GMC

RESTRICTED DATA

The information in this report is classified as Restricted Data as of 1946.

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54

[REDACTED]

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43

ENCLOSURE

[REDACTED]

CIL-11273 - 7 April 1955

SECRET RESTRICTED DATA//This is the first and h 3 hours report on HA. HA was detonated at 1000 hours PST April 6 in test Area 5 (Southeasterly from Test Area 1). Delivery aircraft was B-36 flying at 46,000' MSL. Blast height set for 36,000' above target, which is not yet verified. Preliminary estimate of yield by Bhangmeter was 3.2 KT. Indications are that successful results were obtained from experiments. Cloud height not presently determined and cloud moved off in southeasterly direction dispersing rapidly. Visual observation indicated that smoke trails laid by jet aircraft were successfully performed. Visual observation indicates cannister drop was successfully performed.

Meteorological conditions:

- A. Winds, Surface, North at 9 Knots; 10,000', NNE at 13 Knots; 20,000', N at 18 Knots; 30,000', NW at 27 Knots; 40,000', WNW at 43 Knots; 50,000', WNW at 29 Knots; and 60,000', NW at 11 Knots.
- b. Clouds: Clear.
- c. Precipitation: None

No off-site fallout detected nor is there any predicted. End. Ref TW/GHC

RESTRICTED DATA

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56

[REDACTED]

LLNL

[REDACTED]

45

2000 0000

CIL-11175 - 30 March 1955

SECRET RESTRICTED DATA//This is the first and H 5 hours report on Wasp'. Wasp' was detonated at 1000 hours pst March 29 in Test Area 7 as an air drop. Preliminary estimate of yield by Bhangmeter was 3.2KT. Indications are that successful results were obtained from diagnostic experiments. Desert Rock participation included Project 40.18 Field Artillery O & T.

Meteorological Conditions:

- A. Winds: Surface SSW at 15 Knots, 10,000' SW at 23 Knots, 20,000' west at 40 knots, 30,000' WSW at 63 Knots at 40,000' WSW at 59 knots.
- B. Clouds: At 28,000' thin, broken.
- C. Precipitation: None

Cloud trajectory, cloud rose to a height of 34,200' and settled back to 31,500', moving along the 55° Azimuth at about 22 knots per hour.

Fallout Pattern: At the time of this report, no off-site ground monitoring reports have been received for the fallout from Wasp'. It appears that it will be difficult to distinguish between the fallout occurring from the detonation of Apple and the fallout of Wasp'. End Ref TM:GHC

RESTRICTED DATA
This document contains data as defined in E.O. 12958
DATE 12/1/76 BY 1040

58

[REDACTED]

LLNL

[REDACTED]

LCR 31 037 47

Table 1 Distribution of [REDACTED] in a Cloud from a 20 Kiloton Bomb or a 500 [REDACTED] according to Range of Initial Height and Particle size. Units are [REDACTED] milligrams per hour 12 hrs. after burst time for a cloud initially 5 miles in diameter.

		9	24	162	120	100	87	78	71.5	66.6	62.2	58.3
		A	B	C	D	E	F	G	H	I	J	
40,000												
37,500	1	40	50	40	30	30	25	20	15	10	10	
35,000	2	100	100	80	60	50	40	30	25	20	20	
32,500	3	150	170	120	100	80	60	40	35	30	30	
30,000	4	200	220	180	160	140	120	100	80	60	50	
27,500	5	250	170	100	60	50	40	30	25	20	20	
25,000	6	300	170	70	50	40	30	20	15	10	10	
22,500	7	400	170	50	30	20	15	10	5	5	5	
20,000	8	500	170	50	40	20	15	10	5	5	5	
17,500	9	550	200	60	40	25	20	15	10	10	10	
15,000	10	600	240	70	45	30	20	15	10	10	10	
12,500	11	650	280	80	50	40	30	20	15	15	15	
10,000	12	650	280	80	50	40	30	30	15	15	15	

$\epsilon = 905 \rightarrow$

6.7 = 5,000 MSL

LLNL

LOC 30001

48

60

10-18-82

~~SECRET~~
H2O content of Air at Burst Point.
~~SECRET~~

2

LLNL

~~SECRET~~

~~SECRET~~

0980 14.2.
O'Brien
63/53

Letter
from John

Write to ~~you~~ ^{me}?

50

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(m6) Pressure.
(°C) Temp'd on pt.
(g./kg.) mix Ratio
(dry ft.) g. H₂O/cc Air.
x10⁻⁶

(1) $1000 \text{ g. H}_2\text{O} / 1000 \text{ g. H}_2\text{O} = 1.000$
 (2) $1000 \text{ g. H}_2\text{O} / 1000 \text{ g. H}_2\text{O} = 1.000$
 (3) $1000 \text{ g. H}_2\text{O} / 1000 \text{ g. H}_2\text{O} = 1.000$
 (4) $1000 \text{ g. H}_2\text{O} / 1000 \text{ g. H}_2\text{O} = 1.000$
 (5) $1000 \text{ g. H}_2\text{O} / 1000 \text{ g. H}_2\text{O} = 1.000$
 (6) $1000 \text{ g. H}_2\text{O} / 1000 \text{ g. H}_2\text{O} = 1.000$
 (7) $1000 \text{ g. H}_2\text{O} / 1000 \text{ g. H}_2\text{O} = 1.000$
 (8) $1000 \text{ g. H}_2\text{O} / 1000 \text{ g. H}_2\text{O} = 1.000$
 (9) $1000 \text{ g. H}_2\text{O} / 1000 \text{ g. H}_2\text{O} = 1.000$
 (10) $1000 \text{ g. H}_2\text{O} / 1000 \text{ g. H}_2\text{O} = 1.000$

343/396

01-01-01

2

2

2

Shot Time
Temp. Sounding

X

18

12 9

21

17 1

17 1

12 6

11 7

17-1

10 8

$\frac{17}{134}$ 1

18

18

18

18

$\frac{18}{142}$

LLNL

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51

LC035 0331

Redwing	FIRED		Stream Line charts = H + B Hrs	27 H + E Hrs											SHOT TIME RAWINS	
	M	M													Miles	K B
	Day	Time		10	20	30	40	50	60	70	80	90	100	110		
LACROSSE	5/5	0626														
CHEROKEE	5/21	0551		X	X	X	X	X	X	X	X	X	X	X		
ZUNI	5/28	0556		X	X	X	X	X	X	X	X	X	X	X	X	
YUMA	5/28	0756		X	X	X	X	X	X	X	X	X	X	X	X	
ERIE	5/31	0615		X	X	X	X	X	X	X	X	X	X	X		
SEMINOLE	6/6	1255		X	X	X	X	X	X	X	X	X	X	X		
FLATHEAD	6/12	0626		X	X	X	X	X	X	X	X	X	X	X		
BLACKFOOT	6/12	0626		X	X	X	X	X	X	X	X	X	X	X		
KICKAPOO	6/14	1126		X	X	X	X	X	X	X	X	X	X	X		
OSAGE	6/16	1314		X	X	X	X	X	X	X	X	X	X	X		
INCA	6/22	0956		X	X	X	X	X	X	X	X	X	X	X		
DAKOTA E.	6/26	0606		X	X	X	X	X	X	X	X	X	X	X		
NAVASO E ②	7/10	0556														
APACHE E ②	7/9	0606														
MOHAWK E ②	7/3	0616														
TEWA E ②	7/1	0616														
HURON E	7/27	0616														

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[REDACTED]

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[REDACTED]

62

[REDACTED]

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1945

LLNL

[REDACTED]

Project Aureska Ag. 46

10/

DBS

32
63

SECRET

10³ ft10³ ft

H(MSL)

Mo	No	Opp	Shot	H. Burst	W	X	H(MSL)	H(MSL)
Jul	1	Trinity	-	T 100'	23.8		40.0	
Aug	2	Hiroshima	-	A 1800'	18.5		-	
Aug	3	Nagasaki	-	A 1700	23		-	
Jun	4	P Crossroads	Able	A 518	22	1	30.0	
Jul	5	"	Baker	UN-90	20	2	8.0	
Apr	6	P Sandstone	X-Ray	T 200	36.5	1	45-56	
Apr	7	"	Yoke	T 200	48.7	2	43-56	
May	8	"	Zebra	T 200	18.2	3	28-33	
Jan	9	N Ranger	Able	A 1045	1.27	1	17.0	
Jan	10	"	Baker-1	A 1105	7.83	2	35.0	
Feb	11	"	Easy	A 1080	1.00	3	12.0	
"	12	"	Baker-2	A 1190	7.95	4	36.0	
"	13	"	Freddy	A 1435	22.2	5	42.0	
Apr	14	P Greenhouse	Dag	300		1	56.0	
"	15	"	Easy	300	46.7	2	40.0	
May	16	"	George	200		3	57.0	
"	17	"	Item	200		4	40.0	
Oct	18	N Buster	Able	100	72x10	1	8.0	
"	19	"	Baker	1118	3.49	2	31.7	
"	20	"	Charlie	1132	14.0	3	41.0	
Nov	21	"	Dag	1417	21.0	4	46.0	
"	22	"	Easy	1314	31.4	5	50.0	
"	23	N Tangle	Sugar	3.5	1.2	6	15.0	
"	24	"	Underground	-17	1.2	7	10.3	
Apr	25	N Turnkey Snapper	Able	793	1.05	1	15.6	
"	26	"	Baker	1109	1.15	2	15.2	
"	27	"	Charlie	3447	30.0	3	42.5	
May	28	"	Dag	1040	19.6	4	39.0	
"	29	"	Easy	300	11.7	5	31.4	
"	30	"	Fox	300	11.4	6	39.5	
Jun	31	"	George	300	13.8	7	41.5	
"	32	"	How	300	14.0	8	37.0	LLNL
Oct	33	P Ivy	Mike	0	10,500	1	136.0?	67.2
Nov	34	"	King	1480	52.1	2	76.0?	40.0
Mar	35	N Upshot Kille	Annie	Y 300	16.3	1	41.0	27.6
"	36	"	Nancy	Y 300	24.5	2	42.5	26.2
"	37	"	Ruth	Y 300	23.1	3	13.8	16.0
Apr	38	"	Dickie	Y 6022	10.8	4	38.0	38.0

10075 0235

53

~~SECRET~~

LLNL

~~SECRET~~

~~SECRET~~

7373

10/14

3050

25

MO.	No.	Opn	Shot	Ht/amt	W	W	5	H (msl)	H	W (msl)
Apr	40	N Dpht Kn	Badger	Y 300	27.7		6	38.0		23.4
"	41	"	Simon	Y 300	51.5		7	45.0		36.2
May	42	"	Encave	F 2423	26.4		8	42.0		28.9
"	43	"	Harry	Y 300	32.4		9	42.5		27.3
"	44	"	Grable	68 F 524	15.4		10	37.5		23.5
Jun	45	"	Climax	AD Y 1350	6.5		11	42.7		35.0
Apr 1/50	46	P Castle	SECRET	2	15.00		1	114.0		56.0
" 27	47	"	SECRET	14	11.00		2	150.0		54.0
Apr 7	48	"	SECRET	14	11.0		3	—		—
" 24	49	"	SECRET	13	7.000		4	84.0		51.2
May 5	50	"	SECRET	14	13.500		5	110.0		66.0
" 14	51	"	SECRET	14	1,700		6	91.3		43.0
Feb 15/55	52	N Teapot	Wasp	Y 762	1.2		1	24.5		14.9
" 27	53	"	Matt	Y 500	2.5		2	24.2		16.5
Mar 1	54	"	Tesla	Y 300	7		3	30.3		18.0
" 7	55	"	Turk	Y 500	43		4	45.0		34.5
" 12	56	"	Hornet	Y 300	3.6		5	37.0		27.0
" 27	57	"	Bee	Y 500	8.1		6	40.0		29.0
" 23	58	"	Ess	Y -67	1.2		7	11.6		—
" 29	59	"	Apple	Y 500	15		8	32.1		21.5
" 29	60	"	Wasp	Y 731	3.1		9	31.7		—
Apr 6	61	"	HA	Y 32.582	3.1		10	55.0		55.0
" 9	62	"	Post	Y 300	1.53		11	15.2		12.5
" 15	63	"	Met	F 400	24		12	44.2		34.2
May 5	64	"	Apple I	Y 500	30		13	43.0		31.6
" 13	65	"	Zucchini	Y 500	30		14	35.8		25.5
May 5/56	66	P Redwing	L Lacrosse	(40)			1	(40.0)		
" 21	67	"	AD Chevalier	5.0m/AD			2	(87.0)		
" 28	68	"	1/3 Zun	(3.5m/AD)			3	(89.0)		
" 28	69	"	2nd Yuma				4	(7.0)		
" 31	70	"	2nd Erie				5	(32.0)		
Jun 6	71	"	1/3 Seminole	(5.0)			6	(16.0)		
" 12	72	"	5 Flathead				7	—		
" 12	73	"	3rd Blackfoot				8	(31.0)		
" 14	74	"	2nd Kichapoo				9	(15.0)		
" 16	75	"	AD Osage	AD			10	—		
" 22	76	"	2nd Inca				11	(42.0)		
" 26	77	"	3 Dakota				12	(81.0)		

DELETED

DELETED

LLNL

57

10025 0337

66

~~SECRET~~

LLNL

~~SECRET~~

58

LC635 (33P)

~~SECRET~~

82
6

10³/4

No No Opn shot H-Durst W H (msl)

Jul 9 79 P Redwing's Apache

DELETED

14 (80.0)

110 80 " 3 Navajo

15

21 81 " 3 Tewa

(S.d.m.)

16

22 82 " 3 Hopi

DELETED

17 (60.0)

83

84

85

86

87

88

89

90

LLNL

~~SECRET~~

EC(25 0239

59

68

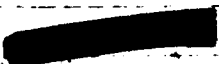
98



LLNL

UCC35 0340

60



Cloud Heights as per W.W. Kellogg

10-2-56

50
99

Wasp $W = 1.2$, Ht. Burst = $762' = 860$ mb. std. Atmos, $W' = 1.2 \times \frac{1013}{860} = 1.1$

T-1

Per Machete OACORG 56-1, $H_T = 21.0$ msl $H_B = 14.9$

Assume Alt. Burst = $762 + 4000 = 4762'$ MSL

Rise of Top = $21000 - 4762 = 16,238'$

" " Base = $14900 - 4762 = 10,138'$

Mith

T-2

$W = 2.5$ Ht. Burst = $300' = 868$ mb. $W' = 2.5 \times \frac{1013}{868} = 2.9$

$H_T = 24.2$ $H_B = 16.5$

Rise of Top = $24,200 - 4300 = 19,900'$

" " Base = $16,500 - 4300 = 12,200'$

Tesla

T-3

$W = 7.0$ Ht. Burst = $300' = 868$ mb. $W' = 8.2$

$H_T = 30.3$ $H_B = 18.0$

$R_T = 30,300 - 4300 = 26,000'$ $R_B = 18.0 - 4.3 = 13.7$

Turk

T-4

$W = 43.0$ Ht. Burst = $500' = 860$ mb $W' = 51.0$

$H_T = 45.0$ $H_B = 34.5$

$R_T = 45.0 - 4.5 = 40.5$ $R_B = 34.5 - 4.5 = 30.0$

Hornet

T-5

$W = 3.6$ Ht. Burst = $300' = 868$ mb $W' = 4.2$

$H_T = 37.0$ $H_B = 27.0$

LLNL

$R_T = 37.0 - 4.3 = 32.7$ $R_B = 27.0 - 4.3 = 22.7$

Bee

T-6

$W = 8.1$ Ht. Burst = $500' = 860$ mb $W' = 9.5$

$H_T = 40.0$ $H_B = 29.0$ $R_T = 35.5$ $R_B = 24.5$

61

Ess

T-7

W = 1.2 Ht. Burst = -67' W' = ? .3 KT? ^{exp of w} w factor = .25
 due underground.

H_T = 11.6 H_B = ?

R_T = 7.6 R_B = ?

Apple

T-8

W = 15 Ht. Burst = 500' W' = 17.7

H_T = 32.1 H_B = 21.5

R_T = 27.6 R_B = 17.0

Wasp

T-9

W = 3.1 Ht. Burst = 739' = 862 mb W' = 3.65

H_T = 31.7 H_B = ?

R_T = 27.0 R_B =

HA

T-10

W = 3.1 Ht. Burst = 32,582' = 222 mb W' = 14.0

H_T = 55.0 H_B = 55.0

R_T = 18.4 R_B = 18.4

Post

T-11

W = 1.53 Ht. Burst = 300' = 868 mb W' = 1.8

H_T = 15.2 H_B = 12.5

R_T = -10.9 R_B = 8.2

Met

T-12

W = 24.0 Ht. Burst = 400' = 862 mb W' = 28.2

H_T = 40.2 H_B = 34.2

R_T = 35.8 R_B = 29.8

LLNL

Apple II

T-13

W = 30.0 Ht. Burst = 500' = 860 mb W' = 35.4

H_T = 43.0 H_B = 31.6

R_T = 38.5 R_B = 27.1

ST
101

63

10035 0343

[REDACTED]

LLNL

[REDACTED]

Zucchini
T-14

$$W = 30.0 \quad Ht \text{ Burst} = 500' = 860 \text{ mb}$$

$$W' = 35.8$$

$$HT = 35.8 \quad HB = 25.5$$

$$RT = 31.3 \quad RB = 21.0$$

~~DELETED~~

C-3

$$W = 110 \quad W' = 110$$

$$HT = 53.0 \quad HB = ?$$

$$RT = 53.0$$

King
IL-2

$$W = 541 \quad Ht \text{ Burst} = 1480' = 962 \text{ mb} \quad W' = 570$$

$$HT = 76.0 \quad HB = 45.0$$

Dog
G-1

$$W = \text{DELETED} \quad Ht \text{ Burst} = 500' \quad W' = \text{DELETED}$$

$$HT = 55.0 \quad HB = ?$$

$$RT = 54.5 \quad RB =$$

George
G-3

$$W = \text{DELETED} \quad Ht \text{ Burst} = 200' = 1005 \text{ mb} \quad W' = \text{DELETED}$$

$$HT = 56.0 \quad HB = 42.0$$

LLNL

104

$\frac{\Delta T}{H}$

* 10 ft

~~SECRET~~

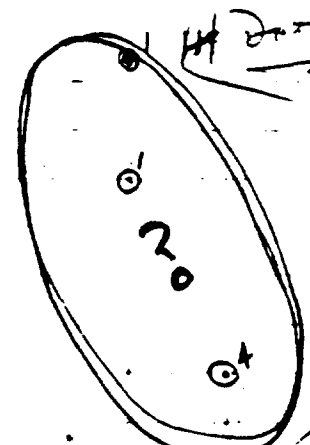
Schwalfer Index Vs. Discrepancy Cloud Rise.

Teapot Shirts

8
 7
 6
 5
 4
 3
 2
 1
 0
 -1
 -2
 -3
 -4
 -5
 -6
 -7
 -8
 -9
 -10
 -11

2 4 6 8 10 12 14 16

Schwalfer
 + I
 °C



Data N.G. (Sear)
 Strong Wind Shear
 + Static S...

?

Strong wind shear

BEST AVAILABLE COPY

LLNL

0¹⁰ = HA

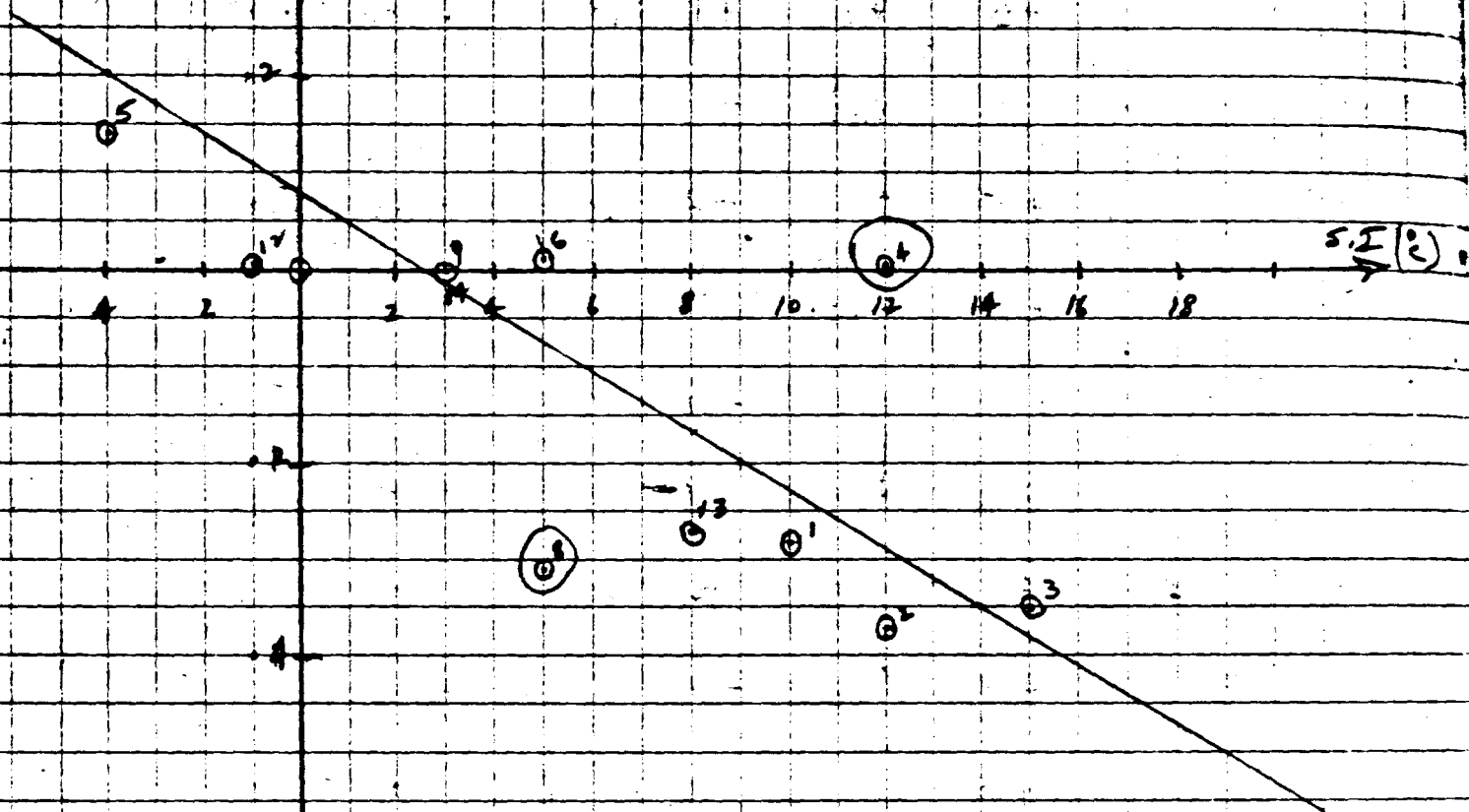
factor .88
 for Schwalfer

66

00000000

Teapot	Schwafter I.	ΔH	$\frac{\Delta H}{H}$	
1	+10 WASP	+3	$\checkmark$	$\frac{+3}{14} = .21$
2	+12 MTH	-4	$\checkmark$	$-\frac{4}{16} = .25$
3	+15 TESLA	-8	$\checkmark$	$-\frac{8}{20} = .40$
4	+17 TURK	+1	$\checkmark$	$\frac{+1}{35} = .03$
5	-4 HORNET	+4	$\checkmark$	$\frac{+4}{28} = .14$
6	+5 BEE	+1	$\checkmark$	$\frac{+1}{30} = .03$
7	— ESS	—		=
8	+5 Apple	-8	$\checkmark$	$-\frac{8}{22} = .36$
9	+3 WASP'	0	$\checkmark$	0 = 0
10 ?	+3 H.A.	-11	$\checkmark$	$-\frac{11}{18} = .61$
11	+6 POST	-5	$\checkmark$	$-\frac{5}{10} = .50$
12	-1 MET	0	$\checkmark$	0 = 0
13	+8 Apple II	-7	$\checkmark$	$-\frac{7}{26} = .27$
14	+3 Zucchini	0	$\checkmark$	0 = 0

LLNL



⑤ Plot ΔH vs $(\Delta D \times \text{shear})$
product = $I_{sc} \text{ (2)}$

⑥ Next take into acct fall
out - reduce W according
to power of 1/2

LLNL

Pine Bluff
June 10, 1957
J. H. C.

Tropopause		Schwaller		AA		SA		Pine Bluff		
W										
2/18	1	1.4	+10 ⁺¹³	+4	-4/14 ¹³ = -0.29	16.4	19.1	13.2		
2/24	2	2.9	+12 ⁺¹³	-6	-6/16 = -0.37	19.9	13.7	16.0		
3/1	3	8.7	+15 ⁺¹²	-7	-7/20 = -0.35	24.0	18.7	19.9		
(4)		51.0	+12	+1	+1/35 = +0.03	40.5	30.0	35.3		
3/12	5	4.7	-4 ⁺⁰³	+4	+4/28 = +0.14	32.7	22.7	27.7		
3/22	6	9.5	+5 ⁺⁰⁷	+3 ⁺⁵	+3/30 = +0.10	29.0	24.5	26.8		
3/24	8	17.7	+5 ⁺⁰⁵	-7	-7/22 = -0.32	27.6	19.0	22.3		
3/24	9	3.65	+3 ⁺⁰⁴	0	0.5/22.5 = 0.02	27.0	2			
10		14.0	+3	-	-	-	-	-		
4/4	11	1.8	+6 ⁺⁰²	-10 ⁻⁹	-10/20.1 = -0.5	10.9	8.2	9.6		
(12)		28.7	-1	+1	+1/33 = +0.03	35.8	24.8	32.8		
(13)		35.4	+8	-7	-7/26 = -0.27	38.5	27.1	32.8		
14		35.8	+3	0	0 = 0	31.3	21.0	26.2		

BEST AVAILABLE COPY

(4) Effect of Wind ~ diagonal Travel upwards = Reducing

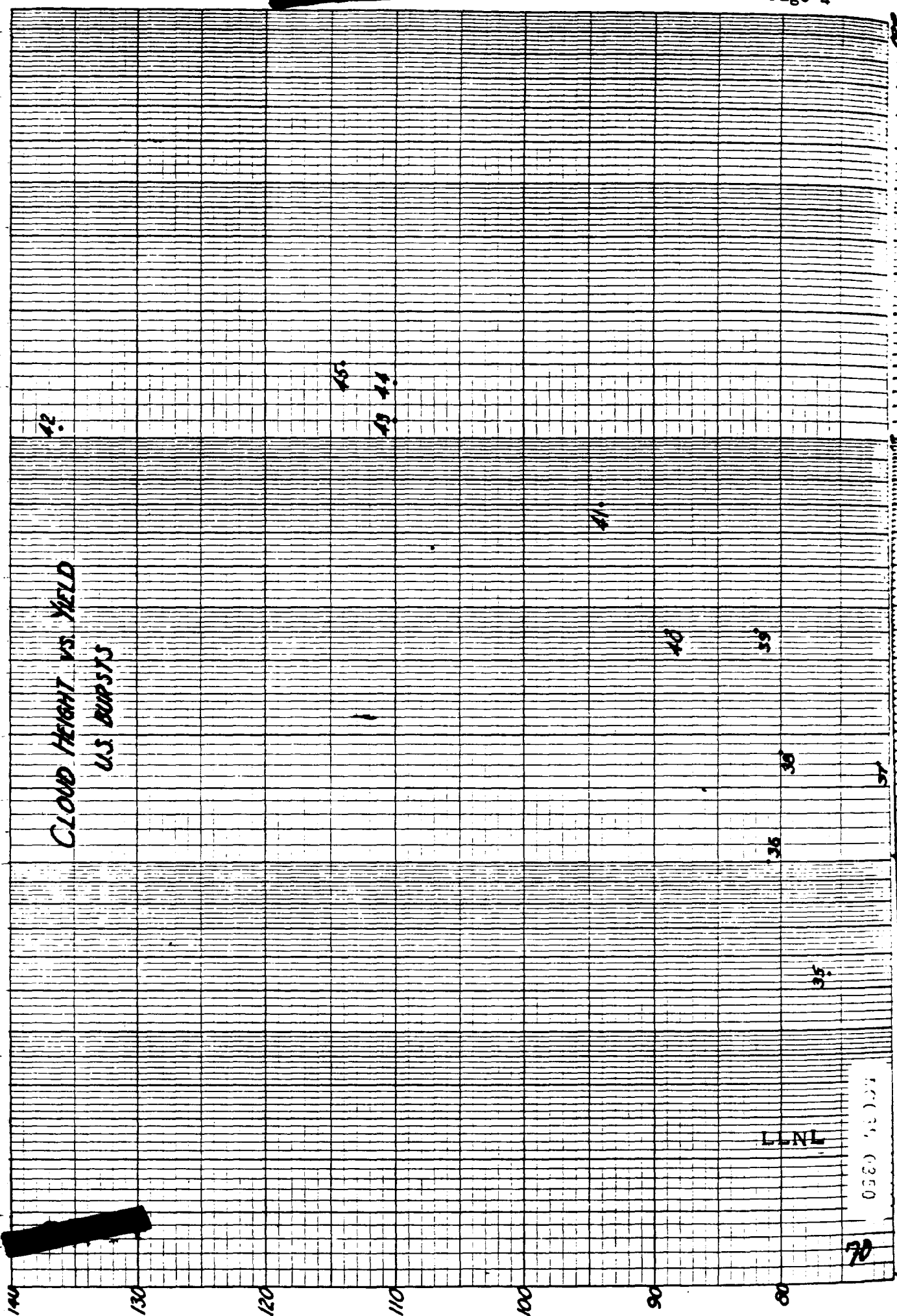
New Curve with Shots #5 & 12 High (46.6)

11-28-56

(1) Try Δ value at H = Cloud Top use instead of Schwaller = function of Temp dist = 5.411

(2) Effect of Tropopause, Discontinuity or inflection

(3) Small Δ in terms of



100-35, 0350

LLNL

60 50 40 30 20 10

10 YIELD IN POUNDS 100 1000

LLNL

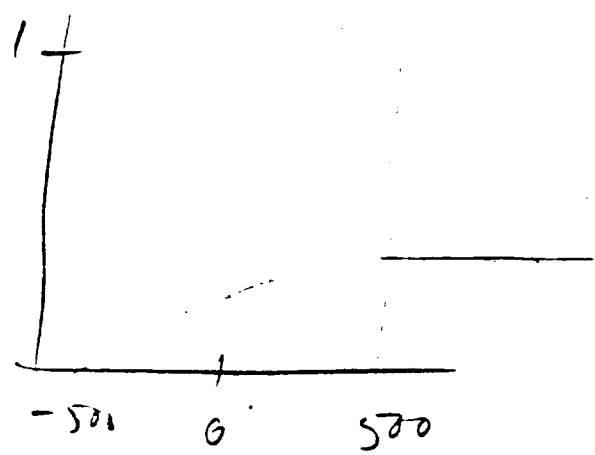
4/12/67

$$\Delta H' = H' \frac{\Delta H}{H}$$

$$\frac{\Delta H}{H} = A + K_1 \cdot 5 \text{ Feb}$$

$$H' = A' + K_2 \left(\frac{W}{3} \right)^{1/3} \quad \text{Check this.}$$

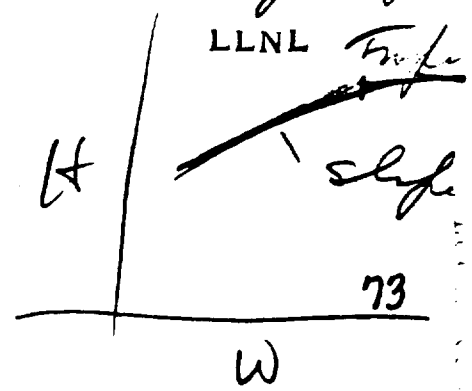
DIXIE
 ENCORE
 GRABBLE
 CLIMAX
 WASP
 WASP'
 RANGER 1-4
 BUSH JAN 2.3
 T.S. 1, 2, 4, 5, 8

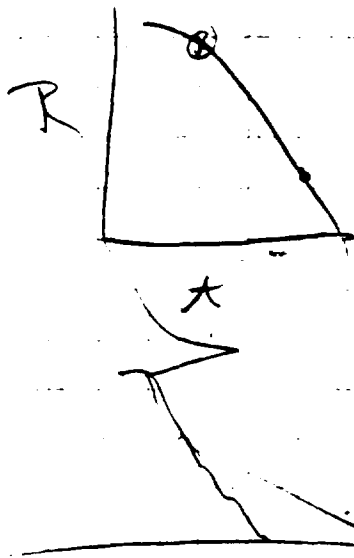


find an / to core f. b. to 3,000 c

determine (W^x) by plotting air bursts log x log.

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rate of rise vs time when
this same cloud encounters same

due thermal absorbed by
air, unstable layer
then which cloud passes into
might explain why big ones rise faster than
small ones.

Thermal Energy, (5%) Attenuation per mile
 $\frac{1}{3}$ of $w = \text{thermal} - \text{decrease by } R^2 - \text{no}$

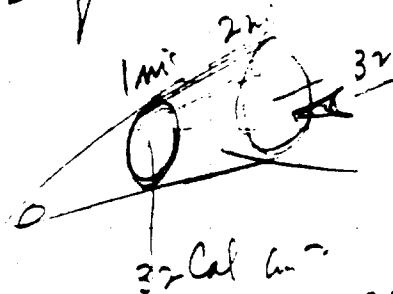


figure heat absorbed
in cone

BEST AVAILABLE COPY

specific heat air
 $= .237 \text{ Cal./gm.}$

An inversion in temp. Sounding is LLNL 4/2/57
accompanied by Wind Shear through a shallow
layer & should have the effect of meat slice
on a piece of bologna - depending on the thickness
of the cloud & the speed with which it
moves through the shear. For infinite shear
the cloud is completely spread into a
layer. If small shear & cloud moving
through fast may leave a "scar" of
slice of bologna representing a portion of
thermal energy.

4/19/57 Work backward from the 1/2 puff curve & the $\frac{\Delta H}{H}$ vs $\log W$ curve.
 Curve to get pts for the H vs $\log W$ curve.

$$H = \frac{M}{1+B}$$

$\frac{\Delta H}{H}$ vs $\log W$ curve
 M. Curve
 Puff

SL. #	1/2 puff	meas. Top	$\frac{\Delta H}{H}$	W	Schubert	H
1	2.3	21.0	-0.16	1.2	+13	16.36
2	3.4	24.2	-0.16	2.5	+13	19.62
3	4.7	30.3	-0.12	7.0	+12	23.98
5	3.9	37.0	+0.26	3.6	+3	22.85
6	4.85	40.0	+0.91	8.1	+7	27.87
8	5.1	32.1	+0.175	15	+5	18.89
9	3.7	31.7	+0.215	3.1	+4	18.93
11	2.6	15.2	+0.175	1.5	+5	6.86

BEST AVAILABLE COPY

- ① plot means
curve H vs W
- ② Now plot new
curve $\frac{\Delta H}{H}$ vs $\log W$

? How about
 making 1/2 puff
 a fraction of force
 take Co.
 wt. of apple?

TSR

10/3/20

Change 120 Curves

25/10/57

Shot #	Rev	$\Delta V/H$	$V_i(\cdot)$	$1/2 \text{ pull}$	Top	Low
1	15.6	-1.16	-2.5	2.5	15.6	16.2
2	19.0	-1.16	-3.0	4.0	20.0	19.9
3	23.9	-1.12	-2.9	5.5	26.5	26.0
5	20.8	+1.26	+5.4	4.5	30.7	32.7
6	24.6	+1.09	+2.2	5.5	32.3	29.0
8	27.5	+1.17	+4.7	6.0	28.8	27.6
9	20.1	+1.22	+4.4	4.3	28.8	27.0
11	16.8	+1.17	-2.9	3.0	16.9	10.9

Shot #	W'	Shrinkage	H.Cure	ΔV	$\Delta H/H$
1	1.4	+13	15.6	-2.4	- .154
2	2.9	+13	19.0	-3.1	- .163
3	8.2	+12	23.9	-4.0	- .167
5	4.2	+3	20.8	+7.0	+ .337
6	9.5	+7	24.6	+2.3	+ .094
8	17.7	+5	27.5	-5.1	- .185
9	3.65	+4	20.1	+2.4	+ .119
11	1.8	+5	16.8	-7.2	- .429

31

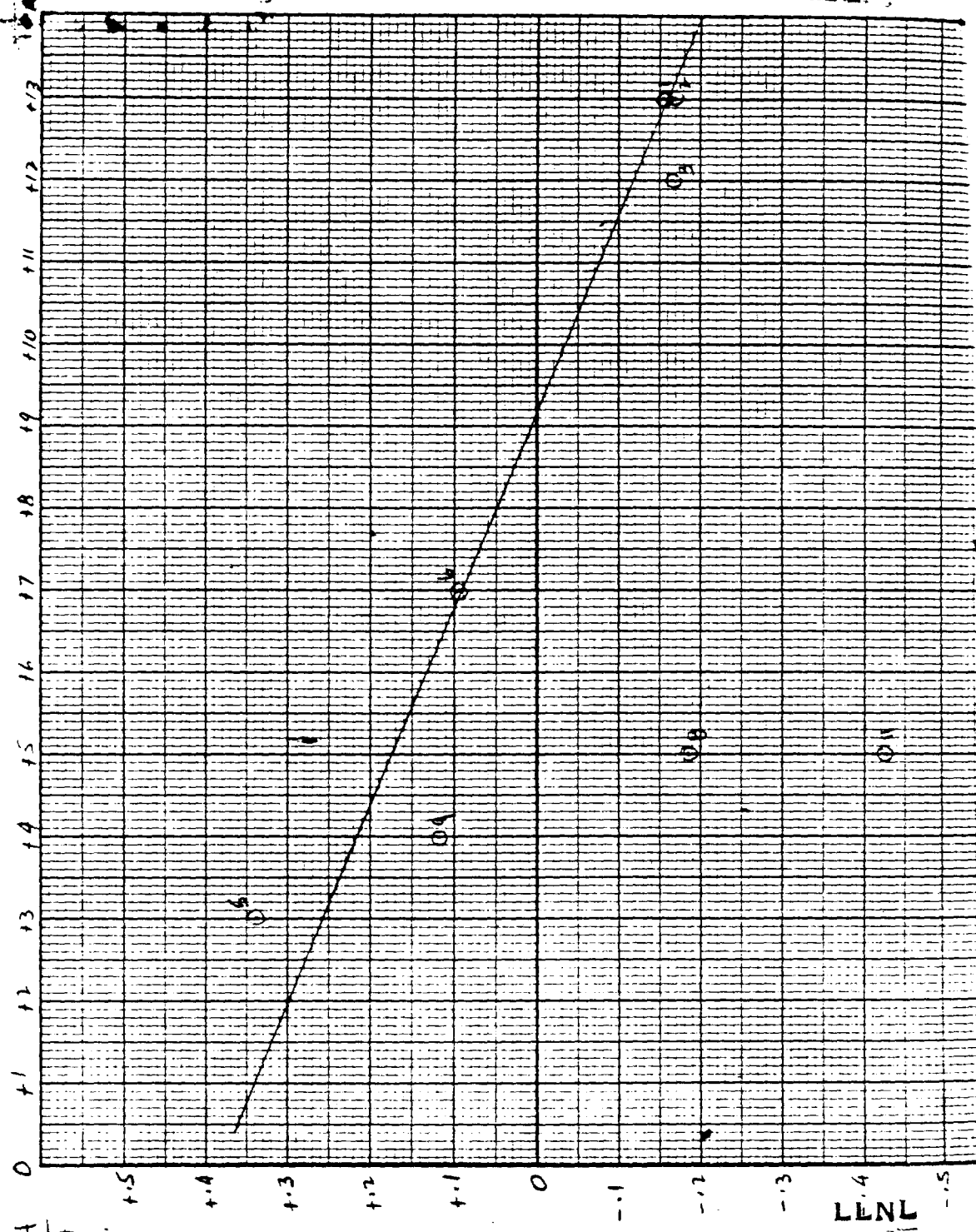
LLNL

76

05:00 (2:30)
LC (3:00) 7

45-168-12-454
BEST AVAILABLE COPY

Scheduling Iter Index



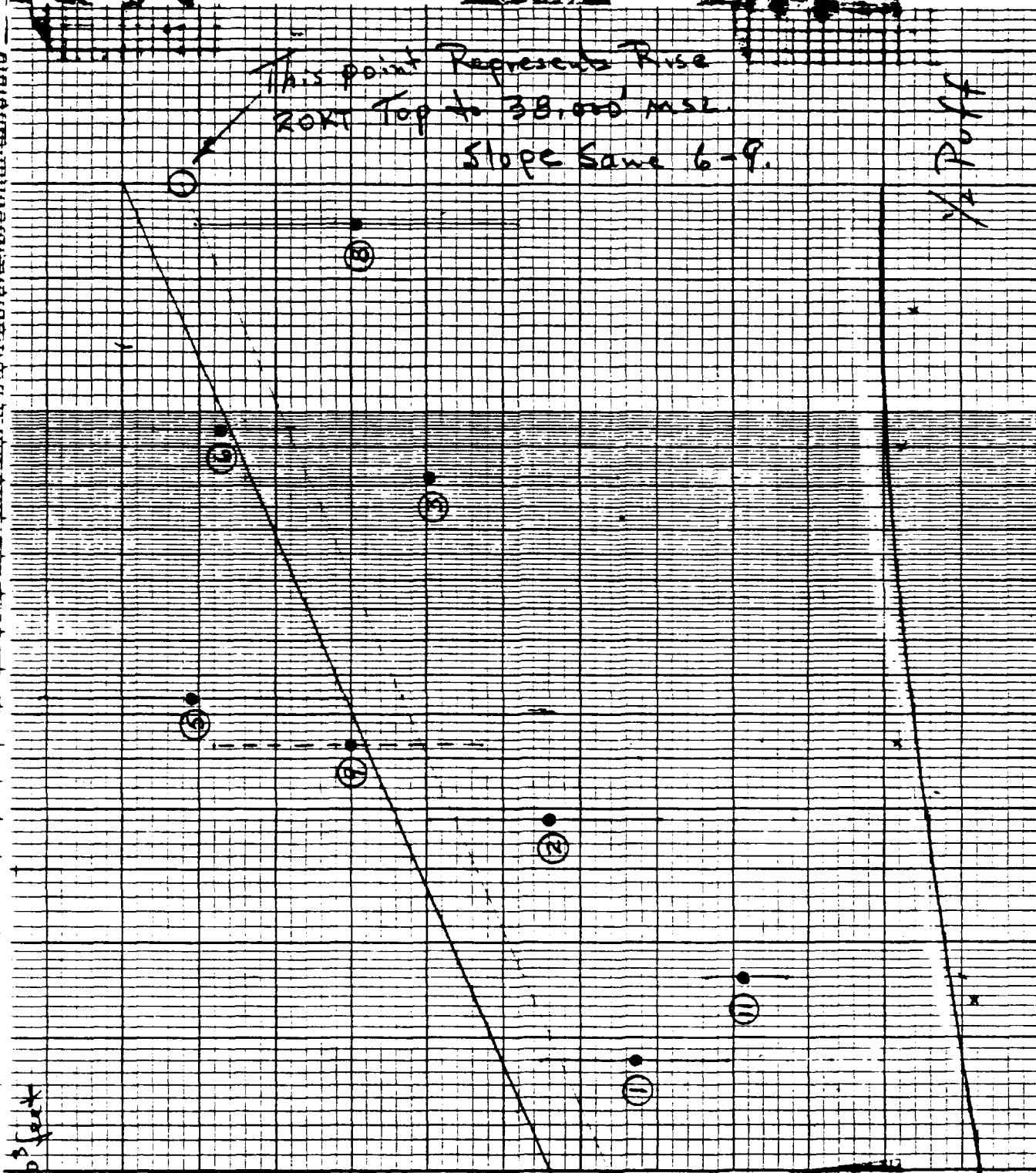
$\Delta H / H$

BEST AVAILABLE COPY

LENL

~~SECRET~~

715



1/2 Puff

(Adjusted for Pressure @ Burst)

w' →

10 feet

LLNL

~~SECRET~~
BEST AVAILABLE COPY

78

1000000000

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

LLNL

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

2-55

Cloud rise. Steeper curve
for 300' towers vs 500' towers
for low W. initial rise —
entrainment — up to 10,000'
under influence of "chimney effect".

Energy absorbed
by tower.

BEST AVAILABLE COPY

LLNL

LC035 0360

80

Shot	W	Date	Time	Score	
T-1	1.2	2-18-55		+13	
T-9	3.1	3-29-55		+4	
UK-A	10.8				
UK-10	15.4				
R-1	1.3				
R-2	7.8				
R-3	1.0				
R-4	8.0				
BJ-2	3.5				
BJ-3	14.0				
TS-1	1.1				
TS-2	1.2				
TS-4	19.6				

LLNL

10035 0301

81

[REDACTED]

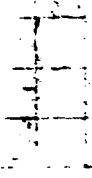
LLNL

[REDACTED]

~~REDACTED~~
REDWING SHOTS

NAME	DATE	TIME
Lacrosse	5/5	0626
Charokee	5/21	0551
Zuni	5/28	0556
Yuma	5/28	0756
Erie	5/31	0615
Seminole	6/6	1255
Flathead	6/12	0626
Blackfoot	6/12	0626
Kickapoo	6/14	1126
Osage	6/16	1314
Inca	6/22	0956
Dakota	6/26	0606
Navajo	7/10--	0556
Apache	7/9	0606
Mohawk	7/3	0606
Tewa	7/21	0546
Huron	7/22	0616

LLNL



LLNL

NOV 15 1964

[REDACTED]

LLNL

[REDACTED]

121 → 125

[REDACTED]

LLNL

[REDACTED]

LC035 0206

86

120

~~CONFIDENTIAL~~

LLNL

~~CONFIDENTIAL~~

87

LC635 0267

$$10\% Na \sim 10 \times .001 = .01$$

$$30\% Mn \sim 6.9 \times .004 = .03$$

$$5.9$$

$$50\% Na \sim 11.5 \times .37 = 4.26$$

$$50\% Mn \sim 11.4 \times .004 = .05$$

$$4.31$$

$$50\% Na \sim 3.27 \times .37 = 1.20$$

$$50\% Mn \sim 3.27 \times .004 = .01$$

$$1.21$$

4 Feb 56
Smith-Emery Co.
Chemists - Engineers
Los Angeles

Soil Analyses, Bill Cowan 7-2-57

Site	Total Mn	Total Na	Total K
T-1	.158%	1.25%	2.32%
T-2	.027	.43	1.39
T-3	.024	1.60	2.92
T-4	.032	.95	2.16
FF	.023	.62	2.06
T-7	.045	1.84	2.69
T-7	.047	1.81	2.62
T-7	.030	1.33	2.19
	<u>.386</u>	<u>9.83</u>	<u>18.35</u>
	Av = .048	Av = 1.23	Av = 2.29

Nevada

14 July 56
S. E. Co.

"Yuma Coral" % Na = 0.15 { "Sally" }

Revised?

Sample A % Na = 0.16 { Center of Island
Sample B % Na = 0.11 { Name
Edge of Island

23 Jan 56
S. E. Co.

LLNL

$$I = I_0 R / \ln x$$

$$I_{H+1} = \frac{8.7 \times 10^7}{1110^2} e^{-\left(\frac{1110}{475}\right)} = \frac{8.7 \times 10^7 \times 9.3 \times 10^{-2}}{1.2 \times 10^6} = 7.232 \times 10^6$$

$$I_{H+1} = 6.54 \text{ R/hr}$$

$$I_{H+22} = .37 \times 6.54 = 2.4 \text{ R/hr @ H+22}$$

@ H+22, Slant Range = 820', $I = 4 \text{ R/hr}$

$$I_{H+1} = \frac{8.7 \times 10^7}{820^2} e^{-\frac{820}{475}} = \frac{8.7 \times 10^7 \times .177}{6.72 \times 10^5} = 22.9 \text{ R/hr}$$

$$I_{H+22} = .37 \times 22.9 = 8.5 \text{ R/hr}$$

$$\left. \begin{array}{l} \frac{2.4}{1} = 2.4 \\ \frac{8.5}{4} = 2.1 \end{array} \right\} \begin{array}{l} \text{Decay by Orange Curve of 3/13/57} \\ 22.9 \times .29 = 6.6 \\ \text{due decay Constant ?} \\ \text{or mixture Na \& Mn.} \end{array}$$

Say 70% Na $\sim 4.58 \times .37 = 1.69$

30% Mn $\sim 1.96 \times .004 = \frac{.008}{1.70}$

$t, (\text{hours}) \rightarrow 10$

1000

100

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



100,000

10,000

100
HEAT AVAILABLE COPY

$t, (\text{hours}) \rightarrow$

$$\lambda = \frac{15}{.693} = 21.6$$

$$\lambda = \frac{.693}{15} = .046$$

~~$$I = I_0 e^{21.6(t_0 - t)}$$~~

$$I = I_0 e^{.046(t_0 - t)}$$

I_0	t (hours)	1	10	100	200	300	30	140
1	0	1	9	99	199	299	1.33	6.44
			-.414	-4.55	-9.15	-13.75		
e^{λ}	1	1	.660	.0105	.000106	.00000107	.1264	.00154

$$\log_{10} e = .43429$$

$$x = 9.15$$

$$.43429$$

$$x = 13.75$$

$$e^{-9.15} =$$

$$-3.97375$$

$$-5.97149$$

$$e^{-13.75} =$$

$$6.02625 - 10$$

$$4.02951 - 10$$

$$.0001062$$

$$.000001068$$

$$140 \text{ hrs} = 2.79683$$

$$7.20317 - 10$$

For $M_n T_{1/2} = 2.6 \text{ hrs.}$

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$$\lambda = \frac{.693}{2.6} = .267$$

$$e^{-.267t} = .001$$

$$6.92 = .267t$$

$$t = \frac{6.92}{.267} = 26 \text{ hrs.}$$

I_0	t hours	1	2	4	10	15	20
1	0	1	1	3	9	14	19
			-.267	.807	2.403	3.738	5.073
e^{λ}	1	1	.767	.449	.091	.024	.0065

LLNL

LC035 0271

91

Measurement for Wasp 30 R/m. @ #+1 G.Z.
formula from SC — document

$$I_{H+1} = \frac{K}{R^2} e^{-\frac{R}{475}} \quad \text{where } R = \text{slant Range (feet?)}$$

decay -

$$I = I_0 e^{-\lambda t} \quad \text{where } \lambda = \frac{\ln 2}{T_{1/2}} = \frac{.693}{T_{1/2}}$$

λ depends on proportion Na $T_{1/2} = 15$ Hrs
 ϕ Mn $T_{1/2} = 2.6$ "
 in soil

BEST AVAILABLE COPY

factor 475 depends on Neutron emission of particular Bomb.

use measured value 30 R/m. for Wasp to determine K.

$$I_{H+1} = 30 = \frac{K e^{-\frac{762}{475}}}{762^2} = \frac{.202 K}{580,644}$$

LLNL

$$K = 8.7 \times 10^7 \text{ for } 1.2 \text{ KT} = \boxed{7.2 \times 10^7 \text{ for } 1 \text{ KT}} \quad 92$$

10025 (7/1)

132 Wasp H+S S.R. = 920' $I = 10 \text{ R/hr.}$

$$I_{H+S} = \frac{-8.7 \times 10^7 \times e^{-\frac{920}{475}}}{920^2} = 1.94 \times 10^{-5} = 14.8$$

$= 8.46 \times 10^5$

$I_{H+S} = 14.8 \times .85 = 12.6 \text{ R/hr.}$ *by orange line of 3/13*

Say 80% Na ~ $10.1 \times .85 = 8.59$
 20% Mn ~ $2.5 \times .34 = .85$
9.44

* Wasp H+S S.R. = 1260', $I = 1 \text{ R/hr.}$

$$I_{H+S} = \frac{8.7 \times 10^7 \times e^{-\frac{1260}{475}}}{1260^2} = 2.65 \times 10^{-7} = 3.87 \text{ R/hr.}$$

BEST AVAILABLE COPY $= 1.59 \times 10^6$ *by orange line of 3/13*

Say 80% Na ~ $3.1 \times .85 = 2.64$
 20% Mn ~ $.8 \times .34 = .27$
2.91 $= 2.9$

IRlos incident < ? $\frac{1260}{.602} = 2093$

$I_{H+S} = 8.7 \times 10^7 \times e^{-\frac{1260}{475}} = 8.7 \times 10^7 \times .0707$ *need use cos² θ not cos θ*

$1.12 \times .85 = .95$ $2093^2 = 4.38 \times 10^6$

for Radio Chem

3/13/57

95
23

Yucca Soil Composition from tunnels they
have dug & O.K. for shot granite
By Weight

70% SiO_2

11-12% Al_2O_3

1% Fe_2O_3

1% Ca_2O_3

1.5% Na_2O

$\sigma = 13.3$

5% K_2O

.15% TiO_2

.05% MnO

$\sigma = .53$

Ratio of Atoms & σ 's.

Na_2O

23 16

62

Billow
7-2-57

assumed proportional
to σ 's

MnO

55 16

71

energy per
disintegration

Na
Mn

4.14 meV
119

Na

$\frac{46}{62} \times 1.5$

$= \frac{55}{71} \times \frac{55}{23} \times \frac{.53}{13.3} = \frac{2.7}{1}$

Mn

Document SC 3466 Contamination

SRD

for Nuclear
Weylone
LLNL 94

$\frac{2.7}{3.7} = 73\%$ Na

27% Mn

734 * Try Again. Na 73% Mn 27% ~~95~~

Co 53 = 1602 S.R. = 1260'

$$3.87 \times .602 = 2.33 \quad H+1$$

$$Na \sim 1.70 \times .85 = 1.45$$

$$Mn \sim .63 \times .34 = .21$$

} H+5

1.66 Calc.

1 R/h mass

Bill Cowan's formula

$$A_{th} = \frac{2 \cdot W \cdot K \cdot e \cdot \frac{R}{475} \cdot \cos \theta}{R^2}$$

where 2 varies from 1-6 as bomb goes from low yield to high yield.

BEST AVAILABLE COPY

LLNL

Wasp 3/29/1900 PST 740 ~~55~~ 2/14/57 55
135

1st Resurvey 30/0700 = H+21 = $\cos \theta = .73135$

measured 10 R/hr @ H.R. 690', S.R. 1015'

$$\alpha = 1, W = 3.1, K = 7.2 \times 10^7 \quad \frac{N_a}{M_n} = \frac{.75}{.25}$$

$$I_{H+1} = 1 \times 3.1 \times 7.2 \times 10^7 \times \frac{e^{-\frac{1015}{475}}}{2 \times 1015^2} \times 0.7314$$
$$= 18.7 \text{ R/hr}$$

$$N_a \sim 14.0 \times .4 = 5.6$$

by orange line
of 3/16
5.6

$$M_n \sim 4.7 \times .006 = .03$$

5.6 R/hr @ H+21

10 R/hr. measured

4K. A.B. 1/2
84"

use $\alpha = 2$ for Wasp like devices.

Wasp 2nd Resurvey 2 R/hr at G.Z.

BEST AVAILABLE COPY

$$I_{H+1} = 2 \times 3.1 \times 7.2 \times 10^7 \times \frac{e^{-\frac{740}{475}}}{1} \times 1$$

4/1 1000 PST
H+72

$$= \frac{740^2 \times 5.48 \times 10^5}{171} = 1.92 \times 10^5$$
$$= 188 \text{ R/hr @ H+72}$$

$$N_a = 366 \times .04 = 14.6 \text{ R/hr @ H+72}$$

$$M_n = 122 \times \text{---} = 0$$

$$\alpha = 1.5$$

heller

13th Way H+14 1 N/A (C) H.R. = 850
 S.R. = 925'
~~SECRET~~ $\theta = 37^\circ$ $C_a = 799$

$$I_{H+1} = 2 \times 3.1 \times 7.2 \times 10^7 \times \frac{925^2}{475} \times .799$$

$$= 48.8 \text{ R/hr}$$

$I_{H+2} = 48.8 \times .75 \times .04$ by orange line of 3/18
 $= 1.5 \text{ R/hr}$ 1/2

U.K.-11 CHIMAX 65KT A.D. 1350'
 T-7-3 0415 PDT 4 Jun 53 } H+28
 YUSCA
 Resurvey 0800 " 5 " "

H.R. = 1050' S.R. = 1715' $\theta = 38^\circ$
 $C_a = .788$

BEST AVAILABLE COPY

$$I_{H+1} = 2 \times 65 \times 7.2 \times 10^7 \times \frac{1715^2}{475} \times .788 = \frac{2.01 \times 10^6}{2.94 \times 10^6}$$

$$= 68.4 \text{ R/hr}$$

$N_a = 68.4 \times .75 \times .29 = 14.9$

$M_n = 68.4 \times .25 \times \text{---} = \frac{0}{14.9} \text{ R/hr @ H+28}$

$d = 1.5?$
 $.75 \times 14.9 = 11.2$

10035 0377 97

U.K. 8 ENCORE 26.4 KT A.B. 2423

88
137

FRENCHMAN 0830 PDT 8 MAY 53

27
14
11
11

INITIAL SURVEY 0900 8 MAY H+1/2

11
21
23
25

G.Z. 3 R/hr

1 R/hr H.R. 1800' S.R. = 3100' $\theta = 37^\circ$
Cos = .799

8/144
1800

$$I_{H+1} = 2 \times 26.4 \times 7.2 \times 10^7 e^{-\frac{3100}{475} \times .799} = \frac{4.56 \times 10^8}{3100^2} = 4.61 \times 10^6$$

$$= .47 \text{ R/hr @ H+1}$$

Convert to H+1/2

$$I = I_0 e^{.046(\text{toct})} = .47 e^{.46(1-1/2)}$$

$$= .47 e^{.23} = .47 \times 1.26 = .6 \text{ R/hr @ H+1/2}$$

WASP Resurvey #1 H+5 $I = 1 \text{ R/hr @ HR} = 1400'$

$$I_{H+1} = 1.5 \times 1.2 \times 7.2 \times 10^7 e^{-\frac{1400}{475} \times .799} = \frac{2.15 \times 10^8}{1600^2} = 2.56 \times 10^6$$

SR = 1600
 $\theta = 61^\circ$
Cos = .485

$$= \frac{2.15 \times 10^6}{2.56 \times 10^6} = .84 \text{ R/hr}$$

BEST AVAILABLE COPY

$$I_{H+5} = .84 \times .73 = .61 \text{ R/hr}$$

LLNL

$$\text{for } \phi = 2.0, I_{H+5} = .81$$

98

LC005 0379

Feb 21, 1957

2/18/57

Printed
Linen, Sphered
Diameter

~~SECRET~~

Shot Device YIELD Kind of Budget Boosted Ht Burst

WILSON	12 ⁺ 14	Yes	500' B
EVEREST	2-10 11	Yes	500' B
SATURN	40.001	No	—
VENUS	40.001 2.001	No	—
MORGAN	2-10 10	Yes	500' B
LIESSEN	4-8 6	No	300' B
OWENS	2-5 9	Yes	400' B
DIABLO	B-10 12	Yes	500' T
HOOD	8-10 60		1500' B
SHASTA	8-10 12		500' T
WHITNEY	12-14 12		500' T

DELETED

DELETED

DELETED

BEST AVAILABLE COPY

Based on Spherical Calc. + Exhibit by Maschhoff
1 Lin. Calc. Ready 30 days hence

LLNL

Walt Arnold will know orientation of Device at Deton.

~~SECRET~~

[REDACTED]

LLNL

100

LC035 0360

KEUFFEL & ESSER CO. MADE IN U.S.A.
2 X 3 CYCLES

3/18/57

4

10

100

Activation Energy

Na T₁ 15 M₂ 25 1/2 25 1/2 25 1/2

101 0341 30

↑
1899

10

100/

100

140

~~SECRET~~

~~SECRET~~

LLNL

~~SECRET~~

102

LC035 (2P)

WILSON ^{BOOSTED}

3/18/57

141

$$I_{H+1} = \frac{2.0}{1.5 \times 14 \times 7.2 \times 10^7} \times \frac{500}{475} \times 1 = 2,090 \text{ R/hr}$$

$500^2 = 2.5 \times 10^5$

EVEREST ^{BOOSTED}

$$I_{H+1} = \frac{11}{14} \times 2090 = 1,640 \text{ R/hr}$$

MORGAN ^{BOOSTED}

$$I_{H+1} = \frac{10}{14} \times 2090 = 1,490 \text{ R/hr}$$

2.6 x 10⁴
9 x 10⁴

BEST AVAILABLE COPY

LASSEN ^{NOT BOOSTED}

$$I_{H+1} = 1.5 \times .6 \times 7.2 \times 10^7 \times \frac{300}{475} \times 1 = \frac{3.44 \times 10^7}{9 \times 10^4} = 380 \text{ R/hr}$$

$300^2 = 9 \times 10^4$

OWENS ^{BOOSTED}

$$I_{H+1} = 2.0 \times 8 \times 7.2 \times 10^7 \times \frac{400}{475} \times 1 = \frac{49.5 \times 10^7}{16 \times 10^4} = 3,090 \text{ R/hr}$$

$400^2 = 16 \times 10^4$

Decay ¹⁰ H⁺ 96 LLN
100

Altitude	Shot	W	d=1.5	d=2.0	I _{H+100} d=1.5	I _{H+100} d=2.0
500'	WILSON	14	2090	2790	17	2470
500'	EVEREST	11	1640	2190	13	1940
500'	MORGAN	10	1490	1990	12	1760
300'	LASSEN	.6	380	510	3	290
400'	OWENS	8	3090	4120	25	2690

14 Re-evaluate K, based on Wayf: ~~SECRET~~

$\alpha = 2$, 10 R/h. @ H+21 - e-fld dist = 600'

#R = 690', S.R. = 1015', W = 3.1 $\theta = 43^\circ$ $\cos \theta = .731$

$$I_{H+1} = 10 = 2 \times 3.1 \times K \cdot e^{-\frac{1015}{600} = 1.69} \cdot .731$$

$$K = \frac{10 \times 1015^2 \times 1.03 \times 10^6}{2 \times 3.1 \times .731 \times 1.85} = \frac{1.03 \times 10^6}{1.85 \times 10^{-1}} = 1.22 \times 10^7$$

BEST AVAILABLE COPY

Try out for Wayf $\alpha = 1$

$$I_{H+1} = 1 \times 1.2 \times 1.2 \times 10^7 \cdot e^{-\frac{762}{600} = 1.27} \times 1 = \frac{40 \times 10^5}{5.8 \times 10^5} = 6.9 \text{ N.G.}$$

Try out for Climax $\alpha = 1$

$$I_{H+1} = 1 \times 65 \times 1.2 \times 10^7 \cdot e^{-\frac{1715}{600} = 2.85} \times .788 = \frac{3.55 \times 10^7}{2.94 \times 10^6} = 12.1 \text{ N.S.}$$

To ck e-fld = 475' on Wayf. 1st Runway H+21

10 R/h. #R = 690'	S.R. = 1015'	} $I_{H+1} = \frac{10}{3} = 3.3 \text{ R/h.}$	$\theta = 43^\circ$	$\cos \theta = .731$
1 R/h. HR = 1,350'	S.R. = 1540'			
$3.3 = 2 \times 3.1 \times 7.2 \times 10^7 \cdot e^{-\frac{1015}{R}} \times .731$		} Solve for R		
$3.3 = 2 \times 3.1 \times 7.2 \times 10^7 \cdot e^{-\frac{1540}{R}} \times .485$				
		R = 491'		

Assume: d for Wasp = 1.5

e-fold Distance = 575'

$W = 1.2$, $R = 762'$

Re-calculate K

$$I_{H+1} = 30 = 1.5 \times 1.2 \times K \times \frac{e^{\frac{762}{575}}}{762^2} \times 1$$

$\frac{762}{575} = 1.33$
 $762^2 = 5.81 \times 10^5$

$$K = \frac{30 \times 5.81 \times 10^5}{1.5 \times 1.2 \times 1.264} = 3.7 \times 10^7$$

$\frac{762}{575} = 1.33$
 1.264

Tryout on Clinax (UK-11) measured 10 R/hr. @ H+28

H.R. = 1050', S.R. = 1715', $\theta = 38^\circ$, $\cos \theta = .788$

$$I_{H+1} = 2 \times 6.5 \times 3.7 \times 10^7 \times \frac{e^{\frac{1715}{575}}}{1715^2} \times .788 = 66 \text{ R/hr}$$

$\frac{1715}{575} = 2.98$
 $1715^2 = 2.94 \times 10^6$

$$I_{H+28} = 66 \times .22 = 15 \text{ R/hr}$$

BEST AVAILABLE COPY

Tryout on Wasp' H+72 measured 1 R/hr

H.R. = 550', S.R. = 925'
 $\theta = 37^\circ$, $\cos \theta = .799$

$$I_{H+1} = 2 \times 3.1 \times 3.7 \times 10^7 \times \frac{e^{\frac{925}{575}}}{925^2} \times .799 = 43 \text{ R/hr}$$

$\frac{925}{575} = 1.61$
 $925^2 = 8.56 \times 10^5$

$$I_{H+72} = 43 \times .03 = 1.3 \text{ R/hr}$$

LLNL

if $d = 1.5$, Clinax $I_{H+28} = 11 \text{ R/hr}$

Wasp' $I_{H+72} = .88 \text{ R/hr}$

(575) with New e-fold (475) old e-fold

1st 105

(G.3)

$$\frac{1}{H+1} = 30 R/h = 2 \times 1.2 \times K \times \frac{e}{500} \times 1$$

$\frac{762}{500} = 1.524$
 $\frac{762^2}{5.81 \times 10^5} = 1.03 \times 10^{-6}$

$$K = \frac{30 \times 5.81 \times 10^5}{2 \times 1.2 \times 218} = \frac{1.74 \times 10^7}{.523} = 3.33 \times 10^7$$

Now try on Warp H+21

$$\frac{1}{H+1} = 2 \times 3.1 \times 3.33 \times 10^7 \times \frac{e}{500} \times 1.731 = \frac{1.98 \times 10^7}{1.03 \times 10^6} = 19.2 R/h$$

$\frac{1015}{500} = 2.03$
 $\frac{1015^2}{1.03 \times 10^6} = 1.03 \times 10^{-6}$

$$I_{H+21} = 19.2 \times 300 = 5.8 R/h \quad N.G.?$$

$$\frac{1}{H+1} = 2 \times 3.1 \times 3.33 \times 10^7 \times \frac{e}{500} \times 485 = \frac{4.64 \times 10^6}{2.37 \times 10^6} = 1.96 R/h$$

$\frac{1540}{500} = 3.08$
 $\frac{1540^2}{2.37 \times 10^6} = 2.37 \times 10^{-6}$

$$I_{H+21} = 1.96 \times 300 = 59 R/h$$

if $\alpha = 4$ instead of 2, $\frac{1}{H+21} = 11.6 \neq 1.2 R/h$

$$\frac{10}{11.6} = .862$$

$$\frac{1}{1.2} = .833$$

$$\text{avg.} = .8475$$

BEST AVAILABLE COPY

So, use for Warp devices $\alpha = 4$ unboosted

$= 6$ boosted

LLNL

$$\text{and adjust } K \text{ to } .8475 \times 3.33 \times 10^7 = 2.825$$

Now try H+1 Wasp G.Z.

$$I_{H+1} = 4 \times 1.2 \times 2.8 \times 10^7 \times \frac{e^{-\frac{762}{500} \times 1}}{762^2} = \frac{2.93 \times 10^7}{5.81 \times 10^5} = 50.4$$

Too high

Try Wasp' 2nd Resurvey, H+72 measured 2 R/hr @ G.Z.

$$I_{H+1} = 4 \times 3.1 \times 2.8 \times 10^7 \times \frac{e^{-\frac{740}{500} \times 1}}{740^2} = \frac{7.92 \times 10^7}{5.48 \times 10^5} = 144.5$$

$$I_{H+72} = 144.5 \times 10300 = 1493 \text{ R/hr.} \quad \text{Too high}$$

Now change e-fold distance to 450'

$$I_{H+1} = 30 = 4 \times 1.2 \times K \times \frac{e^{-\frac{762}{450} \times 1}}{762^2} = \frac{.878}{5.81 \times 10^5}$$

$$K = \frac{30 \times 5.81 \times 10^5}{.878} = 1.99 \times 10^7 = 2 \times 10^7$$

BEST AVAILABLE COPY

Try Wasp' 2nd Resurvey H+72

$$I_{H+1} = 4 \times 3.1 \times 2 \times 10^7 \times \frac{e^{-\frac{740}{500}}}{740^2} =$$

$$I_{H+72} = \frac{2}{2.8} \times 4.3 = 3.1 \text{ R/hr.}$$

LLNL

10025 (231)

Warp H+72

measured 11 R/hr

(7.87)

$$I_{H+1} = 4 \times 3.1 \times 2 \times 10^7 \times \frac{e^{-\frac{925}{500}}}{925^2} \times .799 =$$

$$= \frac{3.11 \times 10^7}{8.56 \times 10^5} = 36.3 \text{ R/hr}$$

$$I_{H+72} = 36.3 \times .03 = 1.1 \text{ R/hr}$$

Chimney H+28 measured 10 R/hr

(.0324)

$$I_{H+1} = 4 \times 65 \times 2 \times 10^7 \times \frac{e^{-\frac{1715}{500}}}{1715^2} \times .788$$

$$= \frac{13.3 \times 10^7}{2.94 \times 10^6} = 45.2 \text{ R/hr}$$

$$I_{H+28} = 45.2 \times .22 = 9.94 \text{ R/hr}$$

BEST AVAILABLE COPY

Warp H+1 measured 30 R/hr

$$I_{H+1} = \frac{2}{2.8} \times 50.4 = 36 \text{ R/hr}$$

Wind effect on
spreading cloud
off by 5% area taken into account for > 12 hr

2/27/57

1 U.B. Type Skinned
d = 4 unboiled Small
= 6 boiled
= 4 U.B.

DELETED

K = 2 x 10⁷
LLNL
E-fold = 500¹⁰⁸

Wilson: I vs. Horizontal Range

147

$$I_{H+1} \text{ for G.Z.} = \frac{6 \times 14 \times 2 \times 10^7}{500^2} e^{-\frac{500}{500}} = \frac{41.2 \times 10^7}{25 \times 10^4} = 2,480$$

$$I_{H+1} \text{ for H.R.} = 500' = \frac{168 \times 10^7}{500^2} e^{-\frac{707}{500}} \times .707 = \frac{28.98 \times 10^7}{5 \times 10^5} = 580$$

$$I_{H+1} \text{ for H.R.} = 300' = \frac{168 \times 10^7}{585^2} e^{-\frac{585}{500}} \times .866 = \frac{45.1 \times 10^7}{3.42 \times 10^5} = 1320$$

$$I_{H+1} \text{ for H.R.} = 800' = \frac{168 \times 10^7}{945^2} e^{-\frac{945}{500}} \times .530 = \frac{13.4 \times 10^7}{8.93 \times 10^5} = 150$$

$$I_{H+1} \text{ for H.R.} = 1100' = \frac{168 \times 10^7}{1210^2} e^{-\frac{1210}{500}} \times .423 = \frac{6.32 \times 10^7}{1.46 \times 10^6} = 43$$

$$I_{H+1} \text{ for H.R.} = 150' = \frac{168 \times 10^7}{522^2} e^{-\frac{522}{500}} \times .961 = \frac{56.7 \times 10^7}{2.72 \times 10^5} = 2080$$

BEST AVAILABLE COPY

UNBOUNDED

KASSEN: I vs. Horizontal Range

$$I_{H+1} \text{ for G.Z.} = \frac{4 \times 6 \times 2 \times 10^7}{300^2} e^{-\frac{300}{500}} \times 1 = \frac{2.64 \times 10^7}{9 \times 10^4} = 290 \text{ ft}$$

$$I_{H+1} \text{ for H.R.} = 700' = \frac{48 \times 10^6}{320^2} e^{-\frac{320}{500}} \times .948 = \frac{23.98 \times 10^6}{1.024 \times 10^5} = 234$$

$$I_{H+1} \text{ for H.R.} = 200' = \frac{48 \times 10^6}{365^2} e^{-\frac{365}{500}} \times .839 = \frac{19.4 \times 10^6}{1.33 \times 10^5} = 146$$

LLNL 33

109

$$I_{HH} \text{ for } H.R. = 600' = 48 \times 10^6 \text{ E} \frac{675}{500^2} \times \frac{446}{25 \times 10^4} = \frac{5.54 \times 10^6}{4.56 \times 10^5} = 12$$

OWENS I vs. Horizontal Range

$$I_{HH} \text{ for G.Z.} = 6 \times 8 \times 2 \times 10^7 \text{ E} \frac{400}{500^2} \times 1 = \frac{43.1 \times 10^7}{16 \times 10^4} = 2.69$$

$$I_{HH} \text{ for H.R.} = 100' = 96 \times 10^7 \text{ E} \frac{415}{500^2} \times 970 = \frac{40.6 \times 10^7}{1.72 \times 10^5} = 2.36$$

$$I_{HH} \text{ for H.R.} = 200' = 96 \times 10^7 \text{ E} \frac{450}{500^2} \times 895 = \frac{34.97 \times 10^7}{2.025 \times 10^5} = 1.73$$

$$I_{HH} \text{ for H.R.} = 500' = 96 \times 10^7 \text{ E} \frac{640}{500^2} \times 629 = \frac{16.79 \times 10^7}{4.096 \times 10^5} = 4.1$$

$$I_{HH} \text{ for H.R.} = 800' = 96 \times 10^7 \text{ E} \frac{900}{500^2} \times 446 = \frac{7.06 \times 10^7}{8.1 \times 10^5} = 8.7$$

BEST AVAILABLE COPY

Wood

DELETED

$\alpha = 3$, $W = 60$, $ht. Burst = 1500'$

$$I_{HH} \text{ for G.Z.} = 3 \times 60 \times 2 \times 10^7 \text{ E} \frac{1500}{500^2} \times 1 = \frac{17.93 \times 10^7}{2.25 \times 10^6} = 80 \text{ R/hr}$$

$$I_{HH} \text{ for H.R.} = 200' = 360 \times 10^7 \text{ E} \frac{1515}{500^2} \times 9914 = \frac{17.1 \times 10^7}{2.30 \times 10^6} = 74.5$$

1555

2.42x10⁶

1700 .033

28

$$I_{H.R.} = 800' = 360 \times 10^7 \frac{e}{1700} \times \frac{888}{500} = \frac{10.49 \times 10^7}{2.89 \times 10^6} = 3.63$$

1925 .0213

28

$$H.R. = 1200' = 360 \times 10^7 \frac{e}{1925} \times \frac{777}{500} = \frac{5.958 \times 10^7}{3.706 \times 10^6} = 16.1$$

BEST AVAILABLE COPY

LLNL

~~SECRET~~

117

150 4/4/57 for Vandenberg DELETED 1025' Area 1 d 4
 H+H: 500' lower shots 11 KT. ~~SECRET~~ DELETED
 Scale from Bee

Bee 500' lower 8.1 Kt 3/22/55 0505 PST
 Small spherical, Boosted, $\text{area} = 5$

Activation $I_{H+1} = 5 \times 8.1 \times 2 \times 10^7 \times \frac{1140}{500} \times \frac{438}{1140^2}$ $\times 1.02$ 64°

$$= \frac{3.62 \times 10^7}{1.30 \times 10^6} = 28 \text{ R/hr}$$

1st Recovery 1100 3/24 H+54

Activation @ H+54 = $28 \times .07 = 1.96 = 2 \text{ R/hr}$

BEST AVAILABLE COPY

Dir 10 R/hr = 1400'	WR	I	$\left. \begin{array}{l} 1025' \\ 53 \end{array} \right\} \begin{array}{l} 1450 \\ 8-190 \end{array}$
" 1 R/hr = 2900	700'	10	
	1450	1	

$\rightarrow 4.7 \text{ R/hr. @ } 1025' \text{ H.R.}$ ~~SECRET~~

i.e. $4.7 - 2.0 = 2.7 \text{ R/hr. @ H+54 due fall out,}$ LLNL

normalize to 11 KT: $A = 2.8$ $F.O. = 3.7$ (neglecting increase 2. logs to)

Work back to H+1: $A = 40$ $F.O. = 117$
 $I_{H+1} = 3.7 \times 53^{1.2}$ 1140 R/hr N.G. due activity 112

900 yds
 1150
 2050
 1025 yds

30 45 ju
 153 = 1540

47 = TOR @ H.R. = 1075'
 for W=15 501' Time

Scale to HKT ~ 50 R/hr

Rec Initial Survey H+1 48
17
 850 yds = $\frac{2550}{2}$ 1275' 28 R/hr

Scale to HKT ~ 38.5 R/hr

So - Fcst for H+1 ~ 45 R/hr
 for shots in Areas 1 & 4.

EXT 8345 MERCURY I. 4/4/57
385 PM
 BEST AVAILABLE COPY

Test New Set of Ht. facing Curves

	E fct	Top = H	Meas.	W	slp	B	H'	Y/P	Ht. Back	H''
T - 1	-12	20.8	21.0	1.2	13	-.175	16.4	2.3	5.0	13.5
2	-12	24.0	24.2	2.5	13	-.175	19.6	3.5	4.3	16.2
3	+1.7	31.0	30.3	7.0	12	-.115	24.6	4.7	4.6	21.8
5	+1.0	38.0	37.0	3.6	3	+1.400	21.2	4.0	4.3	29.7
6	-1.7	34.5	40.0	8.1	7	+1.170	25.4	4.9	4.7	29.7
X 8	3.2	47.3	32.1	15	5 ¹²	+1.285	29.3	5.2	4.8	37.7
X 9	3.2	36.2	31.7	3.1	45	+1.341	20.5	3.7	5.0	29.5
11	+1.8	29.6	35.2	1.5	5	+1.285	17.4	2.7	4.5	22.4
12			40.2	24	+3	-	28.0	5.3	3.5	14
8	+1.6	33.7	32.1	15	12	-.110	26.6	5.2	4.8	23.7

8, 9, 11
 Bust
 113

NRDL Dr. Tompkins
(Schulent)

Mission 8-6900, XT400

Must call Corbin AM 4/11

House decontamination

Problem in north

Condition: 0/500

Task

Firearm 8/500 100 m/r/h Hrs: possible

41 p.m. Winds correct direction

10R/14 (Hr) start will be delayed

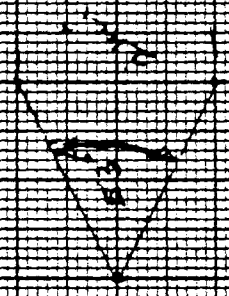
for the purpose.

100 m/r/h

Firearm Hrs: 6 R/h

6.5 m/r/h

150 m/r/h



2 miles

4/11 10/10/57

Joe Wang

$$H = a + b \log x + h (\log x)^2$$

$$\beta = c + ds$$

$$H = H' (1 + \beta)$$

$$\phi_2 = e + f \log x + g (\log x)^2$$

$$H + \phi_2 + B_H = H_T$$

$$H = (a + b \log x)(1 + c + ds)$$

$$(a + b \log x)(1 + c + ds) + \phi_2 + B_H = H_T$$

$$(a + b \log x + h (\log x)^2)(1 + c + ds) + e + f \log x + g (\log x)^2 + B_H = H_T$$

$$H_T \text{ not } > 40.0$$

BEST AVAILABLE COPY

Correct 3 for T-11:

RADB 9 April (0430)(0450) AEC-1 13069 85501

10591 00000 70023 50658 00000 50875

69990 03314 40411 79998 03622 55555

00885 52652

11870 08594

22833 11598

33640 56674

44618 56726

05

10171 37313 115

43436

#4 9 APRIL 0450 Second Transmission

30062 95999 035219ET 25451

05993 03636 20909 12999

03636 15496 08999 03121

10334 08999 02625 66666*

19113 17409 09709 10158

* 21413 BEST AVAILABLE COPY

Apple 29 Mar 55 0455 PST (Radio 0510)

AEC-1 13050 85486 09503 02009 70006 01626

01918 50871 66994 02730 40407 81991 02734

5 — 00880 00575 11865 22840 09502 33746

03561 44677 00667 55660 02660 6 — 59755

12 10171 38717 X2749

Wasp 29 Mar 55 1000 PST (Radio 1015)

AEC-1 18040 85491 12518 01917 70013 05991

02424 50880 65999 02541 40418 79993 02549

5 — 00881 17510 11875 13515 22744 03623

33732 05634 6 — 71306 67304 25 10172

39216 12560 55016 12443

LLNL

15
AEC-1 30052 97996 02746 25438 07998

02748 20890 16999 02749 15477 08996

02653 10294 16999 0 6 18617

17909 10718 10147

BEST AVAILABLE COPY

15 April 1115 (MET) (Paul 1130)

AEC-1 20031 05489 02108 70013 50621 02415

50868 69993 02429 40401 77994 02553 5

00880 18544 11684 50665 6 44977 41875

[03] 10171 36209 X2476

* 22618 55719

Second Transmission

AEC-1 30056 99990 02563 25448 04993

02472 20409 09095 02475 15505 06993

02468 10544 06999 02241 6 22509

21808 15800 11810 10406 07513 06808

10190 05758 10158 LLNL

Take to Nevada: old Note Book, New N.B., WT-1152

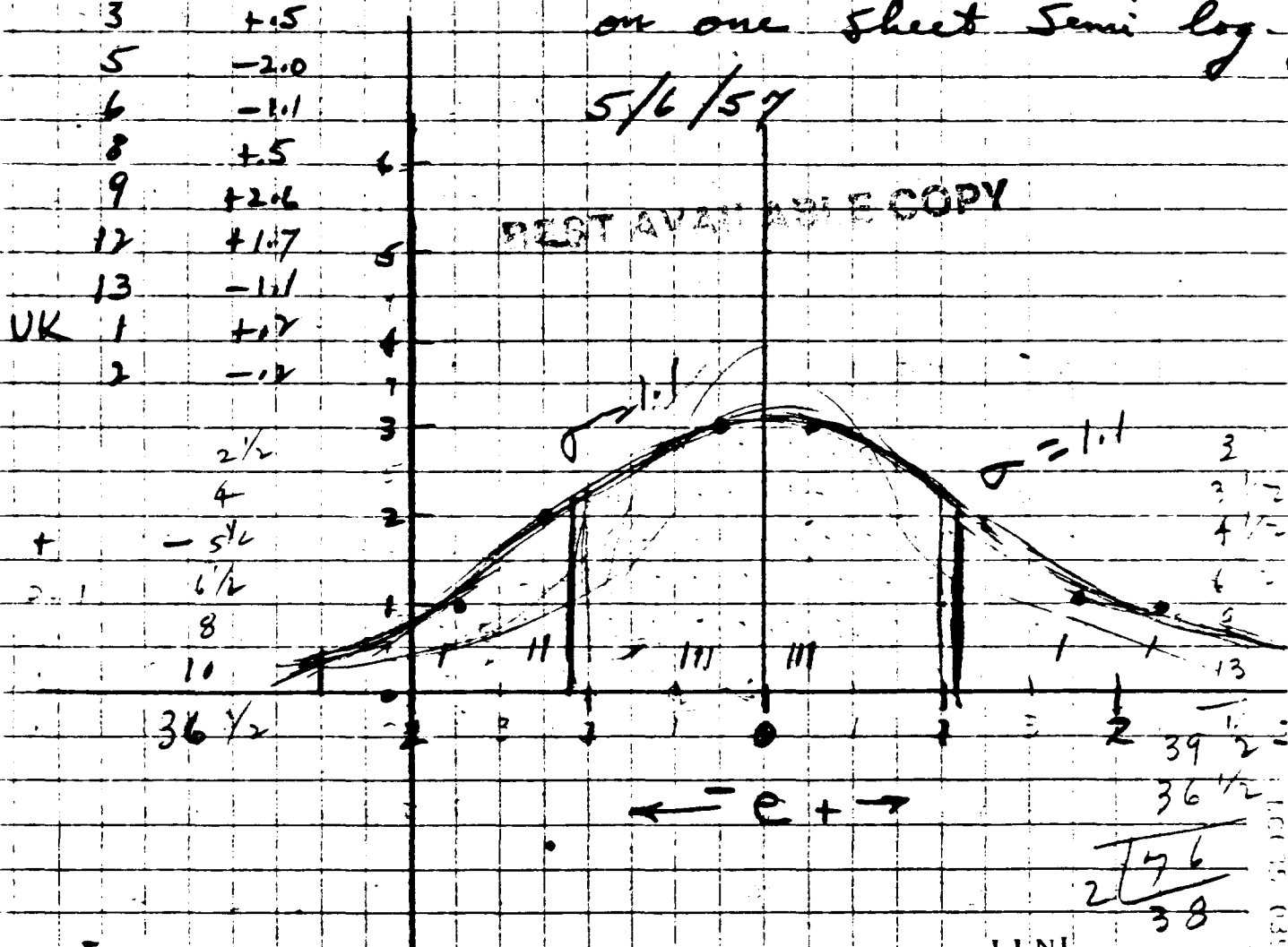
shot	Date	Time	S	ϵ (calculated)	H'	BT	$\frac{1}{2}P$	$\frac{1}{2}Q$
T-1	2-18	1200	13.35	-0.7	16.4	21.0	2.3	5.0
2	2-22	0545	12	-0.16	19.6	24.7	3.5	4.3
3	3-1	0530	12	-0.14	24.6	30.3	4.7	4.5
4	3-7	0520	12	+0.27	27.2	45.0	5.4	5.0
5	3-12	0520	3	+0.35	21.2	37.0	4.0	4.3
15071. 3.8KM 6	3-22	0505	7	+0.20	25.4	40.0	4.9	4.7
11111 3.55KM 8	3-29	0455	12	-0.14	25.7	32.1	5.2	4.8
11111 2.65KM 9	3-29	1000	5	+0.12	20.5	31.7	3.7	5.0
11111 6.5KM 12	4-15	1115	3	+0.19	26.3	40.2	5.3	3.5
20 13	5-5	0510	6	+0.19	26.6	43.0	5.3	4.7
6.25KM 14	5-15	0500	2	-0.03	26.6	35.8	5.3	4.7

shot ϵ
 T-1 -0.5
 2 -0.5
 3 +0.5
 5 -2.0
 6 -0.1
 8 +0.5
 9 +2.6
 12 +1.7
 13 -1.1
 UK 1 +0.7
 2 -0.7

to Set of 3 Curves for PLUMB
 on one sheet Semi log.

5/6/57

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$$\frac{2}{3}(38) = 25.5$$

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157

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119

LC025 0309

158

SCALING for BOLTZMAN 12.5 KT

~~SECRET~~

Cab 12 TONS
 Sand - 9 "
 Para/fine 15 "

} Cab

Tower Wts

Top 0-50' 88,900 Lbs
 0-100 115,280
 0-300 226,110
 0-500 356,740

$$r = 184 \gamma^{1/3} = 427'$$

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$$\frac{427}{500} \times 356,740 = 304,656$$

$$+ 24,000$$

$$\sqrt{328,656} \text{ Lbs.}$$

$$164,328^{\#} = 164 \text{ Tons}$$

164 tons

x .6

98.4 Mc (Steel)

55.0 " (Dist) (from Scaling Curve)

153.4 Mc (Vay)

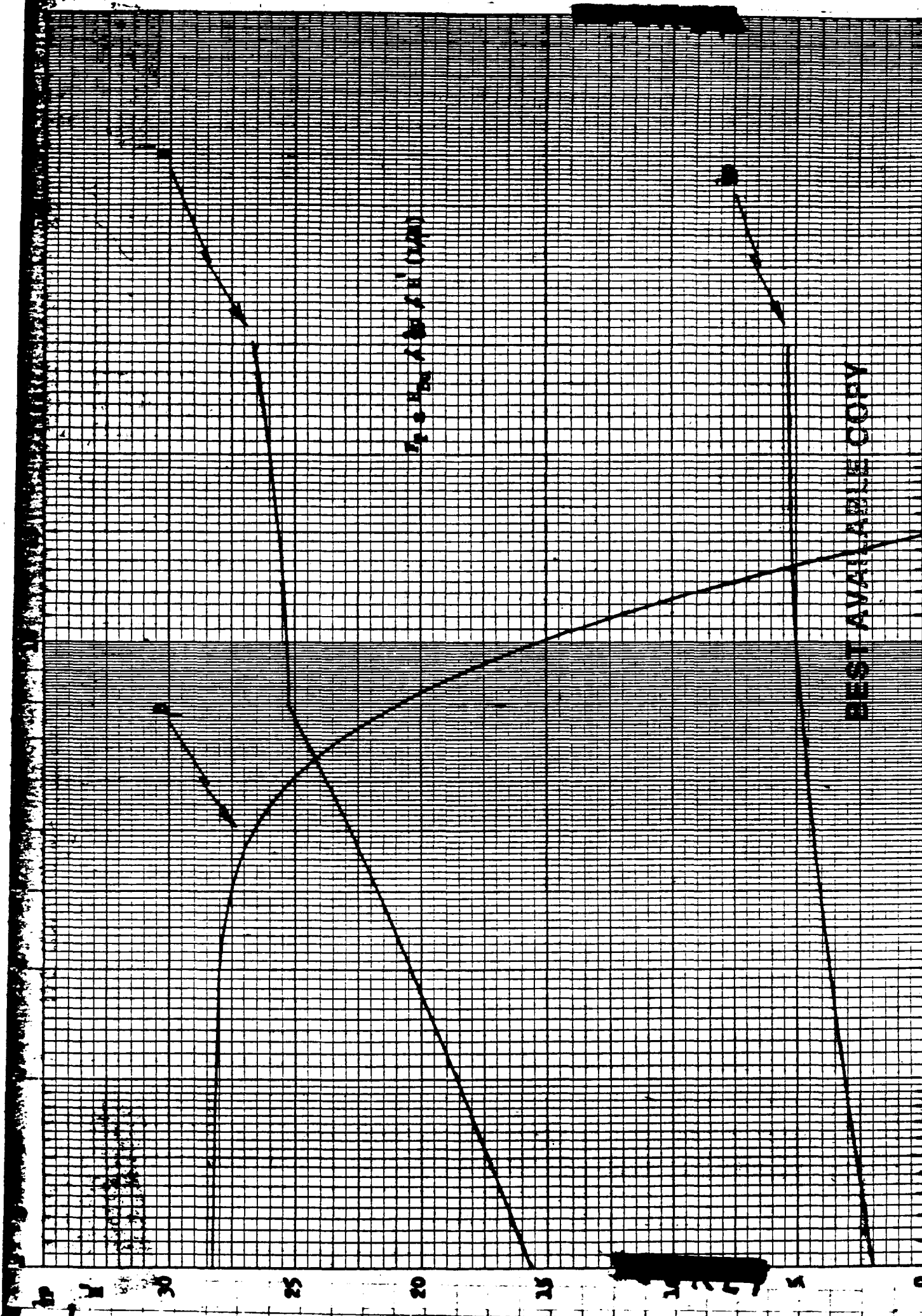
WB = 340 Mc

Note: $0.6 \times \text{Tons (Wt of Structural Steel)} = \text{Mc F.O from Tow}$

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121
LOC. 101
INT
2
3
4
5
6
7
8
9
10
15
20
25
30

760

Area Elevations → Burst Hts

1-1 - 4235.00 ft 5/24/57

T₂ - 4486.50

T_{2a} - 4382.35

T_{2b} - 4468.92

T_{2c} - 4479.12

T₃ - 4024.70 FRANKLIN

T_{3a} - 3997.40

S_{3f} - 4028.5

T₄ - 4302.50

T_{7c} - 4243.00 BOLTZMAN

B_{7a} - 4186.45

B_{9a} - 4214.5

B_{1a} - 3076.00

S_{3g} - ? ft.
S_{3k} - ? ft.

Bondedix
S-6
9/65

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English Author 2 ~~SECRET~~ Pole Shots
Si — Surge that follows initial rise
of cloud.

~~SECRET~~
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Weather Project

Make complete list of shot time wide
operation by operation. For each shot
draw hodographs & compute ^{F.O.} patterns.
Draw up & classify wx charts. Build
together & analyze for similarity in
situation i.e. what is a situation
such that in the past it was:
"brought by the panel"

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8/1/57

123

Blank Pages

8-2-83

Dr

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VK 915
U5
1945

H. O. Pub. No. 165

"PACIFIC ISLANDS" Volume I

P. 579 -- "POKAAKKU (Taongi or Gaspar Rico) Atoll

South end, 14° 32' N. 168° 55' E. H. O. Chart 6024 - The lagoon is shallow, presents a greenish color, and has many shoal reefs. It is infested with sharks.

CLIMATE

POKAAKKU lies well within the northeast trades. There is an estimated 40" of rainfall annually, which is far less than that of the more southerly Marshalls.

The dry season corresponds to maximum development of the northeast trades from Nov-June, and is characterized by long periods of fair weather. 2 or 3" of rain may be expected during each of these months, falling mostly as brief showers. The trades below steadily with moderate to fresh velocities. The wet season, July-Nov., is relatively rainy, but fair weather often prevails for considerable periods. Since the mean position of the doldrums is south of Pokaaku, it does not experience the change from NE to SE winds that occur in the more southerly atoll. However, the fresh NE winds of the dry season may weaken and turn into easterly during this period.

Although rare, tropical storms have been known to occur in this vicinity. The most likely seasons are late summer and autumn.

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[REDACTED]

[REDACTED]

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AD-5252	Statistical Analysis of the Medical Effects of the Atomic Bombs from the Report of the Joint Commission for the Investigation effects of the Atomic Bomb in Japan	A. W. Oughterson G. V. LeRoy A. A. Liebow Army Inst. of Pathology	2-28-54
APEX-179	Cloud Dosage Calculations	R.L. Waterfield	4-5-55
AD-42468	Apparatus for Investigating Particle-Size Distribution of Aerosols. Progress Report for October '53	J.L. Hammond Jr. A.E. Williamson Jr. E.B. Dismukes, SRI	11-30-54
AD-32611	Theoretical Investigation of the Growth of Aerosol Particles by Diffusion. Scientific Report #2	U Poly. Inst. of Brooklyn	
NP-5485	Development of Radioactive Dust Collector: Progress Report #3	U 12-15-53 Batelle Memorial Institute	
"	Progress Report #4		2-15-54
"	Progress Report #5	Authors: Ellsworth, R.D.	4-15-54
"	Progress Report #6	Spraker, W Yocom,	6-15-54
"	Final Report		9-23-54
NP-5497	Mechanism of Detonation. Tech. Report #41	U U. of Utah M. A. Cook	11-15-54
ARA-175	Three Dimensional Lethal Envelopes for the TU-4 (B-50D) at 35,000' and 6,000'. Attitudes Subjected to a 0.5 KT Atomic Burst	S Allied Res. Fink, Athens	3-29-54
Item 54-54 #6	Detonation and Explosives Phenomena - Progress Report No. 6 - 10/1 to 12/31/54	U U.S. Bureau	1954
Item 55-243	Construction and Operation of a Rotating mirror framing camera and synchronizer. Technical Report No. XXX	Univ. Of Utah W. O. Ursenbach	11-5-54
WADC-TR-54-59	Handbook for the computation of Dynamic Gust Loads Received by a B-29 Airplane Subjected to the Shock Wave of a Nuclear Explosion	Wright Air Development Center - Fink, Kane	S 1-54
MIT-RLE-	Information Flow in Task-Oriented Groups	U MIT R. D. Luce J. Macy, Jr., Et.al	8-31-53
UCRL-2820	Arc Research. A Pulsed Beam Injection	S UCRL-Berkeley L. Brown	9-2-54
UCRL-2821	Arc Research. A Pulsed Ion Source Gas Supply	S UCRL-Berkeley L. Brown	12-3-54
UCRL-2865	A 36-Atmosphere Diffusion Cloud Chamber	U UCRL-Berkeley J.B. Elliott G. Maenchen, et al	LLNL 2-18-54

EG&G 1171

Coincidence of World Time Clock with
WWV StandardEG&G U
E.F. Wilson

11-30-54

RM-1319

Analysis of Gust Loading of Aircraft
by Atomic BombsRand Corp. S
Gore
Elswick

7-1-54

UCRL-4453

Water Waves Produced by Surface
ExplosionsUCRL S
Livermore
S. Tamor

2-21-55

UCRL 2961 4/18/55 CIL 11505

FWE-35 The Resistance of Civil Defense
Shelters to Atomic Blast I. L. Davies & N. S.
Thompson First Report on Experiments with un-
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Atomic Weapons S
Research Estab. 3/25
Aldermaston, Berks. 7/5
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FWE-39 The Gamma Activity of the Products
of an Atomic Bomb Explosion Revised Edition
Report No. A10

J. L. Cave S
Atomic Weapons 11/58
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WT-731	Operation Upshot-Knothole Project 3.19 Blast Damage to Coniferous Tree Stand by Atomic Explosions Report to Test Director	F. M. Sauer W. L. Fons T.G. Storey AFSWP	C	1-54
WT-737	Operation UK-Project 3.27 - Effects of Atomic Explosions on Field Medical Installations Equipment Report to the Test Director	E. S. Chapman AFSWP	C	2-54.
WT-781	Operation UK-Project 9.7 Experimental Soil Stabilization	W. G. Schockley W. J. Turnbull AFSWP	C	2-54
RM-1352-AEC	Abstract Compendium on Lithium Hydride	C.P.Nash, Rand Corp.	C	9-27-
CVAC-249T	A shadow Shield Experiment in the XB-36 Airplane Experiment 1.1E-CVAC-163	J.W.Harris W. P. Kunkel L. V. Woodruff Consolidated Vultee Aircraft Corp.	C	4-29-
WT-727	Operation UK-Project 3.8 - Air Blast Effects on Underground Structures Report to the Test Director	N.M.Newmark G. K. Sinnamon AFSWP	C	1-54
WT-734	Operation UK-Project 3.22-Effects on Engineer Bridging Equipment Report to the Test Director	G. T. Moore AFSWP	C	2-54
WT-740	Operation UK-Project 3.28.3 - Pressure Measurements on Structures Report to the Test Director	L.M.Swift, AFSWP	C	3-54
WT-755	Operation UK-Project 6.8 Evaluation of Military Radiac Equip. Report to the Test Director	J. M. Johnston George Poyet AFSWP	C	6-54
WT-814	Operation UK-March-June 1953-Project 29.4 Effective Energy of Residual Gamma Radiation	A.H.Dahl, et al Rochester U. School of Medicine	C	
WT-758	Operation UK-Project 6.10 Evaluation of Rapid Aerial Radiological Survey Techniques Report to TD	J. R. Price AFSWP	C	5-54
WT-768	Operation Knothole - Project 8.4-1 Protection Afforded by Operational Smoke Screens Against Thermal Radiation Report to TD	E.H.Engquist C. W. Forsthoff AFSWP	C	3-54
WT-772	Operation UK - Project 8.9 Effects of Thermal Radiation on Materials	T. I. Monahan AFSWP	S	5-54
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3/4/55

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Part 13. Back Scattering & Reflection
Coefficients for Gamma Rays.
Part 14. The Penetration of Isotropic
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Part 19. Shadow & Edge effect in
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(Atomic Weapons Research Establishment,
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(University of Utah) M.A. Cook U 11-15-54

DR-1711 THE EFFECTS OF THE FIREBALL ON THE REFLECTED WAVE.
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July through December, 1954

<u>Index No.</u>	<u>Title</u>	<u>Class.</u>	<u>Date</u>
UCRL-4356 Internal	REPORT ON DIGITAL COMPUTERS. (UCRL Livermore) Lawrence Wainwright	OUO	6-24-54
UCRL-4359	PLATE MOTION STUDIES IN A SECRETED IMPLOSION TEST ASSEMBLY. (UCRL Livermore) Joseph A. Lovington	S	7-8-54
UCRL-4365	STUDY OF THE FEASIBILITY OF UTILIZ- ING THE AEROBEE UPPER-ATMOSPHERE SOUNDING VEHICLE FOR SAMPLING RADIOACTIVE CLOUDS. (Aerojet Gen.Corp.) J. N. Brown, E. R. Bunker, Jr.	C	7-54
UCRL-4376	A PRELIMINARY REPORT ON THE PRINCIPLES OF THE BALLOON CASE. (UCRL Livermore) H. Brown	S	8-31-54
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UCRL-4387 Internal	OPERATION TEALEAF. (UCRL Livermore) F. J. Willig	C	10-15-54
UCRL-4399	REVIEW OF TEAPOT DEVICES. PART I: CLEO. Minutes by R. W. Goranson. October 5 to 8, 1954. (UCRL Livermore)	S	
UCRL-4403	A METHOD OF FORECASTING FALLOUT ISODOSE CONTOURS FOR NEVADA PROVING GROUND. (UCRL Livermore) A. Vay Shelton	S	9-28-54
UCRL-4407	ACCELERATION OF A PLASMA BY TIME- VARYING MAGNETIC FIELDS: (UCRL Livermore) R. F. Post	S	12-6-54

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