COMPILATION OF LOCAL FALLOUT DATA FROM TEST DETONATIONS 1945-1962 EXTRACTED FROM DASA 1251

Volume II -Oceanic U.S. Tests

General Electric Company—TEMPO DASIAC 816 State Street Santa Barbara, California 93102

1 May 1979

Extract

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Nuclear Weapons Testing

Fallout

Radiological Contamination

Nuclear Radiation

Pacific Proving Ground

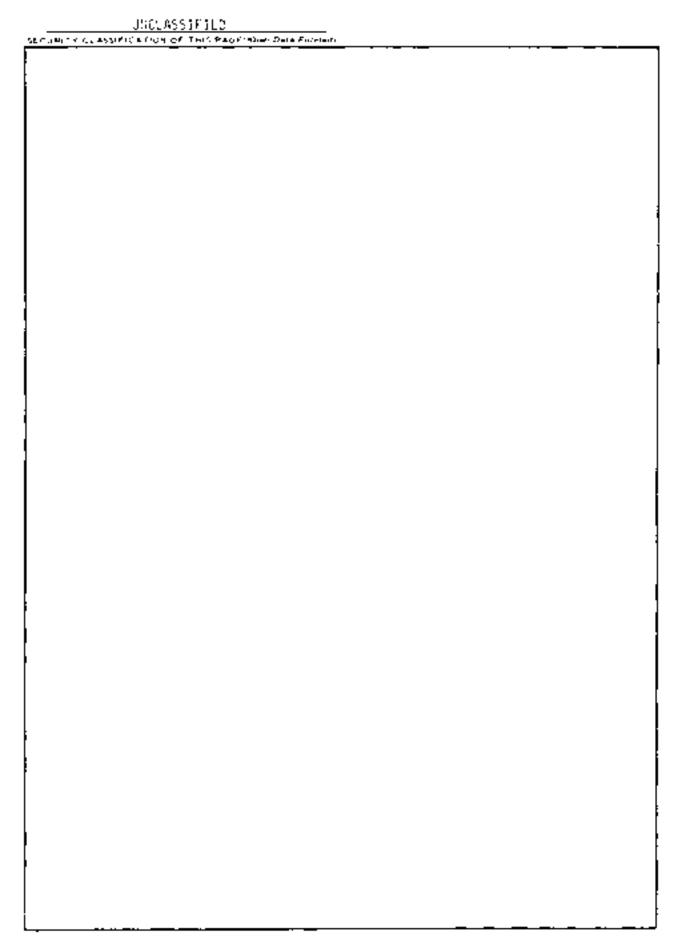
Enewetak Bikini

Johnston Island

Christmas Island

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Fallout patterns from U.S. oceanic nuclear weapons tests. Also given are time and place of test and ambient winds.



PREFACE

This report has been prepared to serve as an unclassified source of information and data concerning the atmospheric modean test program conducted by the United States prior to 1965. The information contained herein was reproduced directly from the classified versions of the DASA 1251 series of reports. The classified material which was deleted to prepare this report was in accordance with the requirements of the Atomic Energy Act of 1954 and would not contribute to an understanding of the radiation interactions with personnel. All fallout plots and radiation contages are presented exactly as they appeared in the classified version of DASA 1251.

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INTRODUCT FON

The abjective of this report is to provide a ready reference of fallout patterns and related test data for those engaged in the analysis of fallout effects.

This compulation was extracted from DASA 1251 "Local Fallout from Nuclear Test Detonations" (d) Vol. 2 "Compilation of Fallout Patterns and Related Test Data" (H) Parts I through 5. DASA 1251 Vol. 2 was the work of Manfred Morgenthau, Harvy Meieran, Richard Showers, Jeffrey Morse, Norman Dombook, and Arnoldo Garcia of the U.S. Army Naclear Defense Laboratory under Defense Atomic Support Agency (now Defense Nuclear Agency) sponsorship.

Although local (early) fallout is caphasized, the data presented will be useful to those studying world-wide (delayed) fallout as well. In this report local fallout is defined as all fallout which consists principally of the larger particles that are deposited within 24 hours after the detonation. World-wide or delayed fallout is defined as fallout which consists of very small particles which descend very slowly over large areas of the earth's surface.

Into resulting from each U.S. detonation are presented chronologically. For each detonation, the basic information useful for an interpretation of the fallout data is tabulated first. This is followed by both on-site and off site fallout patterns where available. A graph of the growth-rate of the cloud and stem is presented next. Wind speed and direction are than tabulated as a function of altitude, and hodographs are drawn from these data.

EXPLANATION COMMENTS ON DATA PRESENTED

Fallout Patterns

One or more fallout patterns are given for each event, except for those shots for which no sigificient residual radiation was observed downwind of GZ or for which no patterns were found in the literature. In the remarks included on the basic data sheet for each shot, the individual fallout patterns are discussed briefly; some comments are made for those shots for which no patterns were available. The doserate contours for the fallout patterns have been drawn to show the gamma dose rate in roentgens per hour, three feet above the ground, in terms of the one hour after burst reference time. The t^{-1,2} approximation was used when no actual decay data was available to adjust radiation measurements to the one hour reference time. It is important to recognize the H*l hour is used as a reference time, and that only the contours from low yield weapons are complete at one hour after burst. For high yield weapons, fallout over some parts of the vast areas

shown does not commence until many hours after the burst. The time of arrival of fallout is indicated on some of the fallout patterns by "dot-dash" lines. The time lines are intended to give only a rough average arrival time in hours as estimated from the wind reports and the available monitoring information.

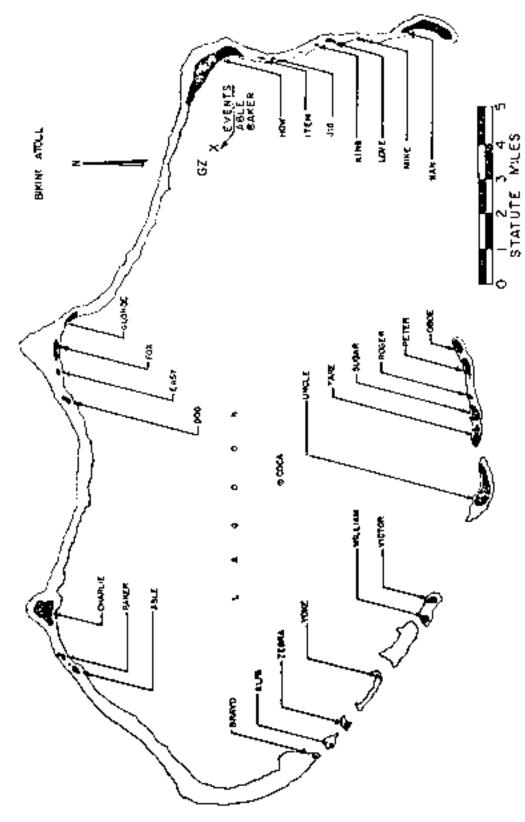
Induced Activity Patterns

The contamination resulting from low air buests is due primarily to the activity induced by neutrons which are captured by certain clements in the soil, notably sodium, manganese and aluminum. The resuiting radiation field is circular and covers a limited area about ground zero. Weather conditions have very little influence on the location or spape of the induced radiation pattern. However, increasing the moisture content in soils can increase the induced activity levels. The rate of decay of the induced radiation field is different from the decay of fission products and depends on the composition of the soil over which the weapon was detonated. For Nevada soil, the sodium and manganese composition generally varies by a factor of 1.4 to 2 and the aluminum composition varies by a factor of 3 to 7 within and between test areas. For most induced activity patterns in this report, a general neutron-induced decay curve for Nevada soil was used to extrapolate the observed dose rates back to H+1 hour. For a few induced activity patterns, Na²⁴ decay is used to extrapolate the observed dose rates to H+1 hour. This decay rate is not serietly applicable but it closely approximates the observed decay.

Wind Data

The tables of wind data give surface and upper our winds for heights up to at least the top of the nuclear cloud. These data are presented for times as close to shot time as possible and for several times after shot. Directions are in degrees from which the wind is blowing, and are measured clockwise from North. Velocities are in statute miles per hour. The height of the tropopause at shot time is given when available. Although the meteorological data were taken in close proximity to ground zero, they do not necessarily represent the wind field downwind from ground zero in space and time.

The hodographs are drawn for a constant balloon rise rate of \$,000 ft/hr and are presented for illustrative purposes only. The fall rates of particles vary considerably with altitude; therefore, errors will result from the use of a constant fall-rate hodograph for fallout prediction. In general, particles in higher altitude levels fall faster and the percentage change in the falling rate is greater for larger particles. The numbers on the hodographs represent altitudes in thousands of feet. The associated points represent the locations on the surface where particles having a constant fall-rate of \$,000 ft/hr would land if they originated over GZ at the altitudes shown. The letter S on the hodographs stands for "Surface" and the number next to it in parenthesis (for the Nevada shots) is the site elevation of ground zero in feet above MSL.



Pigure 1 Operations CHOSSACADO, Short Beneficons.

OPERATION CROCKROAIG -

Able

DATE: PFG 6159 GMT 3C June 1956

TIME: 0900 2200

<u>SITE</u>: FPG - Bikini 11° 37' 10"

Sypnostic IASL and 000.

110 371 10" N 1650 291 76" E

Site elevation: Sea level

POTAL YTELD: 23 kt

Installation purson: 320 as

TYPE OF FUSCT AND FLACEMENT: Air bushs over water

FIREWALL DATA:

Time to let minimum: NM Time to 2mh maximum: NM

Radius at Sni maximum: ~ 576 ft

gioth bur smithth: 40,000 of Med-

CLOUD ROTTON ECTIVATION OF A LEVALUABLE

<u>OMCLA (40%) - A constan</u>

REMARKO:

The residual radiometricity on the set we self was limin C_{ℓ} (w. pay, radiometricity, greater than 0.1; year (% given were there is also only .) venuels. The residual reducentivity in the wave raging (e_{ℓ}, e_{ℓ}) was negligible.

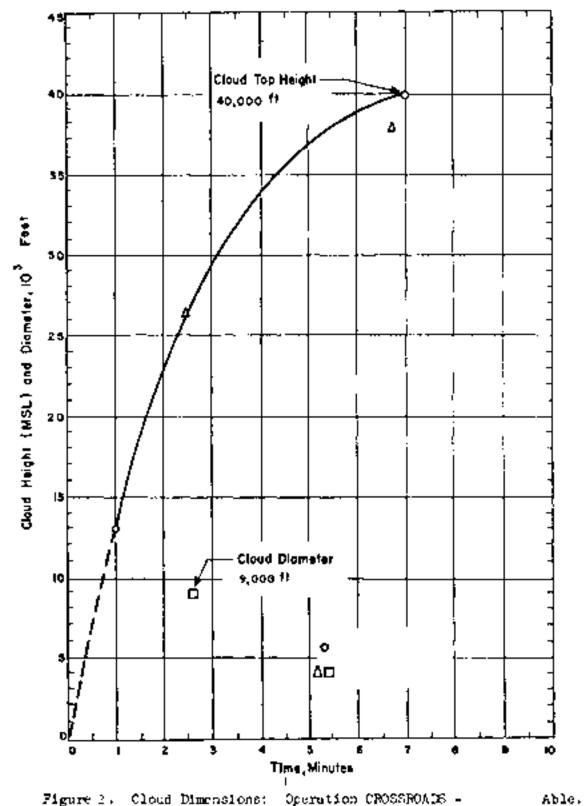


Figure 2. Cloud Dimensions: Operation CROSSROADS -

TABLE 1 HIKINI WIND DATA FOR OPERATION CROSSBOADS,

ASILE

Altitude	H≖hou	H-hour		urs .	H*© ho	.1].;;
(MSL)	Dir	Speed	Dir	Speed	Dir	Speed
feet	degrees	epn	degrees	mbu _	degrees	ab;r
Surface	(070)	(09)	045	09	030	98
2,000	130	15				
1,000	130	16	130	16	120	14
5,000	$(1\bar{3}5)$	(26)	(130)	(15)	(120)	-(2k)
6,000	140	17	130	711	120	15
6,000	120	13	120	24	020	26
10,000	(120)	(19)	130	17	370	36
12,000	120	oΒ	110	16	130	27
24,000	100	10	110	10	970	53
15,000	100	C3	020	06	C#O	06
20,000	33 0	05	150	17	170	99
25,000	180	09	280	05	230	θή
30,000	340	07	330	95	310	05
35,500	34C	02	őéc	06	Čalm	Cal
Ĺo,opo	ό 70	09	360	25	350	28
45,000	030	36	330	31	3 2 0	32

NOTES:

- 1. Numbers in purentheces are estimated values.
- Surface wind data was obtained on Bikini; upper wind data was obtained on board the Mt. McKinley.
- Tropopause height was 54,000 to 60,000 feet (exact height is uncertain).
- 4. At H-hour the surface air pressure was 14.68 ps;, the temperature $27.2^{\circ}\mathrm{C}$ and the dew point $23.4^{\circ}\mathrm{C}$.

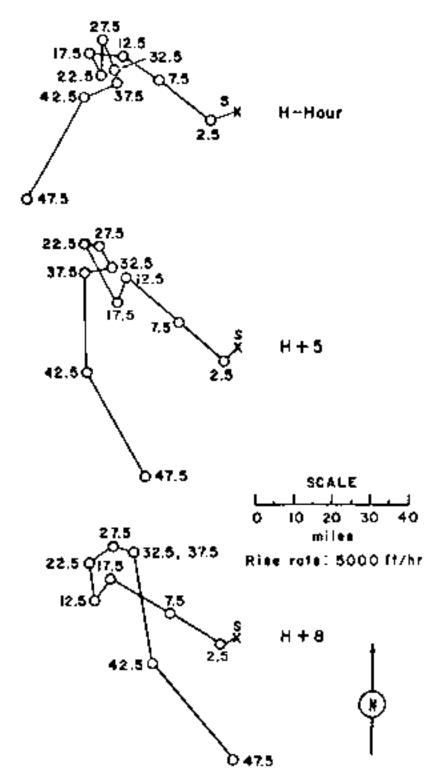


Figure 3. Hodographs for Operation CROSSEGADS

- Able.

OPERATION CROSS ROADS -

Baser

VOTAL YTHID: 93 kt.

FIREBALL DATA:

Class to let platement SM Pime to 2nd maximum: SM Radins of Cal saximum: SM Sponsor: LASE and 1000

\$176: PPS - Bikini - Noor H.w. 100 377 10" N 1650 297 28" E Site electron Sea Jevel

HOUGHER OF BURNEY - *(0) FU

TYPE OF REST AND HACEMENT OF SECURITY OF S

CLOUDER PROGRAMMENT OF CARLEST MADE

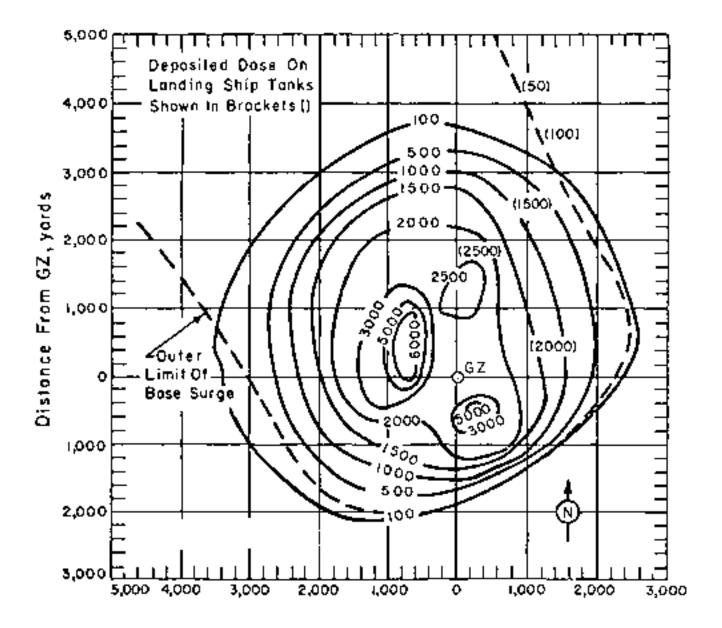
CRACKF_MAI/:

Događe v zastali i nastanici La do nastanici Događe v zastanici

REMARKO:

The contamination pattern is unreliable. The appearance resistance used for the pattern were obtained from the total accordance and by first hodger valleated between DtO cays and DOS in a first respectively, on the target vescels diminished.

At the present extent the base carge extended about 2,000 yd gwiss, 3,00 yd arrawind and 4,000 yd downward. "The contamination results I (people), it is redirective room from the machinous head reinforces a resist by coronactive of the base surge. Ideally there should have been in some for infinite adose pattern as a result of fallout from the sites expensed the runs of head. This ideal pattern was changed because of the intermittent behavior of the rain-out and because of the varying delicity of the different target ships to retain the fallout activity."



Distance From GZ, yords

Figure 4. Operation CROSSRCADG - Raker. On-site dose rate contours in r/by at H+1 hour.

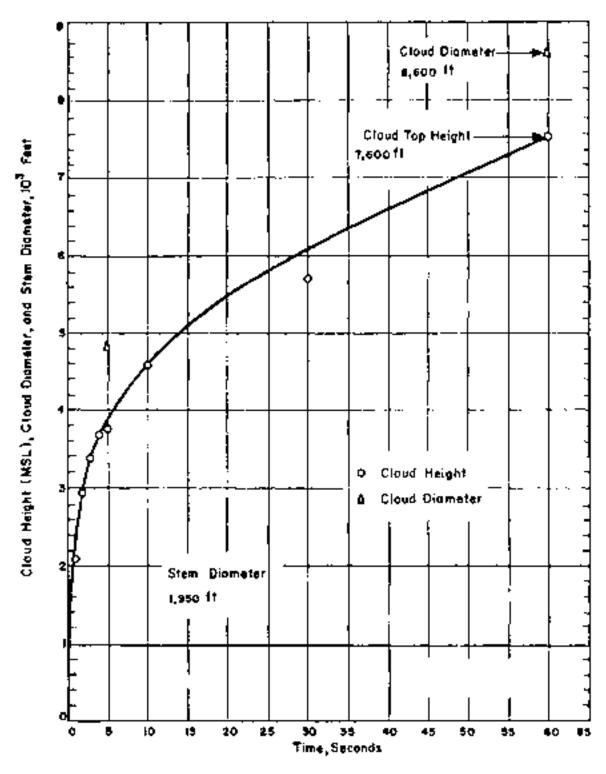


Figure 5. Cloud Dimensions: Operation CROSSROADS - Buker.

Althode	((=))(000) *		Altitude	H-hour	
(N231-)	Direction	Egregal	(555is)	Direction	(Trees)
fect	degrees	աչ։ իւ	feet	ರ್ಷ-೧೯೩೩-೧೯	mysi
Surface	200	c3	19,000	080	09
2,000	160	12	15,000	c80	09
4,000	160	12	16,000	080	13
6,000	150	09	20,000	145	09
8,000	150	05	25,000	05G	15
)0,000	320	09	30,000	glig.	20
12,00	:20	14	35,000	960	32

NOTEST

- Surface wind data was obtained at (if) hour or Piking; upper wind data was obtained on loans the "Poll Piver."
- Tropographe belief: Ann. \$4,000 to \$6,000 feet (exact beight to uncertain).
- At H-hoor the surface air pressure was 18.48 psi, the temperature 28.0 C and the dew point 20.000.

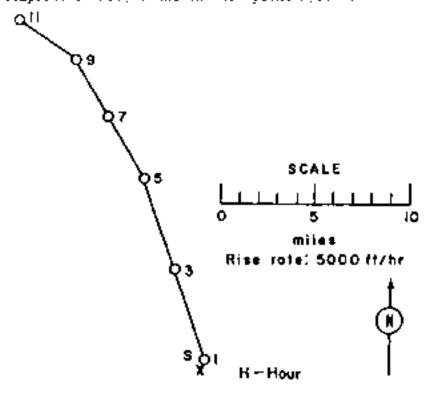


Figure 6. Hodographs for Operation CECGSECADS -

Eaker

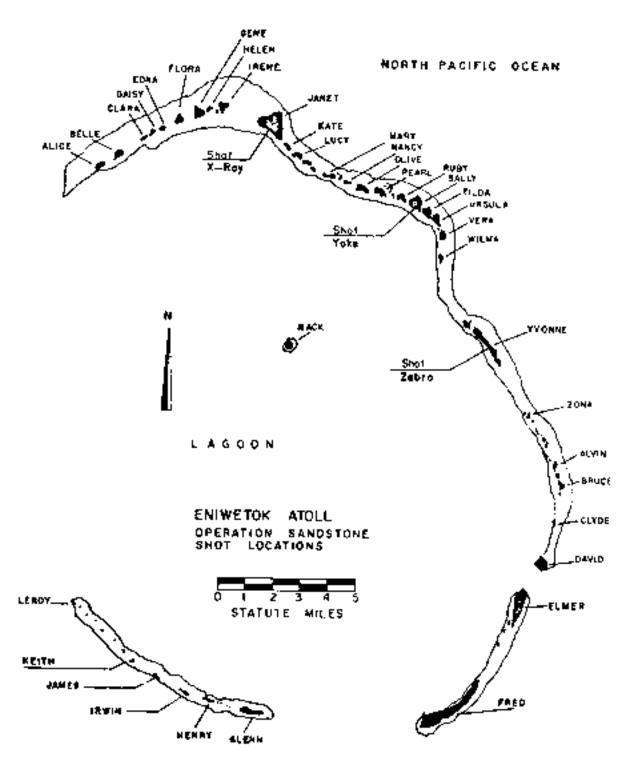


Figure 7. Operation SANDETONE, Shot Locations.

OPENATION DANIESTONE -

Xelbay

<u>PFG Fine GMI</u> <u>PVFS: 15 Apr 1948 14 Apr 1948</u> <u>TIME: 9617 1817</u>

Sponsor: [A0].

<u>707/01, 37112,05 - 37 ke</u>

SITE: PPG - Emiwatok - Junet 13° kor N 260° 364 37° B Site elovation: Sea Jove:

HEIGHT OF MINOR: 200 ft

TYPE OF ED. O AND PLACEMENT TOWER BURET COMPUTER CONTRACTOR

FIREDVEL DATA:

Time to let minimum 124 Time to Sad magnast: 124 Radina at Sad maximum: 124 OFATES SAUNT Not available

RFMAR(CO)

No fallow pattern available. Regionston uses one were taken from Ground Zero and showed a decay . Also much settivity sue to $Na^{2.6}$ was observed. Gloud resolve the transpasse in 12 minutes.

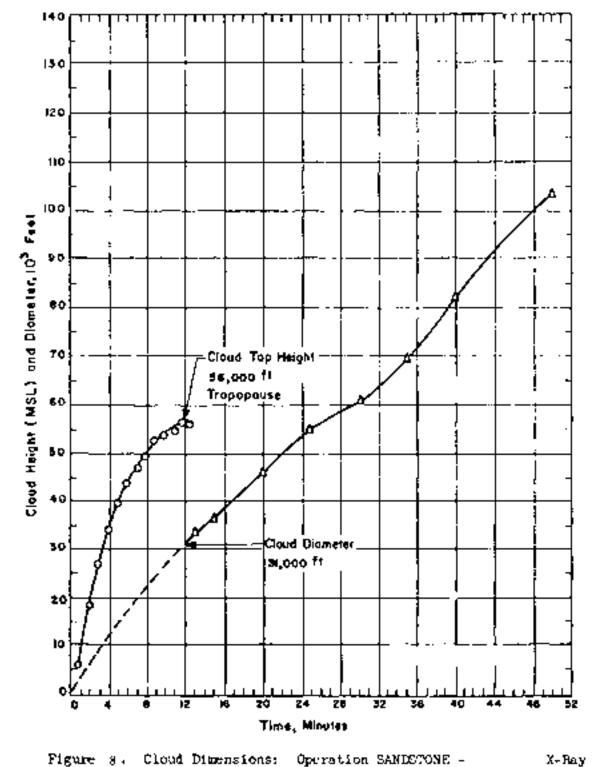


Figure 8. Cloud Dimensions: Operation SANDSTONE -

TABLE 3 ENTWYPOK WIND DATA FOR OFFMATION CANDSTONE -

X-RAY

Altitude	H-hour		2+21 hb	6.To	2[4](10)	(T)
(MLF)	E.r	Speed	No.	(2) end	Dis	Sycto
feet	degrees	mp/s	deganes	aph	destrops	mpř.
Surface	090	10	090	12	070	16
2,000			100	15	020	23
4,000	••-		100	12	090	23
5,000	100	14	(100)	(1P)	(095)	-(25)
6,000			090	12	100	25
B,000			110	21	690	23
10,000	130	14	130	15	các	16
12,000			120	13	C8C	12
19,000			140	09	970	29
15,000	150	09	(1i.0)	(09)	(075)	(08)
16,000			140	10	086	Oγ
18,000			31.0	09	360	07
20,000	160	09	140	G25	210	22
25,000	230	10	220	175	120	69
30,000	2342	11.	210	15		
35,000	220	23	210	21		
40,000	220	15	PRO	21		
45,000	220	314	220	37		
50,000	230	23	230	20		•-
55,000	220	3 <u>1</u> ;	•	•-		

NOTES:

- 1. Numbers in parentheses are estimated values.
- 2. Tropopause height was 55,000 ft MSL at 2-hour.
- 3. The H-hour wind data was estimated by the USAF weather station
- on Enlevtok Island. The R+2 and R+3 hour winds were measured. 4. At H-hour the sea level pressure was 1190 mb, temperature 75°F, and the dew point ?1°F.

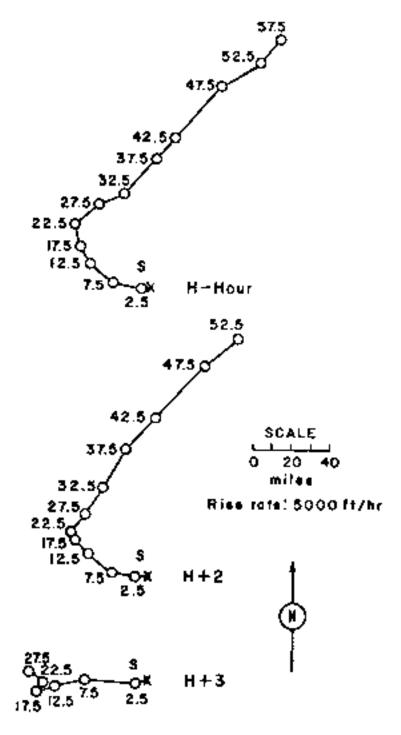


Figure 9. Hodographs for Operation SANDCTONE - X-Ray.

OPERATION CASSISTONE - Yeller

PPG time DATE: 1 May 1948 30 Apr 1948 T1ME: 0609 1800

> SICE: EPS - Entwember - Sally 11° 37° 40° % .62° 19° 27° E Site clavations (key level

Sponsor: JACL

201XI; Y130-D; 49 KC

HEIGHT OF POSSESS OF STREET

TYPE OF BURNT AND PRACESSOR: Tower hare: over coral soil PIREDAGO DECRE

Time to lot minimum: 375 Time to 2nd maximum: 224 Radius to 2nd seximum: NM

CLOUD TOP THE PETE 124.000 OF MIL

CRATES DATE: Not available

REMARKS:

No fallout pattern available. Cloud resched topogrape in 12 minutes. Yoke rain-out was observed on Kwajalein at HOSE hours; rain fell for 10 hours and the maximum activity observed was \$ to 10 tr/hr.

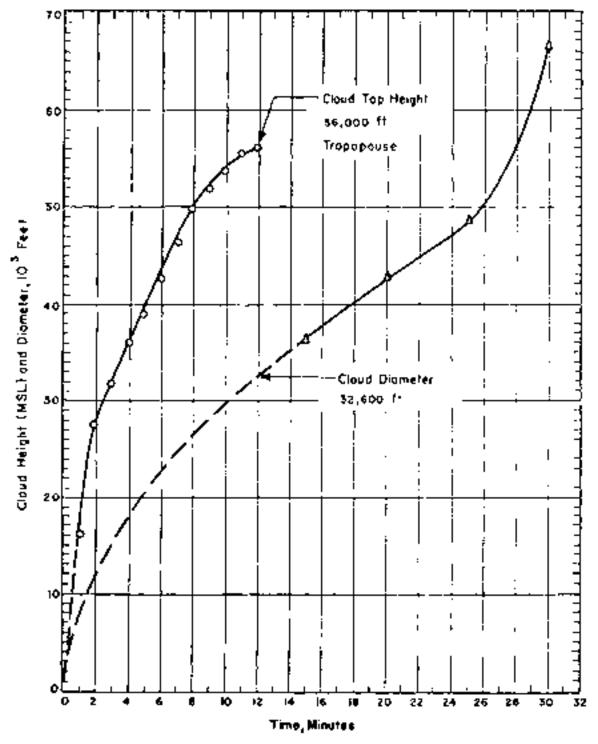


Figure 10. Cloud Dimensions: Operation SANKATONE -

TABLE 4 EXIMITE WIND DATA FOR OPERATION SAMESTONE - YOKE

Altitude	H-Som		BF3 Rotes		
<u>(MDL)</u>	18 m	Bg ped	13.5	Speed	
feet	degrees	tog fo	degrees	mji!.	
Sanface	050	16	0/0	:5	
2,000	•••		C//C	3)	
4,500			090	i.7	
9,000	090	1.14	170	97	
6,000			180	26	
10,000	160	12	150	39	
14,000			c <u>8</u> 0	4.5	
15,000	290	077	090	59	
16,000		•-	100	28	
20,000	820	12	170	14.63	
25,000	210	16	250	70	
30,000	210	24	270	97	
35,000	230	4-8			
40,000	210	27			
45,000	210	54			
50,000	200	59			
99,000	200	AC.			

NOTES:

- 1. Tropophuse neight was entimpted to be $\mathcal{F}_{0}(\mathbb{R}^{3}) \cong \mathbb{R}^{3}$ which Balance 2. The N-hour wind data was obtimated by the N-AP weather station. on Eniwetek Island. The H+3 hour winds were measure t-
- 3. At M-hour the sea level pressure was 1050 mb, the temperature 79°F, and the despoint 72°F.

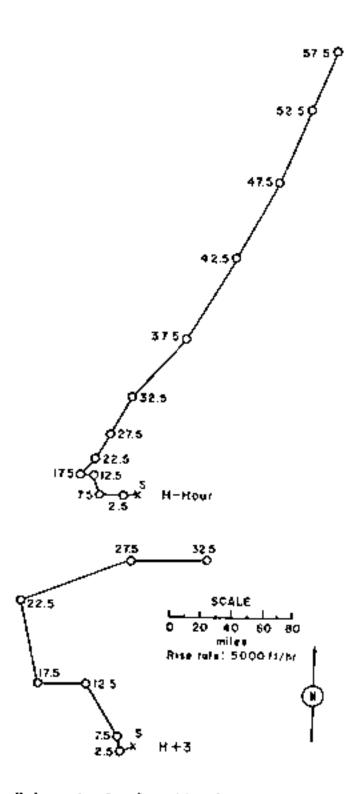


Figure 11. Hodographs for Operation SANDSTONE -

Yoke.

OPERATION SANLOYONS -

2cbes

77ME: CSO1 1804

TOTAL YELD : 18 kt

FIREBALL DATA:

Time to let measure MM Time to End montrorn MM Redius at End wextens: MM Sponson: IAGL

SITE: HG - Eniwotek - Yvistor

 $\frac{110}{168^n} \cdot \frac{33^n}{21^n} \cdot \frac{13^n}{24^n} \cdot \frac{11}{21^n}$

Site Clevelion: See Sevel

RETURE OF RUBLES IN COLUM

TYPE OF ECULY AND I (ACCOMMENT)

Tower become over course in it.

CLOUD TOT HATCHT: PROJECT SOLD OF MOD.

CRATER DATA: Not available

REMARKS:

No fallost polices asserbly.

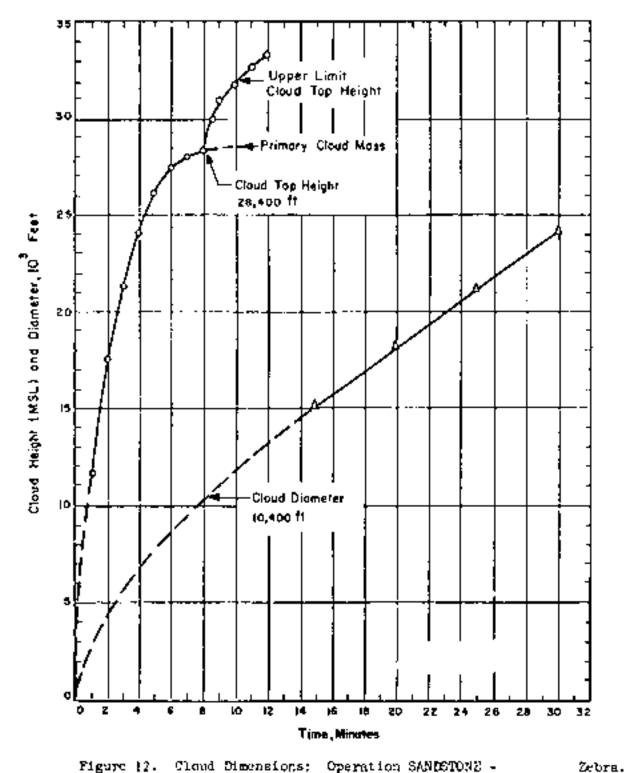


Figure 12. Cloud Dimensions: Operation SANDSTONE -

TABLE 5 KNIMETOK WIND DAMA FOR OBUNATION SANDTONE - ZEPRA

Altitude (ASS.)	!!+)\:::0 :		(f12 h	if42 hours		il#3 hoors	
	Dir	Spared	12.5	Speed	Dir	Sylves	
feet	degrees	ոբե	ರೇವಾಲಕ	mp n	degrees	mpa.	
Surface	otto	10	100	02	290	09	
2,000	100	17	110	15	100	J	
5,000	130	13	110	- 25	110	jl,	
10,000	220	13	190	12	220	1l.	
15,000	550	3.77	260	C7	699	C9	
20,000	SEO	21	250	20	260	234	
25,000	250	31	560	29	250	36	
30,000	270	50	260	45	270	36 44	
35,000	280	30	260	6	290	I_1I_1	
40,000	270	83	290	48	290	56	
45,000	27C	40	780	4.6	270	35	

NOTES:

- 1. Propositise beight was 50,000 feet MML at M-weigh
- 2. The H-wind data was estimated by the UCAP weather abstion on Enjectsk Island. The MtS and H43 Lour winds were measured.
- 3. At H-mour the sea level providers was dld mt, the temperature 81°F, and the deviceint 76°F.

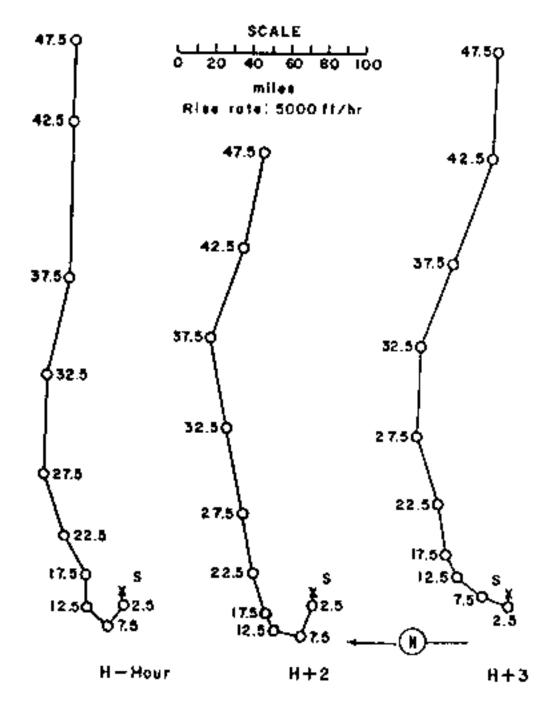


Figure 13. Hodographs for Operation SANDSTONE -

2ebra

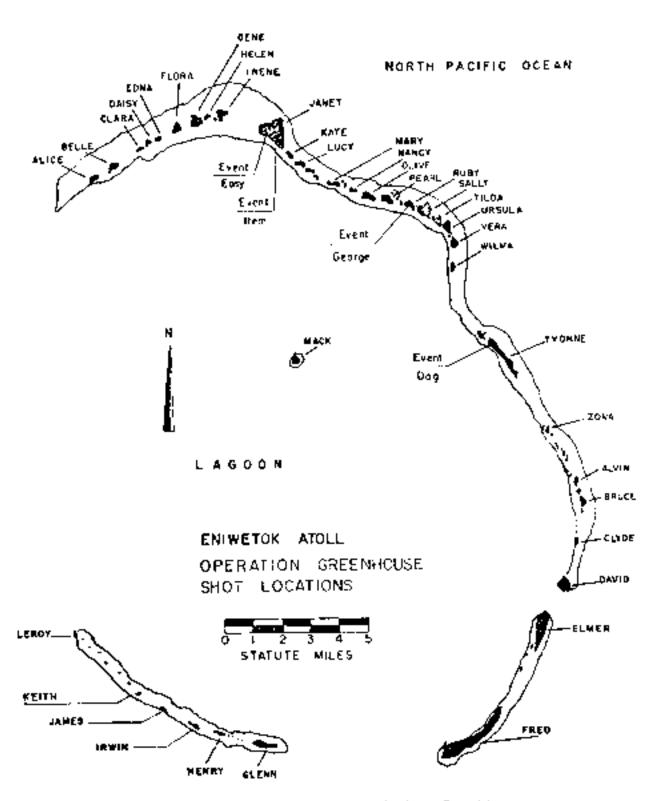


Figure 14. Operation CHERNHOUSE, Shot Locations

OPMATEOR GREEDORGE -

Dog

Sponson: LASS.

SITE: FIG - Eniwetik - Yvenne 11° 33' 71" N 162° 21' 16" R Site elevation: Jua level

REIGHT CA RUNCE: 300 to

TYPE OF MURBER AND ENACTORING Tower burnet over bless and li

CLOUD TOR HADDER: 96,000 ft Mid-CLOUD BOTTON DETORT: 33,000 ft Mid-

REPORTER:

The dose-rate readings were corrected to B*1 hour by applying the to "2" law to measurements made by the Radiological Safety organization. Measurements to Yverte were mide at H-Symbological Safety of the measurements were obtained from a policopter flying at an altitude of 10 to 20 feet above the product. These readings may therefore be low by as them as 70 to 50 percents. The wind spear at along Micold feet accounts for the higher done rates on the south-eastern part of the stall, as compared to the southern end of the chot island.

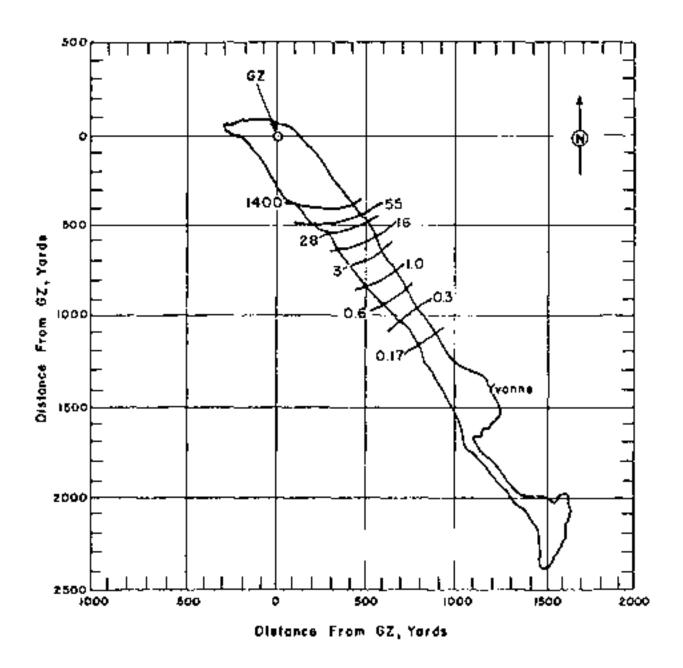


Figure 15. Operation CREENHOUSE - Dog.
Shot - Island dose rate contours in r/hr at H+1 hour.

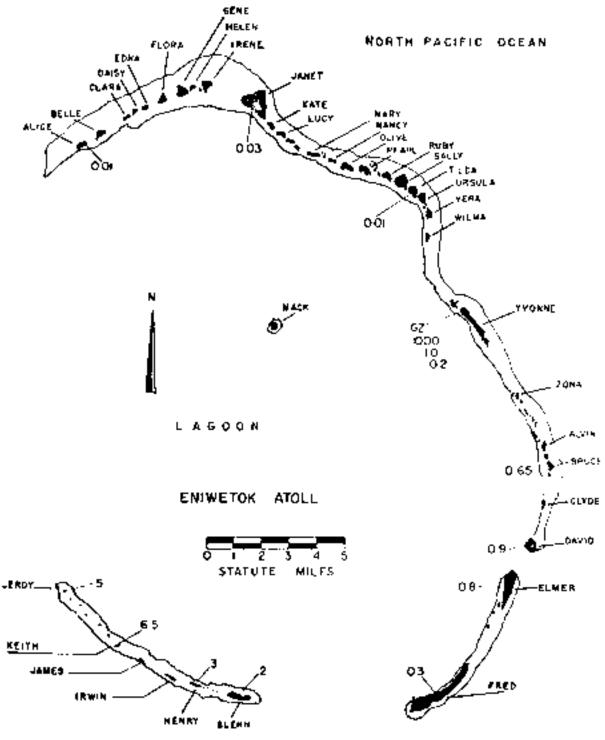


Figure 16. Operation OREHNHOUSE - rates in r/hr at H+1 hour.

Dog. Atoll dose

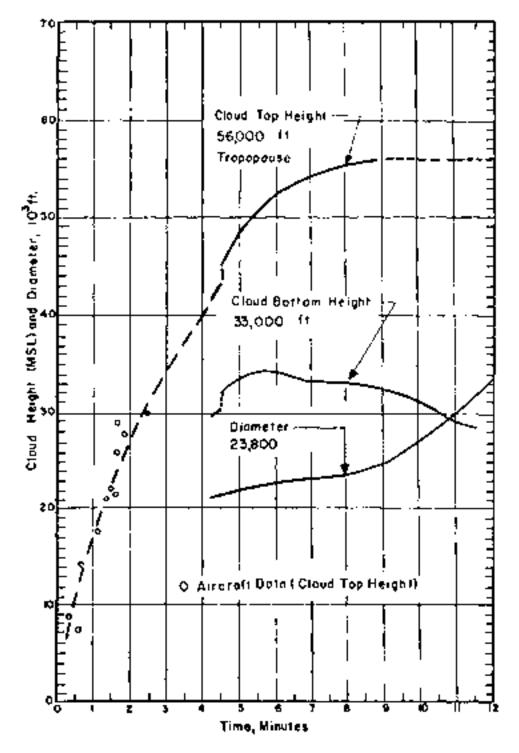


Figure 17. Cloud Dimensions: Operation GREENHOUSE -

Dog.

Altitude	%=ho	0.11	25 62 5 Hz	01:25.1
(M21)	Dir	Space	Dir	Speed
feet	sugres	արի	degrens	Trigodo
Surface	070	22	o%s	21
4,000	030	33		
5,000	(080)	(30)	090	24
6,000	686	26		
10,000	086	22	200	25
14,000	070	21	676	29
15,000	(070)	$\langle \mathcal{D}_{T} \rangle$	(075)	(85)
16,700	ογο	29	970	24
20,000	030	22	U),O	88
25,000	300	15	340	177
301,000	გნ ა	32	\$1900	29
35,000	820	59	230	Pa
40,000	220	33	230	37
AS GOO	280	26	200	9)
50,000	310	55	330	63
99 (noo	340	32	360	36
60,000	ნვი	33		

NOTEST

- 1. Numbers in parentheses are elemented value. -
- 2. Tropopause height was 55,000 ft MSL at M-hour.
- At M-hour at a pressure of 1000 mb the temperature was 25°C and the dew point 22°C.

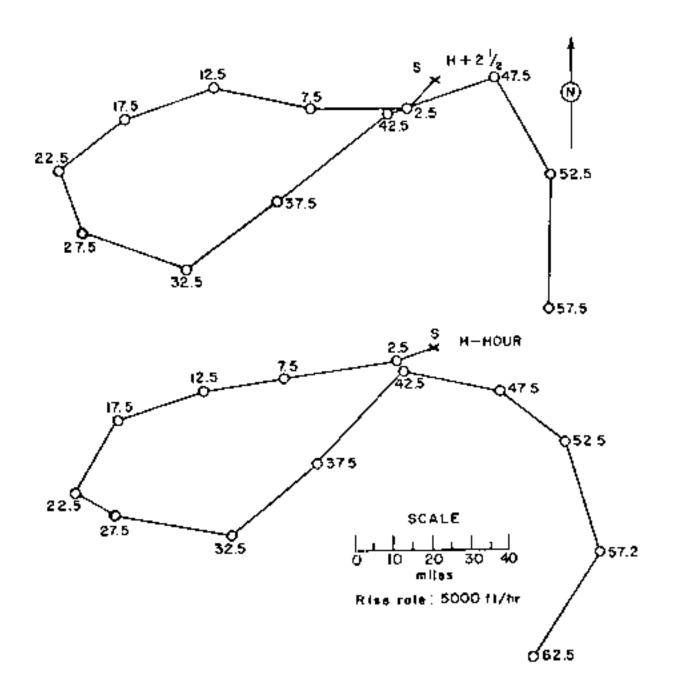


Figure 18. Modographs for Operation CREENWOUGH -

Dog.

OFFICATION CRESCAROUSE: -

Ensy

22 Apr 1991

Sponsor: IASL

DATE: 1827 OCTO

SITE: FES - Paiwetok - James 11° 90' 68" N 1622 164 20" E Site elevation: Tea level

TOTAL Y151.01 47 kt

<u>982,680 GP B68</u>50: 500 CC

TYPE OF PIREL AND PRACTORING Tower Lipti wer grand and.

PERSONAL PROPERTY.

Time to let minimum: 19 to 29-5 more Time to 2nd maximum: 100 to 230 msec

Radius at 2mi maximum - NM

CLOUD TOP SELECT: Assume in MEA.

CRATER PATA: Dismestor: 836 ft.

Depths 2.4 50

RIMARKS:

The follows readings on the shot follows were obtained by the Radiological Sufety organization at Marchiners and corrected to H+2 hours, using the t²⁾⁻² decay appropriation. Some rates shown for other islands are based upon daily survey; which to determine field decay rates. Readlings were made I meter stove the ground with gamma ionization shambers. The values shown were corrected to S+1 hour by extrapolating from the experimental decay curves. There was a wind shear at about 15,000 feet.

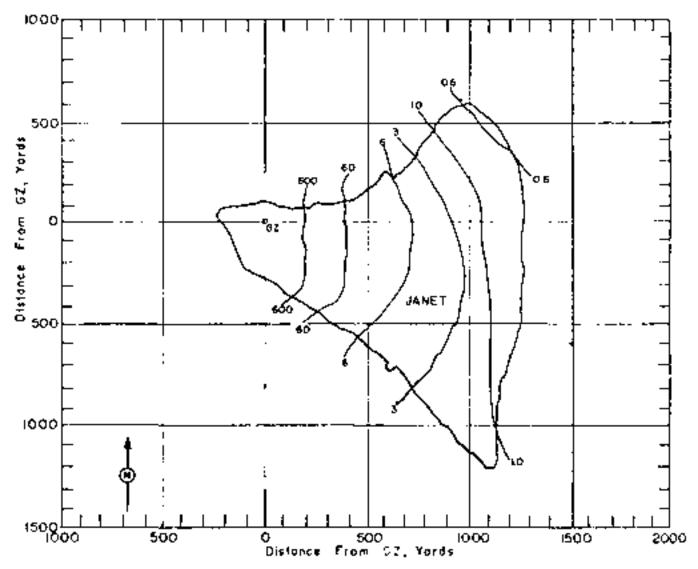


Figure 19. Operation GREENHOUSE - Easy. Shot Island dose rate contours in r/hr at H+1 hour.

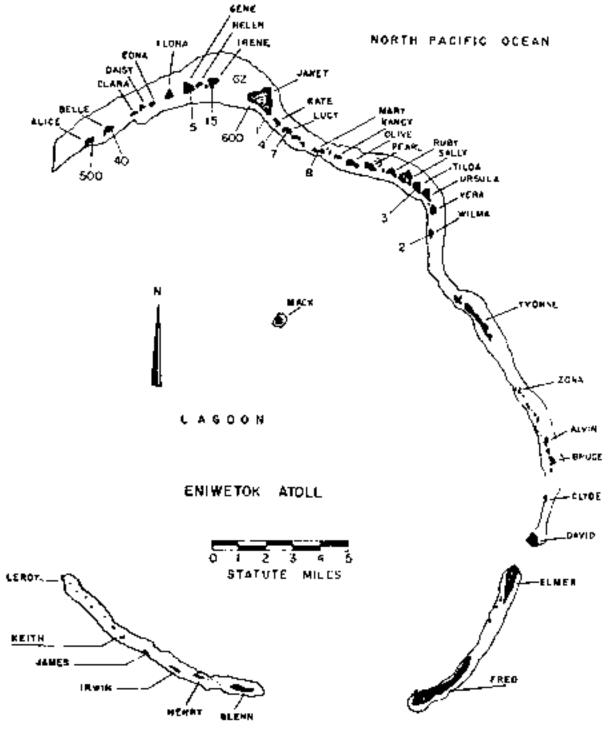


Figure 20 . Operation CREENHOUSE - rates in r/hr at H+1 hour.

Easy. Atoll dose

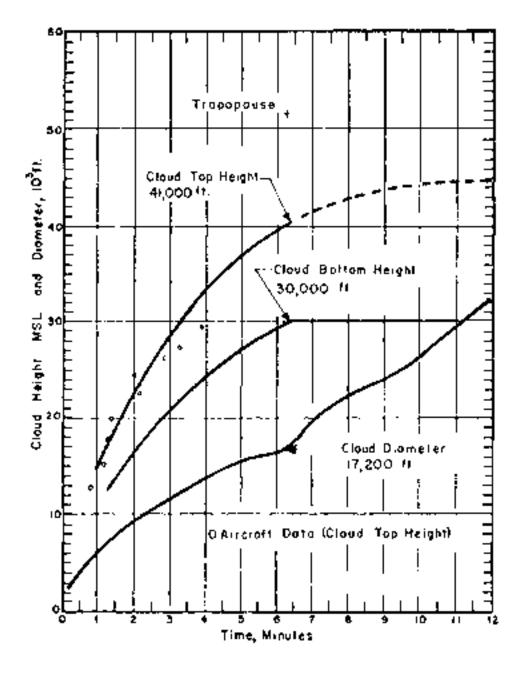


Figure 21. Cloud Dimensions: Operation CRESHNOUGE -

Fasy.

TABLE 7 ENIMERON WIND INCOMES OPERATION CHEENINGER - SAME

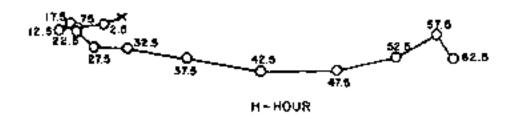
Altitode	_71-35 8	ROUTS	R∘ho∷	r	li#85 b	9037	(i+3): 1:	(371 37 6)
(920.)	Dir	Speed	Dir	Speed	Pir	Special	Hir	Spend
feet	degrees	wt u	degrees	mpn	26/75/00/8	πp).	degrades	mį li
Surface	050	26	060	16	070	17	eye	20
5,000	100	09	080	13	eye	36	O(X)	06
10,000	070	ca	690	96	100	65	200	1%
04,000	200	03			270	077	210	::::
15,000			24C	96	(230)	(v:r)	(230)	(0.3)
16,000	280	67			270	Col	26%	100
20,000	310	93	33C	Oi.	363	(c)	Calm	01.5
25,000	320	13	350	13	30%	93	540	2.45
30,000	260	20	270	26	270	15	270	400
35,000	270	28	280	31	200	77	5.40	44.5
40,000	260	32	280	3-1	2/50		270	-,.,:
a9,000	760	3%	777.0	36	: 67	3.7	197	20
50,000	2000	26	560	3.1	29.5	,	27/0	25
55,000	350	35	240	275	244	: .:	2730	
60,000	330	15	330	25				

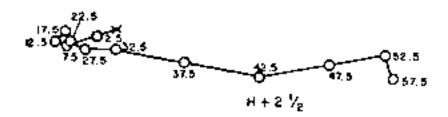
NOTES:

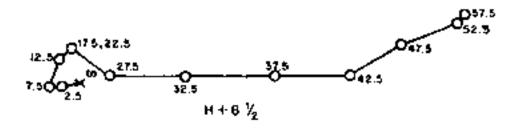
- 1. Numbers in parentheses are eclimated was seen
- 2. Hehour values were determined by interpretating termed. The Hey and 842% hour values.
- 3. Propopulate height was 53,000 ft MSL at Behaur. 4. At Helman at a pressure of 1,000 mb the temperature was 25°C and the dew point 2000.



Rise rate: 5000 11/hr









Stgure 22. Hodographs for Operation GRESHOUSE -

Dasy.

OPERATION CREENHOUSE -

George

PPS time (247)
DATE: 9 May 1991 8 May 1991
Time: 6930 2130

Sponsor: LASL SPTE: PPG - Entwotch - Poby $\frac{11^{6}}{16^{2}}$ $\frac{37^{1}}{16^{2}}$ $\frac{37^{1}}{16^{2}}$

HELSHI OF BURET: 200 ft

TYPE OF BURST AND PLACEMENT: Tower burst over cora, soil

CLOUD TOP HELGIT: 56,000 ft MSL CLOUD BOTTOM (MAIGHT: 41,000 ft MSL

REMARKS:

The survey readings on the shot island were obtained at E+24 hours and extrapolated to H+1 hour arrays the t-1-2 decay approximation. Since the winds were from the west-southwest throughout their entire structure, no radiation reading higher than twice background was observed on islands beyond 2,000 yards from ground zero.

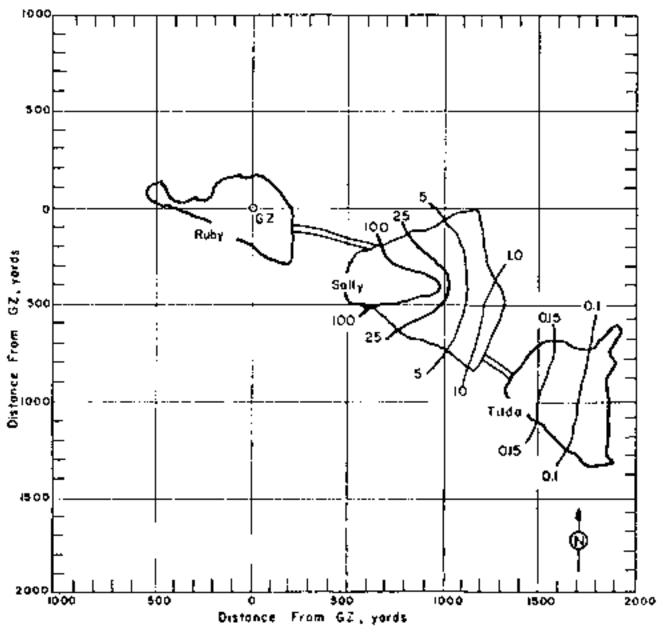


Figure 23. Operation GREHTHOUSE - Coorge. On-site dose yate contours in r/hr at H+1 hour.

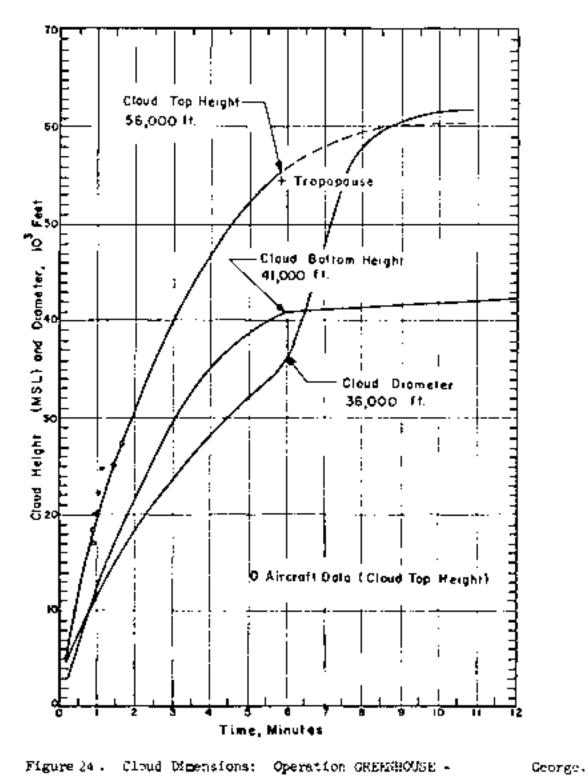


Figure 24. Cloud Dimensions: Operation GREENHOUSE -

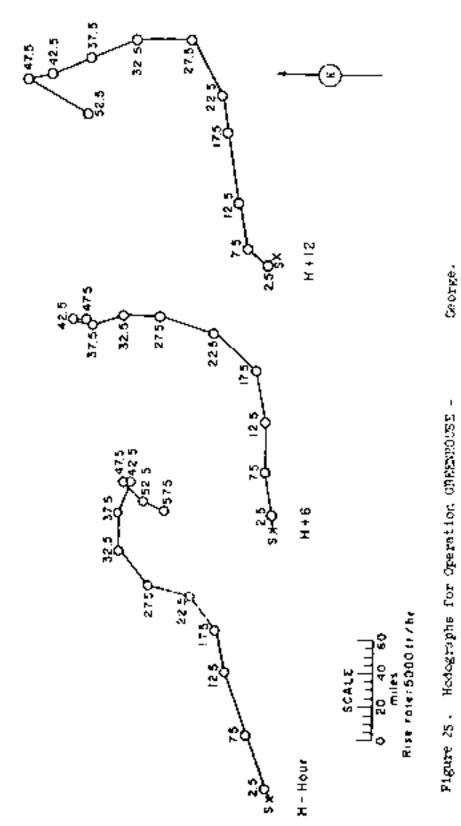
TABLE 8 ENLYSTON WIND DATA FOR OPERATION GREETHOUSE -

GRORGE

Altitude	ii-1.50	1-	Fit⊙ ha	เมาะ	BC12 hours	
(MSL)	Di y	Creak	Dir	Speak	Date:	Cgmed
fect.	degrees	Tegota	degrees	ngsh	dugroes	mjih
Surface	840	14	260	16	130	12
4,000	260	35		¬ -		
5,000	(250)	(32)	260	25	550	15
6,000	250	31				
10,000	250	Ļ8	270	31	260	26
14,000			260	90	270	0.1
15,000	260	76	(260)	(31)	(260)	(20)
16,000			260	32	560	39
20,000	230	23	220	38	560	23
25,000	190	25	200	23	240	37
30,000	230	51,	380	20	180	33
35,000	270	50	260)8	160	ΞŢ
⊾o,oco	890	18	200	13	160	26
45 jeco	170	60	020	07	170	16
50,000	310	15			030	üι
55,000	čec	12		• •		

NOTEST

- 1. Numbers in parentheses are estimated values.
- 2. Tropopause height was 55,000 ft MSL at Mathour.
- At N-bour at a pressure of 1,000 mb the temperature was 27°C and the dew point 23°C.



Pigure 25. Hodographs for Operation ORESHOUSE -

OPERATION GREENWOUSE -

31 gm

	PPG Titler	CMT
DATE:	75 May 1 61	75 May 1951
$\overline{\text{TIME}}$:	04/17	1817

Spansor: IASL

STTE: PFG = Entwotek - James. 11° 40' 25" U 160° 14' 55" E Site elevation: See leve!

RELOTE OF PRICES: PCC CO.

TYPE OF EUROT AND FLACTORY:
Tower burnt over yours fork

CHOOR TOP BESTORY (ACTION OF MARK

JOMARKS:

The purvey reading of the shot island, Sanot, were obtained by the Radiological Safety Organization at H+34 and H+72 hours and extrapolated to H+1 hour by the tiled decay approximation. Most readings were obtained from a helicopter flying at an altitude of 10 to 20 feet and the observations were considered representative of readings 3 feet above ground. Such reveings may be low by 20 to 50 percent.

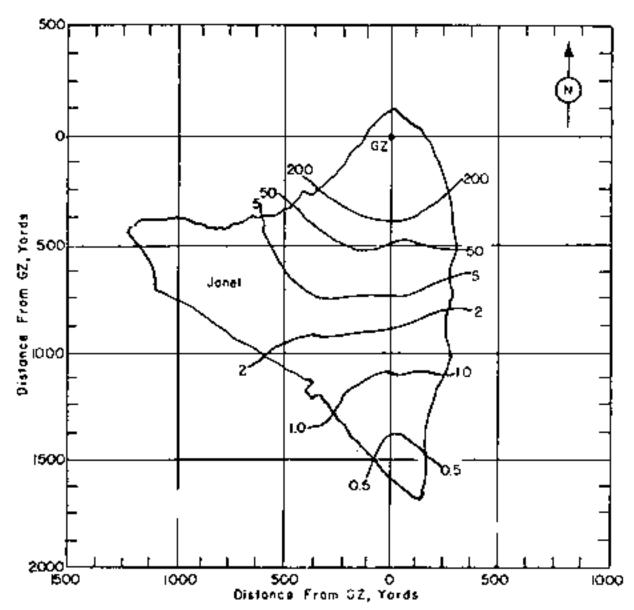


Figure 26. Operation GREENHOUSE. - Item. Shot Island dose rates in r/hr at R+1 hour.

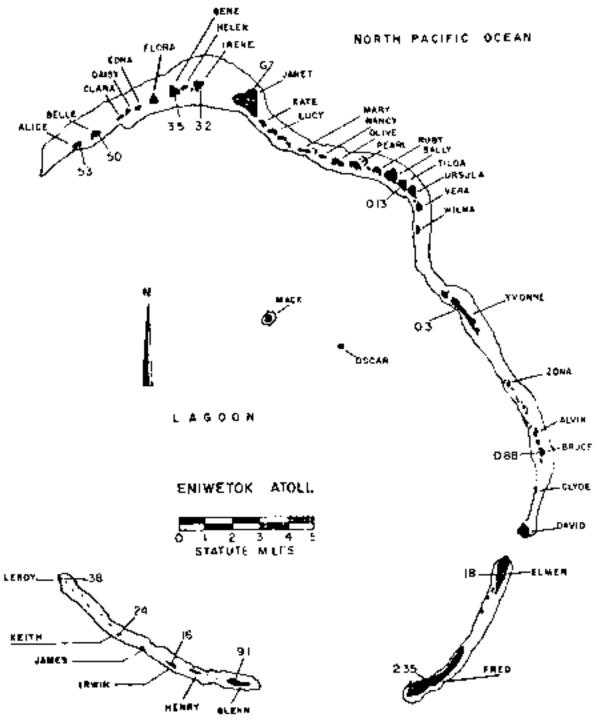


Figure 27. Operation GREENHOUSE - rates in r/hr at H+1 hour.

Item. Atoll dose

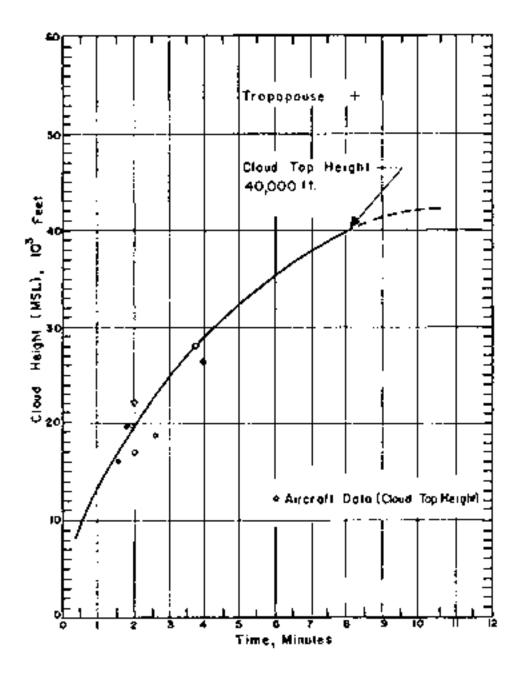


Figure 28. Cloud Discessions: Operation CREENHOUSE - Item

TABLE 9 ENTERTOR WIND DATA FOR CHERATION GREEDHOUSE -

ITiM

AT Li tyale	il-Xaner		H 0727 Th	Ottma	Badga Teatures		
$(M^{(1)})$	Dir	Sinceri	Dir	Sprind	0:1	Syrred	
feet	dufferes	rgan	qu@arees	मार्टिः	degrees.	mp/;	
Surface	070	15	суо	28	оус	15	
5,000	090	16	080	17	090	35	
10,000	090	05	969	62	Calm.	Calm	
14,000	250	10	გენ	10	250	69	
15,000	(260)	(09)	(260)	(09)	(270)	(:0)	
16,000	580	(66)	270	09	290	13	
20,000	290	99	300	10	310	16	
25,000	250	12	360	09	350	13	
30,000	360	10		•-	350)2	
35,000	250	99			250	ე6	
40,000	260	68					
N5,000	150	¢ .					
50,000	330	10					

NOTES:

- 1. Numbers in payonthenes are obtained values.
- 2. Tropopasse height was 55,000 ft MDL at E-hour-
- At B-hour at a pressure of 1,000 mb the temperature was 31°C and the dew point 23°C.

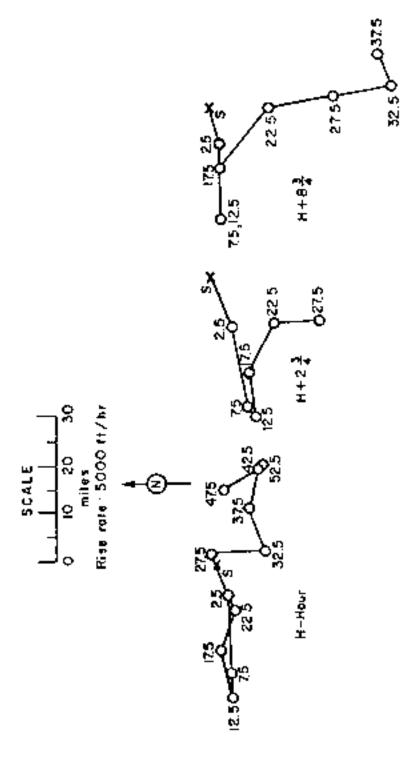


Figure 29. Hodographs for Operation GREEMBUSE -

Itan,

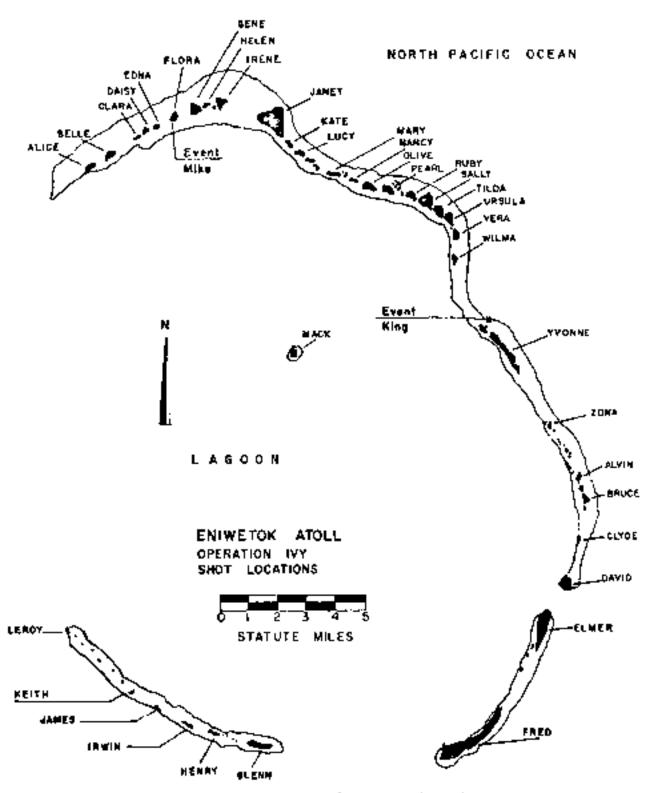


Figure 30. Operation IVY, Shot Locations.

OPERATION IVY -

Mike

PPG time CMT 1 Sov 1958 DATE: 31 Oct 1952 TIME: ¢γ15 1915

Sponsor: LASS:

TOTAL YIELD: 10.4 mt

SITE: FFG - Enivetek - Flora 11° 14' 14" N 162° 11' 41" E Site elevation: Sea Jeval

MEIOMY OF RESET: Eurface

FORESALL DATA:

Time to 1st minimum: 270 to 310 msec Time to 2nd maximum: 3 to 3.5 sec

Radius at 2nd maximum: NM

TYPE OF EUROT AND HIGHMENT: Surface burst on coral soil and water

CLOSE TOP RETORIES 98.000 R MSL CLOUD BOTTOM RELIGHT: 59,000 ft MSL

CRATER_DATA: Diomotor: 6,240 ft

Depth: 164 ft

REMAJUKS:

Most of the fallout occurred over the open sea. Documentation of the fallout was thus limited to the islands and the lageon of Enlectok atoll. The lageon dose rates were determined by multiplying the readings obtained on rafts by the factor 7. This factor is based upon the ratio of Operation Jangle field dese rates and readings taken over flat plates after their removal from the contaminated area. The data presented for the lagoon stations can thus be considered as approximations only. The island dose rates are based upon groundand aerial-curvey readings and were adjusted to M+1 hour by using the t-1.2 law to approximate the decay.

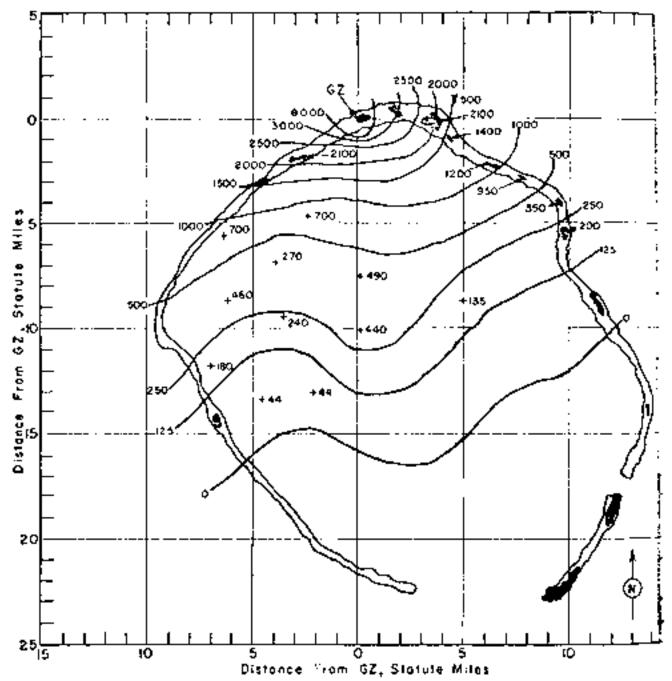


Figure 31 Operation IVY - Mike. Atoll door rate contours in r/hr at H+1 hour.

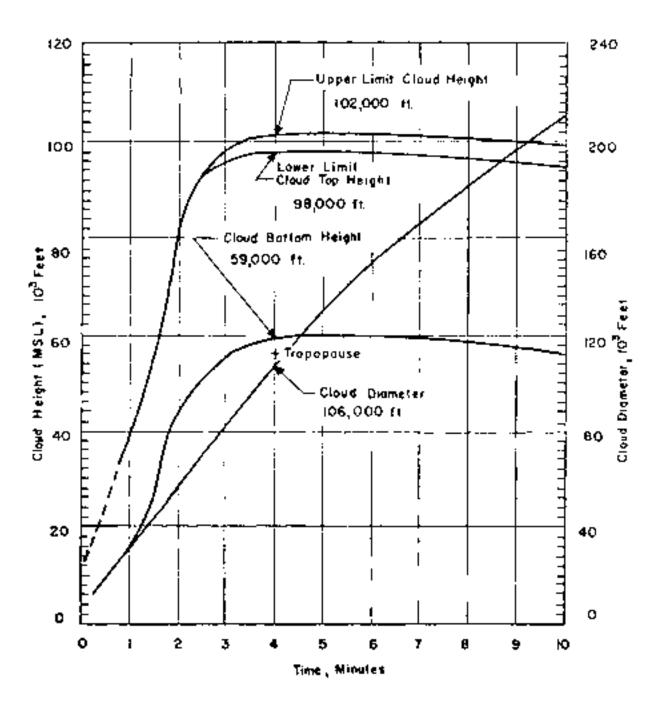


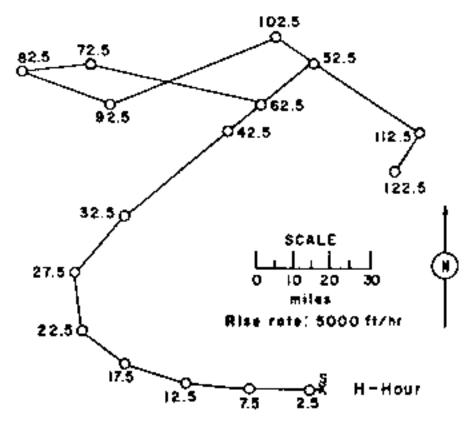
Figure 32 . Cloud Dimensions: Operation IVY - Mike.

TABLE 10 RELATION WIND LATE FOR OFERATION IVY - MIKE

Alleitade	((+1.0.)	177
$(\mathbf{y}; \mathbf{u})$	Die	Speed
feet	degrees	mgri).
Surface	69C	05
5,000	090	16
10,000	095	-7
15,000	115	17
20,000	125	114
25,000	170	19
30,000	520	20
10,000	230	17
50,000	220	±7
60,000	0:-0	69 23
70,000	100	23
80 ,000	C5)	υğ
90,000	≥3€	
100,000	<i>2</i> 50	112
110,000	360	25
120,000	Ö4.0	J-6
130,000	Caim	Calm
135,000	Call m	Calls.

NOTF25:

- Tropopause height was (6,000 ft MND At Header)
 The curface air pressure was (wide p.s., too temperature 29.4°C and the dew point 23.6°C)



Pigure 33 . Hodograph for Operation IVY - Mike.

OPERATION IVY -

Xing

PPG time. 15 Nov 1952 MATER BEN MON POSIT

Sponsor: IAGL

CES: RANG 2330

STTE: PPG - Beef northeast of north and of Yvence 11° 33° 44° 162° 21' 09" €

TOTAL YEHLD: 500 kt

Site elevation: Sea level

FIREMAL DATA:

Time to ili maniform: 42 to 70 mage Time to 2nd saximum: 700 to 550 msec Padius at Indonesiment 1,968 ft.

ROMORT OF DURANT: 1.570 CL

CRATER DATA: No reader

CLOUD FOR SELECT: 67,000 ft MEN. CLOUD PORTON SELECT: 51,800 ft MEN. 67,000 ft M2N TYPE OF BURNS AND FLACTMENCE Air burst over cora, soil and sea water

HPMARKS;

Contamination of the Islands of Eniwetch atoil was generally macked by the contomination resulting from the earlier Mike shot. The mose rates indicated in figure 102 are estimpted taken upon readings taken from helicopters flying 25 feet above the ground. The estimates are corrected for dose-rate levels existing on D-1.

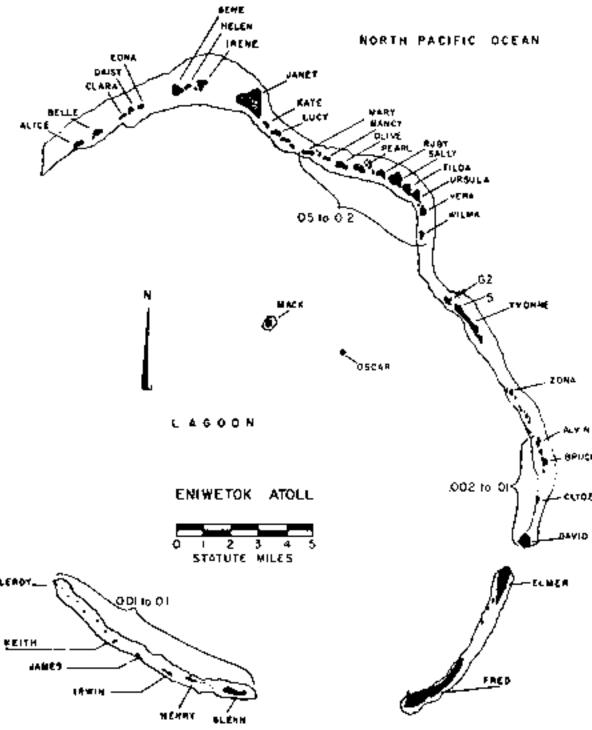


Figure 34. Operation IVY - King.
Atoll dose rates in r/hr at H+l hour.

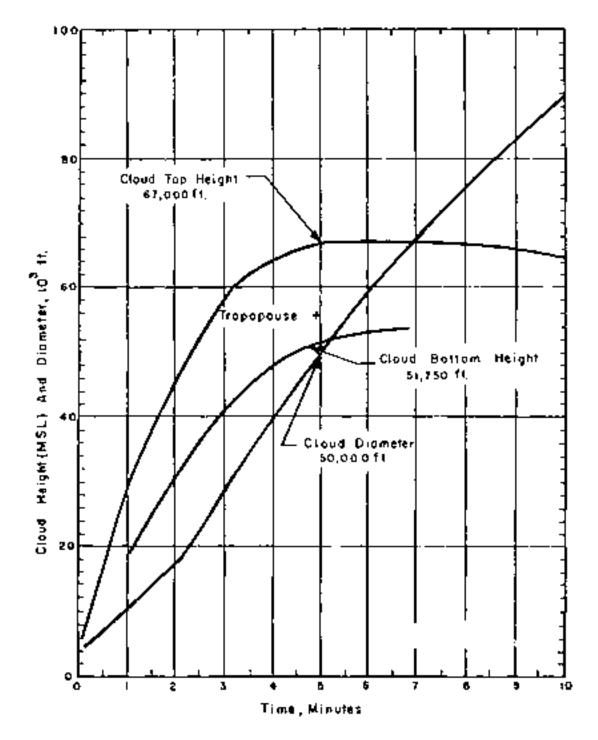


Figure 35. Cloud Dimensions: Operation IVY -

King.

TABLE II FRIWRION WIND DATA FOR OPERATION INY - KING

Aftitaly (RT)	H-hour		iitāja b	IP55 bours		E095 Junior	
	Diam.	Gerret.	ili n	Openia	ill y	Sg e ed	
feet	degranos	mg-!:	degrees	mper	acyted 6	(f.D/)	
Surface	cyc	2°C	686	22	670	20	
5,000	105	23	680	26	690	.00	
10,000	c65	23	cyo	20	090	20	
15,000			070	12	იგი	15	
15,000	069	19					
16,000	096	16	Cho	12	ογο	1.5	
20,000	05.5	20	050	22	546	25	
25 jaxx)	056	2/4	05C	3.3	050	C_{2}	
30,000	วเช	13	310	13	300	0.6	
35,000	(391)	(21)	332	26	260	15	
40,000	305	20	590	۰-۱٫	C70	33	
45,000	(კიუ)	(29)	320	36	280	$I_{\sigma_{j}}$	
50,000	320	30	230	ČS	250	17	
55,000	(w_{\perp})	-(5p)	oße	20	1881	26	
66,000	055	14	09.7	3.3	ωγ <i>σ</i>	4.3	
65,000 -	$(\phi^{\alpha}\theta)$	(17)	090	24	090	360	
70,000	576	27	oyo.	06	130	23	
75,000	p899		330	18.	360	99	
80,688			320	16	340	25	
85,000			31C	09	Ċ2C	(3)	
90,000			320	کن			
99,000			260	32			

NOTES:

- 1. Numbers in parentheres are estimated values.
- Tropophuse height war (6,000 th MSE at H-Lyap)
 The surface air pressure was 15.66 ps; the temperature 28.0°C and the dew point 33.5°C.

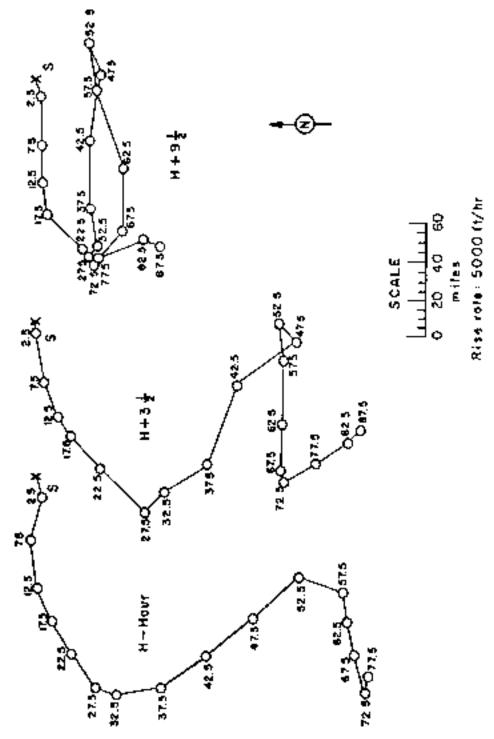
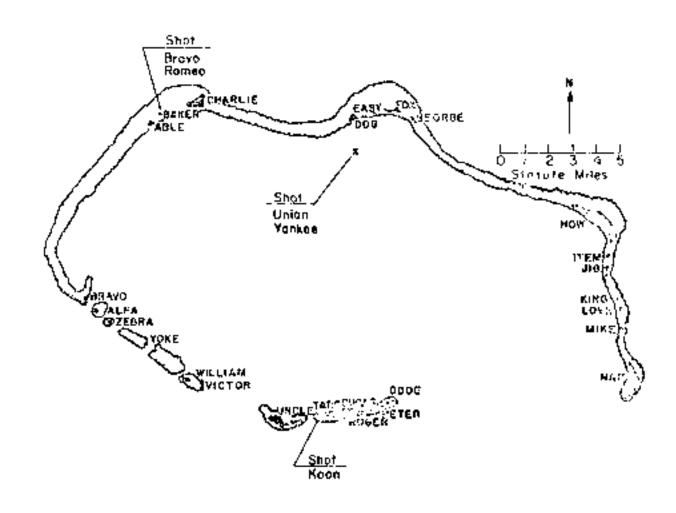


Figure 36. Hodographs for Operation IVY - King.



BIKINI ATOLL OPERATION CASTLE SHOT LOCATIONS

Figure 37. Operation CASTON, Shot Lors Lond.

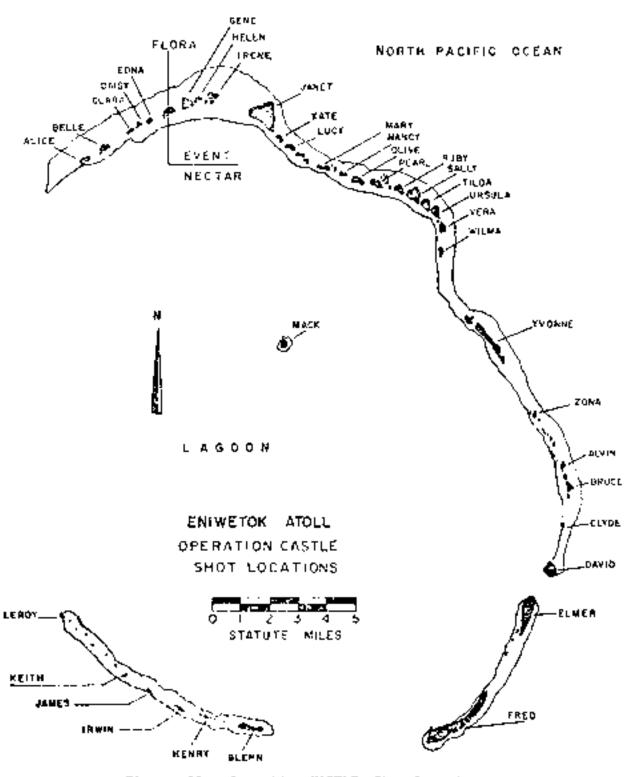


Figure 38. Operation UNSTLE, Shot Tocations.

OPHERICA GRADUATE AT

Bettyo

 $\frac{p_{0}(r_{0})}{p_{0}(r_{0})} = \frac{11\% T^{2} \cos \left(\frac{q_{0}^{2}}{2} \log \left(\frac{q_{0}^{2}}{2} \log \left(\frac{q_{0}^{2}}{2} \log \left(\frac{q_{0}^{2}}{2} \right) \right) \right)}{112\% (1 + 1)} + \frac{12\% T^{2} \cos \left(\frac{q_{0}^{2}}{2} \log \left(\frac{q_{0}^{2}}{2} \right) \right)}{122\% (1 + 1)}$

SAMA YER DO IS HE

FIREWALL WITE

Time to bed manifered [313 to 350 mater Time to God rexisted [314 to 3.95 sec Radio at ind maximum [9,512 ft]

2)The OF process and constructed Sorthern Burst Trees platform on Comes and I Spanigra McL

<u>Olifo</u> 100 - Dikin, - es rect intwoes <u>kanta aced Clert e</u> 1 Posts over N 100 - et eper in Site eterations Sen tevel

sedigian du sinvine un de

<u>COMPANIA DE LA LANCE DE LA COMPANIA DEL COMPANIA DE LA COMPANIA DE LA COMPANIA DEL COMPANIA DE LA COMPANIA DEL COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DEL COMPANIA DE LA COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DE LA COMPANIA DEL COMPANIA DEL</u>

<u>CNATUR (ACA)</u> (Banders of G₂OCO) of Beptits (Academy of Co Bayer Appending worked away

REMARKING

The or-site fallout pattern was constructed from sorrege mean normals of Bibini Atoli, and from complete obtained with the (etal collect or and guarant paper collectors. The free-floating see stations were not in the correct location to receive primary fallout. The data were extrapolated to BH hour by the corposite gamas-ionization-decay curve obtained from complete moment in the laboratory.

This is the only regated that where some downwind had errors were natexpectedly contaminated; thus, partial decumentation of Pallout of Path was possible. However, the regar parties of the tailout occurred over the open area; and was not do mented. Present this that is one of those used as the fluids of failout production for the projection yield wayon, three off-wite fallout protests are presented. The beau widely known pattern is shown in Figure 40. It was constructed it is abled office the event from the preliminary data available as figs, \$75.57. The occount pattern was constructed by MRCS by establishing an experience existing at and after that plus a thorough analysis of the wind structure existing at and after that like was used. The third pattern was constructed by FASO Corp., by supplementing field observations with model concentions.

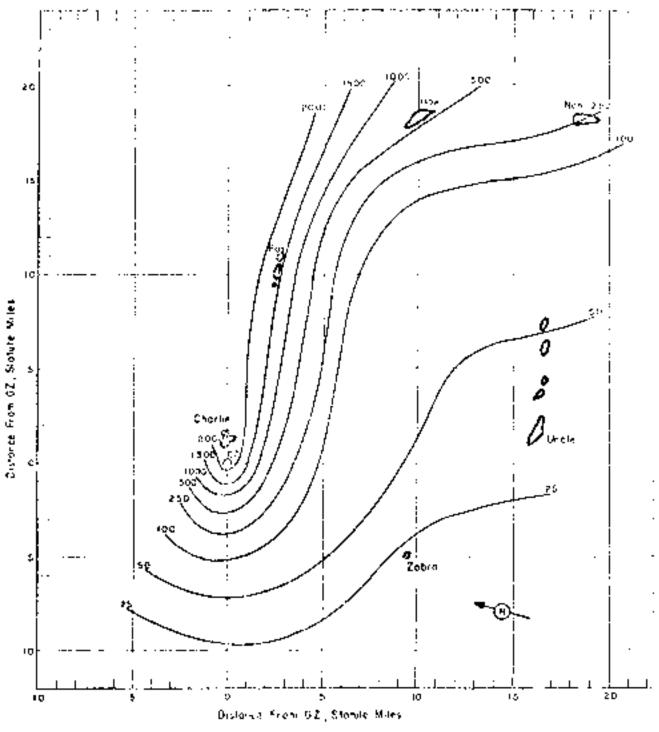


Figure 39. Open of Som CMS GAD - Mercyon Chapter done in the contemns to a /hm at H#1 hour.

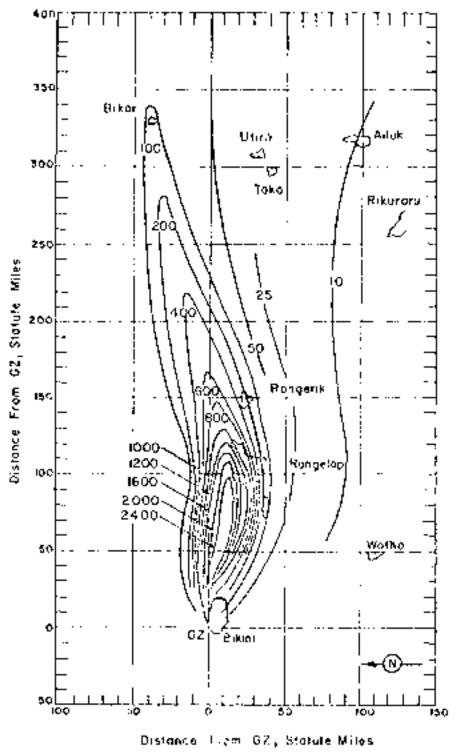


Figure 40 : Operation CCCCEE = Brave.
Off-site dose in the contours in rybr vi. H+1 hour (APANE).

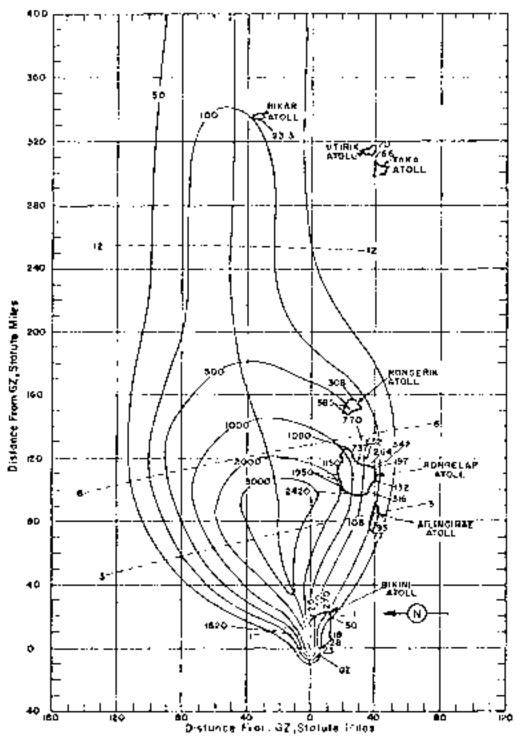


Figure 41 Operation CASTAN - Praye.
Off-site dose rate contours in t/hr at R*1 hour (NREL).



Figure 42. Operation CASTLE - Servo.
Off-site dose rate contours in ryler at H*1 hour (RASE).

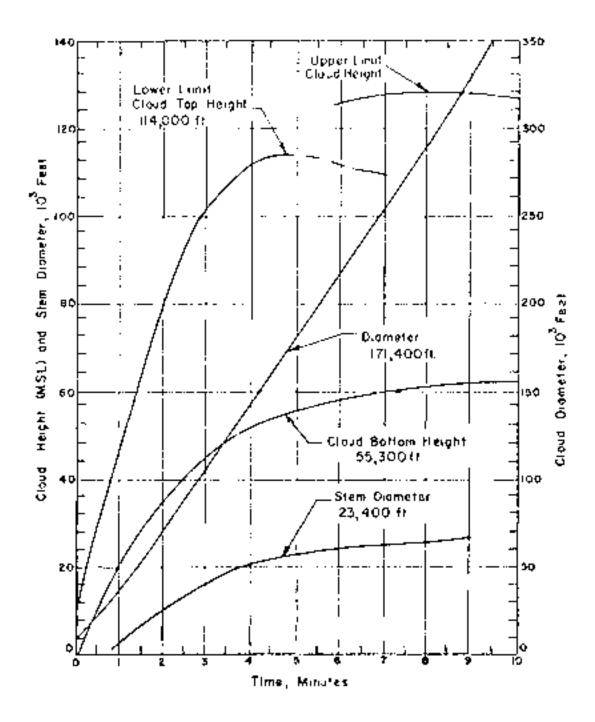


Figure 43. Cloud Dimensions: Operation C/SDE - Brave.

SMEASURED FOR THE SAME OF THE CANCELLINE FOR THE PARTY OF THE PARTY OF

A 100 A				: :	"" <u>.i</u>	
	2		70 m			
	diga.	14.	44.70	: 1 :-		₊ : -
propaga	U (10)	13.	(17.1	. `:	·	<i>:</i> •.
1,00	0.05	14 73				
11.14	6%	7.	070	442	٠	
Silve	66	20		:: (
10 to	Opt.	16	(5/)			
	6.00				(·)	(·)
うだが こう		(::)	(\cdot,\cdot)	(γ)	100	V 17
6.50		100	0306	ir	\$ 10	3.5
7,000	NÜ 3 8 377 31	Cr.				
6,000	2.5	32	3(1)	• • • •	: -:	512
9,000	377	6.5		•-	•	
10,000	53	16	100	1.0	/+	∷.
1276.22	5.5	122	31/41	٠,	4	٠,
1000	100	148	350	.:	₹+. 	,
to all we	(ϕ_{ij})	(15)	(3∞)		(e-5) 3 305 556	(\dot{x})
Triggers and	(2,0)	15	31.0		``	i.
(P_{ab}, e_{ab})	1.56	15	300	. :	3.17	.7
7. 3.3.	039	15	790	100	25	
21 , C 1	(5/0	153	20.0	25	:	15 17 17 1
80,000	250	39	713.4	4		
je jena	1.40	δo	<u>-</u> -		.*	
60,000	(2)3.3	1				9.2
L(r, r, x)	750	9,5			300	- 1
50,000	250	36			i A	4
95,000	1.35	13			350	100
50,000	3.0				570	
27.55		34				

K-7, 201;

The Brook and American Ferritain and Fig. 1 to at an exploration

And Web you would distance to obtain the board of the Matthe Conf. on a

^{3.} Trop games helpful was 75,000 f. Hel.
4. At E-hoor the new level pressure said World rt., to temperature 80°F, the few point 76°F and the relative heartify 77%.

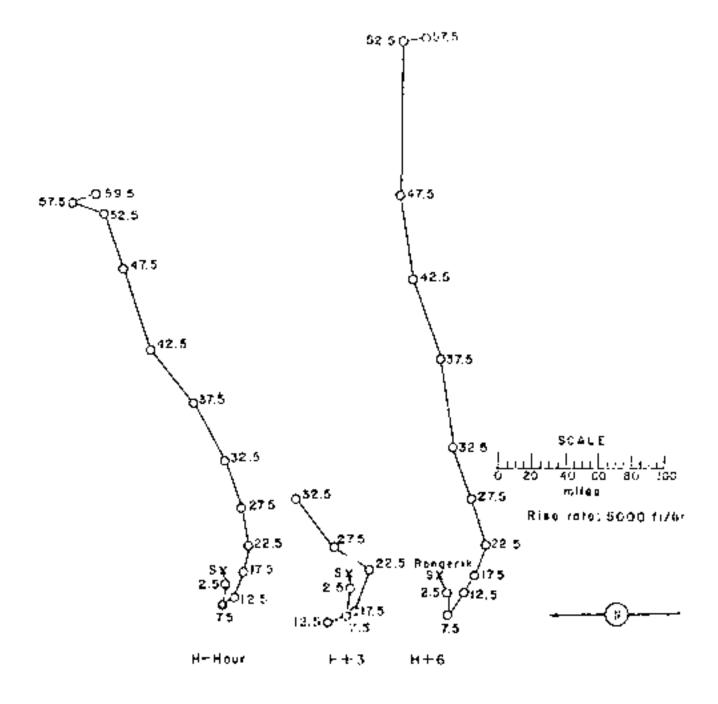


Figure 44 - Hodegraphs for Cymreich 2002 (- Bravo.

C191/A20 00 GAG91/3

10 cm to r

Spot and 126%

TOTAL YIELD: 11 Mt

HIGHER OF SPECIES / CL

TYPE OF PURCH AND PLACEMENT?)

White who expect the transfer with a week at the water mapping of the transfer as well as the contract of the transfer and transfer and transfer and the transfer and transfer and transfer and transfer and transfer

HPZM16000

The Individual laborators rates were taken from marial conveys by the Dadiological Safety one algarism and converted (. 90) has with the table areas approximation. Whe containstica due to provide that we are sufficiently.

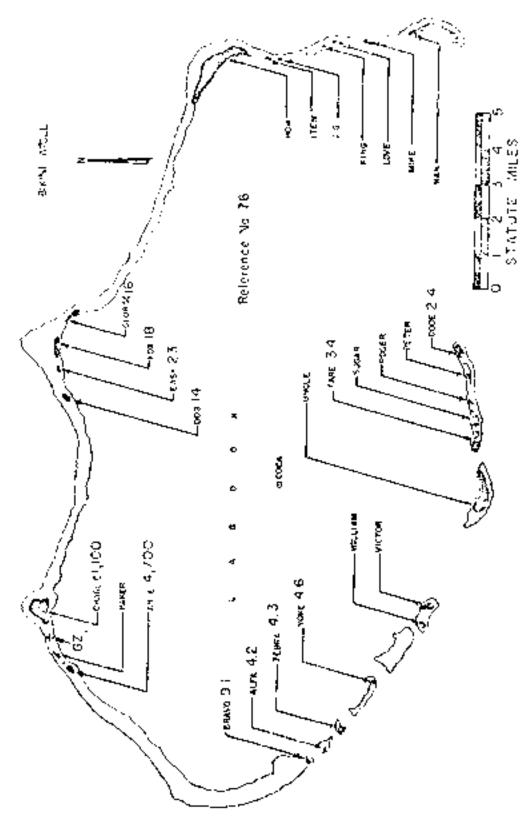


Figure 45. Operation CACTLE . Someon Interest for the street to the street for th

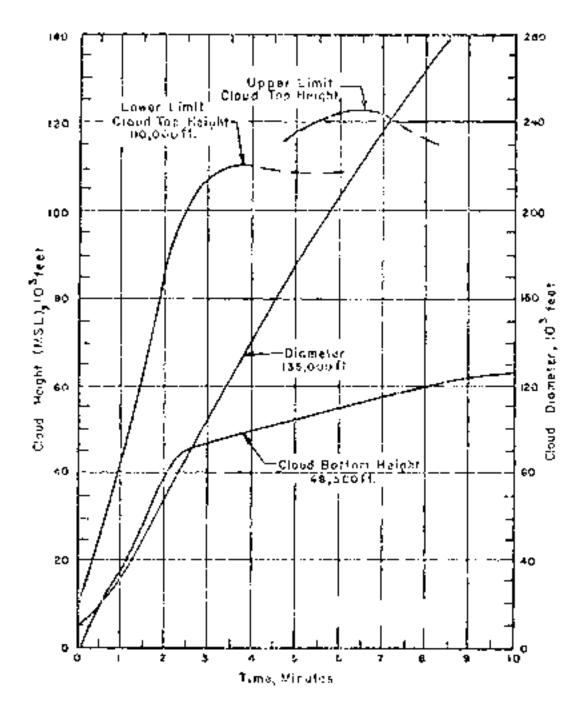


Figure 46 . Cloud Dimensions: Open of ion Chilling :

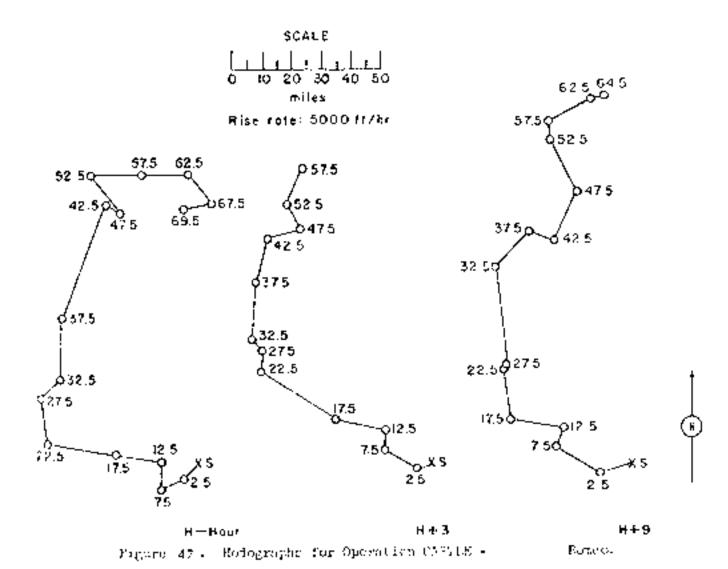
Pear of

TAIGH 13 BIRLS WIND BEGR FOR GARGEOUS CARDING

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us jekk	3 0	06	250	(3)	200	17
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55,000	1770	17	200	342	170	0)
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- In Simbly resimproportion on the continuous values, a
- 2. Wind fata was obtained on board the E. S. S. Cortics.
- 3. Trapapase bright was 55,000 is MIL.
- 6. At E-hour the sea level pressure was 1015th all, the temperature 80°F, the devicent 72°F and the relative hamility 775.



Marin Carlos Artists

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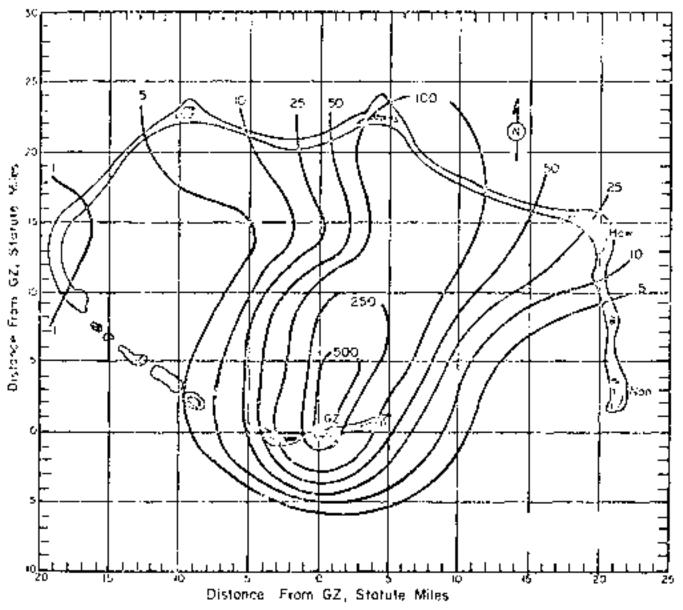


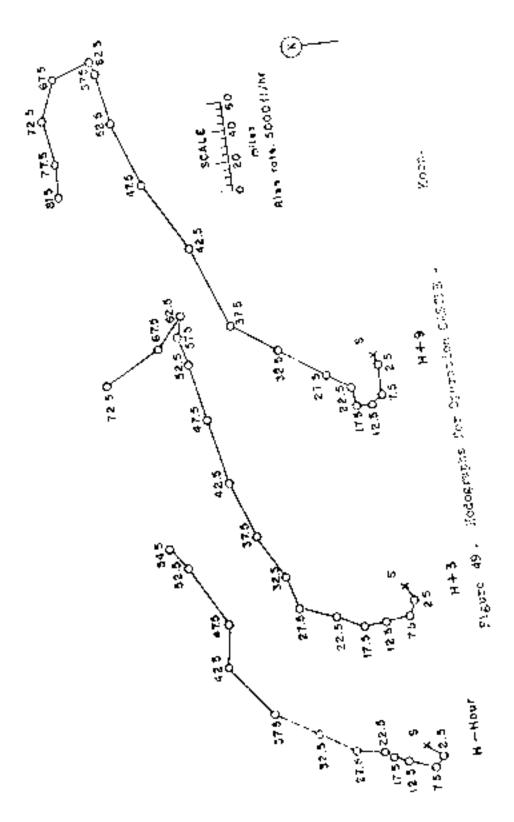
Figure 48. Operation CASTUR = Koon. Charte done note contours in r/h_F at H+1 hour.

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7. (*). (*	Fire constant		1,200	;*		: <u> </u>
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- is finited in presenting, are out as I will en-
- The Wind data was obtained to here, the U.S.S. Conting.
- As Taxanguage engine was SACCO it IDES
- h. At Redwar the second real section was 100007 mb, the temperatures $81^{6}\,\mathrm{F}_{1}$ was new point $B_{2}^{6}\,\mathrm{F}_{2}$ and the december $80\,\mathrm{F}_{2}$



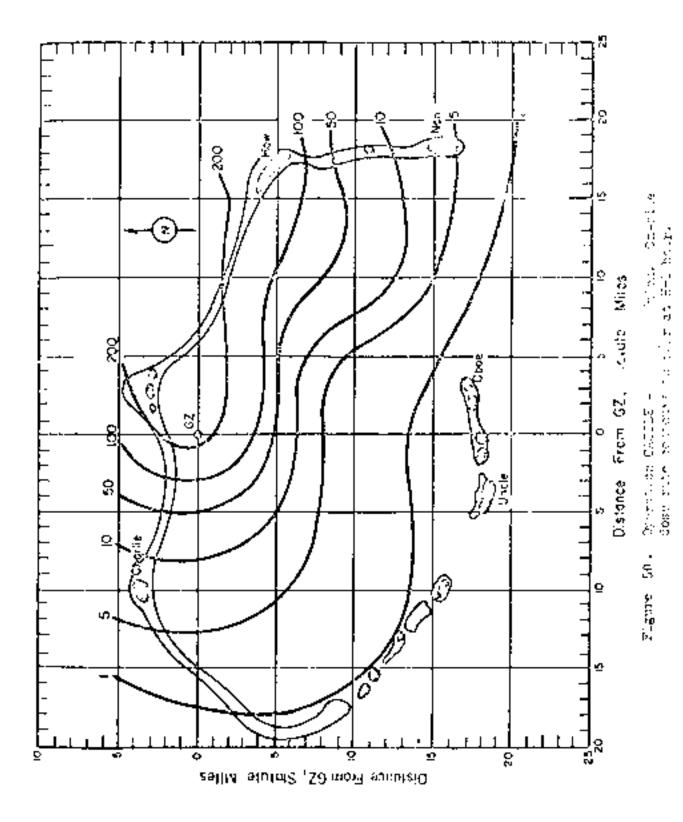
Chapter Charles and Fig. 4

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TOTAL YIELD: 6.9 Mt

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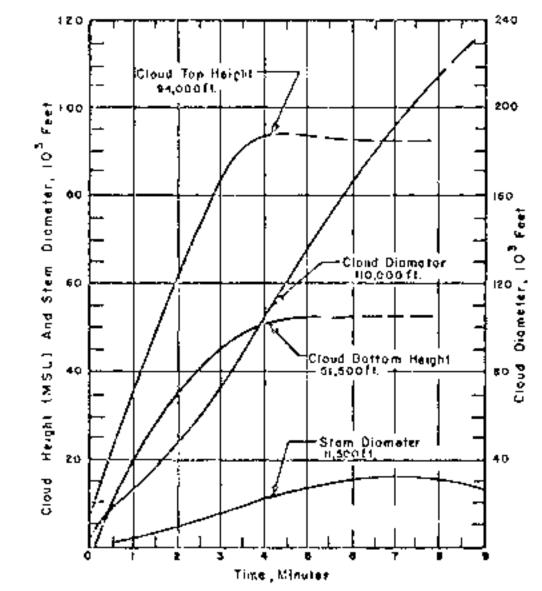


Figure 51. Cloud Dimensional Operation CASCAR -

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الأحيار تكفأ	256	46	260	I_{iG}	100	39
(ω_0, ω_0)	250	7.6	250	4.7	. **	2
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NOTE::

- I. Dumbers in parentheness are evaluated was seen

- 2. While determine obtained on the system the transfer.
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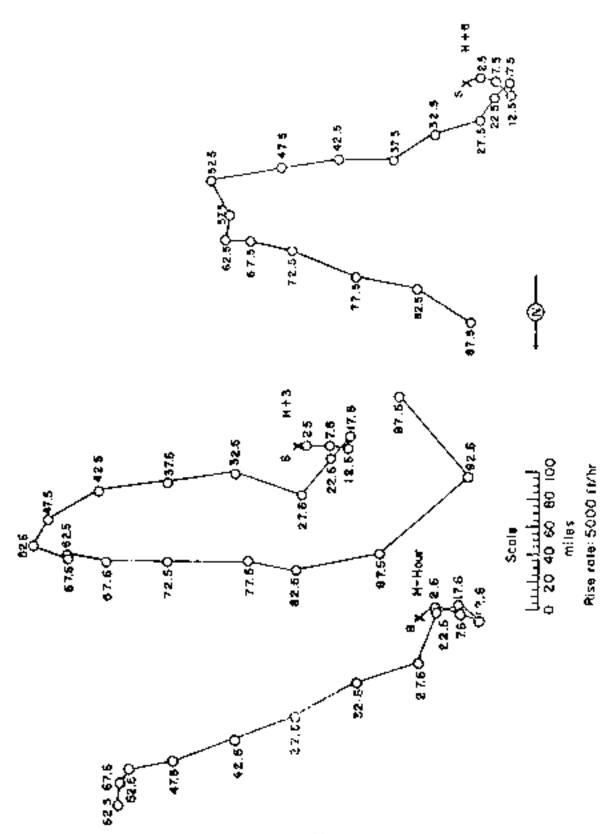


Figure 52. Sologouphs for Operation CASTLE -

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TOTAL YIELD: 13.5 Mt

41/506 600 12/03

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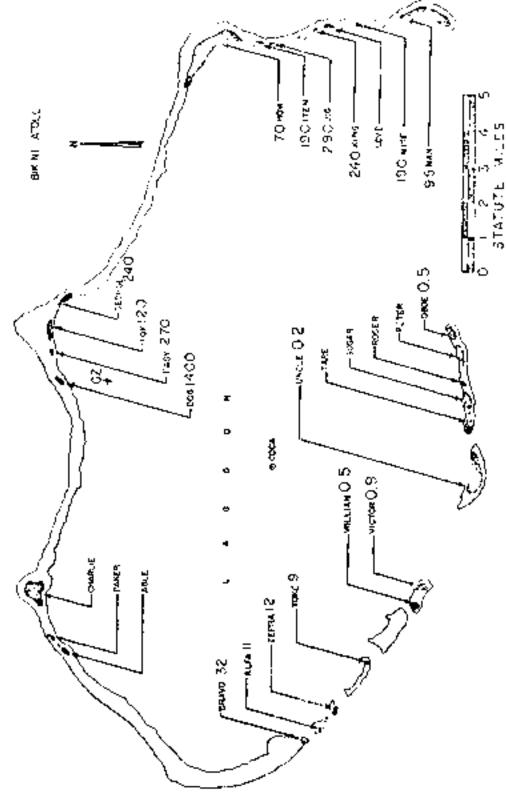


Figure S.J. Operation CANTLE - Trabes. Inland dase parks to pint as RFL Bours.

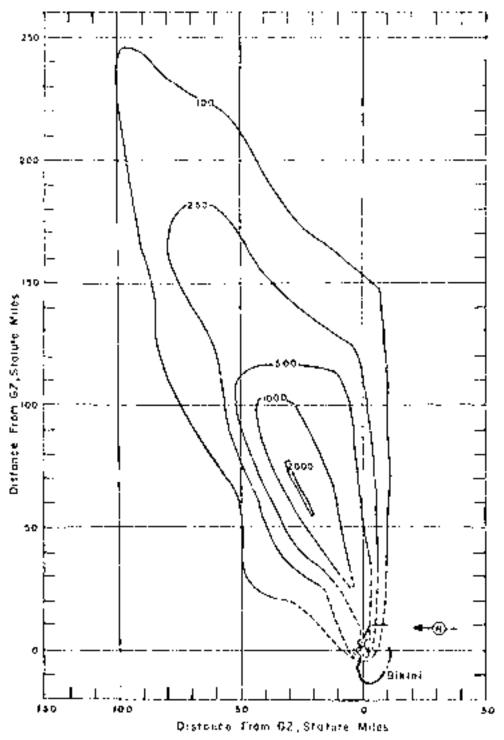
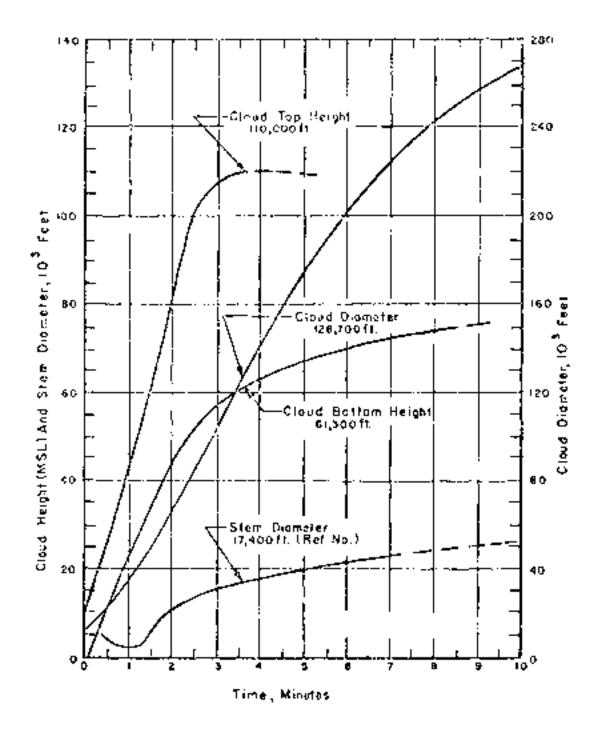


Figure 54. Operation CA(THR = Yanker, Off-site down rate contours in γ /or at γ -hour.



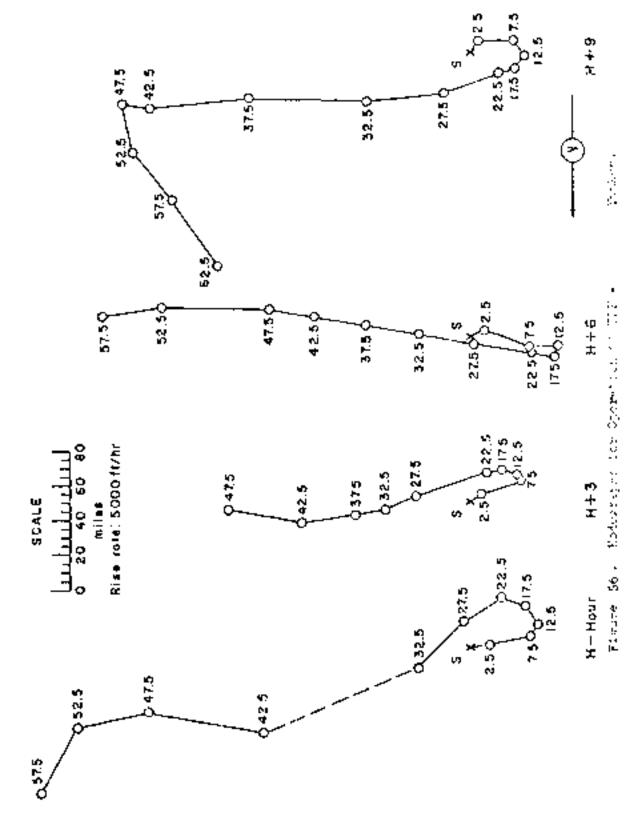
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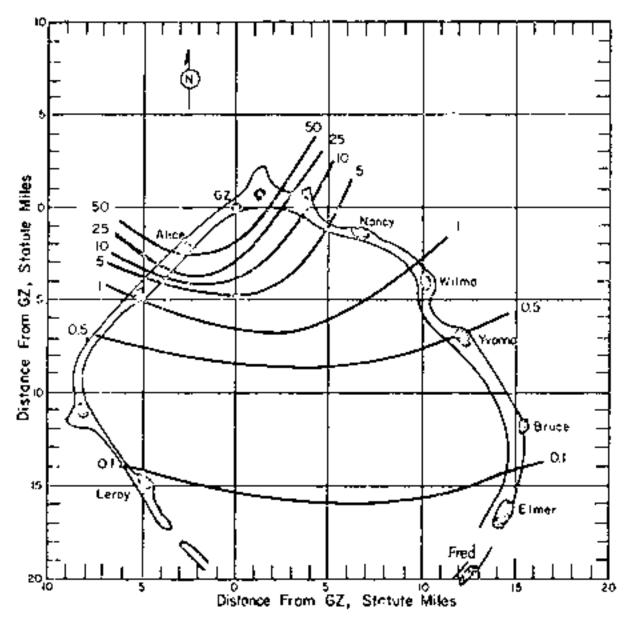


Figure S7: Operation CASPLE - Nector: On-site doce rate contours in r/hr at H+1 hour.

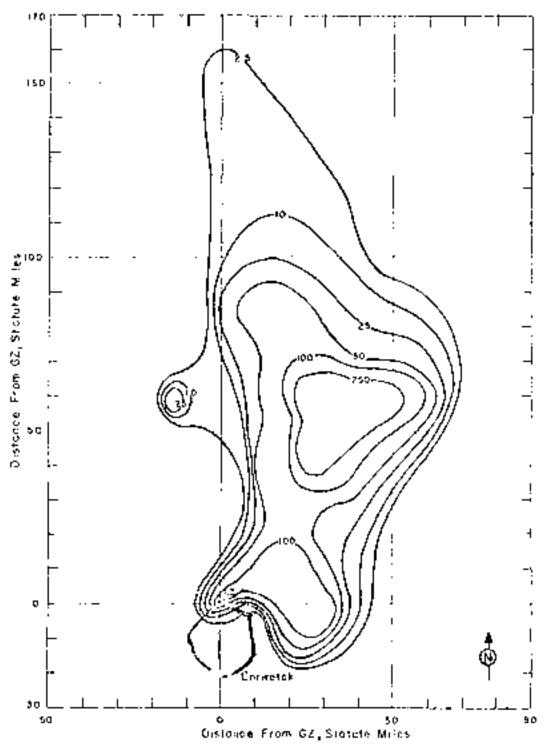


Figure 58: Operation CASTLE - Rectar, Off-site dose rate contage in r/hr at htl hour.

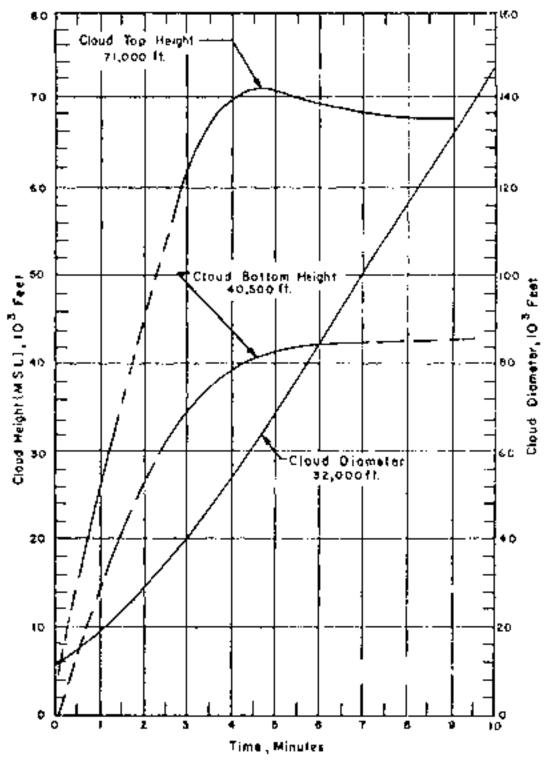


Figure 59 . Cloud Dimensions: Operation 05030 % - Northern

TABLE 17 COTTAGES MICE WEST POR OFFICE OF CASEUF -

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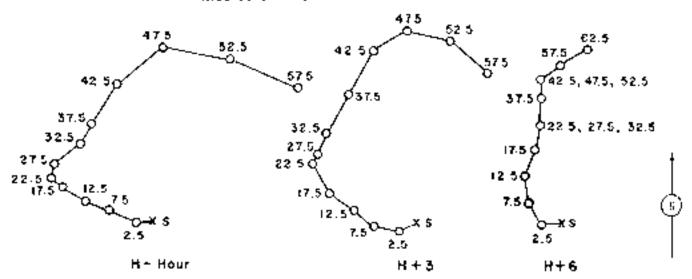
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$\gamma_{\mu\nu,\omega}$	100) I,				
8,0 X	1.2	12	120	13	1681	164
9,000	130	13				
10,000	TIC	16	130	26	170	1.6
12,000	1340	20	150	121	178.	23
14,000	110	23	120	16	700	1.
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55,000	(90	44	310	30	750	1.
60,800	•	•-	- 74		240	38:

NOTIFIED

- Numbers in parentheses are estimated volume.
- 2. Wind doly was obtained by the weather station on Eniwetek Islands
- 3. Proposessor neight was 56,000 ft MDL. $h_{\rm b}$ At E-hear the are level pressure was 100000 mb, the term rature 80°F, the dew point 75°F and the relative heridity 80%.



Rise rate: 5000 ti/hr



Pigure 60. Rodographs for Operation CACCLE -

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 $\frac{165 \text{Mag}_{2}}{77 \text{GeV}_{2}}$ is an array cover (for E142's Load) were inequalities to the E2411 of expect of who and verifice wayter a righter hald age, property of the control wide They cannot have eat factout agreety depolit a course can be a fixed and living which is seen throughbout in continuous parameters on p_{ij} and p_{ij} and p_{ij} and p_{ij} compute at they the Wight two days at Williams a testinate involve a court in the sa-Colors Communication bear by degree the curface earth or from qualities, of contradictor water from teloc. The discoving sixter a rather twitter various with the importance only and good ded very 1980s. If toggive above At EOO samuter the communicated water area was about " A will. The area was contaminated in An incomplan ranner, the peak of the Sties being approximately three their the elements intendity of 25 to 35 plant, 3 ft above the sorthons. The area electroneed of the a 50 me/hr loods to different our newtons in a second to 7.5 mil at a 1.5 km. At 80% of hr it had done at the 5.5 mil . Meanagements of which a darphic indicated a madicactive doory exposunt

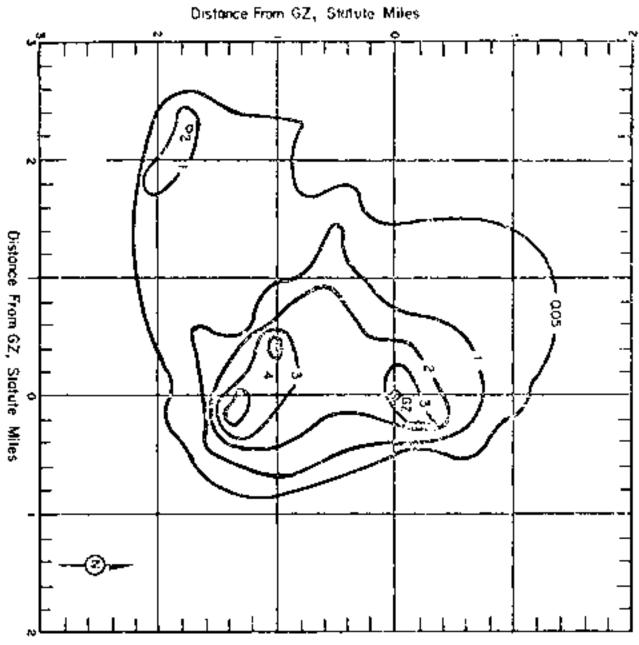


Figure 61. Operation WIGNAM. Off-site done rate contours in r/hr at H*1.4 hours.

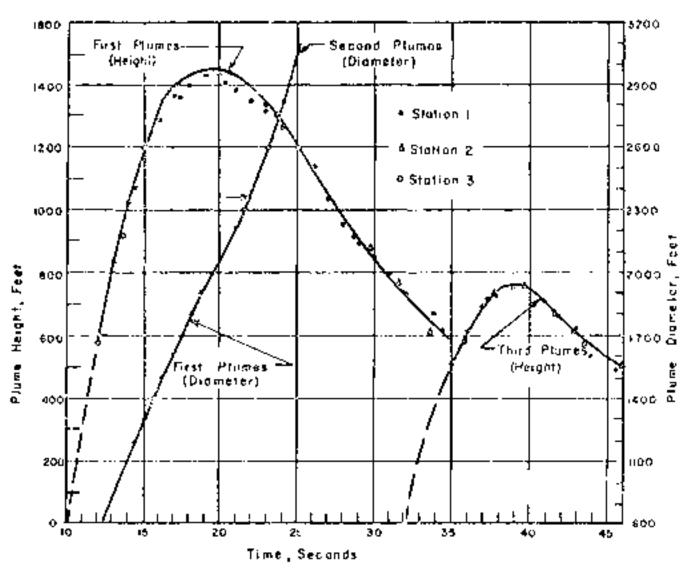


Figure 62. Pluss Height Dimensions: Operation ElGWM.

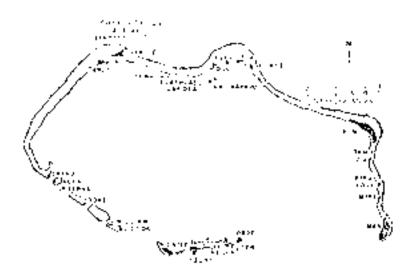


Figure 65. Operation SFFWEGG, Chot Locations, Entwered Atett.

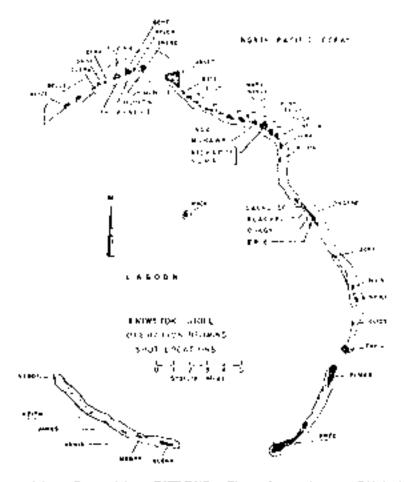


Figure 64. Operation RED/ING, Shot Locations, Sikini Atoll.

OPERATION ROSWING -

Lettrouse.

 $\frac{10 \cdot 6 \cdot 70 \cdot 66}{9 \cdot W_1 y \cdot 100} = \frac{000}{9 \cdot W_1 y \cdot 100}$ 00 ft. 2500 TIME

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was used to extrapolate the resultage to \$01 hour. The one resiting which give an H+1 hour dose rate of 57,000 r/ar was uniquely high and may have been due to one of the extremely radioactive, partially sures, pieces of metal contioned about near the couter.

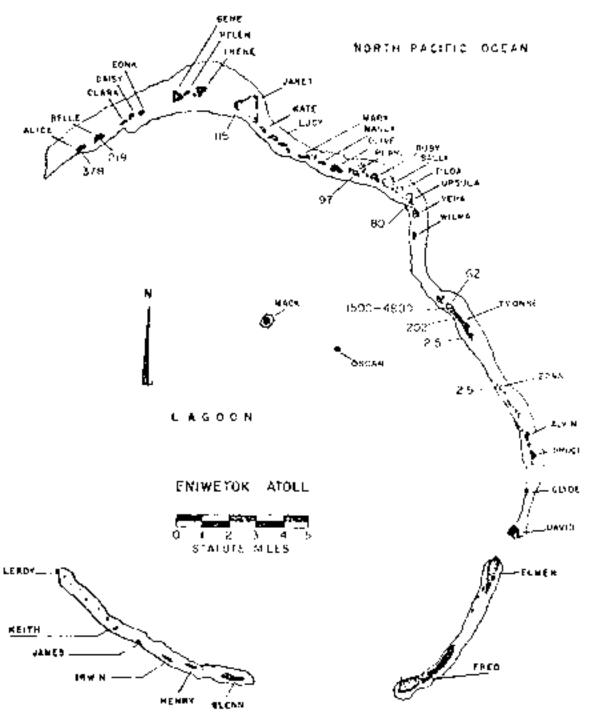


Figure 65. Operation RELVISO - Lacrosco. Island done rates in $r/\alpha r$ at H+1 bour.

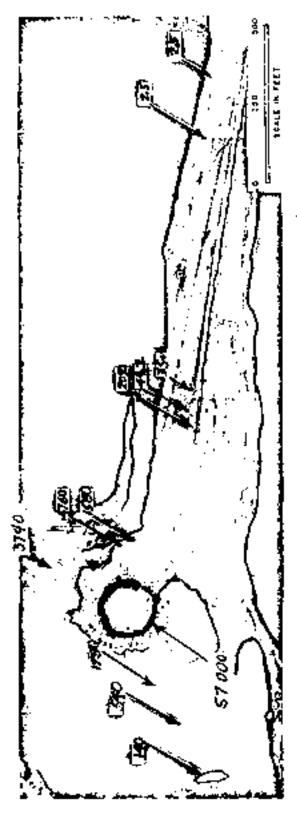


Figure 66. Dose rate readings near the Lacrosse crater in r/nr at M+1 hour.

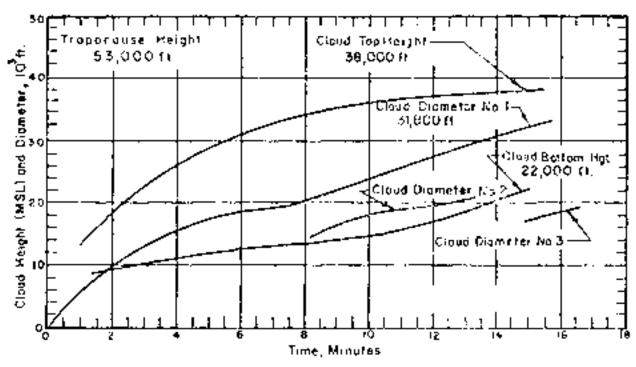


Figure 67. Cloud Dimensional Operation PERTURE - Increase-Dispeter-curve I represents the dispeter of the more cloud; curve P refers to a parties of the cloud which, resulted from a shear at 8 minutes; curve 3 represents the average dispeter of two clouds which resulted from a shear of the second cloud at 1 minutes.

A. 12.000	3-50c		9.000.00			: 1:17	~~ ()((? ***)	
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€,cco	100	34	150	28)10	3	110	30
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102,000) 00	63		
105,000			300	GI				
106,000			200	67			~	

NOTES

Sumbors in parentheses are estimated values.
 Tropopasse beight was \$2,300 ft MCL. (beforence 150).

^{3.} Wind data was obtained by the weather station on Edward Island.

^{4.} At the surface the air pressure was 14.62 psi, the temperature 27.200, the dew point 25.000, and the relative handity 85%.

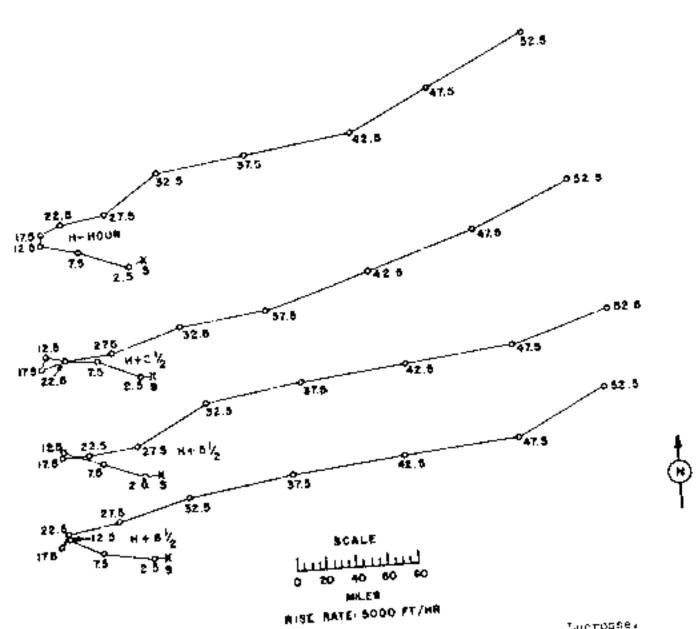


Figure 68. Hodographs for Operation RED-ING - Increase.

0.052500103113341331 = -0.0018533691

 $\underline{\mathrm{DMTE}}_{i} := \frac{1176 \times 30\%}{21.75 \mathrm{ yr}} \cdot \frac{1097}{200} \cdot \frac{1097}{2000}$ $T\overline{\Omega}\overline{\Omega}(-C_{2})$, $T\overline{\Omega}\Omega$

 $(q \text{ top, } q_1) = 1/470 s$

SINKS BITS - DECK - 1000 - FRIGHT 14 (5) (2.17) 107 20 00 E Site discontained (bounded).

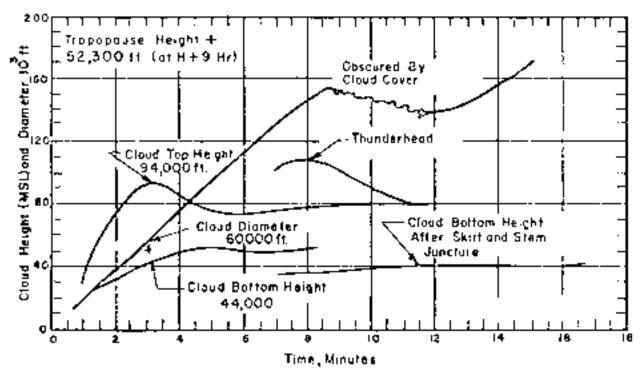
BENCH CODE 1: 4,300 ± 1 x 22

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REPARKS:

We falled was elegated on the island. . Very 1966 for a we of service Member of CML - September 50 - Factor from the low file with Inckgroup interviews



Pigne 69. Cloud Dimensions: Operation RELATED - Cherokee.

TAPLE 19 BIKER WIND SMIN FOR OPERATION RECARDS - CISSONER

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7,000	090	26	330	37	090	83
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20,000	120	13	590	18	120	23
22,000	120	14	110	1.7	150)6
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)8,c.x.	130	17	160	16)γο	23
20,000	140	21	370	35	150	15
25,000	150	10	090	20	160	20
30,000)4G	α	150	J ľ.	150	10
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No,000	230	17	250	23	230	25
M5,000	240	18	250	37	250	38
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70,000	100	25	090	NO.	090	31
75,000	c90	55	090	45	030	53
78,000					oBo	60
80,000	090	58	090	53		
89,000	080	63	090	35		
87,000			090	39		
90,000	080	70				
95,000	090	85				
100,000	990	93				

NOTE:

- 1. Numbers in parentheses are estimated values.
- 2. Tropopouse height was 52,500 ft Mod.
- Wind data was obtained on board the U. S. S. Curties.
 At E-hour the sea level pressure was 1009.0 mb, the temperature 8105, the dew point 73°F, and the relative humidity 76F.

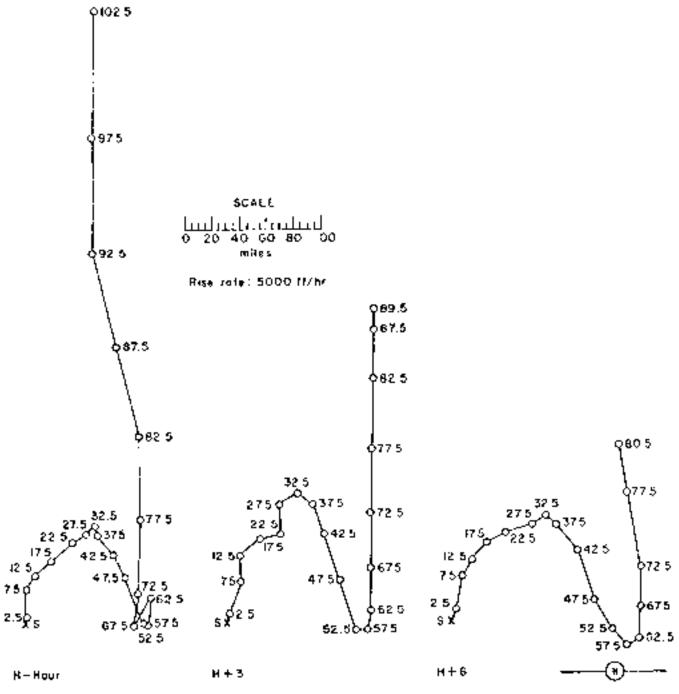


Figure 70 . Modegraphs for Operation REDUCES - Cherokee.

OUT 5 (02) Mark 123 (4)

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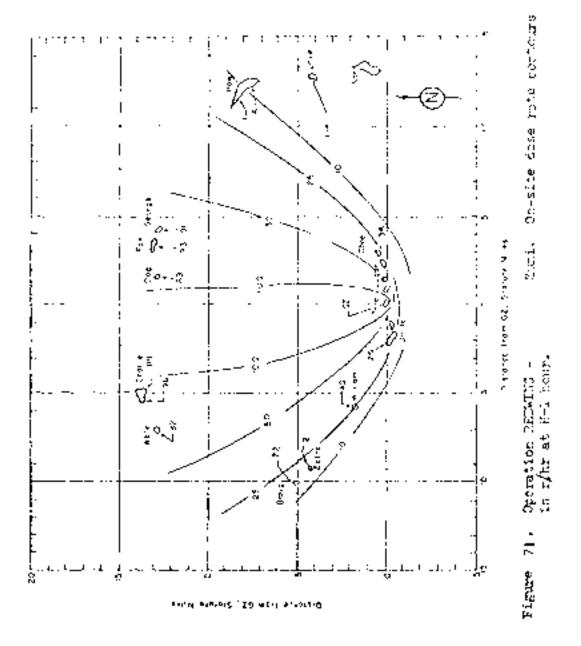
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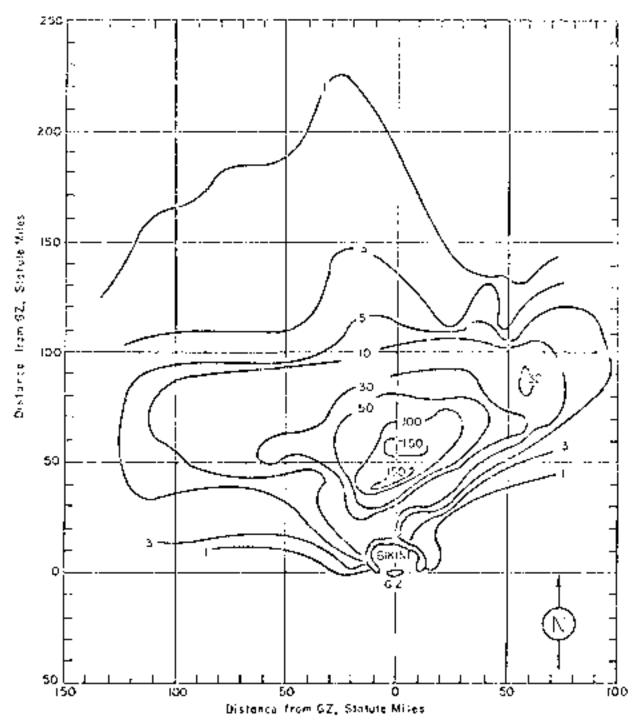
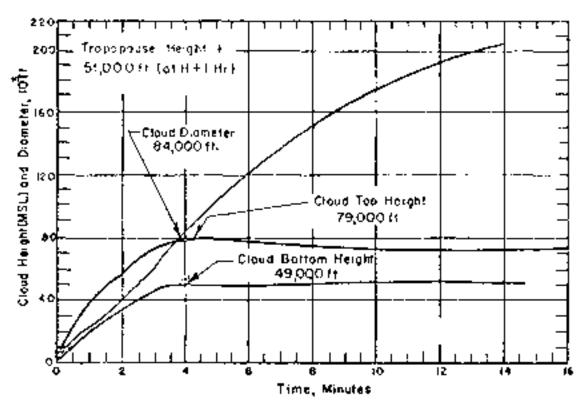


Figure 72. Operation REDWING - Final, Off-site dose rate contours in r/hr at N41 hour.



Pigure 73: Cloud Dimensions: Operation FRWTW1 - Zoui.

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- 4. H-house data for all Studies over \$1,000 ft were determined by interespondence from a supersympto luke a letteres 8-h and 100 is one.
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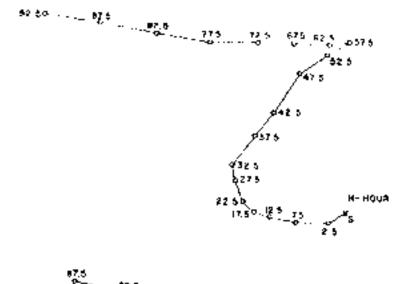
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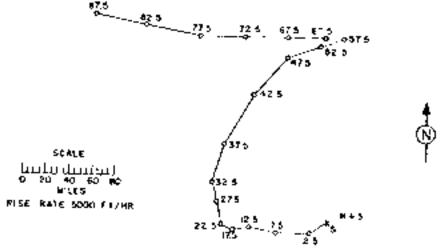
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90,000	0.92	60	090	C)	630	C:
90,000	•				686	TO.
95,000	0,0	7.t	090	69		
165,000	090	61	070	81		
105,600	090	0/1	0(9) 0(0)	89		
110,000	090	69	660 660	102		
114,000	090	69	ርዩህ	105		

MOGREE

^{3.} Sumbers in parenthenes are estimated values.

^{2.} Wind duty was obtained by the western station on Eniversk Iphart (RegrerTk Atc11).





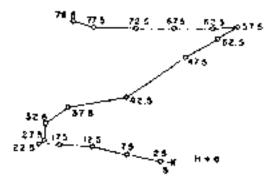
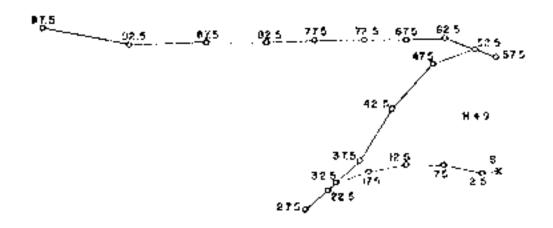
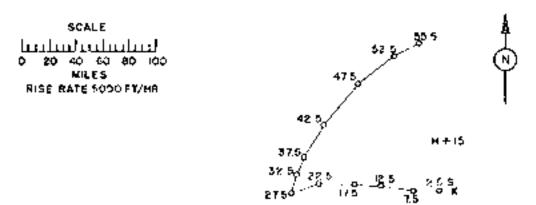


Figure 74 . Modographs for Optimation FIDWING -

Zuni.





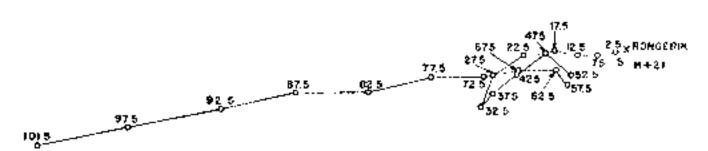


Figure 75. Hodographs for Operation NEDWONG - Zuni.

CONTACTOR RESIDENCE

- York

<u>Harrier (2. 2017 - 1972)</u> <u>Marier (2. 2017 - 1972)</u> <u>Marier (2. 2017 - 1972)</u> Symmothy CCSG

Griffit 11.7 - Enthersion - Cally 10.0 grif 30.0 grif 18 and 16.0 grif 18 and 16.0 griffith Enthersional Enth

100 GEO 05 100 COE - 150 CE

CLOUD CONTRACTORN 8,000 FU MATE CLOUD REPORTED BELOWER 1,000 FU MAD

TYPE OF BUILD AND MACHAGE:

Towns basht over ellar coil

REMARKS:

Cally island done rate readings are available. These were taken from the aerial and ground curveys made by the Pasielogical Dateby organization. The $t^{-1/2}$ decay approximation was used to extrapolate the done rate readings to D1 hour. Significant uncents of alpha (plutonium) contamination were found on the shot island.

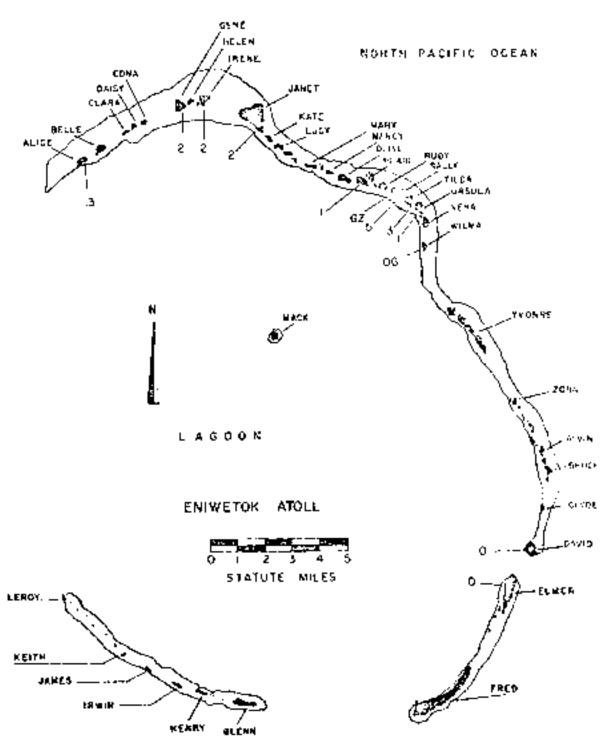


Figure 76. Operation REDWIGG . Yours.
Island down pates in r/br at U+1 hour.

10950 21 0700 000 With Gala Fan OF 2 Charlette Di-1:00

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1001	4.70	7,,,,	T- 35 - 1		0.000	7 : ; ; ;	- (-: ; .
El professore	(''	.':	;:	. :	163 163 163		S 0.7	1
1,000 0,000 3,000	Co	: .*2	10 AV 41 July	53 53	Ç. +	2.5	2006 2006 2000	
0,000	Ç., .	.43	67.365	2.3	1(4)	3.5	3090	7.1
3,000	0.7	:	9.87	`s		,4 ¹ 1	3775	- 13
$h_{\phi}(x,y)$		5.5	950	3/2	200	I_{t-1}	:	31
hijaco SiCos	Communication of the communica	233 243 273 273 273 38	0.62	3.7	100		(P) R(0) 11.0	5
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7,440	0.77	, ".	0.30	\$	$\frac{C(0,0)}{C(0,0)}$	357	\$	٠.
3,000	$\mathbf{G}_{1}\mathbf{r}_{2}$	<i>-</i> **;	:	- 49	C(0)	37	j i · ·	3.7
99,000	0.5	3.	Circ	33	0.70	30	:! +	
10,000	0,00	Šii Do	11/4	5.1	CH	67 40 24	16.0	
12700	\$120	2.7	C_{abb}		čini.	44.5	:•	• •
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18,0%	150	17	1543	1,	194 (C.) (E.) (48)	(8)	21.	1',
poyers.	: Mu	C_{r}	300		:C.)	14		::
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20,000	2040	91 -9	17.	21.5	-1	2.1	723	113
200) 11 (1) (1)	- :	277.	ï	390 200 250	51	15.3	
10,000	200). 	2410	40	75.77	25	70.5	17.
Lighter			11,14		294.4	35	17,00	140
50,000			(77)		250 250	Şn.	256 267 247 160	
55 y 0341 2007 200			2975 CUG	(17) (4)	2774	10		
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G/,000))0	37 39	120	30	100 100	34 93
70,000 75,600			950	27	000	$\hat{\lambda}_{G}^{p}$	0.0	2.5
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90,000			110	7.0)(1)	55) 00.	60
95,500			100	60 60 60	090	<i>6</i> ;	100	γ.
91,00			100		100	80		
100,000			100	89		6';	100	(8)
102,000			100	92				
,				/-				

- MOZEG: T. Tropopumbe beight was (%,)CD it MAL.
 - 2. Wind dots was obtdiened by the weather of white on Entwelch Island.
 - 3. If your values were tot probable, from data taken at live haurs and Edit bearing
 - 4. At the surface the air programs was M.S. pai, the temperature 27.500, the new point 26.500 men the relative her thirty 80%.

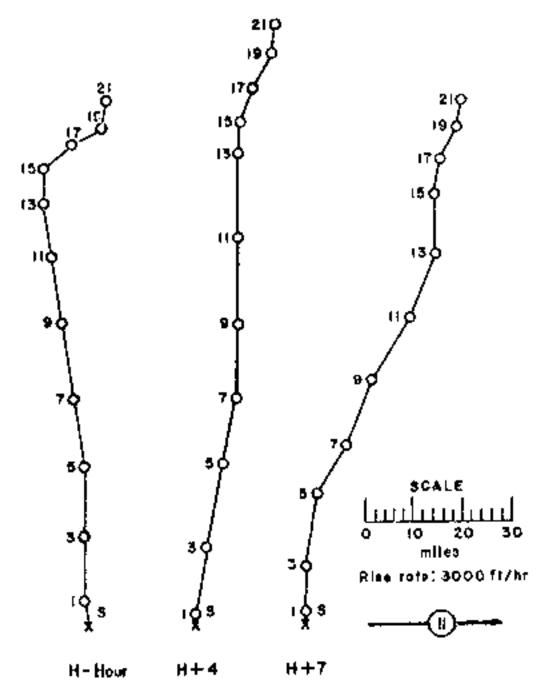


Figure 77. Hodographs for Operation REDWING -

Yuma.

CERTAGREE ATT ADDRESS.

10 m

Speciment 130%

180 680 65 3138 E 3.0 m

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milette aval (1...ery) - keyt - ka Mozi Creati Mari (1...ery) - keyt ex mezi

ICMARKS:

Only taken to be exact the alongs are awaitable. These were retrieved from serial and promes conveys made by the host legions facety approximation of E40 is an explicit $t^{-1/2}$ decay approximation was need to extrapolate the domestic rendings to ZOI hoor. Inhance north of Yeopre in the wiell were only slightly contaminated.

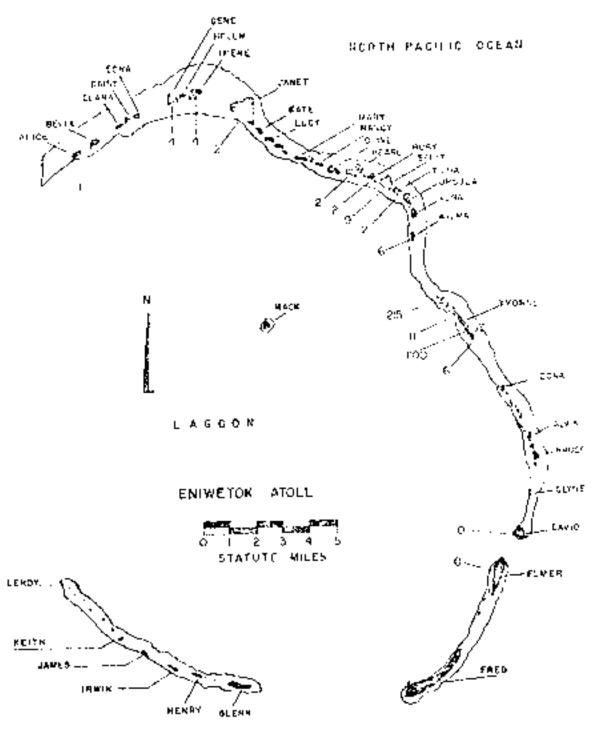


Figure 78. Operation REDWING - Eries Island door rates in r/hr at HO hour.

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Art Com (Sec.)	11-1-"	· 	107 T.		187	
	$= \frac{100 p}{60 (1.25 \text{GeV})}$	1. ' .' ; :.	. 1.1. . vo - 10.000	12	dry 2 miles	
,	11.1.1.1.1.1.1					.2
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2,610	4000	78	300	253	690	0.4
0,000	100	$\phi 0$	16.0	: ' :	0/A)	115
3,600	306	23	100	::.•	CAY:	25%
4,000	2 U	73)	20.0	1.1	693	189
5,000	USC	2.3	2000	:"	0(4)	16
Cycles	000	716	100	327	1000	377
7,30	CO.	253	5.0	97	(190	96.
F , C + 1	100	0.3	110	57.0	100	26
79,000	:00	17	0.00	107	1.0	16
20,000	Ch.	0.5	: [7_	V .	120	15
المحاور فا	33.0	0.5	100	: •	1770	<)
مستوبان	0.(8)	0.7	0.57	1.77	100	(2)
15,600	(10.1)	(10)	$(\odot \gamma \circ)$	(v, t)	(300)	$-(p\dot{r})$
16,03	4.9	1	. 3.3	: 5	$O^{G_{1}}$	$O(\epsilon)$
18,000	U.A.	1/6	090	: -	ono.	125
$A(j)$ $\otimes i$	36.0	$\mathcal{O}_{\mathcal{T}}^{\alpha}$	140	G_{T}^{*}	OBC)	317
800	15/44	25	25.47	10	::50	10.5
30.00x	2000	7.7	0.00	; 4	130	-7
3,500	250	47	2000	: 8	$(ij_{n,i})$.50
$h(C_{+}(x)G)$	1997	57	200	10	1/20	.50
$M_{\rm e}(p) \approx 2$	285	311	228	4.0	\$41.0	7.5
50,000	1.143		2.30		$\mathcal{L}^{(1)}(\mathcal{L})$	- 0)
55,000	(655)	15	366	1:2	2770	296
$G_{0}(0)$	0:17	3.1	Cope	1,3	150	07
$C_{ij}(G)$	(3.4)	7.6	Cilici	F15	$G_{\mathcal{L}}(C)$	ρh
70,000	100	33	130	.52	110	32
75,7000	100	20	100	54	168	նկ
S(t), C(X)	100	7,1	090	69	120	62
80,5000	Q140	. 9	69.	qq	120	22
90,000	C:O	70	200	8.8	200	98
98,000	690	77				
95,000			300	179	106	ξŀΟ
96,000		- -	3(a)	$\partial \gamma$		
100,000					120	හිරි
102,000					120	93

MOTHER

- Tall Numbers in presention on age cutamated presuma-
- 2. Tray group is been was \$5,000 ft Mile (bettermine 188).
- 3. Wine data wis obtained by the weather Cation on Universal In out.
- At Helpon the real level promoter was lightly the temperature \$0.5°F, the discretize 74.5°F, assume to be involved in \$0.0%.



Rise rate- 5000 ft/hr

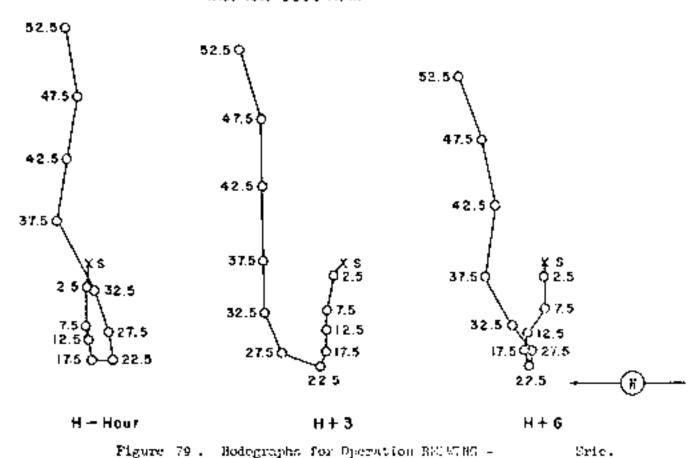


Figure 79. Hodographs for Operation BRCWTHG -

 $\frac{W(t)}{V(t)} = \frac{\partial X^{\alpha}}{\partial x^{\alpha}} + \frac{\partial$

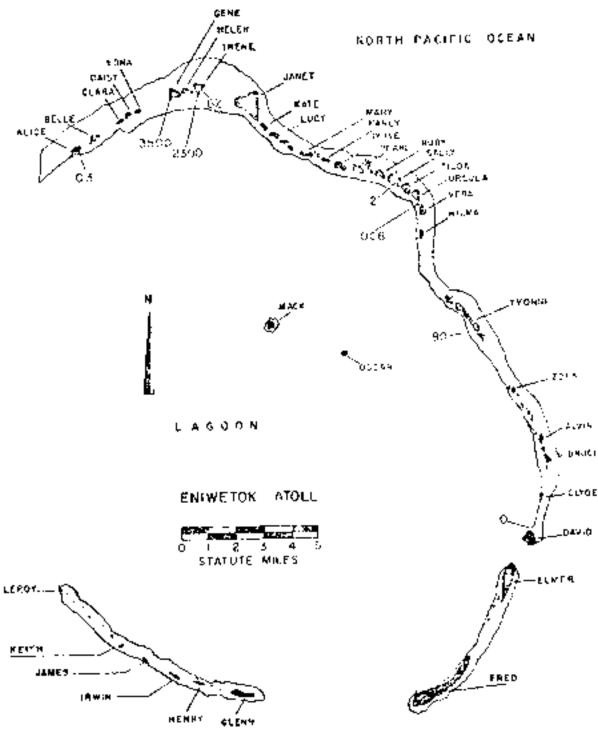
Openitary of 12.0

Professional Commission of the State of State S

<u>STORY DESCRIPTION</u> REPORTS OF THE POST OF

RESULEKIS:

Only inlams door-rate readings are available. There were obtained from sectal and grows interveys as so by the Deficient Catety approximation. The $10^{10.9}$ decay approximation was conduct extrapolate the door-rate readings to DC hour.



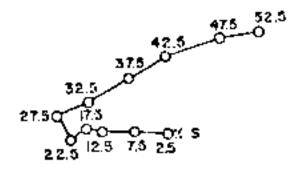
Pigure 80. Operation ESMAING - Scalnole. Island door rates in r/hm nº 180 hour.

\$600k 23 Franciscok with byth sign of sprinted professor — inspeciols

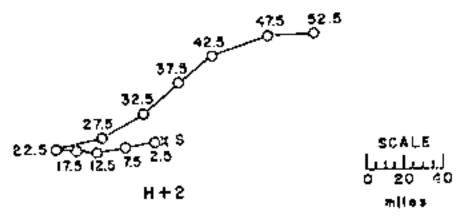
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(849.)	Dir	[g.:00]	91 y	Sg. od	ider -	11 77 2	lace .	2) 0001	
Test)	dagrees	. TNG 11	or troops	rspl:	doj(me)	1.60	dongerstic	.:t ;	
Sumbach	100	13	2011	12	0(8)	0)	05%	2.71	
1,000	6.25	16	0.77	15	CBO	5 ls	070	20	
2,000	O_2X^{α}	26	050	27	630	50	070	200	
3,000	050	18	090	18	COXY	17	365	250	
الإنتان والأ	00%	20	0.39	27	555	17,	1000	20	
5,000	0.00	28	0.0	27	630		0.80	17	
ϵ_{s} o ∞	100	25	090	35	Often	1.4	0.90	200	
$\gamma_{s}(\omega)$	100	20	165	1.3	160	14	CEC	()	
8,000	100	:0	110	529	1; 0	17.	100	C5	
9,000	COS	13	(200	:3	16.0	!	2 100	40%	
10,000	Oiko	QV	COO	95	CANO	10	0.70	$O^{(i)}$	
12,000	C(X)	12	G(90	10	GYG	6.17	2 Ca.	Ο,	
14,600	000	(9)	0.00	96	166	(4)	140	v.:	
$15\mu \mathrm{Cec}$			(100)	(56)	(10.1)	$\langle \psi, i \rangle$	(Cater)	-(0.1, -)	
16,000	000	05	100	66	2000	6.9	Called	Challer,	
18,500	250	02:	3.10	O.s.	1430	$C_{\mathcal{F}}$	Cartie	(*s. =.	
20,000	040	C#S	0.00	09	9,6	100	216	$\{0\}$	
25,1000	030	(9)	110	13	75.0	\$25	16.00	6.	
30,090	270	1!•	250	17	240	27%	1940	15	
35,000	8,6	73	54G	23	830	273	22.5		
40,600	240	589	$C^{1}C$	(3)	239	2	280	if.	
469,000	250	100	250	30	26.0	75	250	60	
50,000	260	38	269	7C	7:70	26	270	15	
55,000	360	05	0ا/ر	C)	500	Or,	290	69	
60,000	090	13	036	122	060	10	186	05	
65,7000	090	46	100	26	330	26	110	23	
70,000	670	وبا	Q90	47	090	49	0.00	50	
75,0xx1	090	€0	000	(6)	100	6)	766	56	
80,000	990	53	090	63	690	76	50x:	ϵa	
85,000	100	T^{*}	100	75	600	79	305	71-	
90,000	300	ïï	100	79	COC	85	090	71	
93,000		•-	-		690	84	690	7)	
96,000	100	81	100	80					
100,000	100	68	100	68					

NOTES:

- 1. Numbers in parentheses are estimated wither.
- 2. Tropopame height was SignO of MSL. (Reference 149).
- 3. Wind data was obtained by the worther station on Advertok L.Jand.
- H-hour values were interpolated from each taken at H-1 hour and MC2 hours.
- At the am face the air pressure was 16.64 psi, the temper-renge 30.5°C, the new point the γ's not the relative humacity γ β.



H - Hour



Rice rate: 5000 ft/hr

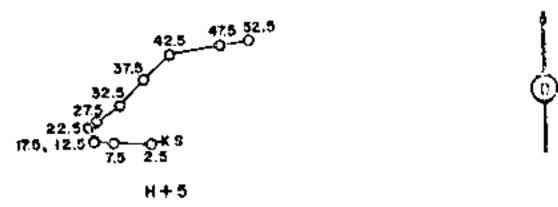


Figure 81. Hodographs for Operation ESCHING -

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The observable follows path as was drawn from a monocraphic conveys. The observable conveys used detector posits for remarking the decerate at depoint to the below the thereseller. Water-weighing equipment was used for the taking of surface samples and for the contector, of semples from the delivered copies. The docerate condition were extrapolated to lift hour by union the delay resource also of the ramples. Observable with optic particles with a place of the fallows and to proposition to proposition to proposition.

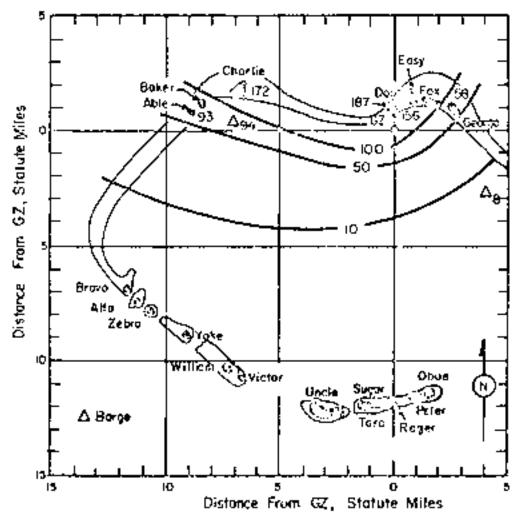


Figure 82. Operation REDWING - Figure 8. On-site door rate contours in w/hr at H-1 hour.

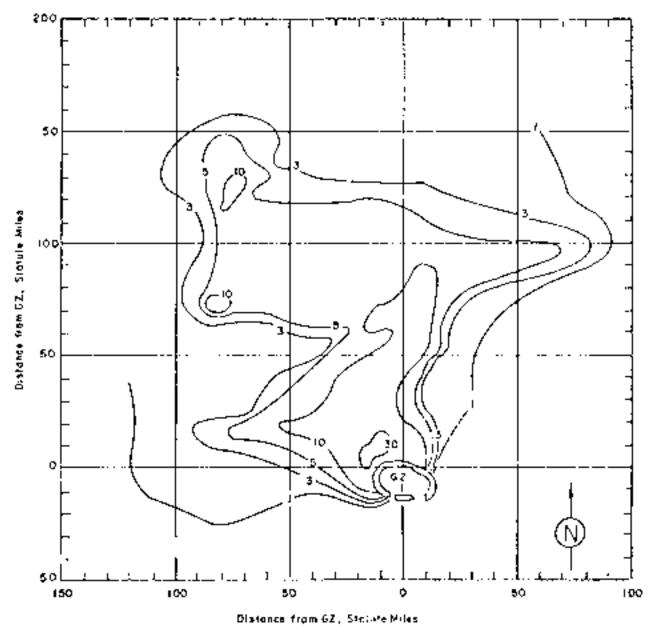


Figure 83. Operation REDWING - Flathead.
Off-site dose rate contours in r/hr at 840 hour.

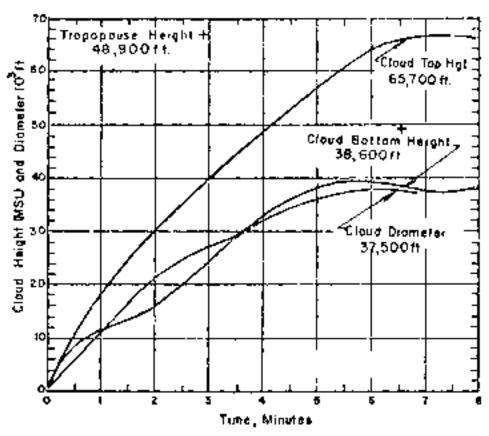


Figure 84 . Cloud Dimensions: Operation REUMING - Plathead.

Table 24 (1994) MADE WAS 1972 (1995) 1973 (1995) - 1973 (1995)

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ii et	and an an	£1741.	0.074 527	770	as species	ede.	despite Gr		the factor	7.30
Oug-Prices	620	0.9	G(k)	22	$C^{2}O$	24	060	82	$O_{\mathcal{F}}O$	25
1,000	000	1.	0.33	21	075	03	6/0	48	050	27.5
2,00	676	ıl.	(57)	177	Of the	20	$O'_{1}O$	W_{i}	050	2.3
3500	00.0	15	0.83	15	0,70	10	C_1O	1^{jj}	C· ·	2%
$k_{\rm p} \approx 5.5$	60.5	160	071	۱۱,]:	13	676	180	47,75	25
5,000	0.80	J	160	15	1.2)	23	670	1^{f_1}	$5^{9}\odot$	2.0
6,000	0.40	35	$\mathbf{I}(2)$	31.	100	34	G.	10	Office	,
7,000	() 3/3	15-	0.00	1!-	600	ገካ	C(A)	(7)	0.80) l _e
ö,cee	000	1.	D17.	10	090	10	occ	09	01€	7)(1)
9,000	<000	- 30	693	0.9	360	66	090	V.,	40	:·:.
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12,000	0.755	ce	(i.j.:	C7	090	05	690	a_0	3757	(1.5
$2h_{\pi}(e^{i\phi})$	3.97	1/3	123	(2)	130	Of c	C> 146	125.7 %	0.0712	Colle
25 june 26 june	000	()	120	96	160	30	OSO	03	17.3	07
18,000	110	06	130	10	190	14	100	0.5	1770	(::
20, 000	3,60	00	100	12	160	13	050	Cγ	190	α_{i}
25,60d	ბეთ	14	EG.	17	170	ಣ	170) is	11.0	198
30,000	210	229	200	17	200	21	200	15	0141	17.
35,000	590	134	250	14	290	٦١,	250	35	800	23
40,00	260	22	Place	21	290	21	2/10	53	270	22
45,000	220	22	230	21.	240	20	270	18	345	1:0
969000	300	25	350	$M_{\rm c}$	360	19	330	34	0.90	15
95,600	Ö20	14	0(6)	¥γ	100	20	670	23	300	20
60,000	0,0	23	090	28			100	23	990	36
és,con	160	28	100	23			680	ρl,	750	75
70,000	100	33	100	33			214.1	l.c	$C_{n}^{2}(x)$	32
75,000	090	Ĭ.Ž	0.00	46			c(0)	46	090	59
მრერმი							69:	63	0.30	Ö.
85,000							690	Ö.	o∮c	GS
90,000							390	54	680	5.9
91,000									090	60
93,000		•-					0.00	56		

https://ess

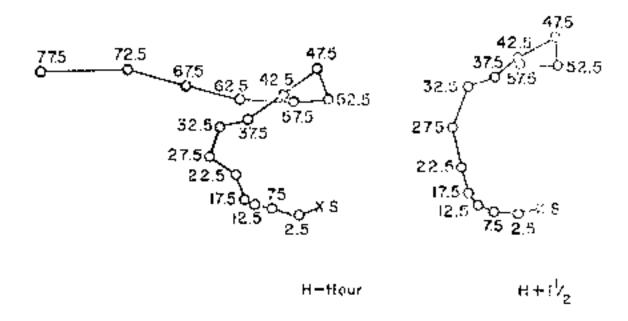
^{1.} Temporation height was 48,900 ft MDL at Rehour.

^{2.} Wind data was obtained on board the U. S. S. Carting.

Webbort values were interpolated from data taken at H-P¹₂ hours and H+1; hours.

^{4.} At E-hour the sem level pressure was 1010.9 mb, the temperature 80.0 $^{\circ}$ F, the description 76.0 F and the relative lamifoldy 62.0 \mathbb{Z} .

Rise rate, 5000 ff/hr



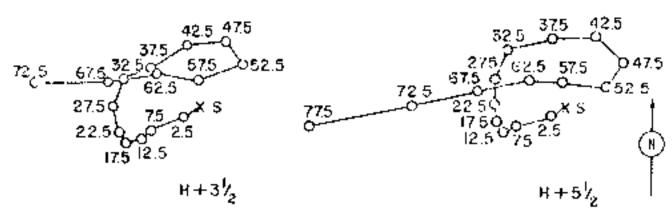


Figure 85 - Bosomodio for Openation II Wild -

Platfores.

P(130.5, 00, 100, 100) = -100 Mod Mass

Titrie e. . .

Cympage 1531.

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Bendath OF But his lightness

TYPE OF BORD AND HIGH WEST CO.

COUNTY TO BE THE TRACE OF ME.

299 A Project

Only island done-wite readings are availables. There were obtained From and inleasing that conveys made by the lydeological Safety engine-zation. The tiles were uppresimption was used to extraoslate the dose-tate readings to RML bear. Bravy contribution that this whit, Circui on contral Yvonno, was limited privately to the chot infance-However, the photo toxer on White was highly contaminated from the Solliout.

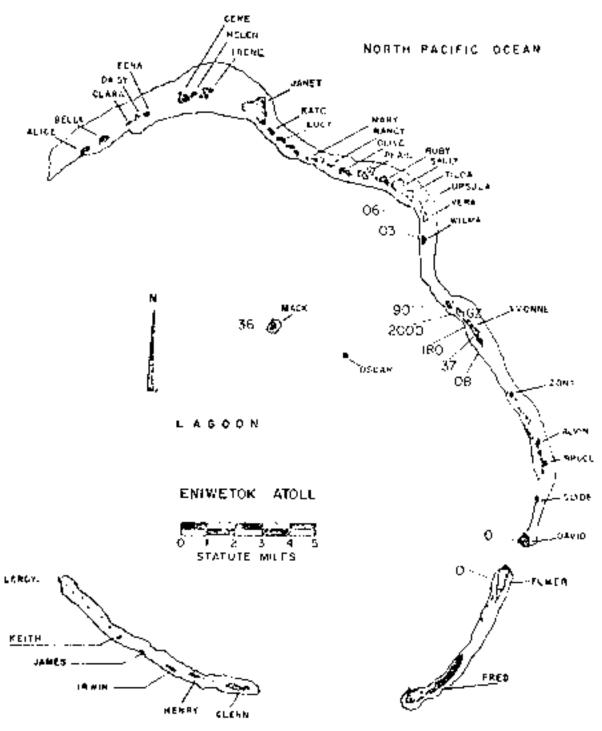


Figure 86. Operation DiffWIRS = Simplificat.

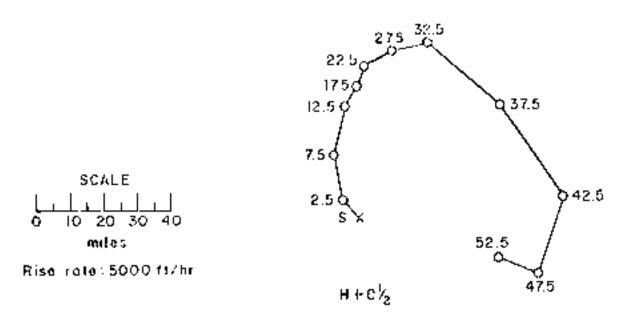
Jalant dose rates in r/hr at hill hour.

	; -	· <u>.</u> — -		·· 				
<u> </u>		1275				: <u>) </u>	To V	30.0
		! .	r ':'	11.	.5 . 5	10]:.	20 pt - 10	7(:.
		:4	1.23	÷1,	:10	25	O.O.	34.
Serious	G 80	. 1	1377 √137	Ö	630	:::	(7.:	10
1,51 2,500	0.5	::.	US:	Ç.	(%)	77	Cyc	177
1,11		12.				16	(9)	:1-
1,533	128		6.80		(/	10		11
h,		28	:	.··	6.50		enc Enc	
	! '.	:/- :;	70	.4	0.00	13	griden.	3.7
$F_{\mathcal{F}}C$		- 17	(7)	- 4	.;;	L.		121
,	IV.	::	6.40	14			'	
h_{AN} :	:::		1, 7,	3 -	1,11	13	1213	1.3
7,0	O(N)	~ ·	0.00	11.1	100	13	1::-	
10 pt 30	0.76	100	0.70	¥Υ	$G_{(r,r)}$	10	111	4
1 ,:.	990	$G_{\mathcal{F}}$	0.70	97		()	100	(ii).
14,77	(+ y)	10%	1.6	182	100	(0.7)	1	0.7
D. West	$(c_{2^{n}})$	(\cdots)	(\cdot, \cdot)	$(:.\cdot)$	$(\dots :.)$	(m^*)	(1.4)	$\langle \cdot, \cdot \rangle$
10.50%	A 2 60	0.7	f: x	1.7	:40	GÜ.	1.0	97
18,0	925	3.0	COL	0.7	(200)	-1.	17.77	(4)
(50) O. K.	$\langle J_{1}^{\mu} \rangle$	(2)	0.3	3.9	.9	221	100	1:
12. gr. s	64.60	:.	110	200	180	:1	1547	0.7
300,000	4.155	:59	ei o	(7.1	160	:::	2.35	1.1
35.40.1	2750	į ir	250	120	25/3	285	121.87	; ::3
leno.	(940)	31.	$\rho h \alpha$	250	(Mag)	23	250	115
45,000	100	23	7.70	17	4.45	()	17,61	23
10,000	310	12	010	43	0.00	345	0.5	122
52,000								
hy june			0.30	210			QC5.	214
55 (4.55	090	: 43		-	100	16		
60,000	120	135		- -	100	240		
0,63	Giác	17		-•	090	17		
70,000	000	36		_ •	090	50		
71,000	690	36			•		478	
75,000					090	5.9		
80,600				-•	690	- 66		
02,000					(9.)	6i		

NOTICE:

- Dumbers in parenthered are estimated values.
 Propagation League was 50,500 ft MML.

- F. What data was situled by the weather statled on heisestal Island. b. At H-horr the declared projectors was 1010-5 mb. On termerature At H-horr the one level processe was 1000% als, the temperature 8:.18F, the dry point 75.58F and the relative healdity 55.5%.



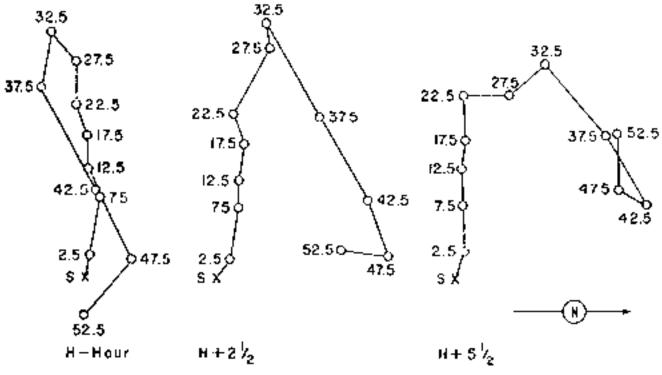


Figure 87. Molographs for Operation RECOLG

BlinckCopt.;

OPERATION RECYING Breakings.

Springer 1000 MONEY

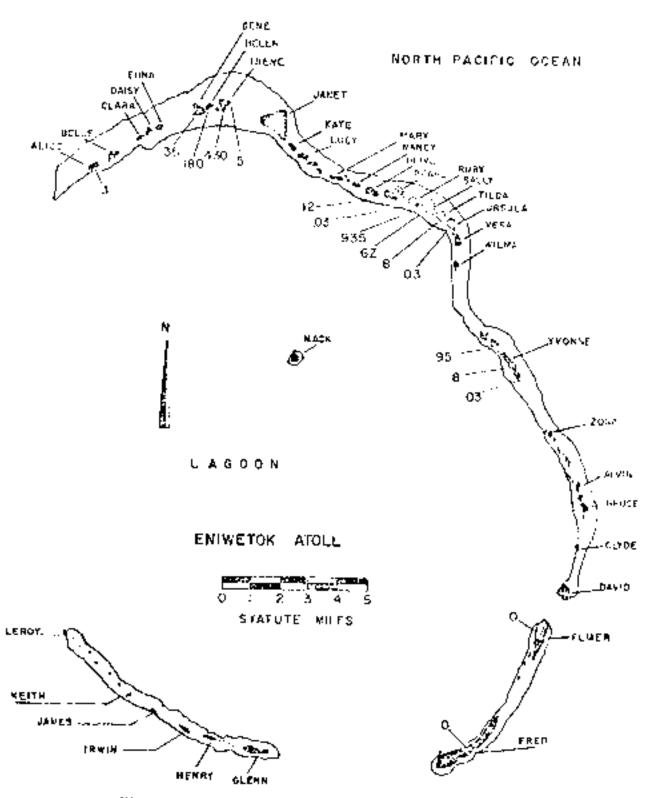
 $\underbrace{\mathrm{CP}}_{k}(\mathbb{R}^{n}) := \mathrm{TP}(\mathbb{R}^{n} \times \mathbb{R}^{n}) \text{ with } \mathbb{R}^{n} \times \mathbb{R}^{n} \times \mathbb{R}^{n}$ $\frac{11^{6}}{19^{6}}$ $\frac{30^{6}}{29^{6}}$ $\frac{30^{6}}{11^{6}}$ $\frac{50}{8}$ 86th clavellog; S. Level

3771 (27 G) 709022: 31 St.

<u>1967 Ct B 607 A50 FLASYSB2:</u> Free borst over 11:0. 0.12

CLOUD TEN STIDSUM: (6,000 to ARC CLOUD SECTION IN TORIL: (1,000 to ARC

<u>PEWANKS</u>: Only island dose-rate readings are available. There were obtained from actial and ground curvey, sade by the Radiological Safety Organization. The third deepy approximation was used to correlation the done-rate readings to H+1 hours. Heavy contamination was operating query on Sally, the shift reland. Significant alpha (plat.gam.) contamped to was also found on the short inland.



Pigure 88. Operation PEDWING -Island dose takes in r/m at H+1 hour.

Kickapoo.

						Jivania.
A I (the t	1-!	:		1 10 10 1		
$\pm \frac{199}{(3M)}$	ИÇ.	. 27 S E	<u>D. 2.</u> 0. , 28 2.3		Di ::	391 (4.54)
1003	10 17 17 19 19	:) ::	00, 23 (0.)	1 (2)	dispersion.	mb.:
Sugar Cons	600	17:	056	18	g(v)	12
1,0.3	11,63	12	0,0	12	00.7] <u>i</u> ,
2,000	(0.1)	14	0,0	176	(4A)	14
3,000	29.43	17	0.00	- 11	20.00	1.5
6,000	::50	16	100	19	2770	13
5,	200	լ կ	00)	i i	093	10
6,000	1700	12	120	13	6.50	0h
7,000	1:::::	Uγ	17/0	.8	680	-97
6,000	(5.)	60	100	127	05.7	σΫ
96,600	10%	ولان	100	.1:2	670	08
າຊົ່ງປ	0.70	20	073	03	O/C	29
15,000	030	13	Sho	0)	060	05
14,000	()	15	O241.	07	050	05
15.600	(33.7)	(x_i)	(atto)	(c_{ij})	(000)	(06)
18,000	525	0.6	030	1.3	64	$\gamma \gamma$
(8,0X)	086	111	020	09	Civil	12
20,000	4.45	372	050	67	020	l 1•
21, 1996	3.5	30	GHO.	15	030	23
39,60	90	427	350	1γ	010	15
35,000	3541	151	350	(3	640	15
ho_1000	369	200	020	IH	050	15
$h_{2n}(0,0)$	2560	2016	CSO	::4:	3.05	23
50,000	397	S #	850	26	300	89
55, GXV	$O(\alpha)$	25	050	38	იცი	30
$(c_j(c))$	$\mathcal{O}_{\mathcal{C}}^{\mathrm{LF},\mathrm{T}}$	54	0500	16	0%	2'>
65 imes 600	700	31	11G	37	105	39
70,000	O(26)	1.6	CNO.	51	690	51
γ_{2}, ecc	090	77	100	61	100	96
80,000	1,00	7%	100	69	090	65
51,ccc		•-			000	رادًا
85,000	100	71	Ç93	79		n-
90,000	650	83	090	60	•	
95,000	100	90	090	86		
98,000	JW	90				
100,000			09 0	68		
107,000 roser			090	(U		

FOTES:

- Numbers in paristheses are estimated values.

- Teopopasse height was \$5,100 ft M3L.
 Wind data was elimined by weather starten on Entwotek Inland.
 At the surface the air pressure was 15.55 pst, the temperature 29.8°C, the relative hamidity 71%.

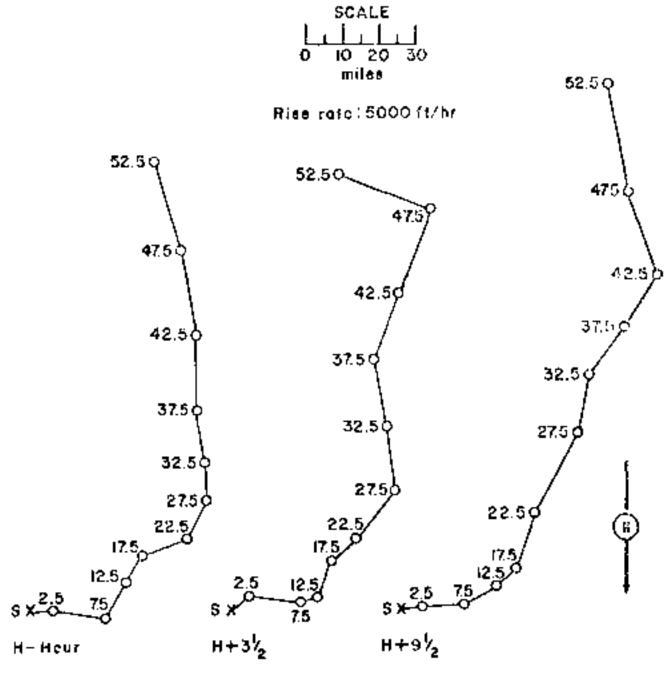


Figure 89. Hodographs for Operation REDNING - Kickapoo

OSSIGNATION CONTING + Garage

agend for 1200s

 $\underline{BABCBC}(\mathbb{Q}_{\mathcal{F}}, \underline{BCDCD}) = \mathbb{Q}(\mathbb{P}_{\mathcal{F}} + \mathbb{Q}(\mathbb{P}_{\mathcal{F}}))$

 $\frac{\operatorname{GYH}^{*}(\operatorname{GP}(1) \operatorname{Ad}(1) \operatorname{Ad}(1) \operatorname{B}(2) \operatorname{Ad}(1) \operatorname{Ad}(1)}{\operatorname{Ad}(1) \operatorname{Ad}(1) \operatorname{Ad}(1)} + 2 \operatorname{Ad}(1) \operatorname{Ad}(1)}$

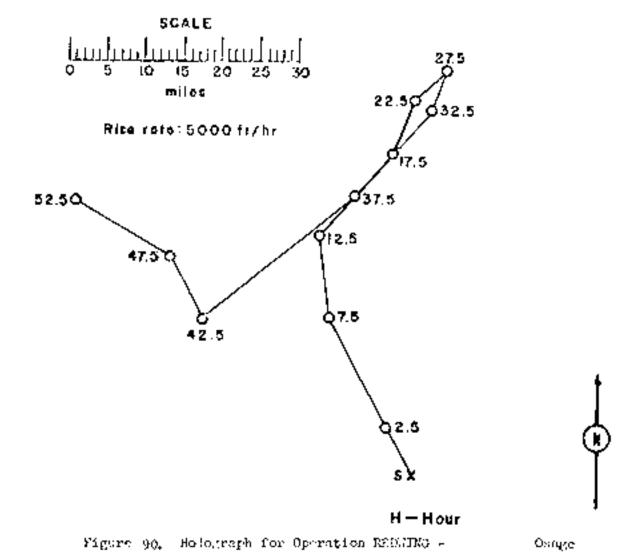
<u>In MARSON</u> — No signary, mean what dimaster was one exert.

TAMES 27 THORSON VIRE BY A 760 GRAVATOR OF DATES = 7000

Attended	737	-::	!!- '	<u> </u>	TT 9427		1:	
(xn)	.1	145 7 7	5.7	15000	<u> </u>			00000
1000		51.9		::1	00,725	: 17	20 7 - 0	
Supplie	156	15	157	1.6	17%	jε	(7)	19
1,0%	171.	3.6	1,65	26			0.00	:::
8,000	: ;	170	1hci	17			100	i.,
3,000	2.69	33.	140	17		~-		(3)
$I_{i,j}(x)$	\$100	181	150	17			:-	; .
5.6%	2500	17	190	16			1.5	.0
6.00	165	46	160	16			1	1.5
$\gamma, \epsilon \sim$	v_{i} .	1.5	170	14			1000	2.5
H(G,G)) (*)	69	180	(9)			10	17.5
9.67%	1500	39	185	0)			158	;
20,900	170	i 8	170	10			17:	847
12,6.0	2500	- 13	220	12			1.4	-97
$(A_{0,j}(\omega))$	27.75	1.6	830	14			1.7	,· ·
2500 (20)		• -	(889)	()4)		· •	753	• -
14,000	200	15	235	13			20.	97
18,000	25.75	18	800	15.			\$78	-77
Section.	200	97	200	97				: •
27,000	28.50	1.3	7.30	05		• -	17.7	4.5
330170	0.7%	145	130	;	. •:	263		
35,0000	0.00	1;	640	13	الأرما	. /:		٠.
$I_{O_{n,k}}(s, t)$	10,00	26	050	25	ete.	17.	i ·	.:-
4. 1. C. 19	16.5	47	150	i);	(1)	٠,		
phyto is	1 6	14	120	126	23	::		
550,400	140	62	14.7	47	.2			
$=\frac{(x)_{1}(x)_{2}}{x^{2}(x)^{2}(x)}$	150	67	1.50	17.	-0)		·	

XOTO :

- 1. Numbers in surentheres up ratioated we see .
- 2. The groupe believe we bayeas it issue
- 3. Wild data was obtained by the worther station on show tok I tout.
- $h_{\rm s}$. Here we can be $\lambda G_{\rm s} \cos \beta G_{\rm s} \cos \beta$ in one linear lates from pain (). at H-25 beams and H-15 haves
- 5. At the surface the air grest are was 14.65 get, the training the 900, and the relative nathrity 74%.



OMOBIA JOSE OF EWING - Joseph

Spanning Unida

 $\frac{SITF(-1Pf) + EnSector + 1 + 198003}{200' - 340' - 50'' - 50} + 198003$ Size a levitions of a Lord

BETOIT Company to the for

TYPE OF MEMORIAN PROPERTY TO THE TOWN OF THE PROPERTY OF THE P

CEOUGH TOU SECTIONS: 42,000 SE MSE CEOUGH FOR SELECTION SELECTION

REGARDS: Only island dose-rate readings are worllable. Thron were obtained free merial and ground conveys made by the Radiological Safety Organization. The told decay approximation win seed to extend late the done rise readings to Bol hour. Heavy contamination regulies only on the shot foliable

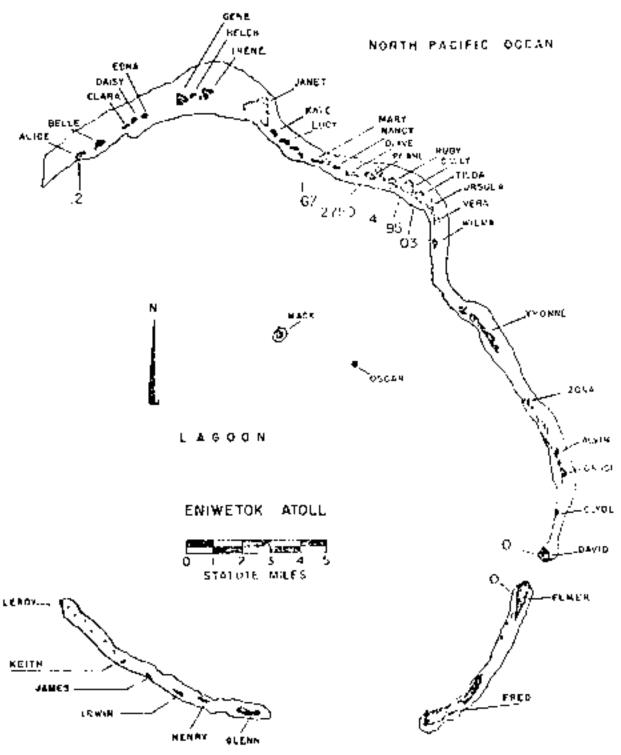


Figure 91. Operation CEDWID: - Ince. Island done rates in r/hr at 95) hour.

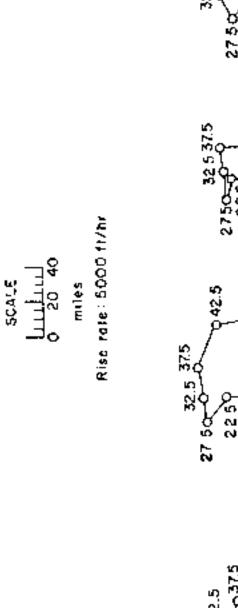
TAMES 28 AND STOR WEST DOTAL FOR OPERATION CONTRACTOR - INCA

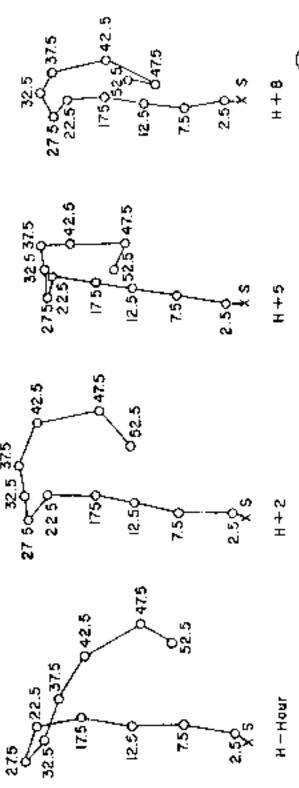
A24.315.36	· :[-1]:	700	IJ- lice	.12	(A) 51 7	art.	307.56	. :1:	1700	2000
(1446)	151 0	5,000	910	\$100 events	7.7.	¹ Append	ie r	04-73	· · · · · · · · · · · · · · · · · · ·	
Guel	GO, Priva	F. li	argree:	s aph	der ye	27,712	9 980 .	8,5	12/4/2017	
81 t'e	15.03		140	.LJ₊	***	;8	0.00	12	10/10/	13
Surface	150	12			116 000		687		090 080	16
1,000	100	50	100	50		21		81	01%	50
2,000	100	22	100	23	Oy.	Zi.	6) O	23	COX.	86
3,000	110	26	100	26	0,0	20	200	29		
0000ءنا	100	29	700	89	090	28	:00	20	CPO	20
5,000	1,10	ટુલ	1,00	29	090	89	200	22	680	53
$6, \infty$	3.179	2)	110	89	100	30	100	28	$(r_j)_{i \in I}$	50
7,000	130	29	100	29	100	30	100	24	000	2.7
8,000	300	29	100	30	100	31	200	2%	1110	73
9,000	690	29	999	89	100	22	100	2/4	130	24
10,000	090	29	090	28	100	25	300	24	1.05	24
12,000	aya	29	090	28	100	$S1^{\bullet}$	090	50	090	21
34,000	10.7	89	(00)	26	100	23	c(o)	22	100	.23
15,000	(000)	(25)	(799)	(25)	$(j\infty)$	(23)	(00)	(21)	(166)	(22)
16,000	100	29	COL	26	100	80	ree .	21	1,00	22
16,000	050	24	050	8/4	V(K)	23	120	20	690	22
20,000	0.50	28	080	23	(three	26	2007	88	ივა	200
26,000	010	25	020	22	Oho	4.0	GUG	133	Oh0	09
30,000	ಇಸಿಲ	15	520	16	170	12:	18	24	150	13
35,000	21C	25	200	23	1.70	17	175	24	21/0	20
ha,cod	230	30	210	89	200	2.5	270	2.7	260	30
45,000	230	36	240	36	266	39	270	31	304	56
50,000			300	23	320	24	020	17	300	1.3
55,000			350	55	330	21	110	21	110	li.
60,000							100	25	050	21.
65,000							1,00	29	030	2J.
70,000							იუთ	وكها	200	95
75,000							160	53	300	$1_{i, 2}$
80,000					•		11,5	4,9	200	43
85,000							100	بأؤ	000	56
90,000							0;K	83	O)O	74
95,000		••					(96)	27	090	₌ا ڼا
97,000									100	43
100,000	:	<u></u>		-			100	<u>85_</u>		

ROTES :

- 1. Numbers in parentheses are estimated values.

- Tropoyones height was 54,400 ft MSL at itth hours.
 Wind draw was obtained by the weather station on Enlawtok Integ.
 H-hour values were interpolated from data taken at 3-1 hour and H+2 hours.
- 5. At the confere the Air prepaure was 15.63 yea, the temperature 28.600 and the relative bouldity 81%.





10.09 Figure 92. dadagraphs for Operation F2DAINS -

 $6022 \, KC^2 \, CC \, EMO \, 1.000 \, + \, 10.9 \, Mag$

Space upp 1996.

primarily body is expedient a square se-13 5 10 70 20 137 5 5 6 6 7 4 the state of the first teachers.

HOROTE SEC. 12. 24 (10 Molecular

Hilleria () From the Arm Fraction of the wife of

archine the more described to the pro-

REWINS:

Galy island disc-rate by diagourse awaitable. They were ittered from acela) and ground playing rate by the Badistry but watery by allowables The following approximation was used to extragous with the pate readings to 400 leads. This phot produced bear eachy hat it is a few forms then expected. However, the water set, most to the continue. in while were arreadly where leadeds.

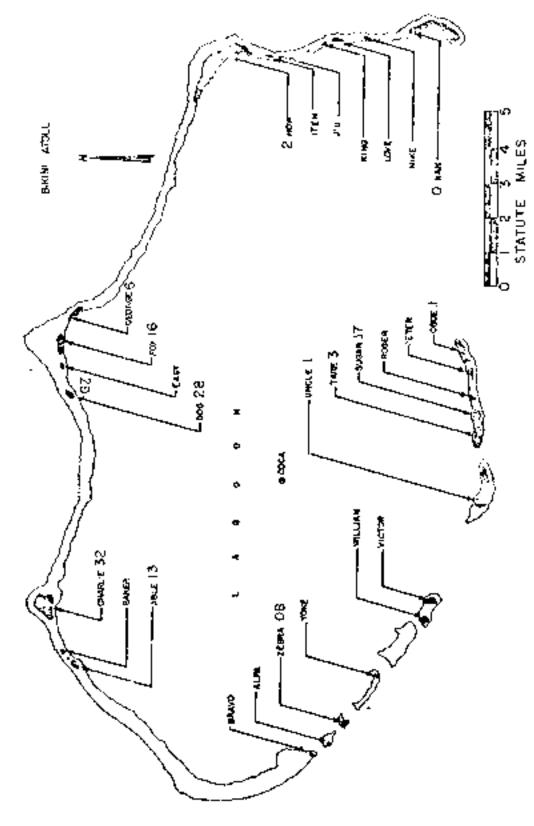


Figure 95. Operation NEEDILLS -

Deketa. Island desp rates in ribr at 241 hours.

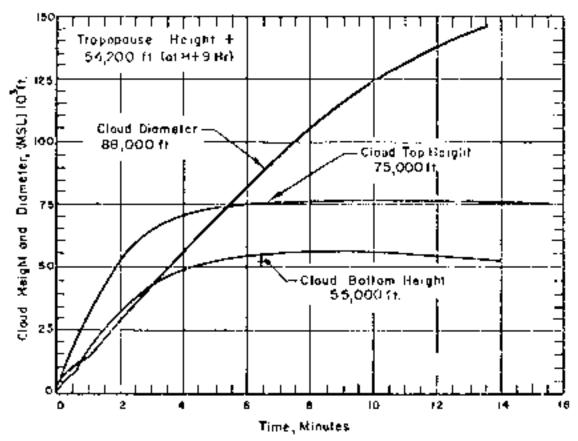


Figure 94. Cloud Dimensions: Operation MARVES - DAKETA

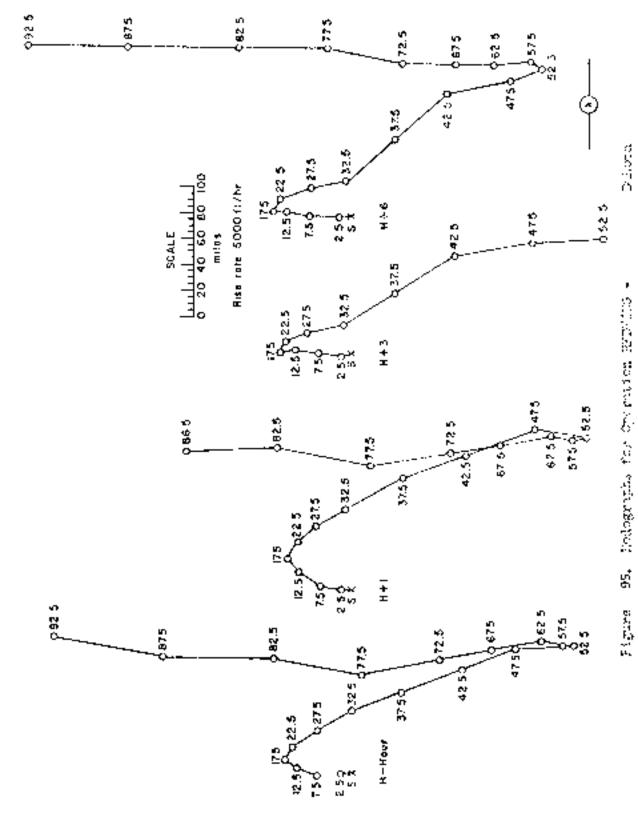
TARGET 29 PERSON WITH DAIN FOR OF ANYTHER PROMING - PARISON

Alta (to 6)						···	;:,			
(65)	100 (0		11.2	7:11 t		::··	- -	1		
3500	ac.	1,:	- 7-	64 Z	1217		<u>1/</u>	·., :.	21.71	
Sarther	$C7$ \times	17	$C^{1} \odot$	81	057	17	690	Γ,	600	j s
3,000	$\mathcal{C}(G)$	1.4	0.00	23			-G(0)	$-iv^{\prime}$	$G_{\mathbb{Z}^{n}}$	17
P (200)	1.00	2.5	C:N	(9)		- -	000	ΩL	2000	Ω:
3,00	: (%)	17	UÜG	Γ_{1}	140	11	$OG_{\mathbb{Z}}$	2.3	101	2.
Applicant.	4.30	Li :	$C_{N_{2}}$	17	1.0	77	100	1.2	0.30	1.00
5,000	1700	$\Gamma_{\mathcal{F}}$	CA(t)	17	100	- /	$\{v,v\}$	17	4770	27
ϵ_{i} and	160	1.0	COC	17	10.0	16	2.10	13	J. C.	- 77
7.000	230	177	Cito	23	TÚD	1.4-	110	17,	10%	310
8,000	280	1%	100	27	1200	16	120	17	. 10	13
9,000	13.	15	1:0	250	120	27.	100	16	100	23.
10,000	150	3.5	160	276	120	16	(00)	17	100	16
$120 \mu m_{\odot}$	320	12	1.50	15	110	15	120	TO	$G_{\mathcal{K}}$:	16
140,000	CGO	CG.	100	:3	130	15	O(50)	15.	1.180	1.7
16,665	310	Sr,	090	97	160	6)	$\Omega \ll$	MI	1000	27
المحارفا	350	0.6	200	50	190	$C_{\mathcal{F}}$	840	:17	210	14,
200,007	250	175	810	CI	210	15	200	0.7	2.10	179
85,000	270	0.0	540	25	830	18	250	17	250	8.5
30,000	230	2.6	8400	33	240	755	260	27	260	26
39,000	850	25	520	38	840	. 1	840	45	230	1.5
40,000	250	4.)	Spiri	40	$\Sigma(G)$	51	240	54	230	2.04
45.6(3)	250	اغرا	250	35	250	57	260	CO	265	1.6
50,000	870	35	250	54	280	35	270	53	200	7434
95,000	05.7	ΰ)			590	68			130	270
60,000	:00	88		- -	100	16	-		690	28
65,000	C50	33		4 -	099	39			090	595
70,000	1000	45	•		980	30			000	ان.ا
75,000	O(s)	58			080	62			TOC	58
80,000	090	63		•-	100	74			090	71
85,000	090	91			090	85			oýo	v_7
90,000	100	59							290	77
<u> </u>									-	

NOTES:

^{1.} Trop pages height was 55,200 ft MSD at H49 hours.

Wind dots was obtained on board the U.S.S. Curt.ss.
 At H-hour the sea level pressure was 1009.1 mb, the temperature 82.0 F, the dew point 75.0 F and the relative hamidity 80.0%.



OLIDAN FOR RECAUNG -

Market

BYDE TO GMT BYDE RESERVE A PROCESSOR THEE COMES AND

Street CRL

 $\frac{9179}{(10^6 - 10^6 - 30^6 - 30^6 - 30^6 - 3)}$ $\frac{162^6 - 18^6 - 36^6 - 10}{(10^6 - 10^6 - 30^6 - 10^6 - 3)}$ $\frac{162^6 - 18^6 - 36^6 - 10}{(10^6 - 10^6 -$

15/2001 O<u>F 15/18</u>020 1 300 OC

"CYTH ON PICCOT AND PLACE" (SEC.) 1. The burney over a real factor.

<u>CLOUD FOR EXHIBITE</u> 60 CLOUDS MAD <u>CLOUD FOR SOME SET SET</u> 50 CLOUDS FOR MAD

Id-MARGER The deservate revalings on the Schools of the stell were tokos og læriet ted grædd serveyn of sejerlifie projekte betvers Ess hase, and 8-56 matrix. The exteriorativity determined garma the 11 do by he used to entropy date the loop rate rending. In expinority Hit hours There maly heavy large wenthed notion regulated in Heby. In addition, significant attents of centure out on were deposited on the morthern calculate of the aboll. The readings taken between mites, dangt and Olive, were conscribed for the small done sales of an established there before the shot. We such a reactions were applied to sites, React and Silvy, because the containation from shot Hiblet was so heavy that the proshot gage rates could be negle-red. The readings in the vicinity of the cruter were taken between P432 house tel N456 fater. The average field decay explanat the readings. to DOI hours. Approximately 2 three after Determition, light follows started on Their and westimmed for one hour. Peak intensity was 22 mykr.

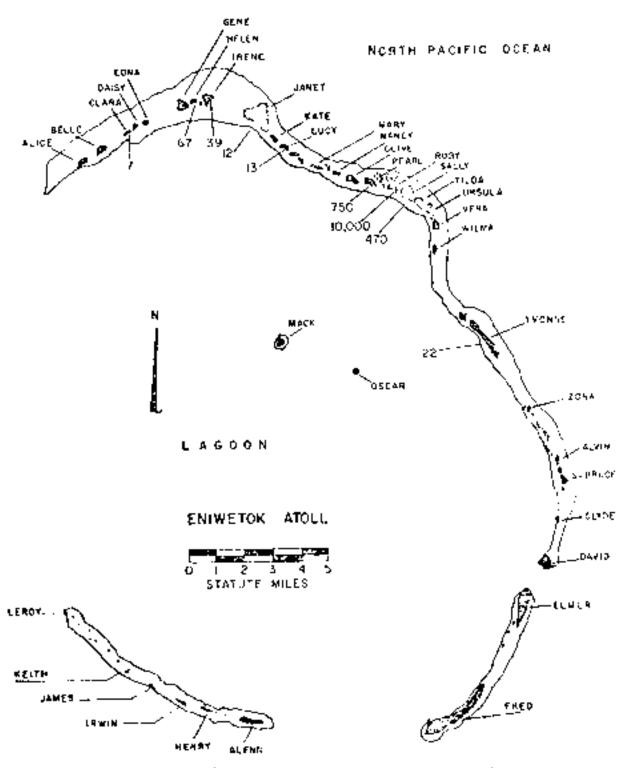
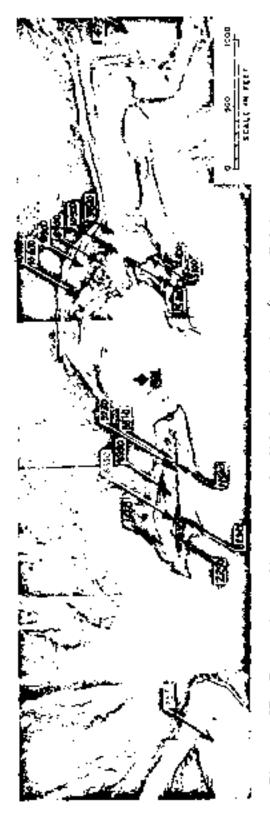


Figure 96. Operation REDWING -Island dose rates in r/hr at E*1 hour.

Mahawk.



Dose rate readings near the Mohawk crater in r/hr at H+1 bour

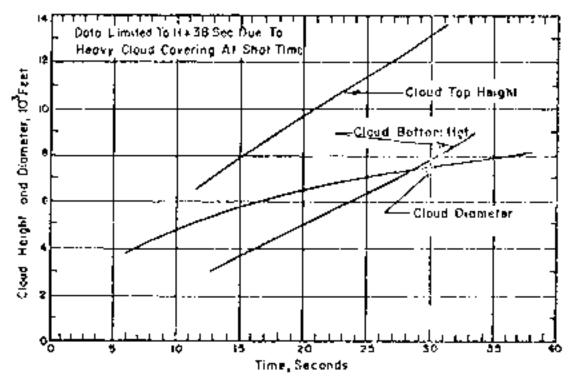


Figure 98. Choud Dimensions: Operation REDWITE: - Mahrack

TAGLEC 39 DOUBLESON WITH TANK FOR OF STANDARD 19:50002 - CONFIRM

W	- 12-8				73.6	. 12	li e e	-::: - · - ·
(```.`.)	1.1	<u> </u>	<u> </u>	· · · · · · ·		3 993	·_ ·	<u> </u>
5000	forms.	s.)	11,1996	:	38 av 30 av 4 av 20 av	2 m: 57 :	50 OF 150	- A
Gardener	100	25	430	21	250	3/4	130)/!
1,600	5.115	24	2.00	135	14.11	18	650	1:3
250.0	(C)	25	310	200	2830	2.3	0.81	4.5
3,000	100	20	410	26	127	1.7	78,40	234
المخارة	10.	222	130	30	3350		1770	23
التعارزو	(1.)	(30	2.00	47	2.0	10) 20)	15.0	213
6.0%	11.7	7.4	17.43	1.5	1280	10	1.06	258
77.50	0.50	150	134	71.1	110	16	2.40	; ;
850 a	0.30	20	110	(20)	1000	160	1250	100
975.0	000	16	100	1!+	100	j_{ij}	27%	24
10,000	C" 2	$\Gamma_{\Gamma}^{i_{\Gamma}}$	0.043	2.5	COL	16	17.5	200
1270.00	6/5	1.0	070	18	18.50	ነዓ	0.55	26
10° $c\Omega ^{\circ}$	Chris	300	00.0	1/5	0.30	3′′	000	25.
15,100			$(\odot \odot)$	-(.6)	(999)	(7)	-(rrel)	(:,:)
10,000	0.70	339	500	177	350	177	A1 K1	15
16,000	10.55	10	280	0.0	3775°	0.3	00.7	69
Post 1	190	20	200	\$::	13.783	777	£*;**	16
29,,000	17/3	10	150	Cts	150	G_{i}^{*}	2000	(4)
30000	200	2.9	100	17	195	20	2447	113
3970.00	240	76	180	25	3300	21.7	10.00	287
integral to	14.	5.5	მემ	ď.	25, 67	1,4	100	-3
95 p 200	17.4	5.1	25,0	i-:	17.7	$h_{i,j}$	1170	20
50,000	:70	57	272	322	200	.5-1	$P(\mathcal{A})$	25
55,7% 3	678	0.9	160	(7)	150	97	1507	111
60,010	100	25.0	100	200	120	27.4	0,80	7.9
(6, 000)					6.00	35	16.0	38
70,500				₩-	100	48	100	45
75,000					1085	2.9	100	58
Sojeta					TIX:	Q_{j}	005	55
865a a					T		900	50
$h_{b,j}\cos c$		••			100	61		
90 Joy 0					090	75		
95,000					0.00	32		
100,070					090	63		-
100,000	•				0(X)	-88		

MC77F233

- Suche pairs paperathened ago estimated velocy.
- 2. Tropagames height was 55,500 ft Note.
- 3. Wind data was observed by the weather station on Maiwetch Island.
- 4. Hilliam values interpolated for 45,000 P and show from High bours wild 1913 Europe distan-

^{5.} At the supplier the ally programs was the body to a the temperature 26.000, the new point 32.890 and the relative matrices offer

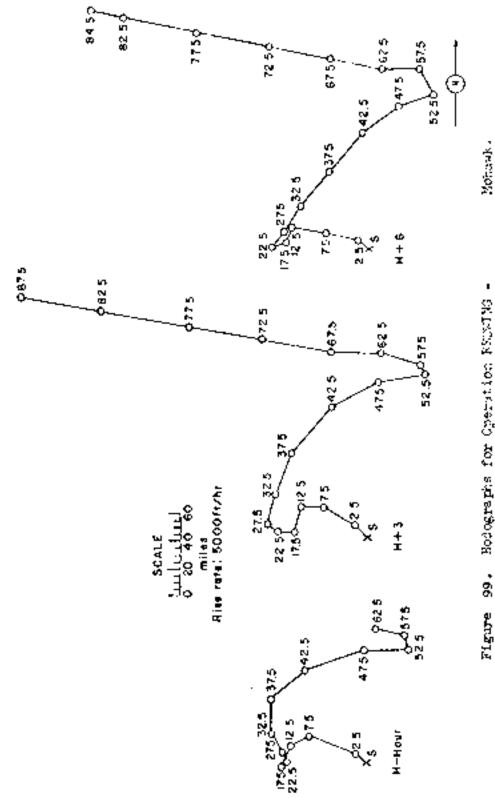


Figure 99. Bodographs for Cherytion FSDXTMS -

upignor or principle - Append

Open committee

10.750 (114) = 0.756 (12.25) + 27 (14. 10.56 (1.25) + 12. 60.25 (1.25) + 12. Billion and the first of the

Name of the Contraction

within the Mill March of the

육장 글로 한 편안 하나 하는데

h/21/...(..):

Only island done rate becling the available. These were mishing achila) bust proceed conveys to the by the Boar form of Selectly expressions as a The CRYT deeds approximate in the new total extensions by a service of a section region of the residence of the section of the through In the upper induces of the stocks. Water in the month and stothe Tagoon was highly contaminated for a conflicial or distance from the shot in land, and we the oil timp i delet, were moved and by though congrette, the postermination appears an orby a

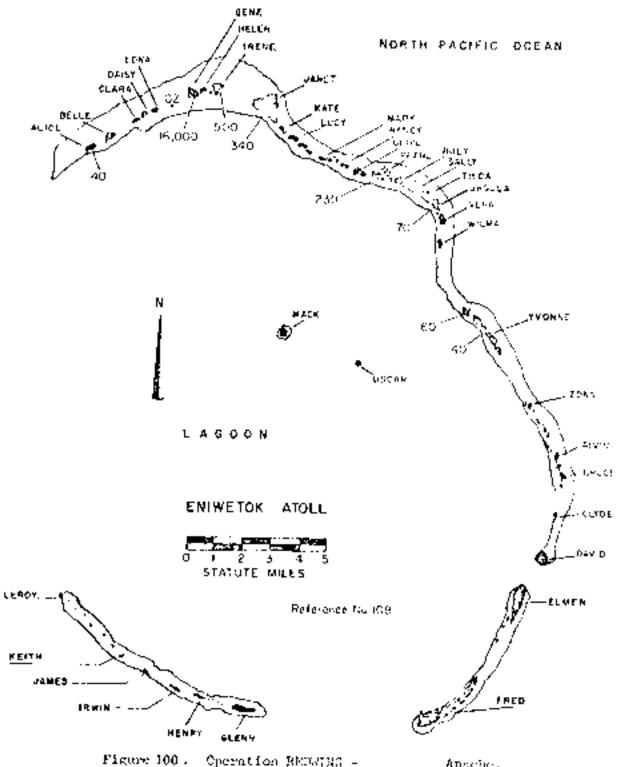


Figure 100: Operation RECEIVES - Apache: labore done rules in r/or at h*) boars.

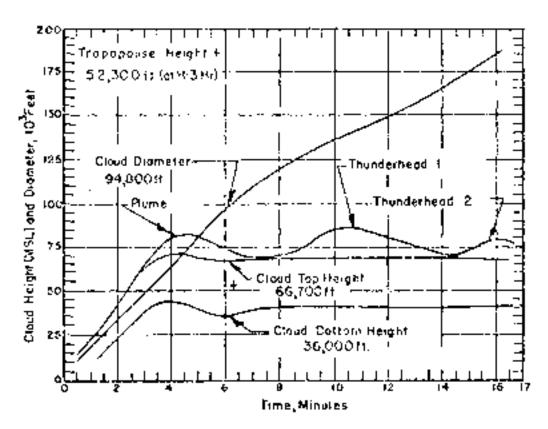


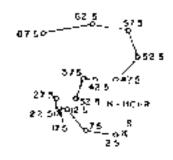
Figure 101. Cloud Physics Const. Operation FREWING - Agache.

TABLE 31 REPORTED WITH DOOR POR CHEETERS NOT THE ANALOGE

A : Calbaser	*:- · :	41.35	ifehro.	:	97.5.33	::::::	:: 1	e		
(819.)		19 00 1	T1/1.5/	10001	iur.	75.765			- 11 to	.∴ Ξ
from:	$C(\alpha f(x), \alpha, \alpha)$	-:i. /-	Segmen	Gi jirr	degreen.	717		. 1 .	and they	7, .
Surface	000	122	O(2)	18	977C	12	1444	1'	09	14
1,400	C75	11.	$\phi_1 \circ$	16	09.00	200	86	200	(9°5)	16
8,000	695	14	C(3)	18	0.76	213	, MEA	2.2	U(X)	37
3,000	630	17	(350)	17	670	25	< ,0	28	O(2.)	7.4
4,630	100	15	030	70	(1 ⁵ 11)	116	0.22	200	100	98
5,005	100	15	0.00	23	15.5	32	1200	23	17.5	17
ولالمارة	:10	1]-	11:)	18	0.10	22	3.83	21	17	25
$C_{\bullet}(0,0)$	110	177	130	83	1777	7.1	(5)	213	100	7.1
8,600	630	1:1	3,900	55	1086	2:	300	(2)	10.5	::1
9,000	230	10	130	21	130	2.5	150	210	210	20
195000	150	18	150	21	11/0	23	117	21	11.	20
12,000	450	0.1	190	10	1500	13	11	10	130	2.5
15,000	120	06	120	03	110	1.5	160	1929	1000	12
16,0x	G(4)	0.7	0(x)	05	000	3.	23.7	: 7	178	16
18,000	Ch0	(4)	020	m;	35,0	(1)	32.0	6,0	300	0.7
25,000	050	02	050	12	Özet	C,	1977	(2)	\$67	
230, CA	230	6.2	2/30	98	160	C_{ij}	220	177	485	12
30,000	3.00	i.,	2770	20	\$10	(3)	1760	0.3	200	.3
35 (000	11/	2!-	200	276	200	٦.	215	``	29%	0.0
40,000	27.0	10	2590	(3)	20%		2.00	37,	240	15
45 JOSS.	530	16	270	16	2640	12	7.00	25	230	20
50,000	35 555	17	220	40	3.20	3	3425	Y.	2900	(:1
55,000	180	29	16/:	23			0.13	ė,		36
€6,ccc	200	30	100	30				371	en:	- 1
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70,000							000	47.	100	95
γ5/cop							300	1,4	07)	1,0
80,000							000	72	690	71
89,000							092	163		
90,000									300	106
93,000							11.00.00		110	96

NOTEGE

- Numbers in purchtheses are estimated values.
- 2. Tropophope height was 52,300 it MID at H-3 hours.
- 3. Wind dals was obtained by the weather station on Privatok Island.
- 4. H-hour values interpolated; W=1 hour and H*1 hour data was used for surface through 50,000 ft; H=1 hour and H*4, hours date was used for 55,000 ft and above.
- At the surface the air pressure was 15.63 pc; the temperature 26.800, the dempoint 23.700, and the relative harding 80%.







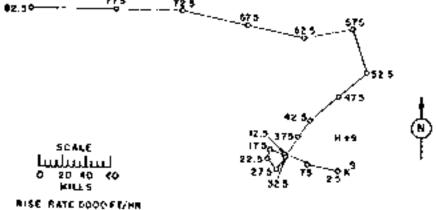


Figure 102. Hodographs for Operation RWWING -

Apache.

OPERATION DEDUTES -

Mayajo

PPG Time GMT DATE: 11 Jul 1996 10 Jul 1996 TIME: 0556 1756 Spongor(IASI.

 $\frac{3276:}{11^9 \cdot 39^4 \cdot 48^9 \cdot K} = \frac{11^9 \cdot 39^4 \cdot 48^9 \cdot K}{165^6 \cdot 23^4 \cdot 36^9 \cdot K} = \frac{165^6 \cdot 23^4 \cdot 36^9 \cdot K}{1699 \cdot 2994 \cdot 1699 \cdot 1699$

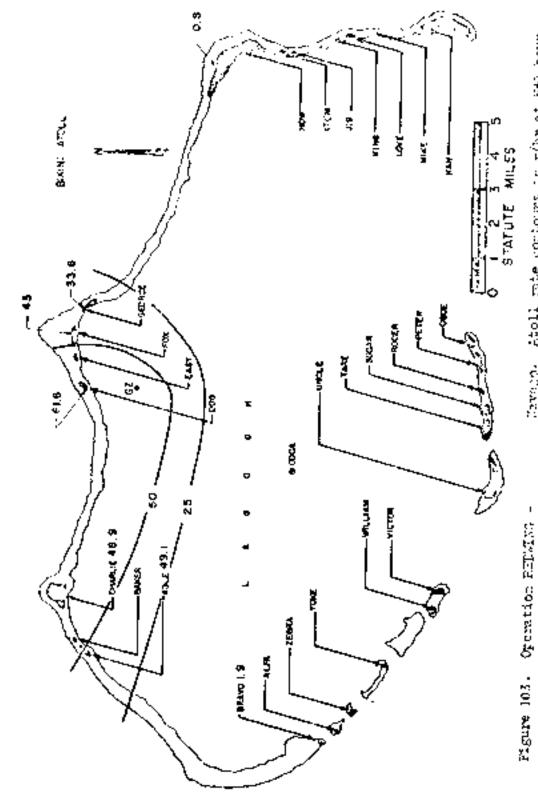
ENIGHT OF BUREFY 15 Pt.

TYPE OF BURST AND PIACEMENT: Surface bond from Large on water; center of gravity approx. 15 It above confine of water; depth to bottom-215 ft

CLOUD TOU SHICKER: 85,000 Ft MON-CLOUD REPORT SAIGNEY 52,200 Ft MON-

REMARKS:

The off-site (a)lost pattern was drawn from acrial and opening surveys. The openingraphic surveys used detector probes for measuring the dose rate at depths to and below the thermocline. Water sampling equipment was used for taking of surface samples and for the collection of samples from any desired depth. The dose rate readings were eximpolated to H*1 hour by using the decay measurements of the samples collected.



Carego. Atolk rate contours in r/br at 841 hours.

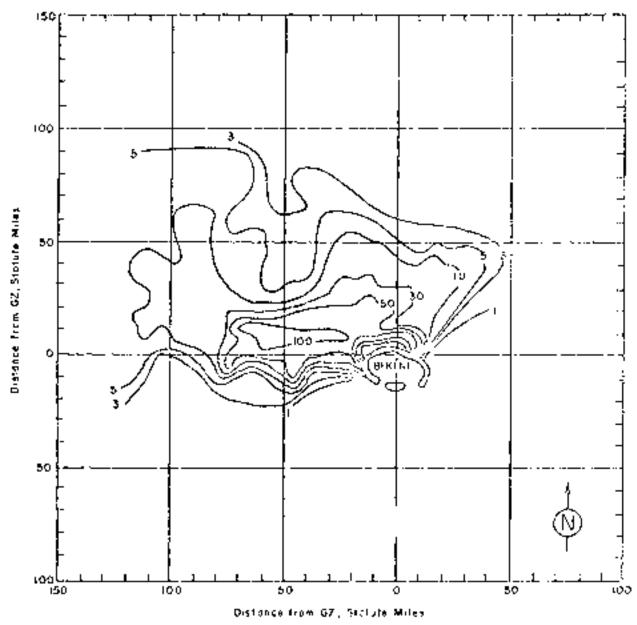


Figure 184. Operation REDWING - Revenjo. Off-site docerate contours in $\tau/h\tau$ at E+1 hour.

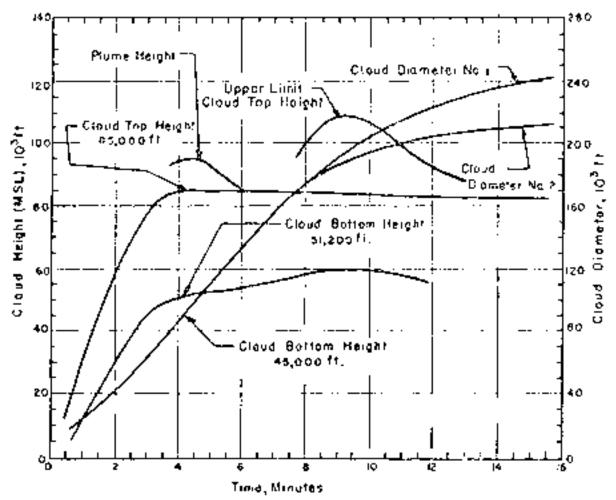


Figure 105. Cloud Dimensions: Operation 98054100 - Ravajo.

MARKE 52 OFFICE WITH DAYS MOREOVERS READ AND THE

12,45,70

Articles					<u> </u>			
(v_1.)	_! ; ; ; ; ; ; ;	District	Jah	30 Tal. 1			7., ;-	
Feed	45.00	77.7	designation			7.4 '.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ir jer.
Stop to a	Cha		090	\$4.5	0.00		676	10
1,500	OV	746	696	100	30.0	200	etto.	17.
$P_{j}(n)$	(0)(0)	200	680	?".	ì·	76.	3779.4	31
5.30 80	1.55 ₀₀	P_{μ}	$6^{\circ}0$	279	5.75	(6)	10.5	11.
671.60	600	2".	ივი	26	11.4	2%	210	(1)
りょうべ	(2.5)	23	იგი	26	Contra	255	110	<i>:</i> ;
6,000	200	111	080	14.	33.6	(1)	200	141
7,0	City	177	080	75	(.)	253	14.0	11.
6,000	G_{i}^{0} .	273	099	213	10	? ::	:	2.3
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16,016	(β) .	42.5	CBD	(30)	0.5	: 1-	SA 55	• .
384000	0,70	15	080	299	C70	23	670	
14,000	Cfk	, i4	970	12	\$7.44	377	ŞFK.	. ,
15,700	((3.7)	(zz)	(cw_{\cdot})	(12)	(ϕ,ϕ)	()	(0.70)	()
16, 73	1689	10	σγο	13	(2)	1.4	COM	1 r.
$R_{\rm pl}(\mathcal{O})$	000	99	c 855	10	16.5	1 、	070	. %
M(): 40	7.40	07	090	C_{ij}	1000	600	C.N.	25%
25,000	(50)	08	270	0.9	100	(0)	Cart	; .
30,000	230	17	24C	13	700	16	2.20	ì.
35,7000	2.30	724	$27/\Omega$	Γ^{γ}	15 (7)	!1:	27,0	:::
40,000	8.80	18	260	29	25	70	736	3.
45,000	19.0	35	250	27	2)0	1-71	20%	5.0
50,000	p(y)	33	260	\$1.7	$f^{k_{0}}G$	34	250	3%
57,000	1730	37		~:				
55,000		•	120	1.5	300	5/6	00.0	1//
ζ_{0}, α_{0}			080	ë.	130	30	100	70
$\theta_{ij}(\phi)$			090	46)	050	35	686	32
70,000			080	50	090	67	000	47.
70 (170		7*	***		000	148	• • -	• •
74) (000	7						090	:9

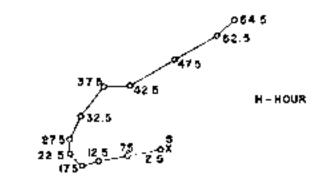
SOTIMAL

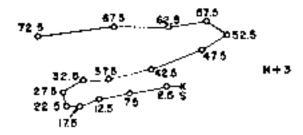
^{1.} Note to in parentheren are estimated values.

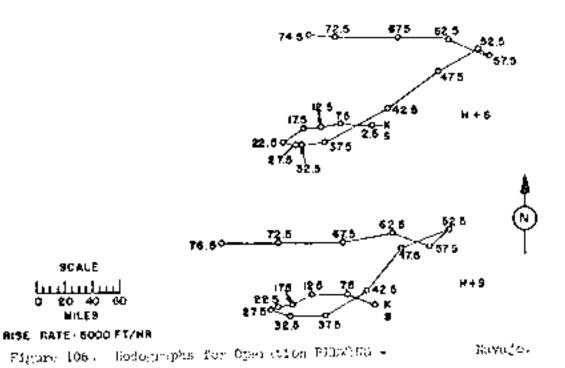
^{2.} Wind data was obtained on brand the U. S. S. Cuptime.

^{3.} Tempoparas adigid was 50,000 ft MSL.

^{4.} At E-hier the sea level pressure was 1030.2 mb, the temperature 81.1°F, the dem point 74.0°F and the relative homidity 80.0%.







G109 A2010 C1 H 015/15/41 --

D Wit

 $\begin{array}{lll} \underline{W}_{i}^{*}(\mathcal{G}_{i}) & \{i\}_{i} \nabla \{i\}_{i} & \{i\}_{i} \nabla \{i\}_{i} & \{i\}_{i} \nabla \{i\}_{i} \\ \underline{T}_{i} \nabla \{i\}_{i} & \{i\}_{i} \nabla \{i\}_{i} & \{i\}_{i} \nabla \{i\}_{i} \\ \end{array}$

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tigation and in 1990 Co.

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REPRESENTATION 11

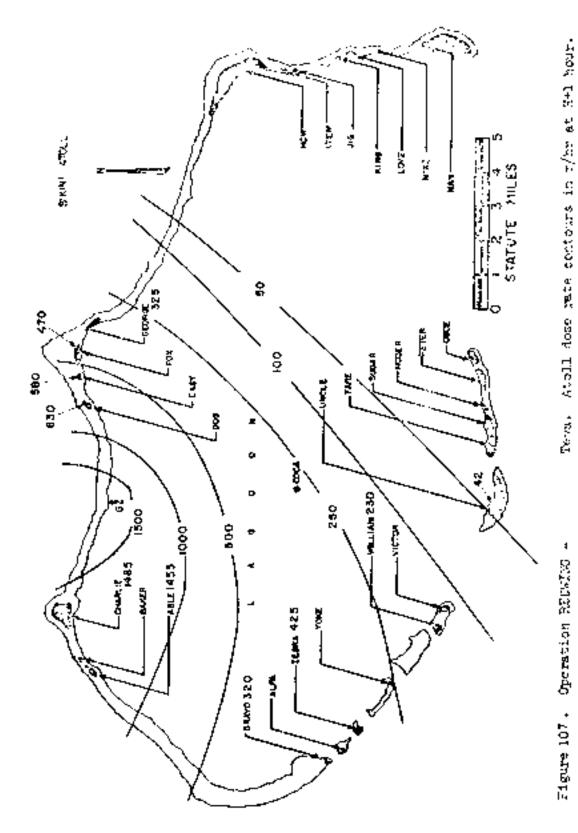
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The efficient indicat pattern was drawn from seesing rights a creeped. The obtaining discussively took of detector pattern to prepare the property of the action of reference for the taking of authors amples and for the collection of any and from any desired depths. The dear rate condition were extrep inted to indicate by action the sees recommon of the magnetic collected. Fall of from the foring of this device contaminated Falwelsk matter. The value on Milwelsk occurs of the property of the service was along with a year of 100 to 120 tar/no.



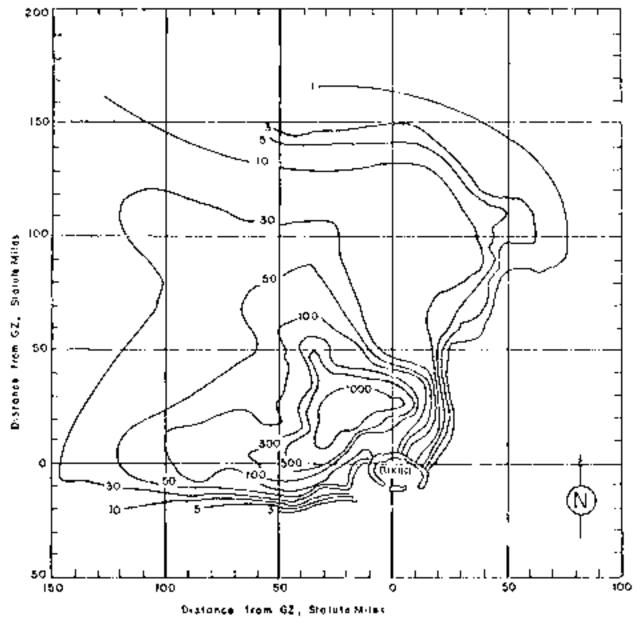


Figure 108. Operation REDWING - Yevs.
Off-site dose rate contours in r/hr at 9+1 hour.

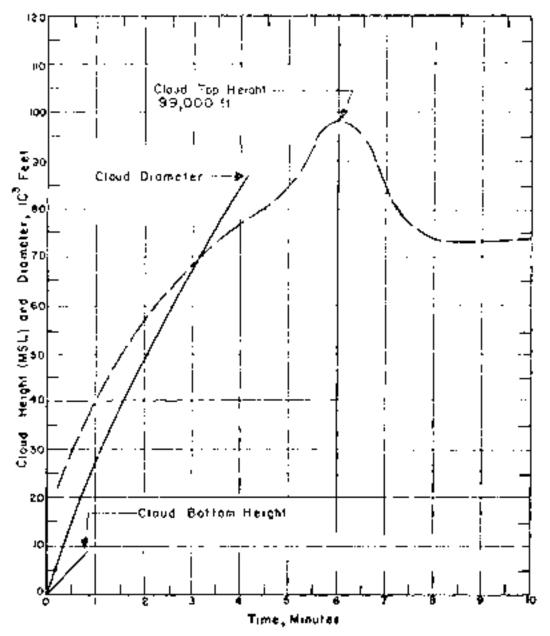


Figure 199. Cloud Dimensions: Operation MCOMING - Tove.

Matters $\mathbf{33}$. There is an interpretable of the regularity of the $\mathbf{1}$ - $\mathbf{1}$ - $\mathbf{1}$ - $\mathbf{1}$

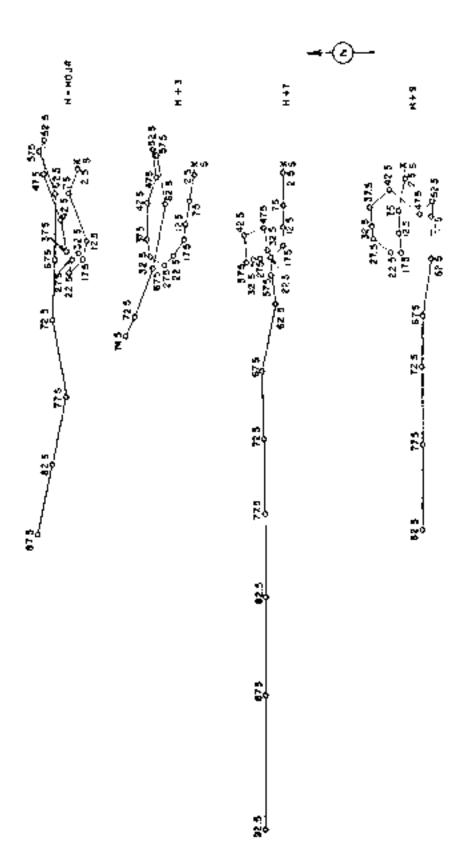
$\frac{1}{\sqrt{N}} \frac{1}{\sqrt{N}} \frac{1}{\sqrt{N}$			<u> </u>		<u>9</u> 27-1	 		
- 100 m	· 40 4	.: =:				<u> </u>		- <u> </u>
State of the state of	e . ·	1%	0.70	(!)	11.0	Ps	4.0	
1.00.00	Q11.	Γ_1	Girt	16	2.5		6.79	
21,440.01	7700	:77	NOS	17	1.00	1.	30.75	1.5
3,000	13.0	:5.	200	25.7	i.	7.5	: .	
6,0.	: .:	170	(0)	12	1.5			
36 (17.07)	170	:fr	100	30	6.5.	; .	10.7	;**
$C_{\infty} C_{\infty} \ldots$	35.0	10	5.53	2.1	355	:	16.1	
1,111	100		310	25	1.7	.* •	6.7	:
$b_i \cos b_i$	479.	.:	100	7.	.0.0		6.7	:
O(3, C(t))	6.00	(21	. 530	15.5	4.00	: 1	0.00	
To colo	W. N.		10%	-7	CA		: •	: '
11 / 1000	(7	Ι.	169	11.	0.37	٠.	(7)	• • •
14,000	. : -	11	10.5		43	1	0.00	٠.
12,000	(30)	()	$(\alpha \cdots)$	(-3)	()	: ; ;	$(v \leftarrow v)$	(,)
15, 2000.		1.7	100	1.	× 1		10.00	
15,03	G to	13	. 160	5.	٠.		:	
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17 ,000	25.5	(1.4	13.3	67			V	
96.5	50.5	1.1	200	-7			. 1.1	
30,000	1.4	1. :	10.00				250	
والمار الأناب	: -	1.5	270	- 3	. 3	Α.	·. ·	
37 J. N. S.	77.35	٧.,	11,000	<i>;</i> .	'	1.4	: `.	
1000	25.00		25.5	<i>:</i>	٠.			
95.40	1.73	:	0.49	į.	. :		V. 17	1.7
(D) C.S.	UÇU	333	060	,: .	43		12.6	
$G_{2}(x,y)$	(37)	125	100	50	1. 1. 1	1.7	100	1,
70,000	C93	40	133	ትር	(37)	1.0	17.5	
764,616) 10	37				n -
$\frac{1}{2}(k_{B}k_{B}) = 0$	C20	61		~~	x 10.		i: x'	1)
Solver	10.61	575		-	CON	:	27.60	•
80,700	300	1.7			Ç 11	-11		
90,000						1.5		

(70%) (20)

^{1.} Note his in garrentheness are estimated values.

^{2.} What date was obtained on broad Ore 5. 5. C. Certine.

^{3.} Trop.(where bright was 50,000 ft MCD. At H-from the sec level persons was lake, for the temperature. BUTY, the down for firty and the relative menticent fig.



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Harris.

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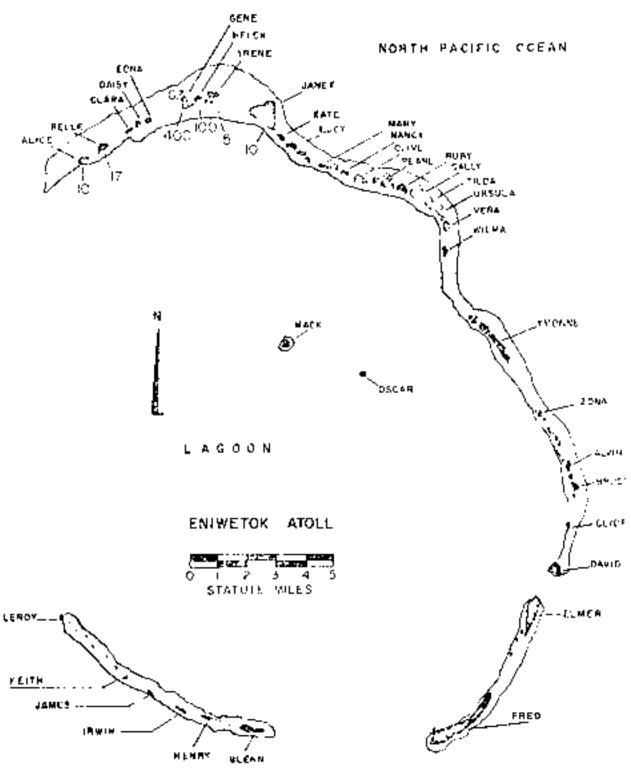
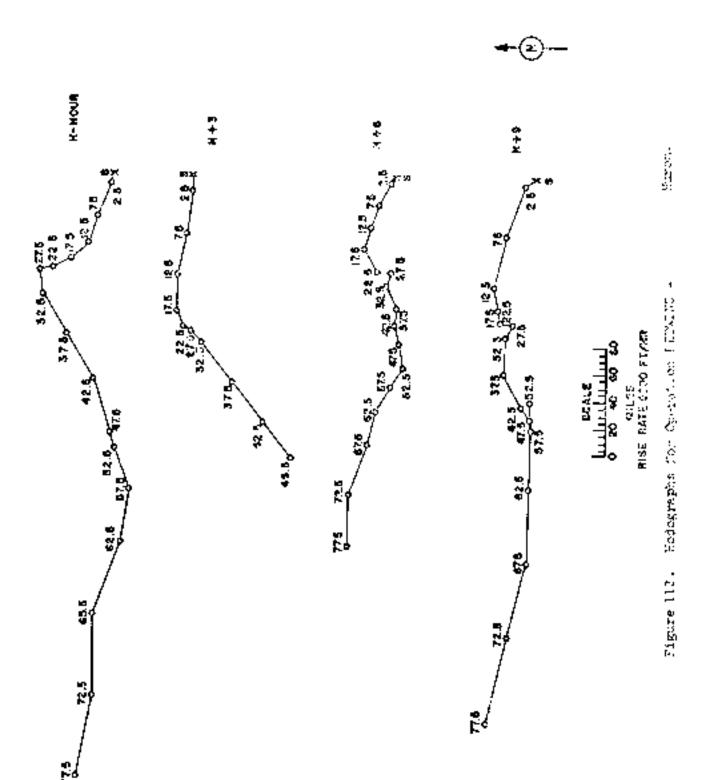


Figure III. Operation REPWHEE - Barons Inland dose rates in r/hr at HUL hours

TATE CO.	- :- T _{E-} : ,		- 507(-)	ere. Open I.	- ::			
(15.15)	Fig. I.	"; ; : : < ' ''	· · · · - ·	75000	_*			
<u>—</u> \$27.4	-;;		37, 335	1.7:			<u></u>	(
(Sport pers	3.00	1':	0.00	315 21 244	17.7	Ρ.	(5)	27.4
Lycher	11.11	18	1 ::	:	: !:	.÷.	100	1,40
17,1		133	110	₹ ⁴ -	***	1:	3.17	200
3.75	18.7	325	100	6.7	177	1.	11:	3) 3)
$K_{\alpha}(x, x)$	18,000	1.5	200	50	C: .	10	3.55	31
5,	110	(* *	j.)	,3-,;	3149	15	3.50	\ \ \
197	177	:43	11.7	28	11.5	37.	100	124
7,00	17%	16	1200	7.7	150	107	4:00	-34
8,6 -5 9,660	11.5	157	$O(i\omega)$	2) 2)	1.0		133	7.
9,770	130	13	$S^{*}(n)$	27	::	٠.	i.:	
	100	135	1.70	20	. 11	·;	1 :	28 -25 -25 -27 -27 -28 -28
200,000	1.10	107	1.373	22	12%	• • •	(· ·	: 45
249000	1327	! 14	100	23	0.75	1.7		23
15,0 %	(a_{i+1})	(ε, s)	(eac)	(:::)	$(-\cdot,\cdot)$	$(-\cdot)$	Ö	(10)
26,000	16.	32	000	23	1,57	· · · ·		"/
$(U_{\mathfrak{p}}C)\cup U$	1(0)	277	0700	10.	0.40	;	0.707	172
$CG_{g,k}(M)$	100	i^	City	(1)	1 + 2	i	$C_{1,Q}$	177
(5)(0.7)	-76	65	C35	Ο,	300		0.5%	877
30,000	0390	26	(45)	10	153	(9)	10.0	+ 12
30,000	06.0	37	05.0	3	Fe, 0	4	1997	26
$h_{i,j} p_{i+1}$	G(s)	$t_{a,c}$	6.0	30	1500	600	0.047	25
$M_{\rm p}(p,Q)$			67.0	39				
10/8 g (1) c	0%	58			O.C.	0.7	1957	90
00,00	07/0	96		~ -	65%	15	791	10
55,000	eye	2.3			1337	13	(190)	: i.
$60_{\bullet}600$	tod	36			120	23	0.70	2.5
$e_{\gamma}a_{\gamma}$	100	23			100	201	$(0, \mathbf{v})$	1.41
70,000	$Q_{\alpha}(X_{\alpha})$	55	- 1		140	39	10.5	: 7
75,000	2G.0	7.1		-	(11),1	3.4	1:57	97 13 15 15
forjero.	100	72		••	CAG	17	P	Ÿ
50,000	100	87		••	000	17.5	COAs	i.:
90,000	1150	\$G7						
995000							095	137

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- 1. Sumbers in parentheres are estimated values.
- 2. Teopopulse height was 10,000 is 12% as U-N and
- 3. Wind dots will obtained by the weather station on Milwetck
- h. At the current the air prosture was Make poly the temperature My Marc, the dew pairs this of med the pointing hards by " 4.



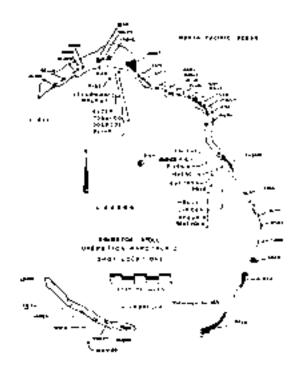


Figure 113. Operation MARDTACK I, Shot Legations, Eniwelok Atoll

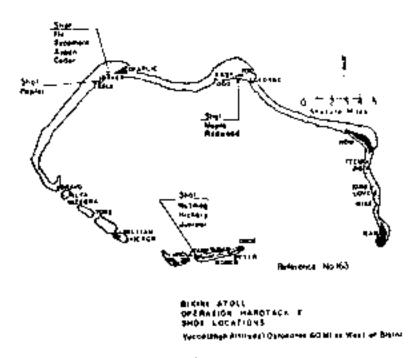


Figure 114. Operation HARDTACK I, Shot Locations, Bikini Atoll

OPERATION MARKETACK I - Youca

<u>PPG Time CMT</u>

<u>DATE: 28 Apr 1908 26 Apr 1908</u> TIME: 1550 02:0

Sponson: 000

SITE: HO - UCC Poxer Comp. west of Pikin. 12° 3° 00" N 163° 01' 30" E Site elevation: Gra (eve)

MEIGHT OF BURGET PA, OF CO

TYPE OF MEDICALL PLACEMENT;

Air Paret from Franciskov ex CONT. Wisher

REMARKS: Secrations

TABLE 35 BIKINI WIND IMPA FOR OPERATION UMBUTACK I - YUCCA

Altitude	17 6-00	
(MSL)	li-hou: Dir	Speed
feet	degrees	mph:
1000	acticco	1p1.
Surface	040	16
1,000	050	53
8,000	050	35
3,000	970	36
4,000	130	09
5,000	350	35
6,000	360	14
7,000	150	15
8,000	190	12
9,000	210	99
10,000	230	၁၆
12,000	350	15
14,000	350	15
15,000	(320)	(15)
16,000	330	16
18,000	300	15
20,000	260	Qγ
23,000	210	15
25,000	240	15
30,000	200	13
35,000	210	32 i, b
40,000	270	
45,000	270	51
50,000	270	μģ
55,000	270	36
60,000	280	33
65,000	520	18
70,000	ഗ്യാ	15
75,000	180	09

NOTES:

Numbers in parentheses are estimated values.

^{2.} Wind data was taken on board ship located within 30 mention) wiles of the Tower at Nam Island, Bikini Aboll.

Tropopage height was 53,000 ft MSD.
 At B-hour the surface air pressure was 14.67 psi, the temperature 25.70C, the dew point 69.60F, and the relative humidity 75%.

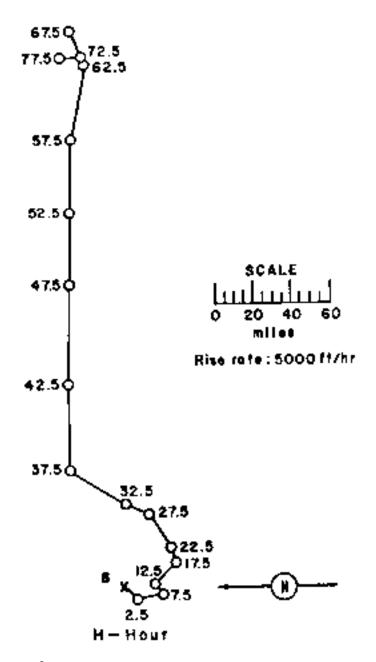


Figure 115. Bodograph for Operation HARDTACK I -

Yucca.

OPERATION NAMEDIACK I -

Cactus

<u>PRG Time SMT</u>

<u>PATE:</u> C May 1.8.5 5 May 1905

<u>TIME</u>: 000; 1815

TOTAL Y13131 18 kt

FUREBUILD PAGE:

Time to let minimum: 12 more Time to led miximum: 1st more Redict at 2si restrond 555 ft.

CRATYN DATA:

Diameters you ft Depth 3400 ft Lip Beignie 5 to 10 ft Dip Width: 110 to 170 ft Spondor: LACL

 $\frac{SITE}{14^{n} \cdot 34^{n} \cdot 34^{n} \cdot 34^{n} \cdot 34^{n} \cdot 34^{n}} = \frac{14^{n} \cdot 34^{n} \cdot 34^{n} \cdot 34^{n}}{160^{n} \cdot 21^{n} \cdot 34^{n} \cdot 34^{n}} = \frac{160^{n} \cdot 21^{n} \cdot 34^{n}}{160^{n} \cdot 34^{n} \cdot 34^{n}} = \frac{160^{n} \cdot 34^{n}}{160^{n} \cdot 34^{n}} = \frac{160^{n} \cdot 34^{n}}{160^{n}} = \frac{160^{n} \cdot 34^{n}}{160^{n}} = \frac{160^{n}}{160^{n}} = \frac{160^{n}}{160^{n}$

HELGHT OF PURCUIT A TO.

TYPE OF PURCH CONTINUES Copyright and a literature of a

 $\frac{\text{QLOTE}(\gamma) \leq \log \log t \leq 1 + \log \log t \leq \log \log t}{\text{QLOTE}(\gamma) \leq \log t}$

REMARKS:

Only individual island dose rates are qualitable. These were risalised from helicopter surveys at 600 hours made by the Radiological Safety organization. The helicopter survey technique halled for the pilot either to land the aircraft at the desired apot, an test a ground reading could be obtained, or to make a slow pass then the reading spot at an elevation of 25 feet. Readings taken at 15 feet were multiplied by a factor of 2 in order to obtain a reasonable approximation of the true ground reading. The basic los rooms used in the serial surveys was the AN/PDH-39 survey meter modified to read up to 500 r/hr. The t-1-4 decay approximation was used to extrapolate the H+4 hour dose-rate readings to H+1 hour.

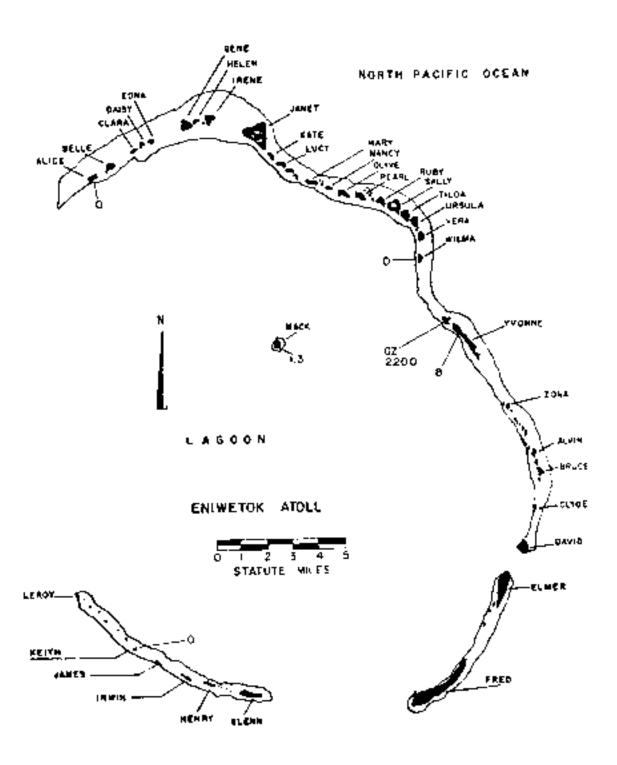


Figure 116. Operation MARDTACK I - Cactus. Island dose rates in r/by at H*l bour.

TABLE 36 BRUNNICK WIND ONTA FOR DESERTION EMBRICACK ! = -

20		

Altitude:	29.4% (3.7	0-1	: *** ;	198
(yau)	Dig.	<u> </u>	Tir	Part of the second
feet	dogroes	7,7	00000000	-,4-1-
მსუჩილი	060	1€	OF.C	1.6
1,000	070	5.*	cik.	29
2,000	თვი	2%	060	25
3,000	360	56	0€0	25
4,00a:	96 0	24	740	29
5,000	060	23		5.
6,000	060	25	0,70	24
7,000	080	15	050	L'
8,000	690	10	640	Æ
9,000	110	35	191	;
16,000	360	03	100	- 68
12,00	50.0	ಯಿ	29.	
14,000	. 150	, it's	; - : .	
15,000	(130)	(25)	(188)	(49)
16,000	100	lö.	-3'	
18,000	100	18	1.3	15
50,000	:20	16	:- "	1;
23,000	-090	13	1, 1	;.4
25,000	CEC	C'9	9.3	1.
30,000	970		PD"	26
35,000			230	52
40,000	550	77	٤٦.	376
45,000	290	3%	27	\3
50,000	310	32	5.	25
55,000	\$30	Ç.	×.	1:1
60,000	260	177	29.7	<u>.</u>
65,000			250	.2
67,000	370	C.	•	• • •
70,000	120	60	090	52%
75,000	თუი	13	ಿರಿಂ	15
80,000	080	3)	990	23
85, 000	ැදිර	\2	100	23
90,000	090	60	100	40
95,000	•••		100	52
96,000	100	57	•	
100,000	- 4-		290	49
105,000			090	51
110,000			39 0	59
112,000			090	6.

HOTES:

- Number in purceitheses are estimated values.
 Vind data was taken by the Entwetok weather station.
 Tropopause height was \$1,000 ft MML.
 The surface air pressure was 14.00 ps., the temperature 26.710, the dee point 72°F and the relative bundling (of).



Rise rate: 5000 ft/hr

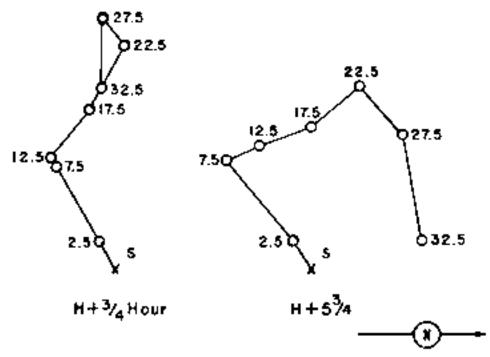


Figure (17). Hodographs for Operation MARDTACK I -

Cactus.

OPERATION HABBIACK I -

Fir

 $\begin{array}{ccc} & \frac{PPG}{DATE}, & \frac{OAT}{U-Mn(g-1) + iC} & \frac{OAT}{1 + Mng-1 Vibb} \\ \hline \frac{TPM}{U-Mn}; & \phi(i) & & 176.5 \end{array}$

Sponsor: UCRI

SITE: Pro - Bukin. - DW up Charlie way to finite to search tedes on the initial 11° Alt Land S 165° Tet on " A Site elevation is a local

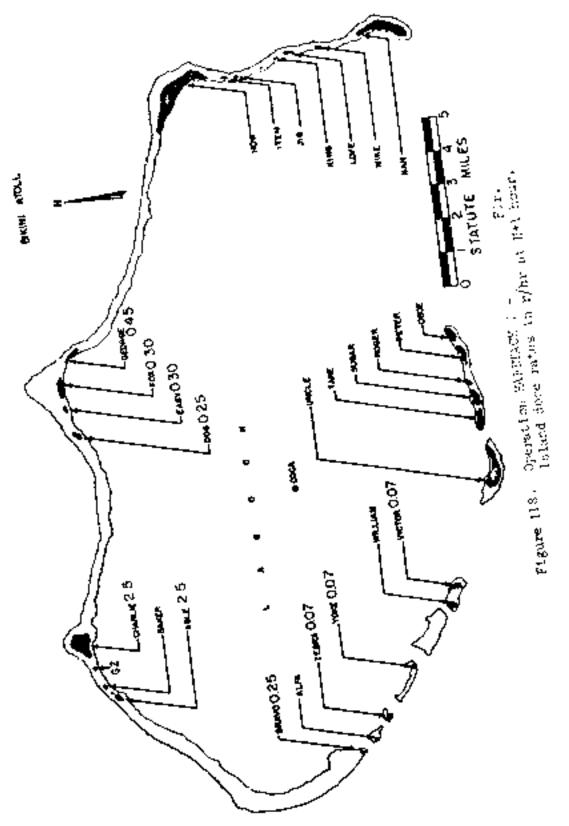
BRIGHT OF MOUTE CARRON

TYPE OF EUROT AND POST POUT A Surface burns on the burns of the burns

CLOUD TOU HOUSE, FOR A CAN MOUNT OF THE PROPERTY OF THE PROPER

JOSEPH AND CO.

Only individual island done rates are available. These were obtained from Radiological Defety organization in the opter rerveys at H** 1, and. The helicopter survey technique onlied for the pilot esther to jove the already of the de irod spot, so that a ground reading could be obtained, or to make a play pass over the desired upon or an elevation of 25 feet. Readings taken at 25 feet were multiplied by a factor of 2 in order to obtain a readonable approximation of the true ground reading. The basic isotrarent used in the aerial surveys who the AN/PDR-39 survey mater modified to read up to 500 r/hr. The third decay approximation was used to extrapolate the H** hour dose rate readings to H*1 hour.



CARLE 37 DIKINI VISID INCA FOR DESPATION MASSINGS (- FILE

Attioner	" <u>-</u> ",					11	
(MOT)	N. F	91111		· 	· 1·	211	
feet	region-dis	r;::	En (7000)	- ; .	. ATTOOR	7::-	
Suppose	272	25	970	27	960	26	
1,000	270	26	J 6 0	20	360	26	
2,000	. 5	26	675	21	575	29	
3,000	183	22	గ్రామం	20	űł-ő	2)	
4,000	and	26	390	85	190	ěć	
9,000	6-20	36	100	25	165	22	
€,000	1:6	žĚ	100	29	:1		
7,000	140	23	110	5.	130	92 34	
8,000	3.0	15	110	iŝ	เล็ก	29	
3,000	7.1	17	130	: #	130	7,6	
10,000			1.0	18 16	17,4		
12,000	:,:	(190		500		
14,000	ñ.	99 80	550	14	2)0	• • •	
15,000	(271)	(12)	(1°C)	(10)	(átá)	$(i\tilde{s})$	
15.00	17.2	14	150	1.5	180	15%	
18,00	6.5		340	1.0	290	.2	
2010.0	7.		160		54.		
	: -	ěr.	200	- 33	26.5		
23.000 26.000		ž,	550		200	15	
30 (1	óò	9	281	3.7	87-	15	
30 per 50	$(\hat{g}_{m,i})$	(3k)	(800)	(89)	(32.)	(9)	
2 / 10 / 10 / 10 / 10 / 10 / 10 / 10 / 1	270	46	227	1.1	(62. r	46	
as joint	70	76	(250)	(39)	550	15	
11 7 7 7 7		1.0	280	157	260	33	
28.75 14.70		7.5	e	:."	200	;;	
.918 55123	GÔ	(81)	(acc)	(56)	$(\vec{z};c)$	(22)	
56,00	17 77	16.11	183	12	250	18	
50,000 60,000	•	- 3	290	29	360	95	
61.,000 61.,000	210	• •	250	63	300	٠,	
	(120)	(12)			(110)	(12)	
65,000 67,000	360	76	(190)	(:3)	(110)		
er port	440	20	000	17	000		
70,000 70,000	1.30	2G	(000)		690	(16)	
75,000 80,000		26	(090)	(%)	(190)		
80,000	120		¢90	56	090	20	
85,000	110	40			100		
58,000					100	53	

NOTES:

- Numbers in parentheses are estimated values.
- 2. Vind data was taken on hourd ship located within 30 mautionl miles of the Tower at Wan Island, Pikiel Atoll.
- Tropopular height was 54,000 ft MSL.
 The surface air pressure was 1-.04 psi, the temperature 26.7°C, the device point 73.0°F, and the relative hamidity 804.

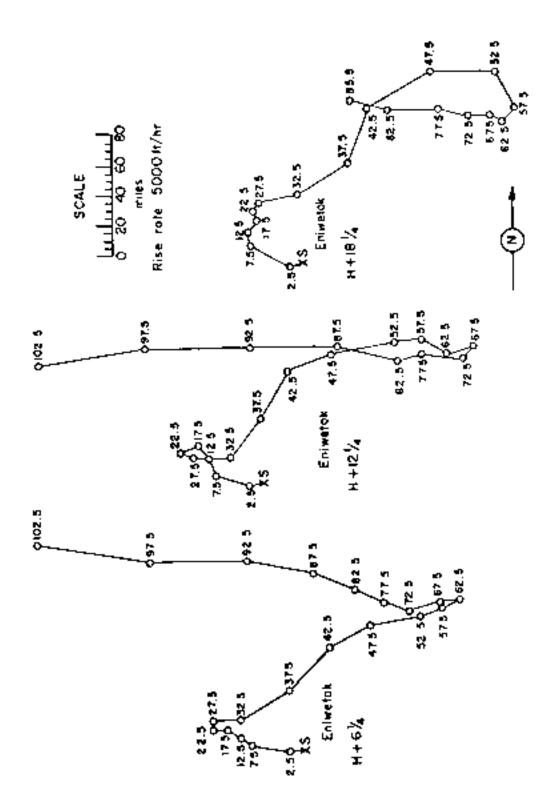


Figure 119. Redegraphs for Operation (FARMIACK 1 -

Fir

operation Habdrack L =

Butternet

38.77 PPC Time 12 May 1 0.8 11 May 1956 $\mathbf{B} \setminus \mathbf{T} \otimes \mathbf{r}$ 1815 TOME: 0615

Sponsor: LASL

SITE: FFG - Enlweigh - SW of Yvonno. 4,000 Pt Oyen the seage of edge of the laland 119 201 41" N 1629 201 301 3 Site elevation: Sea tevel

<u>##0.0</u>##7.0P(_#94#30# | 10%1# 0#

TYPE ON PERCE ACT PLACEMENTS Surface burnt trum target an PROCE

Water deaths (6) st

CLOUD FOR THE STORY OF THE MEN CLEUD (COS) (C. C. C. C. C. C.

REMARKS:

Only individual 'Sland door rates are available. Those were obtained from helicopter surveys at E+k hours made by the Badislagical Defety Organization. The believpter survey technique called for the pilot wither to land the agreeaft at the desired spot, so that a bround reading could be obtained, or to make a slow pass over the desire's against at an elevation of 25 feet. Readings taken at 25 feet were multipoled by a factor of 2 in order to obtain a reasonable approximation of the true ground reading. The basic instrument used in the acrial surveys was the AN/PDH-39 survey motor modified to read up to 500 $m r/hr_{\odot}$ The $m t^{-1}$ decay. Approximation was used to extrapolate the H+h hour dese-rate rendings to H+1 hour.

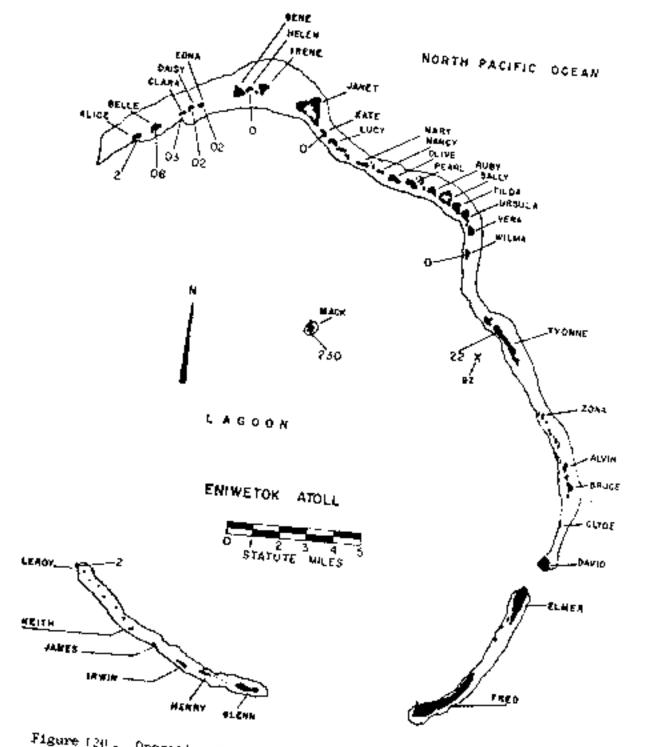


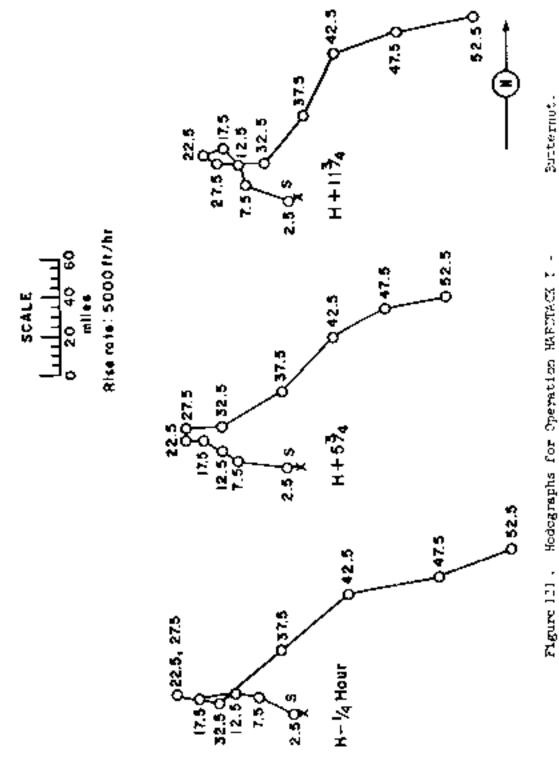
Figure 124 . Operation SWEDTACK I . Putternut. Island dose rates in r/hr at H*1 hour.

TABLE 38 ENIMERON WIND DATA FOR OPERATION HARDWARK I - SECTERATE

Altitude	Н-1 Бо	iur .	Ety: Hours		10124 hours	
(MSL)	Dir	James J.	91 m	17	lit	. jeod
feet	degraes	uinu _	urgrees.	7,5	Sergi (More)	7.711
Surface	080	12	980	27	070	16
1,000	39C	21	იმი	24	côo	26
8,000	290	29	980	81+	050	5.5
3,000	290	25	090	2%	090	29
\$,000	100	21	090	28	100	20
5,000	120	15	100	ջև	119	ŞΙr
6,000	120	28	120	24	130	21
7,000	150	16	150	57	130	2.7
8,000	150	13	170	16	250	13
9,000	130	¢9	170	19	1770	19
10,000	100	15	120	19 58	160	10
12,000	690	69	190	27	232	29
14,000	các	cé	150	09	2, x:	09
15,00k:	(a8d)	$(1\frac{1}{4})$	(120)	(c)	(34.5)	(09)
16,000	070	`13	090	69	ີວຽວ໌	08
18,500	100	12	110	C9	-0110	07
20,000	100	09	090	c)	0.50	09
23,000	110	r/i	160	.:2	340	05
25,000	Calm	Calm	200	23	300	o9
30,000	290	22	270	27	2.0	24.
35,000	(230)	(-1)	57.0	36	220	33
37,000	210	:.9				
40,000	230	և 3	220	39	210	37
45,000 ·	260	LŤ	240	23	27,0	35
0,000	250	40	260	33	2:30	Ĺċ
94,000	260	2)				
55,000			290	1,6	≪ ≎	17
60,000	200	05	250	09	300	18
65,000	•••	••	08 0	12	250	15
66,000	670	75				
70,000	080	16	070	18	670	10
72,000	100	25				••
75,000		••	110	16	100	17
90,000	790	37	110	20	98 0	52
8∙.,oco	100	36				
85,000			110	29	100	38

NOTES:

- Humbers is phrentheses are estimated values.
 Wind data was taken by the Epimetak weather station.
 Tropopulse height was \$3,000 ft MSL.
 The surface air pressure was 15.53 psi, the temperature 27°C, the dow point 74°F, and the relative humidity 80%.



Pigure 121 . Hodographs for Operation HARDTACK I -

OPERATION PARKEAGE I -

Хов.

<u> 1900년(전)</u> <u>(1900년 - 1900년</u> <u>1910년(전)</u> (전) 1850

TOTAL YEST: 1.37 Mt

MINERAL DATE:

gwater, butan

Manager Process of the Depth of the Con-

big: Apparently worked away

Spaceover IAGL

07000 1100 - Pale dies - Northead of Gente end of Gente 117 401 - Julie 3 1605 101 - Palific S 51te olimps lagt - Geschevell

REFORM OF PURKEYS 15 SE

TYPE OF BUSINESS PLACESTRY:

Surface curve forms in for any frace, tenk of water curve for our new and the surface of the surf

CHANGE FOR COLUMN STATES OF THE PROPERTY OF TH

Re245.[003]

Only individual colond dose rated are available. These were hitained from Hadiological Cafety organization politicate someons at New hours. The helicopter some y techn ique called for the place victor to local to aircraft at the desire! spot, on that a cream reading with be obtained, or to make a so, we peak over the desired spot at an elevation of 25 feet. Headings taken at 25 feet were multiplied by a furtor of 2 in order to obtain a reasonable approximation of the true ground reading. The basic instrument used in the serial surveys was the AM/FDR-30 survey meter modified to read up to p00 r/hp. The tile decay approximation was used to extrapolate the HHW hour dose rate readings to H+1 hour.

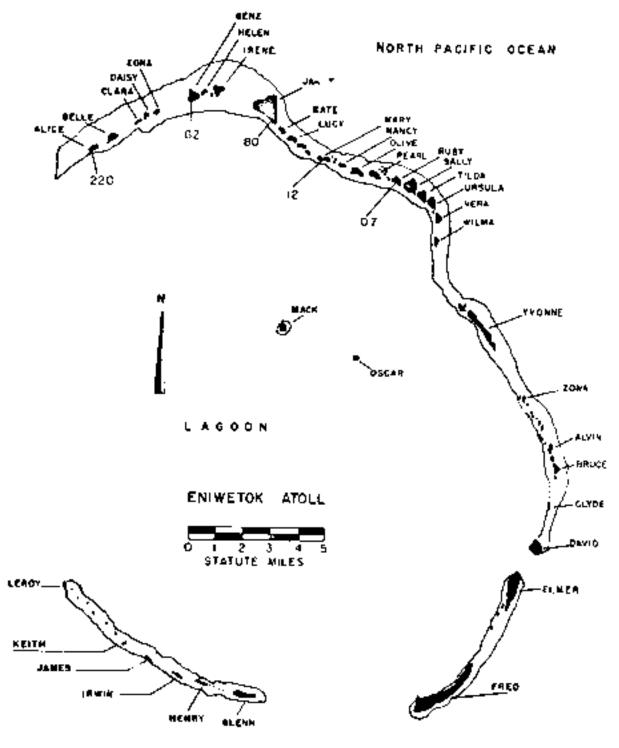


Figure 122. Operation MARDTACK I - Koa. Island dose rates in r/hr at H+1 hour.

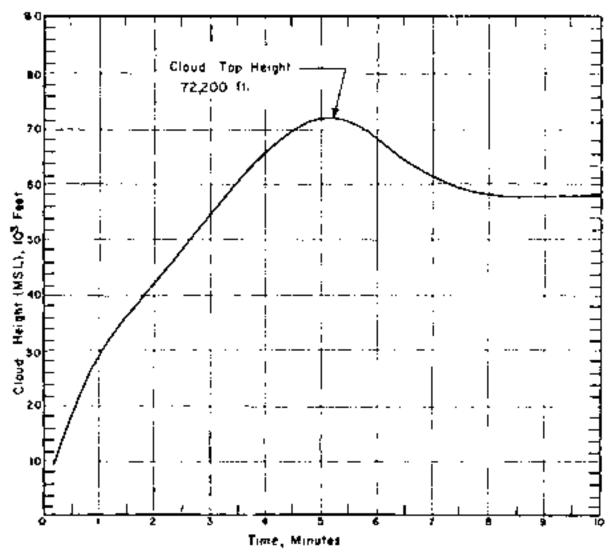


Figure 123. Cloud Dimensions: Operation NAMODACK 1 - Kos.

TABLE 39 FERTARDOR CORDITADA SON CLUBACION PROGRACE I -

50%

A2010 de (MTL) feet	Tit e					45 11
feet			lir	100	Ou r	
	de a rendu	114.11	9,40,00	"14	950m 66	1.3:.
Danting	050	18	co	18	060	18
1,000	670	22	080	32	080	26
2,000	3.5	jì	070	38	cac	99
3,000	06.1	32	070	37	090	29
4,000	58.0	36	<i>385</i>	29	890	31
5,000	0.00	33	080	29	100	26
6.000	17/0	27	670	23	110	26
7,000	100	31	350	:9	2000	26
8,000	100	31	100	50	080	25
9,000	0.90	125	100	20	C70	20
20,000	600	25	120	18	0.0	14
12,000	tou	23	130	20	122	i,
14,000	110	25	195	(2)	127	03
15,000	(110)	(%)	(1.0)	(14)	(160)	(e7)
16,000	187	24	16-13	14	138	12
18,000	110	ق	240	14	180	\tilde{C}_{i}
20,000	670	₹ <u>5</u>	230	05	820	69
23,000	R)	56	:80	Š.	185	- 11
2,000	270	14	150	18	100	1
30,000	853	22	243	71	2:0	2:
35,000	[6]	31	173	31	185	2.
40,000	22	89 31	1 ju	2)	230	31
	2h)	e:)	263			
45,000			280	12	(2 ₀₀) 280	(38)
50,000	2)). 260	3€		35 14	200	33 33
55,000		13	290			22
60,000	2563	1	210	: 7	210	12
65,000	U 10	57	060 100		(210)	(09)
70,000	100	34	130	99	200	97
74,000					ბობ	16
75,000	150	23	970	20	0,90	16
Bo joss	300	24	970	3€	700	30
85,000	e xe	կչ	100	53		
90,000	090	59	110	71	100	61
92,000	090	66				
95,000			100	77		- 6
100,000			300	83	100	69
105,000			100	65		
110,000			100	126	100	75
118,000					100	101

 $\frac{\text{NOTALE}}{1.} \\ \text{Numbers in parentheness are estimated values}.$

Wind data was taken by the Entwelch weather station.
 Tropogense beight was 57,000 ft MSL.
 The surface air problem was 14.06 psl, the temperature 27.200, the deep point 75°F, and the relative hundley 70%.

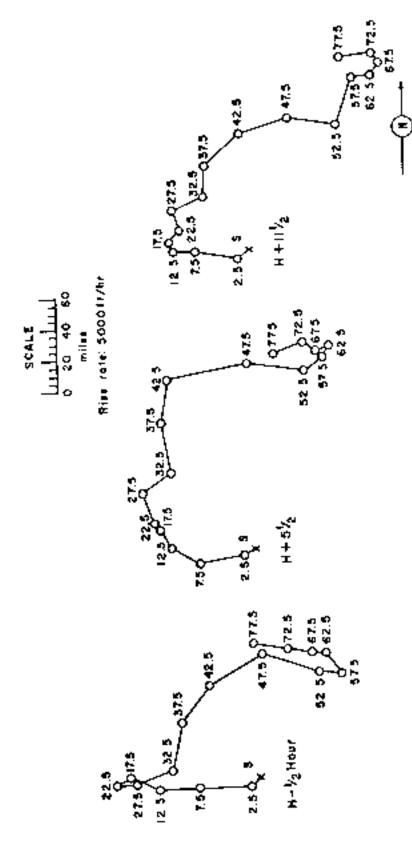


Figure 124. Hodographs for Operation W.R.Chart . -

% 8

OPENATION NAMED AND I - Walton

	$PPG \cap C$	727
IMTE:	H May 1915	It. Way 19, 5
<u> 75.</u> 0.	1394	0130

Sponsor: LAGL/500

SITE: FPG - Endwetch -country by Saw of irwin acces 6,000 ft from the intuni-120 201 51" N 1697 101 44" B Site elevation; Sea level

MAIGHT OF B'DOOT: -: CO fu under

TYPE OF BEST AND PLACEMENTS Uniterwal or - Devices and around by a cable. Water depth. 3,200,000

PLIME FOR SECONDE 1, TWO RE MEL at 1) sec PLIME MANAGED: 3,400 of NOL at 15 sec

REMARKS

"Hopping all of the total cents of electronic within the plates after zero timo and was declinithe passage of airc me mail as start rial. Samme delive in kaser of lower property (€) have the first or manufactor of downwind distractors. It so that level X freeta in its battle finitespectation residual field the to imported randomniae manuals, was a including insignificant, altapato masterative (Manumay papered) a painted plant bazard."

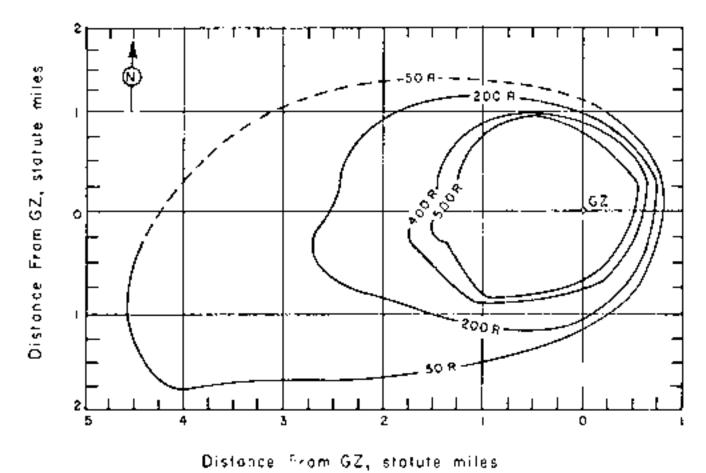
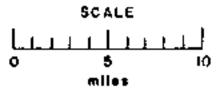


Figure 135. Operation MARINACK I - Wahoo. Operate constitute dose to 6 hours in receipens.

Altitude	H-1, 17	Mars .	ij-ur marga		
(Mata)	Dir	(greed	DJ F		
fret	d-grads	$\pi_{J} x_{I}$	gu856.60	" .7.":	
Surface	070	17	080	16	
1,000	090	22	080	18	
2,000	090	22	589	20	
3,000	090	50	586	21	
4,000	090+	17	280	20	
5,000	070	33 08	260	14	
6,000	Oi+C	୦୫	050	10	
7,000	33C	07	350	97	
8,000	280	12	300	24	
9,000	#90	27	300	20	
10,000	280	21	300	22	
12,000	313	16	290	14	
14,000	290	c 9	310	12	
16,000	020	67	340	00	
18,000	540)4	020	- 59	
20,000	ONO.	98	040	13	
23,000	080	C5	010	QΫ	
25,000	240	62	360	$-\alpha$	
30,000	300	15	260	20	
35,000	250	35		••	
40,000	270	25	270	30	
45,cc:c	260	29		•-	
50,000	340	15	3)C	74	
52,000			270	09	
55,000	010	30			
60,000	060	15	320	20	
65,000	290	17	4		
69,rxxx		**	120	10	
γο,∞ος	090	31	100	07	
73,000	090	57	960	13	
75,000					
80,000	700	60	090	40	
85,000	090	57	 -		
90,000	090	57	990	72	
95,000		••	***		
00,000			090	79	
10,000	***	••	100	93	
14,000	4		100	100	

<sup>NOTE:
Wind data was taken by the Eniwetak venther station.
Tropophuse Pright was 59,000 ft MEE.
The surface sir pressure was 14.69 psi, the temperature 30.8°C, the dev point 75°F, and the relative humidity 63%.</sup>



Rise rate: 5000ft/hr

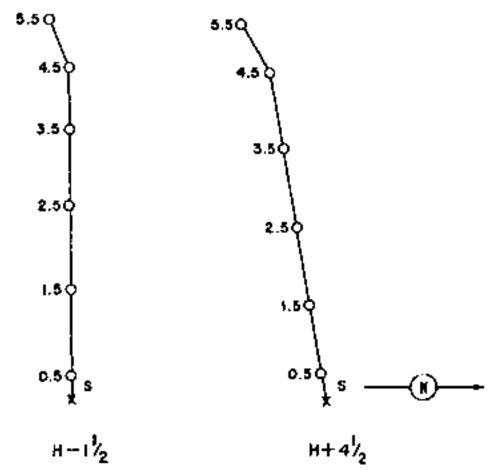


Figure 126. Hodographs for Operation HARDCACK I -

Wahoo

OPERADION MARCHAGE I - HOLLY

<u>1970 (1986</u> <u>257)</u> <u>DATE:</u> C1 May 1986 (X Gay 1998) T1MR: 0050 1850 Spandor: IAGI.

SITE: 7:0 - Merwetak - West of Yverse, 1,01. ft from the school often of the School 11° 321 3A° 5 162° 21' 20" E Site clavation: Cealthvel 901000 of 8'700: 1,10% ft

TYPE OF PUBLIC AND STATES

Sunface Curren providence in
water

Water appears of the

 $\frac{\sigma Lour \ Tol \ RELEASE:}{\sigma Lour \ PLANCY \ The part } = 100, \ red \ r^{-} Mall .$

REMARKS:

Only individual inhand done rates are available. Check were detained from helicopter purveys rate by the Paticitagical dafety consultation at 18th hours. The helicopter purvey technique valled for the purpt either to land the aircraft at the depiced spot, so that a proof reading rould be obtained, he to make a close pack over the feature spot at an elevation of the feet. Readings taken at 10 feet were multiplied by a factor of 2 in order to obtain a remarkable approximation of the true ground reading. The basic instrument used in the derivation was the AN/10R-30 servey mater modified to read up to 500 m/hr. The total decay approximation was used to extrapolate the 18th nour dose rate readings to 3th hour.

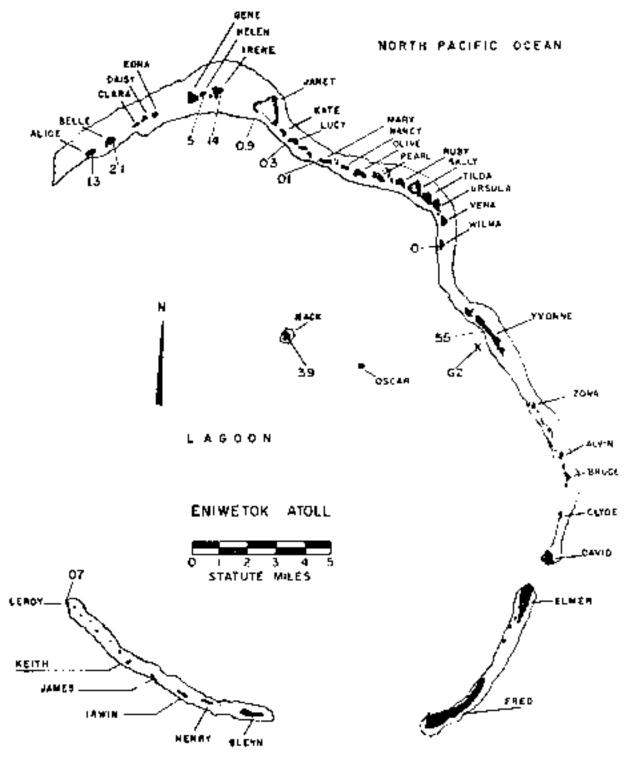


Figure 127. Operation MARDTACK I - Solly. Island done rates in r/hr at S41 hour.

TABLE 41 ENIMATOR WIND DATA FOR OFFICATION SARBBACK I - 9010 Y

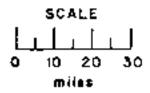
Attitude		11.107	(2+) <u>}</u>	17:2	(4.0	Υ.
(y_2y_3)	10 F		107.25			:1 :
£ರ್ಡ\$	degrees	mpe.	ang mesa	0.177	200 (200-2)	72.0
Surface	080	16	690	22	690	7:3
1,000	იგი	24	000	26	070	797
2,000	CMC	26	CBC.	16	07/0	.54
3,000	cao	26	080	129	ಚೌ≎	284
A GOOD	080	24	C7C	22	Jr.:.:	.31
5,000	CS5	23 15	676	2	343	: -
6,000	(A)	15	080		3.77	:/\
7,000	LCC	30	100	17	680	i:
8,000	12/0	15	120		. 147	<u>:</u> :.
9,000	950	12	140	14	12%	12-
10,000	1åc	359	150	10	23.00	5.4
12,000	230	or o	2:0	10	210	1, 1
10,000	.180	30	:40	C.	27%	
15,000	(270)	(x_i)	(rea)	(\cup)	(300)	(95)
16,000	250	05	150	129	950	av.
18,000	270	(5)	120	w!r	285	0)
20,000	200	υ <u>9</u>	220	30	A	10
23,000	ଅଧିକ	12	ი60	39	111	
25,000	270	13	290	1.5	ال دار	
30,000	260	⊋i-	280	C12	2742	21
35,000			260	.;	.119	15
36,000	270	24.				
:0,000	22'0	02	200	30 43	390	39
45,000	810	38	210	43	210	(7)
50,000	230	20	270	17	270	18

MOTES:

^{1.} Numbers in parentheses are estimated values.

^{2.} Wind data was taken by the Enlawtick weather staffors

Tropopagor helphit was 52,000 ft MSL.
 The surface air pressure was 10.05 poi, the temperature Z7°C, the dev point 75°F, and the relative hamidity 75%.



Rise rate : 5000 11/hr

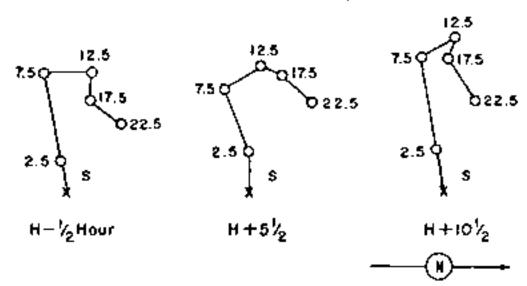


Figure 128. Hodographs for Operation MARICAGE I. Holly.

OPERATION BARDTACK I -

National Contract of the Contr

Spendor: UCRL

BRIGHT OF BURGE: 1941) St.

TYPE OF EMANY AND FLAMENFUL:

Southern Your to From comments

water

CLOTTO FOR BEHAVIOR OF A LOTE OF MOD CLOTTO FOR DAY BEEN BEEN ON

REMARKS:

Only individual intended for rates are available. These were obtained from helicopter corresponded by the Posted appeal Safety Argenization at MAA hours. The delication curvey technique satisf for the pilot either to land the discretit at the desired spot, on that a ground reasing could be obtained, or to take a slow pant over the desired spot at an elevation of a scene. Beautype taken at 05 feet were multiplied by a factor of a confer to obtain a posteducide approximation of the true ground reasons. The table instrument need in the serial curveys was the AN/PDS-3 conveys rater modified to read up to 500 r/hr. The table less used to correct the E+4 hour inserpate readings to E+1 hour.

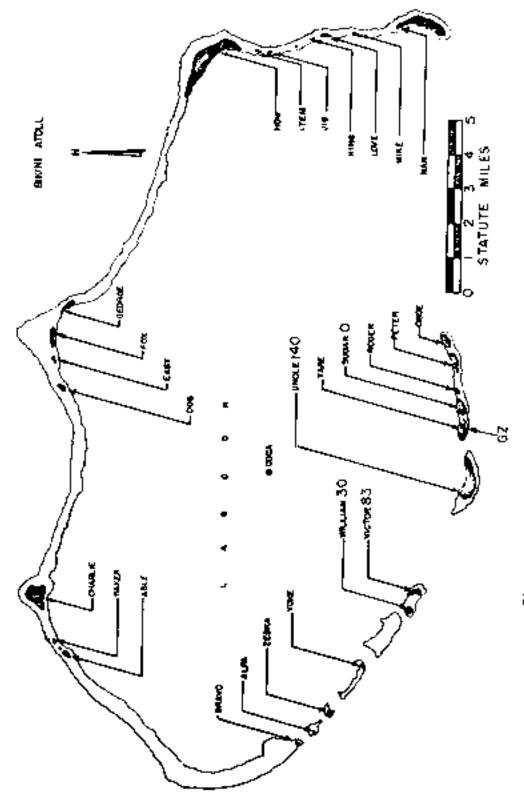


Figure 129. Operation HALDWACK : - Satmond.

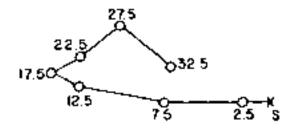
MARLE 42 PIRIOS WORD DATA FOR SERROTTED SUPERATE (-

 ٠	-

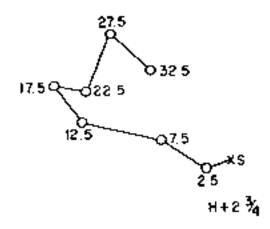
Altitote	_Barronn	r	31+3-5	arg _	14.5	2.5
(RDB)	Tele	2500	Tir Tir	7.26.1	i I .	7 797
Pearl	milkeen	r- ₁	anthors.	urfo.	register.	4:
Surface	(190)	16	28 0	16	060	14
1,000	390	16	020	:6	070	14
2,000	070	15	37C	16	080	15
3,000	090	įŘ	a9a	18	oppo	14
1,000	095	28	393	25	696	Ü
5,000	000	16	120	ΞÚ	000	12
6,000	300	27	110	177	120	00
7,000	200	ງຄົ	100	20	110	16
8,000	979	18	084	30	050	3.5
9,000	696	:9	ნედ	29	70X1	14
10,000	100	17	100	20	110	14
12,000	080	10	130	16	130	14
15,000	120	10	:50	15	150	319
15,000	(110)	(ic)	(:Ãō)	(12)	(0.30)	(39)
16,000	370	12	120	10	17-0	110
18,000	223	12	31.0	10	V /V	0.7
20,000	240	ું છ	280	63	310	· ;.
25,000	710	96	190	0.1	520	٠.
25,000	230	26	Ŕά	15	2.5	12
30,000	310	26	710	24	200	v-9
33,000	•	•-			260	16
34,000	900	21			***	
37,000			260	16		
40,000	200	31	800	95	Sac	1.4
45,000	560	ź3			2.0	11.
50,000	320	30	9.20	:."	200	7.2
55,000			080	57	040	: 2
57,000	686	671				
60,000	200	66	160	06	25/0	27*
64,000					n80	(rr
65,000	090	09	120	CS	*	·
70,000	110	10	110	оã	080	98
72,000					250	08
75,000	080	25				
80,000	0 9 0	36	090	35	590	97
B2,000	1.70	,,,	090	37 3 8	390	
83,000			3 ,70	,,,	090	22.2
85,000	non	>2				
07,000	390	25		•-		

NOTES:

- Numbers in parentheses are estimated values.
 Wind data was taken on board only located within 30 moutical citys of the Power at Man Island, Bikini Atull.
- Tropopause hotght was pw.000 ft NCL.
 The curface air pressure was 10.08 ps; the dew point 72.5°F, and the relative numbling **COL.

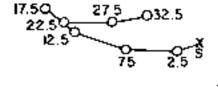


H-Hour





Rise rate : 5000 ft/hr



(4)

Pigure 130 . Hodographs for Operation MARDTACK I -

Nutweg.

OPERATION NAMED ON I - Yellowwood

<u>1875:</u> 26 May 1958 - 26 May 1958: 719<u>51</u> - 1955 - - 5257 Spongore IACL

PPS - Relwettk - SW of Junet 1,000 ft.

11° 39' 37" 8

160° 15' 31" 8

Site elevations Des Jevel
Water destina 75 ft.

BILDING OF PERCENT OF THE PA

TYPE OF MESOT AND PLANETHER; Surface curet from Larren A water:

CLOUD TO BUTGER 100 TO COMMON. CLOUD TO BUTCH THE COMMON COMMON.

RSMANULE:

Only individual island door rater are available. These were obtained from Radiological Cafety organization is licopter surveys at 20% bours. The helicopter survey terminate valled for the pilot either to land the aircraft at the desires upof, is that a grains residual could be obtained, in the rake a life panely over the project applied by a factor of 25 feet. Readings taken at 1. feet were multiplied by a factor of 2 in order to obtain a resolution approximation of the true ground reading. The basic instrument used in the aerial surveys was the AN/PER-jb survey water modified to read up to 500 r/hr. The tile decay approximation was used to extrapolate the S4% hour door-rate readings to B+1 hour.

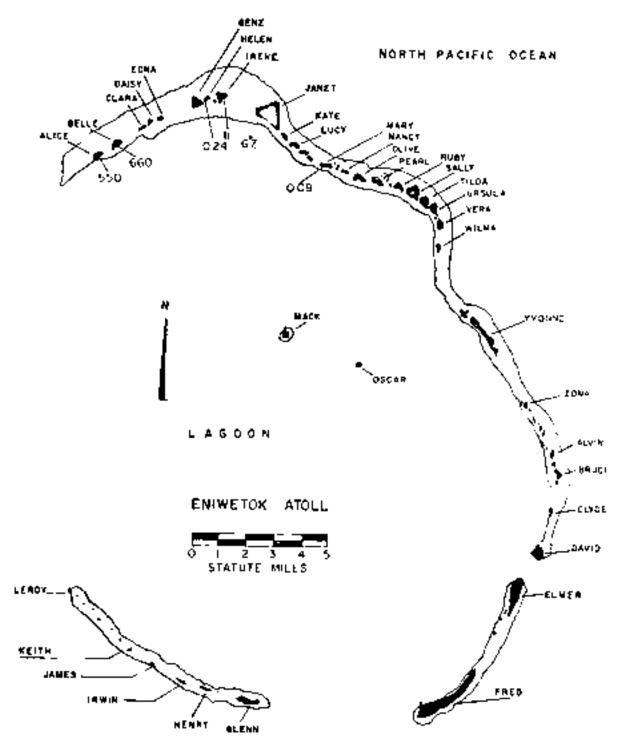


Figure 131. Operation RARDFACK I - Yellowwood.

Island dose rates in r/hr at H+1 hour.

TABLE $^{4.5}$ - EXCEPTION WIND INTA FOR DIPERATION PARTTACK I \pm - YELLOWICOUR

Altitum	‼•tor:	F	h+e m) .T.a	8111 sc	
(Het.)	<u></u>	2001	2007	<u></u>		1111111
feet	dig miles	лус	degrees	-1;1;	(A Michael	−pi.
Surface	090	24	070	18	98 0	15
2,000	0.90	16	280	;×)	280	18
2,000	0.70	26	⊘8 €	17	680	18
3,0XX	090	16	980	17	5%	! !5
4,000	ceo	17	090	15	100	16
5,000	060	16	090	12	100	12
6,00	eyo	17	ල්ර	79	100	12
7,000	060	13	970	40	9780	129
8,000	050	69	7/0	10	070	1,
9,000	6.0	ιĊ	673	12	390	
10,000	050	ćê	060	13	3/6	5.1
12,000	9-C	10	953	14	232	19
14,000	303	07	080	8	3,50	120
15,000	(660)	(im)	(050)	(ôô)	13,603	(08)
16,000	170	12.2	040	(27	31.11	10,7
18,300	160	26	68	ìs	300	25
20,000	5"0	30	566	12	30	39
23,000	592	íä	080	18	.66	ä.
25,000	100	22	090	16	:50G	î.
30,000	085	29	270	83	676	3.7
35,000	110	37	090		250	
40,000		32	050	23 36	31k3	23 00
45,000	o¤õ	32	090	2)	550	200
50,00x.	238	Ž.	020	1		37
55,000	200	2	0.50	20	0.5	
	270	27	200	20	0.90	
60,000 66,000	5681	23 25	050	16	0.80	
65,000 70,000	390	ay	100		380	21 21
70,000	5 9 6		100	83 39	110	
75,000		43		33 68		27
80,000	300	49	100		090	75
85,000	100	51	080	59	090	£C
90,000	200	57	690	54	090	ć)
95,000	100	63	090	5.3		
100,000	090	76	090	79		
1 5,500	050	96	99¢	ĢŁ.		
210,000	080	79	390	109		
115,000	100	205	390	205		
120,000	110	115	200	92		
122,000			100	90		
123,000	110	114				

NOTES:

- Mimbers in parenthrous are estimated values.
 Wind data was taken by the Entwick weather station.
- Tropoperso height was \$5,000 ft YSL.
 The purpose air pressure was 14.66 pai, the temperature 30.690, the dew point 73°F, and the polative hamistry 63%.

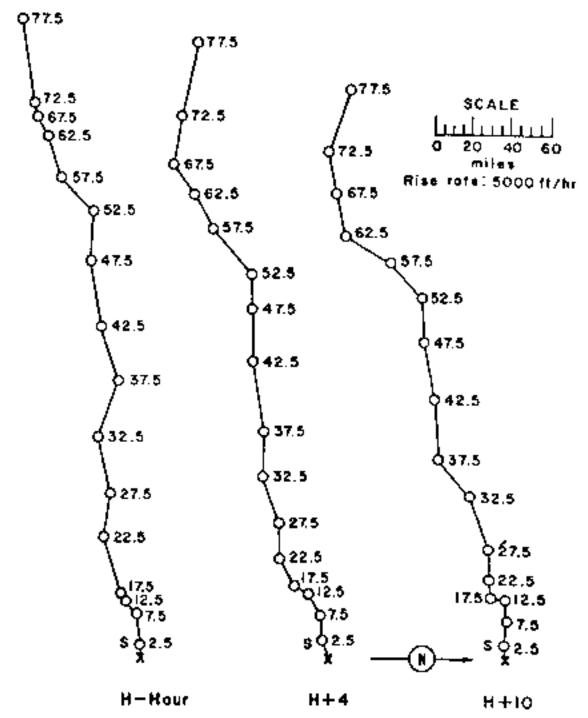


Figure 132. Modogruphs for Operation MARDIACK I -

Yellowwood.

OPERATION NAROTACK I -

Magnoliu

Sponsor: IASL

SITE: FPC - Entwotok - GW of Yvonne, 3,000 of the the meanest edge of the island 119 321 54" N 1629 311 10" of Site elevation: Skallevel

MEIGHT OF PURCOSE 19,65 Pt

TYPE OF EMPLY AND MACCHAIL September 1 mail from bases as water

CLOUT TO EVENT: No. 1 or MO CLOUD BASING STORES

REMARKS:

Only individual Island Jose rates are available. These were obtained from helicopter surveys wide by the Radiological Nafety organization at BHA hours. The helicopter survey technique casted for the pilot enter to land the aircraft at the desired open, so that a proud reading could be obtained, or to make a slow pass over the desired spot of an elevation of S5 feet. Readings taken at 2 feet were multiplied by a factor of 2 in order to obtain a reasonable approximation of the true ground reading. The basic instrument used in the mertal surveys was the AN/PSE-39 survey meter medified to read up to 500 r/hr. The till decay approximation was used to extrapolate the N+4 hour dose-rate readings to N+1 hour.

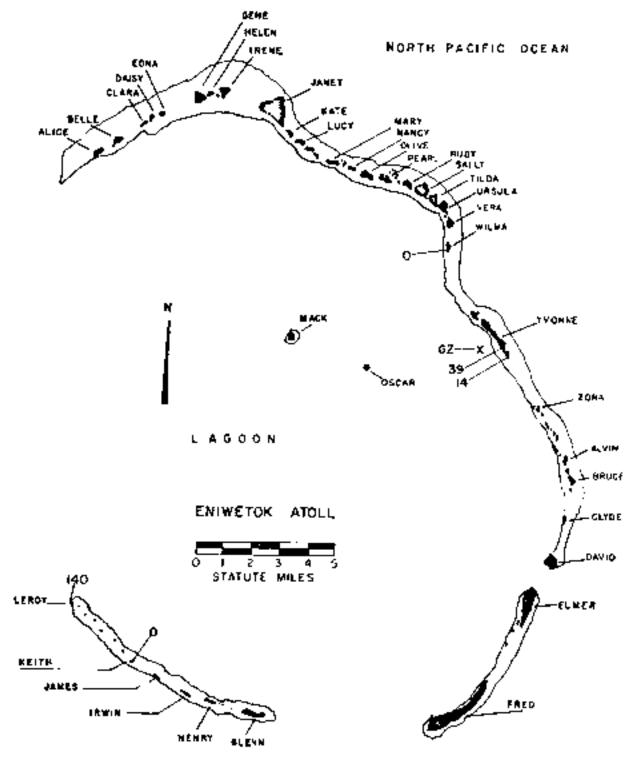


Figure 133. Operation MARDFACK I - Magnolia. Island dose rates in r/hr at N+1 hour.

TABLE 44 Enlarge Vint Late For 1999 and Strands Represent

Altitude	Het is se		9-40 (p. 17).		DOM: Sanger	
(MUL)	isr	- ; - !!	14.9	<u> </u>	!"	1
feet	respond	.t. pt.	3665	n; !.	(endiqueeps)	F::1
Surface	ng0	16	230	16	090	12
1,000	080	1ե	200	1.6	J\$0	į lą
2,000	080	14	300	15	100	(0)
3,000	890	12,	1190	10	Ø8 :	00
4,000	100	16	100	1004	0.30	077
5,000	120	10	690	39	cho	06
6,000	2280	171	070		690	Cf:
7,000	ತಟ	:25	0.0	-71	nio	03
8,000	ero	68	6.70	-9	୍ବର	65
9,000	073	09	Other	0.5	ესა	049
10,000	070	09	020	29	030	60
12,000	o&:	09	140	::3	260	.03
15,000	cho	22	110	36	150	o.
25,000	$\{a,b,c\}$	(14)	(22.0)	(11.3)	(0.00)	$-(c_2)$
16,000	W O	19.	100	23	380	37.
18,000	133	59	(30)	::;	:80	39
20,000	130	ავ	290	35:	σγο	12
23,000	090	16	570	14	350	15
P>,000	980	-2	وزاري	2.0	0080	2.3
30,000	060	لۆ	260	52	130	91
35,000	0.90	25	CAD	20	730	23
40,000	nëc.	ρL	050	30	350	25
45,000	.40	37	3640	28	:200	:3
50,000	040	81,	200	20	570	30.
35.000	2.00	23	05/0	31	200	25
60,000	65.0	5.2	250	25	326	20
65,000	100	19	:7(6	P3	300	1,65
70,000	980	19	110	22	590	21
75,000	690	37	110	32	090	24
80,000	090	ų̃:γ	100	50	100	49
85,000	090	~1	100	<u>64</u>	090	61
90,000	090	78	100	64	090	69
91,000	090	78				
95,000	***	••	100	68	იმი	71
100,000			:00	69	080	54
ιφς,ι κκ ο			100	85	•	••
10,000			100	99		
113,000			100	ion		

NOTES:

- 1. Numbers in perenthoses are estimated volums.

- Wind data was taken by the Editatok Coulder station.
 Tropopous Notyht was physics of 185.
 The surface air produce was 15.00 pcl, the temperature 26.8°C, the dev point 72°F, and the relative numbers 75%.

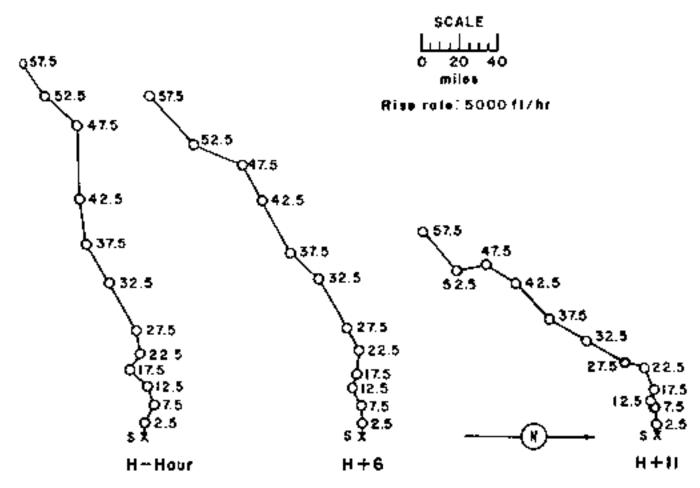


Figure 134. Hodographs for Operation MARDTACK I - Magnolia.

OPERATION NARREACK I -

Tobacco

	PPC lime	GMT)		
pare:	60 May 1910	go May 1987		
TIME	16 D.	021%		

Springgorn (1703).

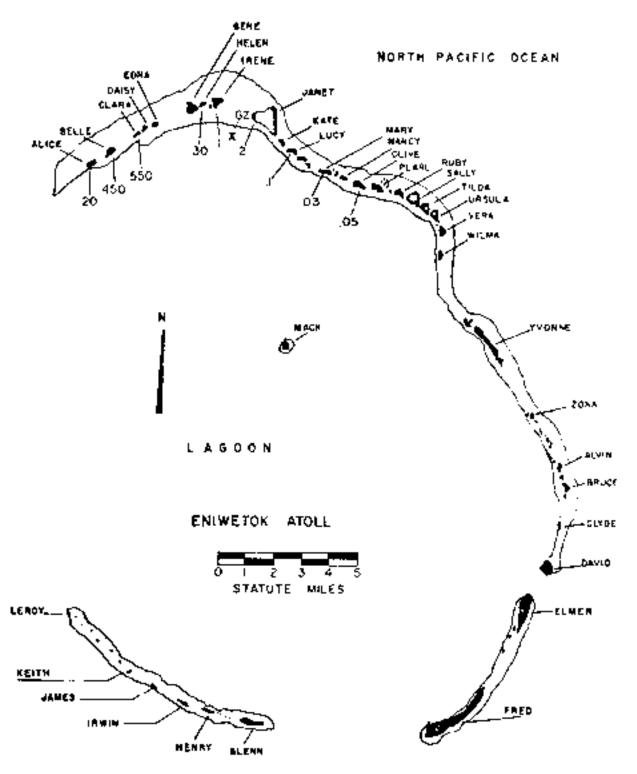
 $\frac{5178}{58}; \quad 116 - \text{Mainetok} = 3,000 \text{ M} \\ - 58 \text{ of denot} \\ - 112 \text{ yet a <math>65\% - 3 \\ - 169\% - 13^2 - 169\% - 3 \\ - 5156 \text{ Glovations} = 560 \text{ Newel}$

TYPE OF Block the Placewitte Surface the Color to area at

CLOUD TO BE PER DESCRIPTION OF NOW

REMARKS:

Only individual injand door rates are available. The powere obtained from helicopter surveys ander by the Rabiol gleal Cafety injanization at R44 hours. The helicopter curvey technique called for the pilot either to land the aircraft at the desired split, so that a ground reading could be obtained, or to make a clow two over the desired spot at on elevation of Ch fret. Readings taken at the feet were multiplied by a factor of C in order to obtain a reasonable approximation of the true ground reading. The basic instrument used in the approximation was used to read up to 500 r/hr. The $t^{-1/2}$ decay approximation was used to extrapolate the SFW hour door rate readings to H+1 hour.



Pigure 135. Operation MARDTACK I - Tobacco. Island dose rates to 7/hr at H*1 hour.

TAMES 45 SEREWITCH WIND ONTA FOR OPERATION RELIGIOUS IS -

	~•		О.	m
7	UΙ	44	Ľ	

Altitude	<u> </u>	005		927	<u> </u>	-21
(MCL)	D\$±	j - n i	Ti e			. : 1,01. ;
ice;	drgrass	mp4-	2010/09/2	FF:	ingress:	::ş.:
Surface	c 8 0	15	58c	23 20	170	26
1,000	୯୫୯	54	ප්රීර	20	0.90	54
2,000	086	36	686	53	-00	25
3,00	090	21	090	2.4	116	30
\$,000	0.90	16	0.90	75	2713	221
5,000	090	1t•	100	22	12.6	27
6,000	290	17	200	26	190	2.2
$\gamma_{\bullet} \infty c$	000	55	110	21	1.40	200
8,000	100	21	:10	16	19.	3.8
9,000	110	18	110	17	12%	-51
10,000	130	20	110	P	110	
12,000	1.0	<u> : i.</u>	120		100	2.7
14,000	13C	10	130	75	226	2.3
15,000	(430)	(11)	(130)	(96)	((2))	((3)
າຄົ,ວວາ	1160	13	230		12%	
18,000	120	12	239 240	1.5	117	36
20,000	120	12	220	12	27.0	19
23,000	130	12)	14.	,	18K	1.5
25,000	120	12	132	- ;-	190	16
30,000	100	0::	2830	ÇA!	F10	5.1
35,000	840	25	230	-2	200	5.4
40,000	200	:	220	: i,	201	197
45,000	2.0	1"	2150	24.	737	279
50,000	530	17	230	18	20	12
55,000	78.8	97	220	:	::	
60,00	770	98	(270)	: 9	1.	;À
65.00	130	24	346	18	2087	12
70,000	110	17	070	23	ord	ઘ
75,000	090	35	090	37	030	38
₿ć,000	093	78	100	55	090	ř.
85,000	166	66	100	ર્દર્શ	090	Ġ9
90,000	100	69	100	69	090	71
94,000					090	75
9,,000	100	71	0/0	69	•	
200,000	100	77	090	ěή		
105,000	100	72	160	76		
110,000	090	77				
118,000	090	95				
220,000	0,30	95	- •		-	- -

NOTES:

Numbers in parenthness are estimated values.
 Mind duta was taken by the Entwetck venther station.
 Tropophise bright was 55,000 ft 500.
 The durface his junctions was 10.00 pai, the temperature 28.9°C, the dew point 75.7, and the relative humidity 7-2.

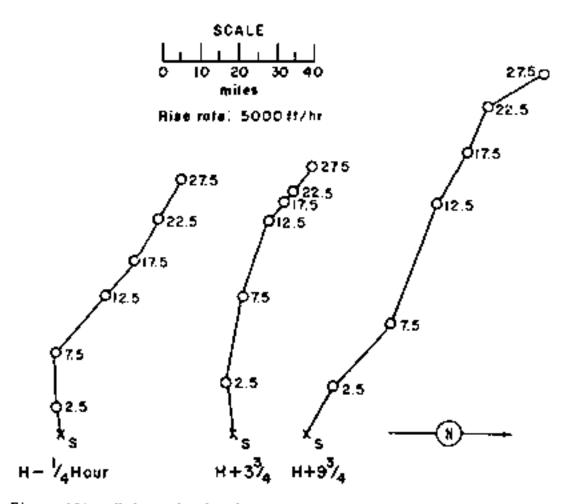


Figure 136. Hodographs for Operation MARDTACK I -

Tobacço.

OPERATION BARDMACK T -

Sycamore

Sponsor: UCM.

SITE: IPG - Sikint - OW of Charlie A,000 of From the meanest rise of the island 11° 41° 27° % 165° 16° 25° 8
Site elevation: Scallevel

HERRORE OF PURCOS 11 JULY 25

CYNE OF BURNT AND I VACAMENT: Confident appoint for a statement waster

CLOUD FOR HOLDING TO A COLOR MAD CLOUD FORMER OF LOTE THE

REMARKS:

Only individual island done rates are available. These were obtained from helicopter surveys each by the Radio special Suffety emperization at R+4 hours. The helicopter survey technique ralled for the prior either to land the aircraft at the lesized spot, so that a ground reading end be obtained, or to make a slow pass over the designed spot at an elevation of 25 feet. Readings taken at 25 feet were multiplied by a Sactor of 2 in order to obtain a reasonable approximation of the true ground reading. The basic instrument used in the aerial surveys was the AN/IDR-39 survey meter rediffied to read up to 500 t/hr. The time decay approximation was used to extrapolate the H+4 hour dose rate readings to H+1 hour.

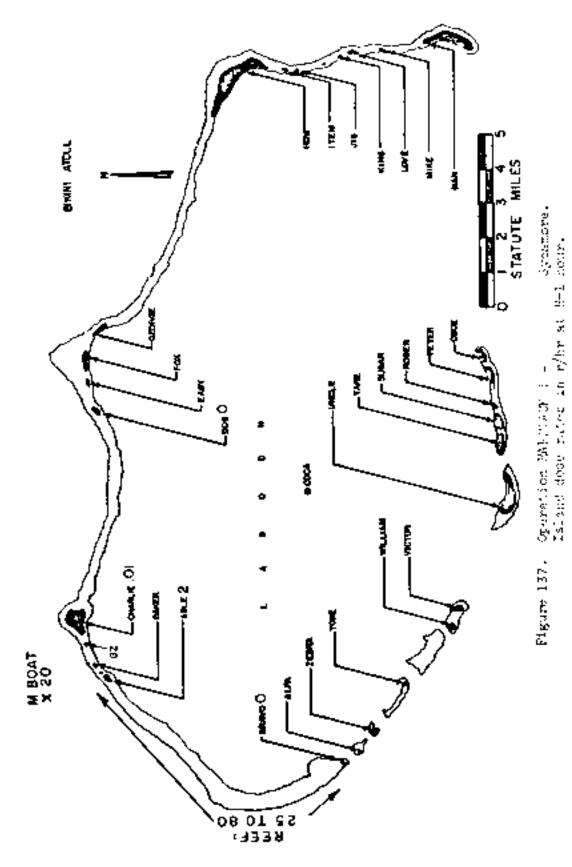


TABLE 46 HUNERS WEND DATA FOR OFFENDINGS MARCHAGE I - DYCAMORS

50 F 0960 1400 14	79 h 12 22 23 26 24 10 14 27	200 200 200 200 200 200 200 200 200 200	975 975 975 97 97 98 98 98 98	970 0,00 	21 (51) 21 22 24 25 26 26 26
296 140 160 145 146 146 146 156 166 175	12 22 23 26 24 16 14 27 27	200 050 090 690 100 120 110	17 21 22 24 23 23 26	070 080 080 080 080 081	21 22 24 25 25
110 100 110 110 110 110 100 100 100 100	22 23 26 24 10 14 27	090 090 690 100 110 110	21 27 24 23 23 22	989 989 989 987 987	22 25 25
100 110 110 110 110 100 100 100 100	23 26 24 10 14 27 27	090 690 100 110 110	22 24 23 22 26	080 220 221 287	95 25 23
115 116 116 116 136 166 166 185	28 24 16 14 27 50	69: 100 110 110 110	24 23 22 26	526 527 587	25 23
110 110 110 136 137 137	24 16 14 27 57	100 110 110 110	23 22 26	597 587	23
110 110 130 130 135 125	16 1 2 27 57	110 110 110	22 26	387	
110 136 130 130 130	12 17 17	110 110	26		; ei
100 100 100 120	Σ'' :	110	26	4.55	
100 100 120	:	110	FO	10.7	-7
100 120	:		:8	36%	.:
12%	24-		:8	200	; :
12%		600	27	290	20
222		110	16	110	1
	159		16		16
285	37	000			12
(18.3)			(3)		(10)
					26
	11				
15	15	140		104	
160	2::	130	177	(22)	. 8
1411		EÓC	1.	aic	1.5
000			13		- 13
27.7	85	-,-			
				1240	10
(2/6)	(12)	250	17		(33)
2000					23
			-672		- 75
			1.2	200	
•-•			200		
(250)	(· · ·)		C(a)	0.60	.65
	35				
		120	22	100	20
				•••	
		960			
100	24			990	29
				•••	
			53	090	53
100	é		/3	~~~	
	,-				41
					75
				•••	12
		-			68
	180 (180) 190 180 180 180 180 180 180 180 180 180 18	180	180	180	180

NOTES:

1. Numbers in parentheses are estimated values.
2. Wind date was taken on board stip located within 30 martical miles of the Tower on San Inland, Bakini Atoll.

^{3.} Tropognuse beight was 55,000 of MSG. 4. The surface with proposes who 15,02 psi, the temperature 28.000, the dev point 74 % and the relative humidity /3%.

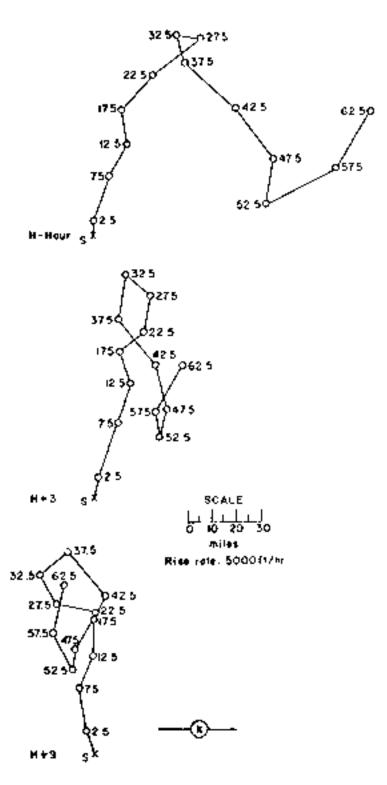


Figure 138. Hodographs for Operation MARUTACK I -

Sycamore.

OPERATION MARDMACK 1 -

Rose

Sponsor: IACL

SITE: PPG - Enlectok - SW of Yvonne %,000 ft from the neurest edge of the include Site elevation. Sea firm

MEIGHT OF POSTS 15.43 C

TWE OF MIROT AND FLACIMENT: Surface Furet Charles Anne A. water

CLOUD FOR SHIPSET: " A,CUP AT MAS. CLOUD BOTTOM (DOUGHT) - 1, THE ACT.

REMARKS:

Only individual inland doe rates are available. These were dotument from helicopter a subject made by the Paditiogical Cafety production at IPA hours. The helicopter survey because called for the pilot either to land the aircraft at the desired apon, so that a ground reading could be obtained, or to make a slow pass over the desired spot at an elevation of 25 feet. Readings taken at 25 feet were multiplied by a factor of 2 in order to obtain a reasonable approximation of the true proton reading. The basic instrument used in the aerial surveys was the AN/HTM-30 survey meter modified to read up to 500 r/hr. The third decay approximation was used to extrapolate the MAA hour dose-rate readings to MAI hour.

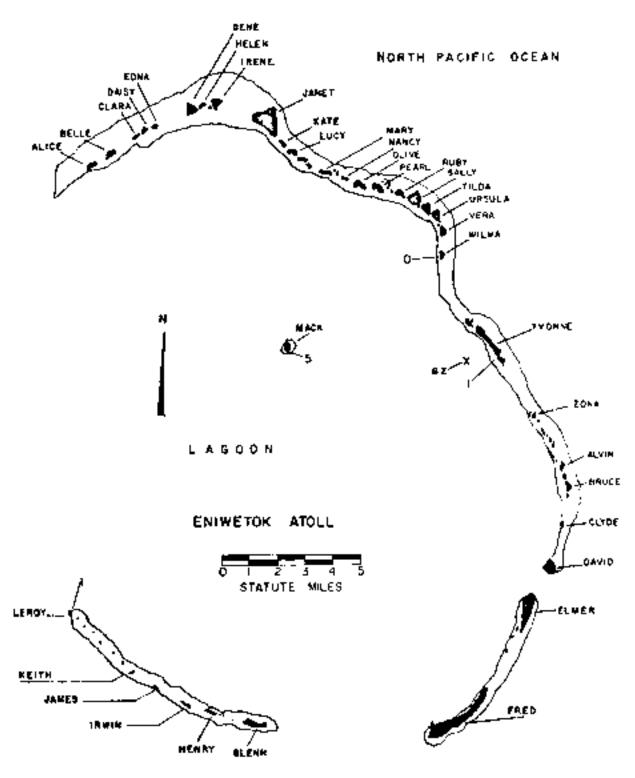


Figure 139. Operation MARDTACK I - Rose.
Island dose rates in r/hr at H+1 hour.

Minimals	Alteitento		Jan. 2"		1.000
Dueffice	(%:1.1				
Durfner C6C	Ta est				
1,000 070 20 70, 00 20 70, 00 20 20 20 3,000 070 070 20 20 20 20 20 20 20 20 20 20 20 20 20			1		
1,000 070 20 70, 00 20 70, 00 20 20 20 3,000 070 070 20 20 20 20 20 20 20 20 20 20 20 20 20	Durfner	೧೮೮	25.	075	23
\$\rac{1}{3}, 000 \$\rac{1}{3}, 000<					
3,000	2,000	0.70		1.7	
\$\\ \begin{array}{cccccccccccccccccccccccccccccccccccc	1.300	3.6		Č7	
\$ 1,000	4.636				
6,000	5.,000	(6)		V .	·:
0,000	6,000				ē.
8,640 000 0. 00 0. 00 0. 00 0. 00 10 10 10 10 10 10 10 10 10 10 10 10	0.00	34		· .	
9,40	8.655			2.1	200
10,000			-		' ;.
12,000		200		1	36
14,0.00	12 000	,`		1.7	-
19,000 (.00) (.00) (.00) (.00) (.00) 10,000 (.00) (.00		1.74			
23,000 170 27 100 27 27 27 27 27 27 27 27 27 27 27 27 27		1000	160	111	
23,000 170 27 100 27 27 27 27 27 27 27 27 27 27 27 27 27	1000	1. 4. 1	8.7	*:: ·	
23,000 170 27 100 27 27 27 27 27 27 27 27 27 27 27 27 27	200		1.0	77.2.	
23, AAC 1 A 27 2.0 15 26, O'	200				1.3
35, 45	27 333		1.11	_	i:
35, 45	20,000		21		27
35, 45	27,000				- 55
#0, 00 19 24 36 24 36 24 35 36 36 45 45 56 56 56 56 56 56 56 56 56 56 56 56 56			₹.,		4.1
\$\\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\			2.3		
95,000	63 7 7 7		7:		
95,000	60.000		7.5		
60,000 000 20 000 20 000 20 70,000 000 000 31 100 36 70,000 100 45 410 43 85,000 110 42 90,000 110 42 90,000 110 42 90,000 110 42 90,000 110 42 90,000 110 42 90,000 110 42 90,000 110 42 90,000 110 42 90,000 110 42 90,000 110 110 110 110 110 110 110 110 11	0.00	_	41		
65,000 050 22 060 23 70,000 090 33 100 36 75,000 120 43 85,000 120 42 90,000 42 90,000 120 66 100,000 120 66 100,000 120 66 100,000 120 120 120 120 120 120 120 120 120	23,000				
70,000 090 33 100 36 75,000 110 35 77,000 110 43 85,000 110 43 85,000 54 95,000 110 65 100,000 110 65 100,000 110 110 100 76 100,000 110,000 1	6. 6.4	20.00		0.44	20
75,000 110 35 77,000 120 45 80,000 110 43 85,000 090 54 95,000 100 66 100,000 100 76 105,000 100 86 110,000 080 70	70 (0.0				26
77,000 110 45 4-1 43 80,000 4-2 40 40 40 40 40 40 40 40 40 40 40 40 40	74 000	750	,,,		30
80,000 4- 110 43 85,000 54 95,000 100 66 100,000 100,000 100 66 100,000 100,000 100 66 100,000 100 66 70	17 June	130	55		37
85,000 090 48 90,000 090 54 95,000 100 66 100,000 100 76 105,000 100 80	85.000	1.50	7,		
90,000 090 54 95,000 100 65 100,000 100 76 105,000 100 50 110,000 080 70	AL OW:				73 29
95,000 100 65 100,000 100 76 105,000 100 80 110,000 080 70	00 p. 0			2790	4.L
100,060 100 76 105,000 100 80 110,000 080 70	05,000			100	6
105,000 (8) 56 110,000 080 70	100 773		4-		14.
110,000 080 70					9:
	310,000			oRe	
114,000 110 16	110,000				76
	114,000	-	- -	110	10

- NOTES:

 1. Numbers in parentheses are estimated values.
 2. Wind data was taken by the salestok weather

 - Tropoposes beliefs was 17,000 ff 850.
 The surface site processes was 1-100 pml, the temperature 27.20, the fix point 70°F, and the relative hamistry 10%.

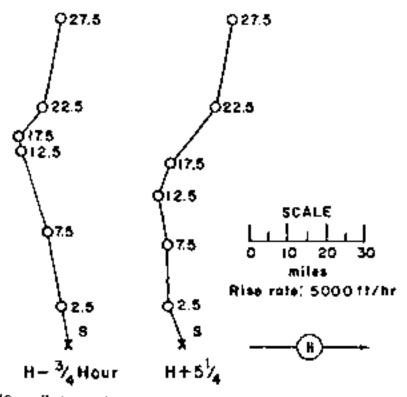


Figure 140 . Hodographs for Operation MARIMACK I .

Rose.

OPERATION NARRACK 1

- Chabbanille

DATE: PFG Time (201)
DATE: 9 June 147 (100mm 147)
TIME: 1115 2315

Spondor: EOR

SITE: FIG - Maiwetck - MNE of Henry

10° 99° 50° H

16° 50° 50° E

Site direction: Geal level
Water depth: (40° ft

IMPORT OF EVENOUS AND IN or between

TYPE OF PROPERTY STANDARDS:
Sub-subtace typet in last in
bottom

RENGERO:

The pattern was cleared three a social of an or "I process which is really too few to place much modes on the externing modes of include of the dewnwind contour. The array all of the total means due concerns within 25 minutes after zero time and was due to the passage of alr-borne radioactive material. Samma does in excess of lots accurred within the first 15 minutes at now, wend distances less than 14,000 feet. The residual field the to deposited radioactive material was relatively insignificant, although radioactive form may represent a radiological hazard."

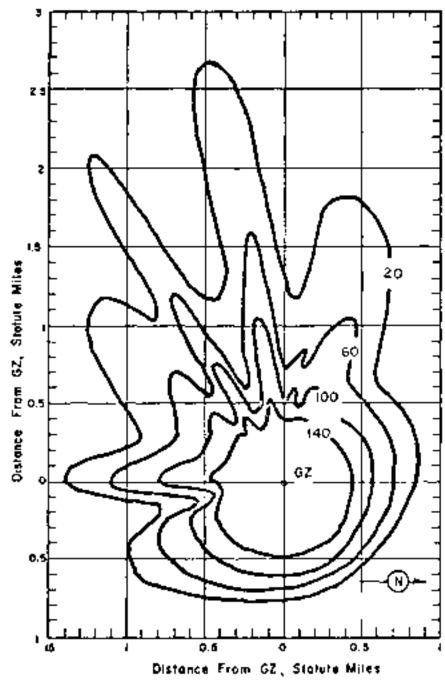


Figure 141. Operation HARDYACK I - Umbrella. Idealized rate contours in r. (Contours represent cumulative dose to 6 hours.)

TABLE 48 SECURIOR WIND DATA SON OF ENAMPLOY HAS DROCK 1 - IMPOSTIA

Attitude		r·	i e	1.50.5.
(R /(.)	70.2	Diam.	: ir	1/2
feet	degrees	E):::	CUNTUES	54 %
Surface	660	23	070	23
1,000	050	26		
2,000	cio	2%		
3,000	970	54	***	
4,000	USO -	25		
5,000	აგი	28		
6,000	090	28	***	
7,000	200	23		
8,000	100	27	77-	
9,000	300	20	• • • •	•-
10,000	100	54		
12,000	110	18	••-	
14,000	124	15	070	29
16,000	130	09	060	15
18,000	160	95	080	C7
20,000	679	GT.	190	C5
23,000	C) C	02	::30	0.5
25,000	රවිට	66	360	C;
30,000	050	o6	350	17
35,000	330	14	250	25
40,000	264.	3 [6	270	15
45,000	27/0	25	200	29
50,000	260	10	200	80
55,000	150	98	190	uÇ .
60,000	140	07	040	⊍€
65,000	0.90	24	120	27
70,000	100	20	6 50	16
75,000	106	UΣ		•-
BC,000	100	27	090	57
85,000	090	23		• •
90,000	099	62	090	63
95,000	090	63		
99,000			090	56
30 0,000	990	60		
105,000	690	58		• •

NOTIFE:

1. Wind data was taken by the Shiwatek weather station.

2. Tropophuse height was th,000 of Mol.

2. Tropophuse height was th,000 of Mol.

^{3.} The surface air processor was 14.60 pai, the temperature 30°C, the dee point 72°F, and the relative healdly 63\$.

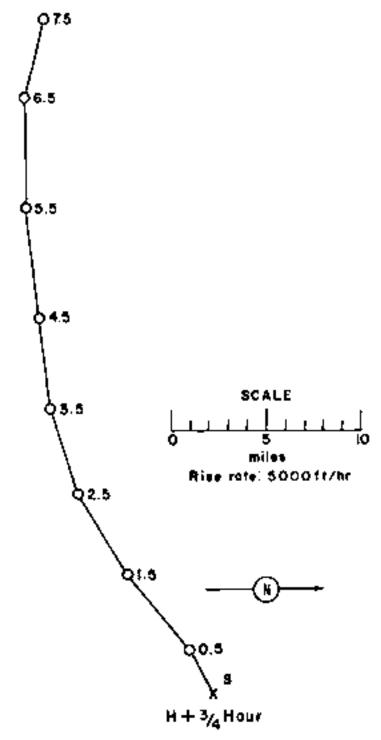


Figure 142. Hodograph for Operation HARDTACK I \sim

Umbrella.

OPERATION MARCHACK I -

-Mapl∧

Per Time (2017) (MTC: V. John Cyd. C. John 1990 TIME: 0590 1790 Spondor: CCM.

<u>SITE:</u> PRG - Bikini - South of Fox 11° Li! 15" 5 165° 26' 50" 5 Site elevation: (korteye)

SEIGHT OF BITIST: 11.50 of

TYPE OF FIRST AND INACHGORS: Surface Communication of the surface of the surface

<u>CLOUD COS (900 000)</u>; (16.), (1.) (17.)ACT. <u>CLOUD SQUARY (16.)ACT.</u> (30.

REMARKS:

Only individual island dose rated are available. These were obtained from Radiological dafety organization beliepper curveys at 8% hours. The helicopter curvey technique called for the pilet either to land the aircraft at the desired spot, so that a ground readous could be obtained, or to cake a slow pand over the desired upon at an elevation of 25 feet. Readons taken at 25 feet were multiplied by a factor of 2 in order to obtain a reasonable approximation of the true ground reading. The basic instrument used in the aerial curveys was the AN/FER-39 survey motor modified to read up to 500 g/hr. The take decay approximation was used to extrapolate the 8% hour done-rate readings to 8% hour.

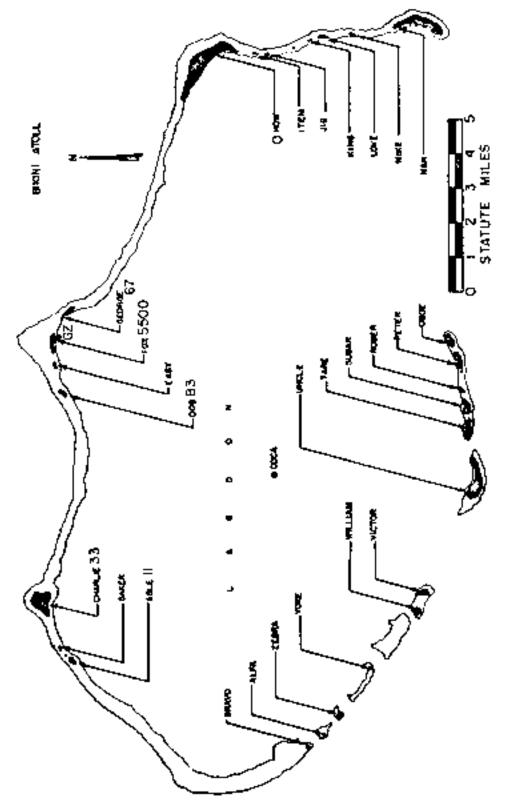


Figure 145. Operation HARDIACK : - Maple. in r/hr at H+1 hour.

Naple: Island dose rates

TABLE 49 HORING WOND DATA FOR CONTRICTOR REPORTED 1 - MAIN R

4411.7	17

Altitude			THE COURT		11-18-18-18-18-18-18-18-18-18-18-18-18-1	
(YSL)	Dir	System	Hir.	:	ii.e	
feet	trig trics	7.37.	pullur en	±1.7	(0) (2% E/L)	E; ::
Surface	680	27/	260	2,	650	5.1
1,000	රම්ව	23 25	970	22	076	23
8,000	686		070	(8)	07°C	27
3.000	0.60	23	₹80	17	::8c	21
4,000	100	22	590	14	390	20
5,000	110	22	120	1.	300	42
6.000	2480	22	16.:	2.7	210	15
γ,,οοκ:	134	31	:50	1.9	200	15
8,000	190	20	1966	18	110	c)
9,000	230	20	140	17	115	19
10,000		16	130	į	11.5	14
12,000	1.x	24	120	20	1791	13
14,000	රජ්ව	57	150	25	120	- 5
15,000	(333)	(22)	(240)	(21)	(136.)	(\mathbf{z}_{i})
16,000	232	54	147		17.	240
18,000	142	2)	1287	24	<u>:</u> .	13
20,000	15.0	20	130	26	25.	í
23,000	130	21	1.40	1.	ιΣ.,	20
25,000	1.00	1.	190	Ü	79.3	29
30,000	270	20	250	0.7	940.7	1.5
35,000	25.	36	(as_i)	(111)	(297.)	(.0)
4g,000	\$770°	2.3	290	÷.	20	
45,000	311	23	(3).)	(jJ_i)	3.4	295
50,000	330	· 100	3.0	6.2	7. 7	25
54,000	ંઇ	(e0)			***	
55,000	$(a\otimes c)$	(e0)	(350)	(1)	(25.1)	(32)
56,000			350	-07	230	`.v·
60,000	100	14	230	43	302	33
63,000					100	22
65,000	070	33				••
70,000	590	žĺ.	090	2%	980	24
75,000	090	38		• •		
80,000	090	- 9	090	56	090	60
83,000		••		••	200	61
84,000			090	56		
85,000	090	59				
90,000	030	79				

- Numbers in parentheses are estimated values.
 Wind data was taken on hourd ship located within 30 equiloningles of the Towns at Nan, Olkini Atoli.

 - Tropopulse behalf was e3,000 ft P.H.
 The surface air professor was 14.70 pai, the temperature 27.00°C, the dow point (4°C, and the relative humidity 511.

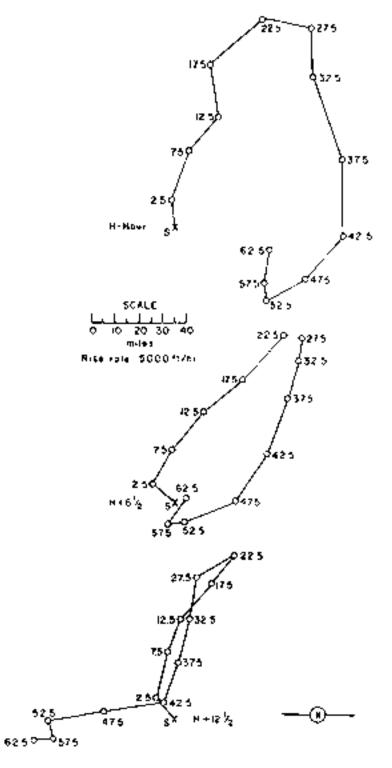


Figure 144. Hodographs for Operation RAPDTACK I -

Maple.

OPERATION HARDWARK I -

Augun

DATE: 1: J :: TIME: 3: 30

Sponsor: UCFL

STTS: FFG - Pikini - GW of Charlie 4, Co ft from the island 117 411 pr" d 169° (61 c=" g Site eleveline: Charlevel

HEIGHT OF HURSTED 10.85 FT

CLOUD ROSE BRIGHTS TO LANCE OF

TYPE OF FURET ADD SIACHMENTS
SHITS STORES TO SHIP SHOPS TO WARRED

REMARKO:

Only individual inland done rates are available. There were obtained from Radiolevical Catery organization helicopter surveys at M+4 hours. The helicopter survey teensions called for the pilot either to land the acceptor survey teensions open, so that a ground reading reading tools be obtained, or to make a slow gaps even the desired apot at an elevation of 25 feet. Sendings taken at 35 feet were multiplied by a factor of 2 in order to obtain a responsible approximation of the true pround reading. The basic instrument used in the nerval surveys was the AN/PDR-30 survey mater modified to read up to (CC r/hr. The till decay approximation was used to extrapolate the H+4 hour dose rate readings to H+1 hour.

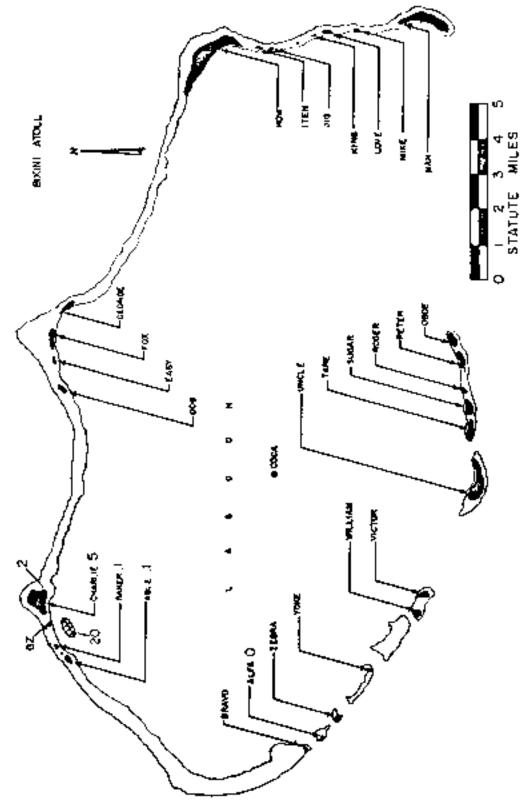


Figure 145. Operation EABDIACK - Aspen. Island dose rates in r/hr at H+1 hour.

TABLE 50 SIETNI WIND DATA FOR OPERATION HAPCTACK I - ACESS

Al1.1tude	[18] No.	·F	સન્યું કા	::::.	PHIC: 2	artro
_ (<u>MSD)</u>	(1- p)	1000	(ir	. 1 2	Tur	. 5 6-1
feet	degrees	53.0	degrees	ելի։	grannes.	*]
Surface	050	21	060	21	060	23
1,000	970	22	060	55	070	24
2,000	060	2)	060	22	070	24.
3,000	090	51	270	22	970	22
4,000	690	21	690	29	370	24
5,000	0.00	80	090	25	070	5/4
6,000	100	22			290	22
7,000	115	52			090	12
8,000	110	22			580	23
9,000	120	23 14	100	12	୍ଟେ	51
10,000	110	2.4	700	25	6.90	12
12,000	110	16	100	13	090	277
14,000	320	1.0	110	15.	0%	15
15,000	$\{110\}$	(75)	(210)	(06)	(090)	(16)
16,000	210	13 23	110	17	000	1.6
000,31	120	23	110	15	050	2.7
20,000	320	25	120	19	090	17
23,000	540	2:	120	1.4	100	19 15
25,000	250	23	:30	51	120	15
30,000	160	26	250	23	250	23
35,000	270	29	(140)	(26)	(190)	(εv)
31,000			140	28		•-
40,000	150	26	200	33	170	25
645,000					180	46
45,000	160	23				
50,000	1,80	30	190	59	200	20
56,000	100	14				
55,000	(212)	(13)	(110)	(19)	(150)	(18)
56,000				•-	110	1C
57,000			ogo	25		•-
60,000	190	රව	060	27	100	20
62,000	06C	50				
64,000					110	-08
66,000			120	38		
70,000	090	29	090	23	260	23
73,000	~~~		060	45		
18,000		••		••	080	48
89,000					110	57

- NOTE:

 1. Sumbers in parentheses are estimated values.
 2. Wind data was taken on board ship located within 30 nautical miles of the lower at Nan, Dikini Atelia.

 The second balabi was \$2,000 ft Mil.

 - Tropopeuse height was 52,000 ft MML.
 The ourface are pressure was 14.66 psi, the temperature 27.4°C, the dew point 74°S, and the relative number 18%.

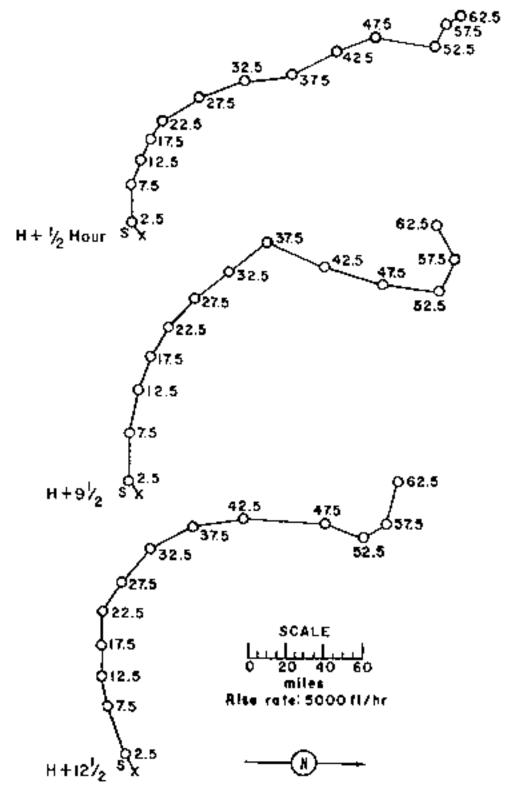


Figure 146. Hodographs for Operation MARDTACK I -

Aspen-

OPERATION NAMED ACK I -

Walnut

<u>PPC Tink</u> GNT 15 Jun 1935 - 14 Jun 1936 TIMA: 3630 - 1930

Sponsore (Add.)

SITS: 170 - Relect & + 5,000 ft 0W of Janet 110 391 507 5 1621 151 317 2 Site elevation: Sea level

MEIGHT OF WORLD: The Pro-

TYPE OF PERCHASE PROPERTY COLUMNSTER CO. Winter

CLOUD TOP SENDENT: FINAL IN MEDICAL CONTROL OF MEDI

REMARKS:

Only individual inlandation rates are available. These were obtained from Radiological Patery Enganization belocapter Corveys at 18th hours. The helicopter survey technique called for the priot elther to land the aircraft at the desired open, so that a ground reading costs to obtained, or to make a slow pass over the desired spot at an elevation of Ph feet. Readings taken at Ph feet were multiplied by a factor of 2 in order to obtain a reasonable approximation of the true ground reading. The basic instrument used in the serial surveys was the AN/FDR-39 survey meter modified to read up to 500 r/hr. The tried decay approximation was used to extrapolate the R** hour dose-rate readings to R*1 hour.

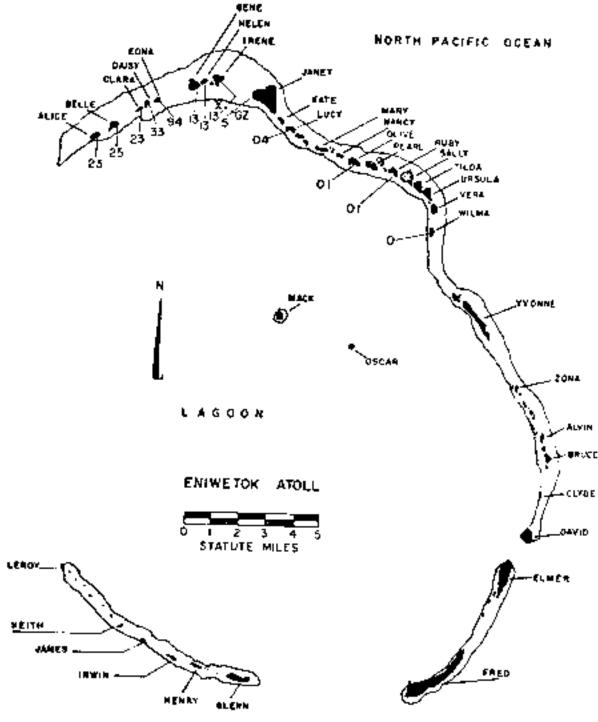


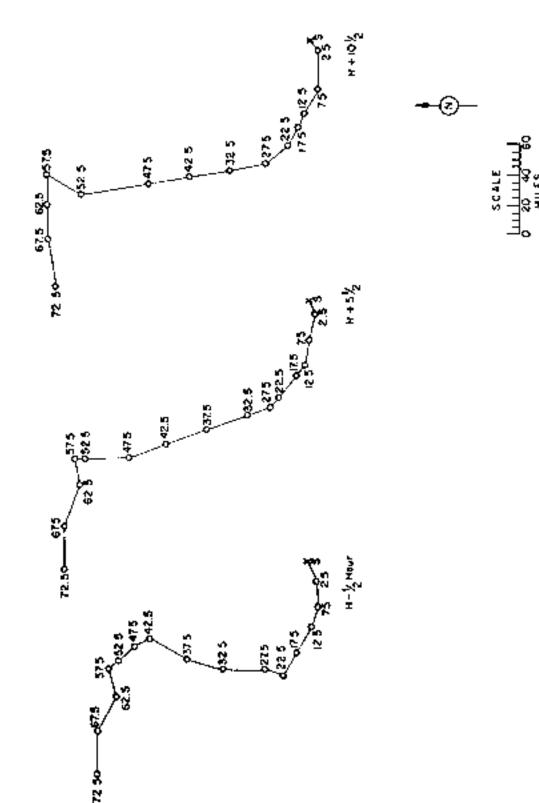
Figure 147. Operation HARDTACK I - Webset. Island dose rates in r/hr at 941 hour.

TABLE SI ENTWINER WIND DATA FOR MARICIACK I -MANUTE.

Altitudo	9+1	Э.Т	77.71	ADSE	96.	5.0X1F5
(MSL)	Dir	. governi	TH F	17701	21.85	
Tec:	degrees	E) A	downess	47h	dugants	하
Surface	070	16	100	17	03 0	17
1,000	070	55	670	25	066	17
2,000	Q 6 0	22	050	20	ord	21
3,000	690	22	100	20	080	31
¥,∞o	090	22	100	20	09C	21
5,000	cea	50	100	-51	090	25
6,000	690	17	110	19	090	26
7,000	690	15	110	21	0.90	#1
8,000	090	15	130	17	100	20
9,000	100	16	110	14	100	16
10,000	100	15	300	15	120	17
22,000	090	15	12C	10	0.90	12
14,000	110	17	120	οЯ:	210	υ;
15,000	(110)	(∞)	(120)	(22)	(110)	(08)
16,700	100	23	230	12	110	09
18,000	110	23	120	55	320	25
20,000	110	ρì	130	20	190	14
e3,000	100),4	110	07	230	15
25,000	200	13	130	77	140	18
30,000	180	27	160	14	170	2~
35,000	190	514	160	29	(270)	(56)
40,000	210	26	160	25	270	28
45,000	190	16	160	26	170	45
50,000	14.0	16	180	30	210	25
55,000	116	97	1"0	66		•-
57,000	***				C5D	15
60,000	ಚನಿಂ	20	080	יין	090	20
65,000	100	26	110	30	(cgc)	(23)
7C,000	090	29	090	26	୍ଷେତ୍	.25
75,000	090	48	090	39	(686)	(36)
80,000	C90	57	090	53	ა90	59
85,000	090	69	090	5.)	•	**
90,000	990	73	100	76	080	şь
94,000	390	73				
95,000			100	77	***	•
100,000			100	90	090	9 3
105,000	•		090	بلو	090	81
	_					

NOTES:

Mumbers in perchibeses are estimated values.
 Wind data was taken by the Emiratuk reather station.
 Tropopsuse height was 50,000 ft Mag.
 The surface air pressure was 14.66 psi, the temperature 27.1°C, the dev point 76°P, and the relative humility 64%.



1

Figure 148. Hodographs for Operation MASTACK I -

Rise cots 5000m/hr

S. But.

OPERATION HARDMACK I -

Lincon

<u>PFG Time</u> <u>JRTT</u>

<u>DATE: 18 Jun tyn.</u> <u>lo Jun 190</u>6

TIME: 1900 0300

Specialism (ACC)

SITE: IFG - Entiwetch - What of Yvenne, 4,000 of from the island 11° 30° 30° 3 160° 00° 30° 6 550 elemention: Sea level Water depths 33° 5

BRIGHT OF FURIET PARTY IN

TYPE OF PURCE AUDITACE TAXORONE:
Surface tueld for a payor of water

CLOSED TOO SUCCESS: AND, TO SELECT.

CLOSED BOYLOT DATASET: THE

REMARKS:

Only individual island done rates are available. These were obtained from helicopter sorter, case by the Badistic, all defety prescription at life hours. The helicopter correct terms the radius for the price either to land the aircraft at the desired spot, so that a process reading rould be obtained, or to take a sixty processor the desired spot at an elevation of 25 feet. Bradings taken at in feet were multiplied by a factor of 2 in order to obtain a reasonable approximation of the true ground reading. The take test recent used in the aerial corrects was the AM/HOR-39 corresponder modified to read up to 500 r/hr. The tile decay approximation was used to extrapolate the 844 hour doze-rate readings to 841 hour.

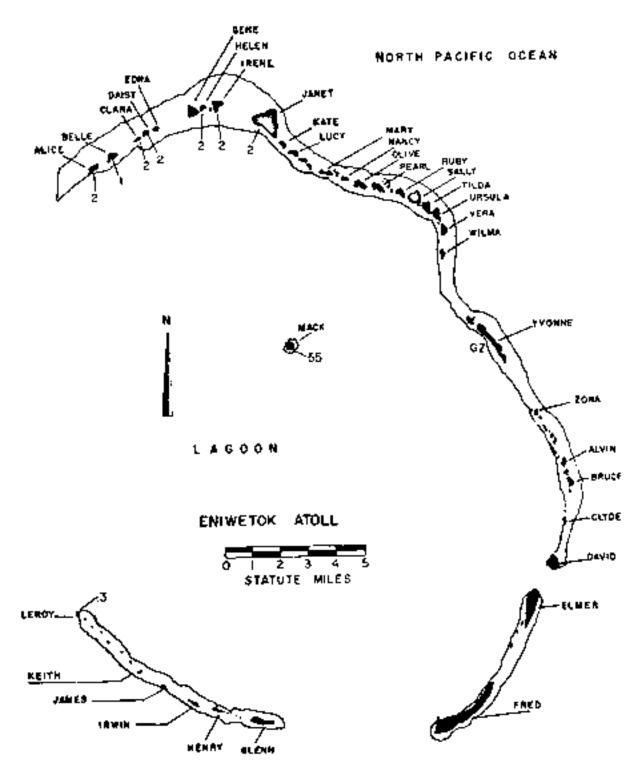


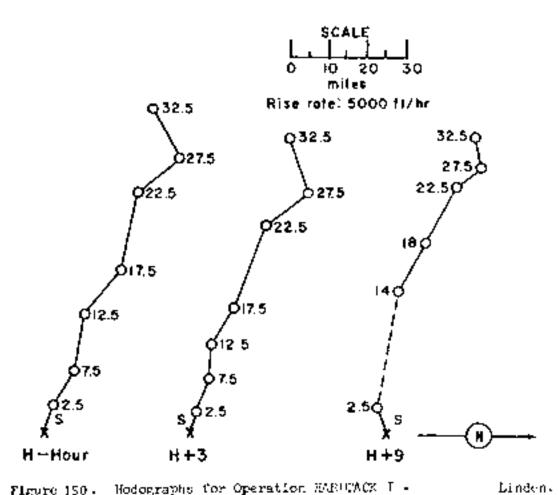
Figure 149. Operation HARDTACK I - Linden.
Island dose rates in r/hr at H+1 hour.

 $abox{TABLE}(5.2)$ -entween wind that for definition respective t=- . Course

Altitode	8/4 5/1003	г		ours.	()#1 m	· T:
(2000)	, ⁴ , ₅	Vyana	11:		1.15	1999
feet	degroes	ct:	degrans	z.ph	39679 6 0	⊞£.u
Surface	120	18	110	18	07C	15
1,000	090	17	680	14		
2,000	100	1≟	080	15	• • • •	• •
3,000	120	122	090	ಬ		
4,000	120	15	110	09		
5,000	120	69	110	10		
6,000	120	09	11C	05		
7,000	120	25	10C	C7	• • •	
8,000	120	65	100	65	• • •	••
9,000	110	C (a8c	11.4		
10,00C	100	25	090	09		
12,000	310	15	110	12	•••	
14,000	140	12	120	29		••
15,000	(230)	(14)	(120)	(m)	(120)	(2b)
16,000	230	17	133	15	120	: I.
18,000	330	24	110	22":	330	18
20,000	100	٧٠,	040	23	120	16
23,000	2160	19	100	12	130	10
25,000	250	13	140	13	140	27
30,000	360	15	970	23	980	27
35,000	5/0	25	•		Qişt)	3.2
48,500	320	0	010	24	350	13
41,000			290	17	•	
45,000	340	13			340	22
50,000	030	27	Slo	Ċ٧	960	.:-
55,000	120	15	140	13	200	11.
60,000	100	16	n90	09	090	23
65,000	590	37		**	690	26
70,000	10:0	.9	200	33		
75,000	120	40				
80,00C	100	48	100	52		
85,000	990	53				
90,000	090	69	090	74		••
95,∞0	090	85				
00,000	160	110	100	95		

- $\frac{\text{MOTES:}}{1.} \text{ Numbers in parentheses are estimated values.}$
 - 2. Wind data was taken by the Entwerck weather station.

 - Tropopause height was 54,000 ft Mil.
 The surface air pressure was 10.65 ps; the temperature 31.2°C, the dee point 77.50°F, and the relative hamidity 71k.



Hodographs for Operation HABOUACK I -Figure 150 .

OPERATION SWRUENCK I - Redwood

<u>PPG Time</u> <u>GMT</u> <u>128 Jun 1998</u> <u>27 Jun 1995</u> TIME: **0**930 1730 Spanson: UCKG

SITE: PFG - Bikini South of Fox 11° 41' 14" N 165° 25' 55" 2 Site dievation: Sea level

HEIGHT OF PARTY: 10.79 At

TYPE OF BURGE AND FLACEMENT: Surface turns throm parge on water

CLOUD TOP CHICKET: Plycon fo MED. CLOUD BOTTON (LCCAT) | Phycon fo MED.

ROMARKS:

Only individual island done rates are available. These were obtained from Radiological Safety organization believator surveys at 84% hours. The helicopter survey technique called for the pilot either to land the aircraft at the desired spot, so that a ground reading could be obtained, or to make a slow pass ever the desired spot at an elevation of 25 feet. Readings taken of 35 feet were multiplied by a factor of 2 in order to obtain a reasonable approximation of the true ground reading. The basic instrument used in the aerial surveys was the AM/FDR-39 survey meter mudicied to read up to 500 m/hr. The tile decay approximation was used to extrapolate the httless dose-rate readings to 841 hour.

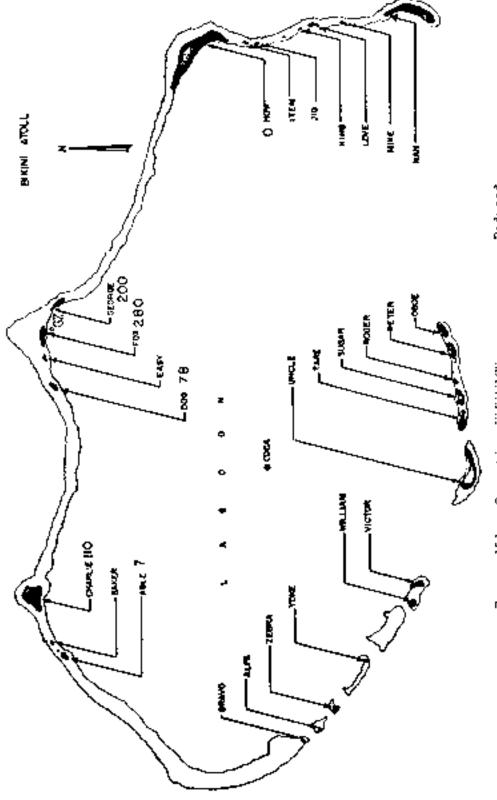


Figure 151. Operation Walthorn . . Redwood. Island dose thing in pilor at 841 hours.

TABLE 53 BIKING WEND DOWN FOR OPERATION BARDINGS I - REDWOOD

Altituse	2.80			9.12.5	1100	_ <u>.</u> ;
(κm_c)	19:50 T		Ely	- ignord	<u> </u>	23/2002
(Cut	gestann	स्पृत्त	griggeren.	mg.is	descigare a	7.]:::
Surface	C7C	23	ინი	23	090	25
1,000	C70	23	090	<i>29</i>	0.90	35
2,000	CYC	25	060	#9 26	0(4)	79
3,000	676	23	0.80		:A:	20
L,cox	076	20	090	25	100	12
5,000	იგი	18	100	23	220	1.,
6,000	100	22	100	22	110	16
7,000	100	22	110	22	:10	25
8,000	110	22	120	80	:10	15
9,00	r) o	23	1.40	18	1.10	20
10,000	110	23	220	30	110	24
12,000	510	21	110	20	120	25
20,000	110	10	12'0	242	100	74
15,000	(516)	(35)	(;;;)	(::)	()	(3%)
16,000	100	1.0	110	22	163	20
18,000	0,00	16	120	25	120	179
20,000	100	18	110	21	220	2.7
23,000	J-80	147	100	೯೭	150	20
25,000	040	125	100	28	; i-o	73
30,000	erro	06			000	77
35,000	180	୍ପ			146	Ç.,
WO,000	:70	16			2(k)	
4 5,000	210	35			22%	9
50,000	230	224	-05		040	33
55,000	310	07			140	:8
60,000	120	Qδ			08 0	28
65,000					090	ا. 1
70,000					100	5 la
72,000					310	ĹΟ

KOTES:

- 1. Numbers in seponthened ere entimated values.
- 2. Wind data was taken in hourd ship within 30 mactical miles.
- of the tower at Man Teland, Bikini Atell.

 3. Tropopaine height was 93,000 ft MSL.

 4. The surface mir pressure was 19.60 psi, the temperature 37.3°C. the dew point 76.50F, and the relative humidity 98%.

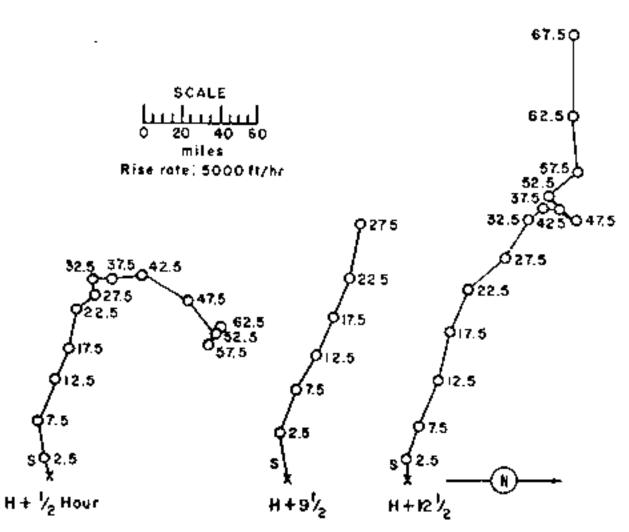


Figure 152 . Hodographs for Operation HARDTACK I -

Bedwood.

CPERASCON (MIRCLAUS I -

Elder

TIME: Jego

Opposition: !AGL

SETE: PING - Enlawards - CW of James hyddio (* 15) membert rage of island 11° 39° 50° 3 166° 13° 58° 2 Site elevation: Seg leval

BELOW OF BATHER OF A ST

CTOTO DOT HELDERS: CONTRACT OF MED.

TYPE OF MEMORIAN PLACEMENTS Surface tracks Jesus Language on water.

REMARKS:

Only individual coloniation rates are available. These were obtained from Radiological Defety originization beliespter surveys at H-A bears. The helicoptor survey technique railed for the gilot either to land the aircraft at the Tealred synt, so that a groupe reading could be obtained, or to make a clew para ever the pesited upot at an elevation of 25 feet. Readings taken at 25 feet were multiplied by a factor of 2 is order to obtain a reasonable approximation of the tene pround reading. The basic instrument used in the Adrial curveys was the AM, FDH-19 survey meter medicing to read up to JeC m/on. The told decay approximation was used to extrapolate the H+4 loar dose-rate readings to H+1 hour.

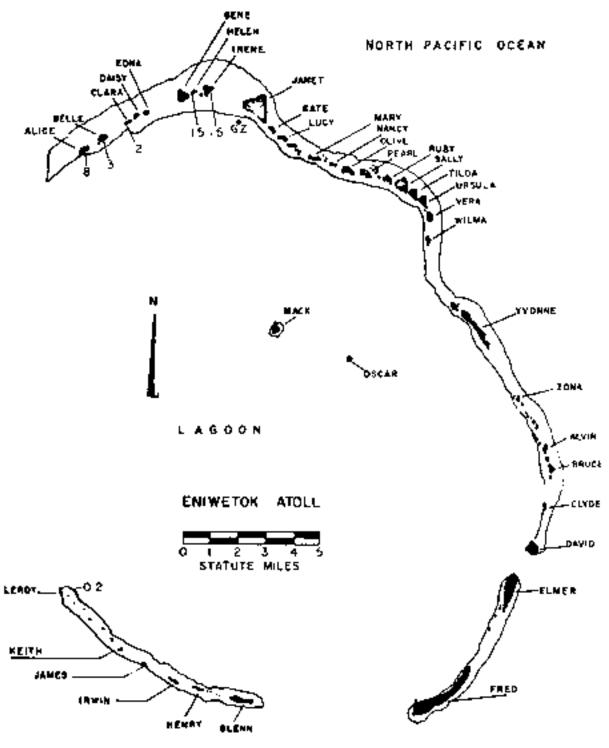


Figure 153. Operation MARDMACK I - Elder. Island dose rates in r/hr ut M+1 bour.

Altitus	h-!	 ;;	H-55	n_r		· <u></u>
(Mon.)	200	Tales ville		Tag areas		<u>Inneral</u>
feet	42082000	Tipo I	Joganes	2014	Interpress.	::4:::
ລີນສູກໃນປາກ	086	24	690	1'	100	16
1,000	010	26	0/0	23 25	110	26
2,000	we	26	090	(24)	150	26
3,0.0	Office.	24	100	25	100	26
4,005	990	82	P(X)	172	(3.2)	26.
5,000	U%:	22	300	25	25.6	216:
ϵ, α	100	22	110	4.5	100	24
7,000	170	23	110	73	10.0	25
5,cc	130	21	110	.39	20%	1.5
9,000	.30		127		1929	34
20,000	17%		3	•	1.5	· ;
12,000	0.90	N.	100	7.4	25.50	76
14,000	190		0.00	. :-	1.00	1.00
15,700	(:)	(11)	(:)	(.)	()	(, ,)
16,000	. 177	11	1.33	2.25	::	200
18,000	::5.	L.	13.0	2.1	CHC	22
20,000	:	- 19	120	e :	(5.5%)	(p_{ij})
23,000	4.18	20	1583	17	100	$R_{\rm s}$
25,000	27.4	11	10.6	;	1.7	ī ·
30,000	236		180	71	.455	2%
3/1,000			1681	30		
35,000	7/90	3.3	(3.5)	(27)	1400	31
40,000	150	•	2000	1.00) *.	25
45,00cc	160 180	73 23	(;;;)	(; ;)	: · · · ·	97
50,000	180	23	250	-3	150	13
53,000			180	$\frac{15}{(14)}$		
55,000	120	13	(160)	(14)	177%	30
60,€00	100	29	100	18	310	23
6 5,000	100	28			090	49
70,000	060	46	105	4.8	090	56
75,000	160	47	•		090	55
8 0,000	090	61	090	621	090	61
85,000	390	ϵ_{7}			090	<u>?</u> l.
90,000	090	93	100	87	090	₽,
95,000	090	90			090	90
100,000			100	105		
105,000			100	117		
110,000		•-	100	107		
116,000	••-	••	100	<u> </u>		

NOTIFIED :

A. Sumber, in parenthalen are estimated values.

^{2.} Wind data was laker by the followersk weather station.

^{3.} Propognous bounds who 52,000 ft MSU. 1. The temperature 27.4°C, the $t = p \cdot r t = 0.07$, and the relative hamidity $\gamma \gamma \beta t$.

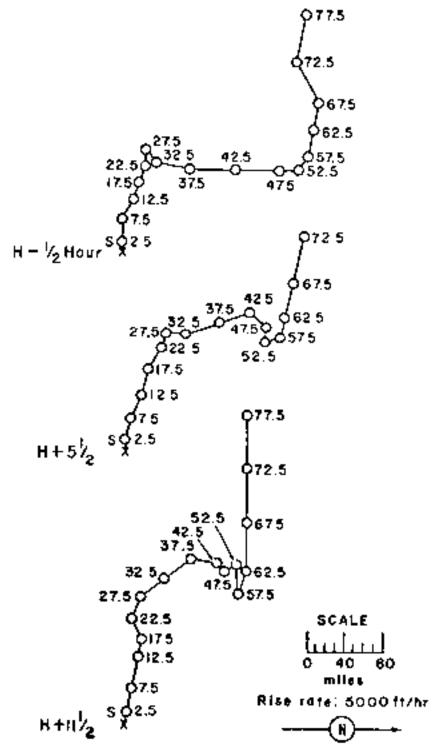


Figure 184. Hodographs for Operation MARDHACK I -

Elder.

OPERATION WARDTACK I + -

Oat.

	PPC Time	GKT
Di Tra	29 June 1770	్రివిందుల 200€
TIME	J777.0	1930

TOTAL YEXAND 8,9 Mg

FIREBALL CATA:

Time to let minimum: 726 Time to Prochazimum: 2.94 see Radius at Cod maximum: 720

CRATER DITA:

Diameters A,500 ft Depth: 183 ft Sponsor: IACL

SITE: PIG - Polawitch - 9 mi GW of Air -11° 36° 36° 3 160° of 78° 5 Site objection: Available Water depict 19 ft

BETTER OF BUTTER FOR THE

CMMH OF FURATIONS SERVICE Age
Currans I court the extension as
Paters

group the new messions of estimate Court section has been as

REMARKS:

Only individual island dose water are available. These were obtained from Endiological Cafety organization believed on a covey: at Eth hours. The helicopter survey tearnique ralled for the pilot either to land the aircraft at a desired spot, so that a ground reading study to obtained or to make a slow pars over the desired and at an elevation of Ch feet-Readings taken at Ch feet were statisfied by a factor of Ch in order to obtain a reasonable approximation of the true ground reading. The hadic instrument need in the world order was the AN/FOR-35 curvey mater modified to read up to 500 c/hr. The third decay approximation was used to extrapolate the MHA hour dose-rate readings to HAI hour.

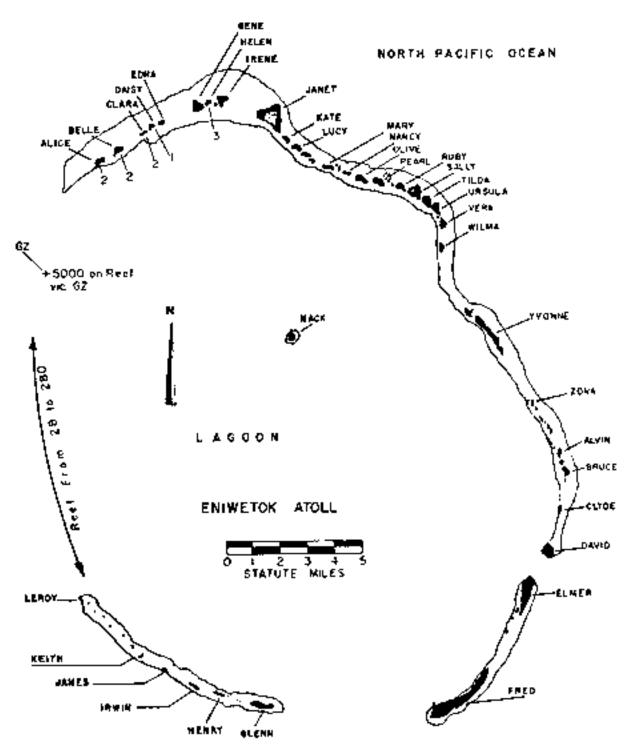


Figure 155. Operation HARDWACK I - Ouk. leland dose rates in r/hr at H+1 hour.

Altitiate	a • Norse		2000 nours		i nyi taman	
$(p_{\alpha i}, j)$		Special Control	: i <u>t</u>			3023
feet	dey zwes	r.jr.	desprees	 	2207005	πþ:.
Surface	120	16	090	12	100	22
1,000	390	85	cêo	17	100	30
2,000	100	24	680	22	100	90
3,000	100	24	රහිර	55	200	28
h,000	200	2.	090	20	1.35	60
5,000	110	25	100	20	300	23
6,000	110	20	110	:-	130	14
7,000	120	20	120	17	100	:8
8,000	180	20	130	7.3	: 30	:9
9,000	140	19	130	ī.,	(CW)	1
10,000	1.6	17	130		130	- 13
22,000	29,5	16	130	ΞĠ	120	13
14,000	535	19	150	22	130	13
15,000	G317	(25)	(150)	(\hat{z}_{i})	$(1,\infty)$	(5)
	170	· · · · · · ·	150	20	120	277
16,000	120	27 27				š,
18,000		.8	150 160	20	150	
20,000	132	2.5	140	22	800	35
23,000	177			2 ~ 0	1:	12
2 7,000	240	75	190	23	100	12
30,000	2.49	16	190	3)	197	69
35,000			150) e	157	10
Lc,000	149	20	110	ić	300	10
\$4,000	,362	1.5	7	• •	· • -	
45,000	$\{0.00\}$	()4)	0.90	13	c Sci	1
50,000	1.50	17	160	5;	190	.:9
55,000	(100)	(12)	070	ახ	⊝باب	12
57,000	110	12				
60,000			080	31	රජීව	30
65,000			090	33	100	35
70,000			090	43	030	4)
75,000	•		090	56	090	54
8 0,000			100	67	100	67
85,000			100	97	690	78
90,000			090	72	090	èц
91,000			090	73		
95,000					090	48
100,000					090	99
105,000	•		T		100	ıćέ
10,000					100	115
14,000					090	121
***			-		V 70	***

- Numbers in parentheses are estimated values.
 Viril data was taken by the Educate continer station.
 Tropopouse height was 50,000 of RAL.
 The surface air pressure was 14.64 pst, the temperature 27.3°C, the dew point 70.5°F, and the relative humidity 87\$.

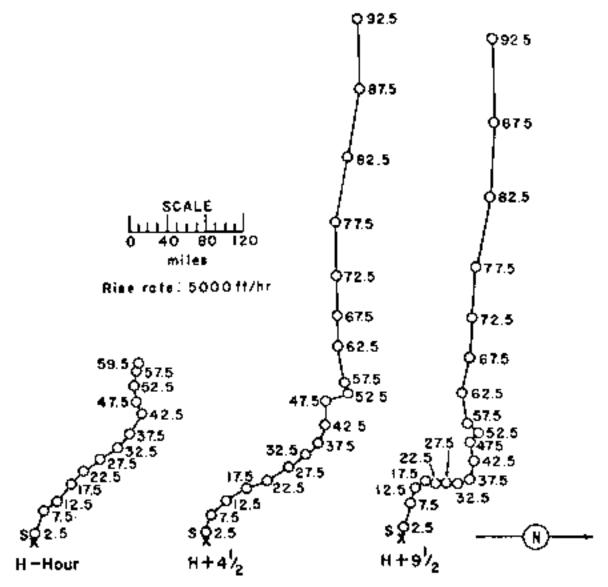


Figure 156. Hodographs for Operation MARDEACK I -

Out.

Orknowless systematical -

Mickey

	FFG Time	:247
DATE:	To Catherine (200	าว สันเทย (1.)) ซึ่ อล์ด0

Sponsogn UCRO.

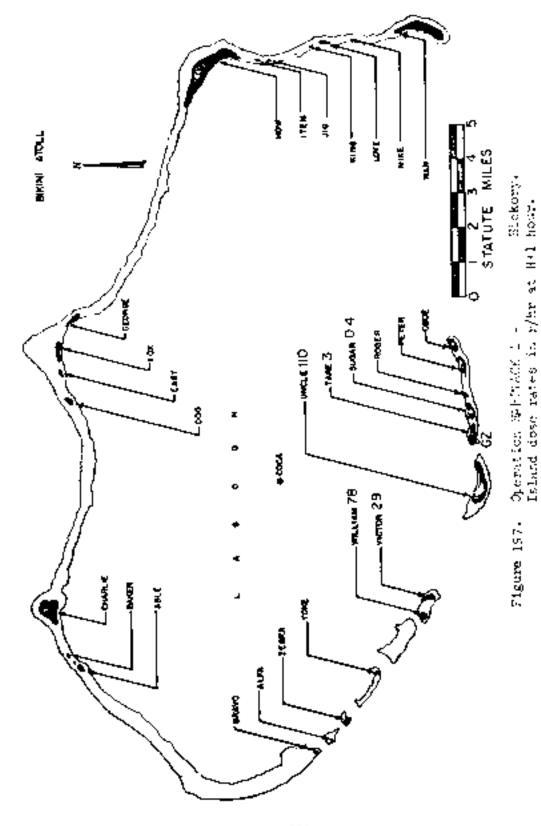
MEDICAL CONTRACT CONTRACTOR

CRATHER DV.CA: But sever self-se

<u>CLOUD DE BUIST DE LEAR COMES MANA CLOUP BOART E DESCRIPTION DE MANA</u>

REPLACEMENT.

Only individual Island done rates are available. These were dealers from beliepter surveys each by the Radislogical Carty process at (in at H+h hours). The heavy giver survey technique calles for the pilot either to land the alreanth at the desired spit, so that a remost reside result a of 25 feet. Resident taken at (b) feet were the desired spit at an elevant a of 25 feet. Resident taken at (b) feet were thitiplied by a called the of C in order to obtain a reasonable approximation of the time results peached. The basic instrument that is the merial already was the AN/H(R+y) received was used to extrapolate the R+b hour dose-rate readings to R+1 hour.



TARGE S6 RIKINI WEND DATA FOR OFFERTION HARDEACK 1 - RICKCRY

A)&filede	H-totaly			H+to Notice:		3(+1)(*),(rup)	
(RGL)	Hitr	ंदु सम्ब	Dir	Special L	01 1	Circus:	
feet	3047030	ert.ii	W.A. parine	:::•[-::	digitaries	2.100	
Surface	090	¢9	650	23	gāg	17	
1,000	cRo	23	೦೮೦	26	$G\widetilde{C}C$	22	
5,000	ପଟର	23	080	36	ChC	744	
3,000	$O_{k,C}$	24	080	36	CS(5.0	
4,000	090	24	690	16	୯୫୯	(9)	
5,000	0 (6)	2%	090	30	073	(20)	
6,000	$\mathcal{J}_{2}(\mathbf{x})$	21	ଚ୍ଚିତ୍ର	30 59	040	220	
7,000	0%	22	0.90	24	:4	23.3	
8,000	090	20	090	22	675	1ò	
9,000	090	17	c80	15	090	20	
10,000	100	18	0/0	12	090	.20	
12,000	100	174	050	136	\$7.1C	21	
14,000	130	15	4770	:4	(11)	770	
15,000	(100)	(:?)	(070)	(%)	(379)	-(2.)	
16,000	1,000	20	060	J9	670	2.1	
18,000	110	21.	040	15	060	47	
20,000	130	12	040	1€	036	12.	
23,000	1000	69	030	୍ର	040	0.9	
25,000	360	06			010	10	
30,000	Calm	Calm	010	07	150	03	
39,000	160	68	168	68	140	03 10	
40,000	+		ne	C)	075	08	
45,000			540	50	29/0	2.0	
50,000			140	20	৩ 60	63	
55,000	•••	n •	350	12	350	28	
60,000			070	4G	080	35	
<i>6</i> 5,000			120	25	090	18	
70,000			070	91	c8o	68	
12,000			060	41			

NOTES:

- 1. Numbers in purenthence are estimated values.
- 2. Wind data was taken on board only within 30 rautical miles of the tower at New Island, Bukini Atoli.
- 3. Tropopulate bright win 51,000 ft Mills.
- 4. The surface his pressure was 14.00 pci, the temperature 7".500, the dew point 81.3°F, and the relative humidity 8.5.

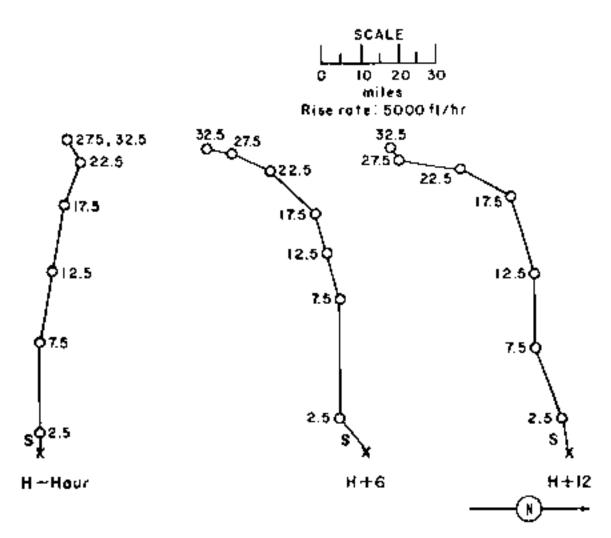


Figure 158. Hodographs for Operation NAROTACK I -

Elckory.

OPERATION BURETACK I - Computa-

TIME:

Sponson: IACL

SITS: 195 - Kaiwa a -) mi would not Yv bron-11° 32° 57° 3 16° 20° 33° 3 Site elevation of the level

850 GM OF BURGER OF A FOR

<u>TMP-CP_0 CUITO III ACPERIO</u> Signification being to the more energies on waters

ctors of regards that a second CLOUD BOTTON H TONE: TON

REMARK ::

Only individual sciama five rather are given as a . These were stances from Radicingular Carety remarkables about que outry as Hebraham. The believapter superly installant may also a the pict entrues to land the aircraft at the desired up to an test a return popular result by obtained, or is make a slow paper over the desired up a as an elevation of 25 feet. Readings taken at 25 feet were multiplied by a factor of 2 in order to obtain a reasonable upproximating of the troops sand reading. The basic instrument when in the action where, was the AN/PIGE-39 survey betom to define the popular to the refer to the first the second decay approx vation was used to extrapolate the M+4 sour desc-rate readings to Rei nour.

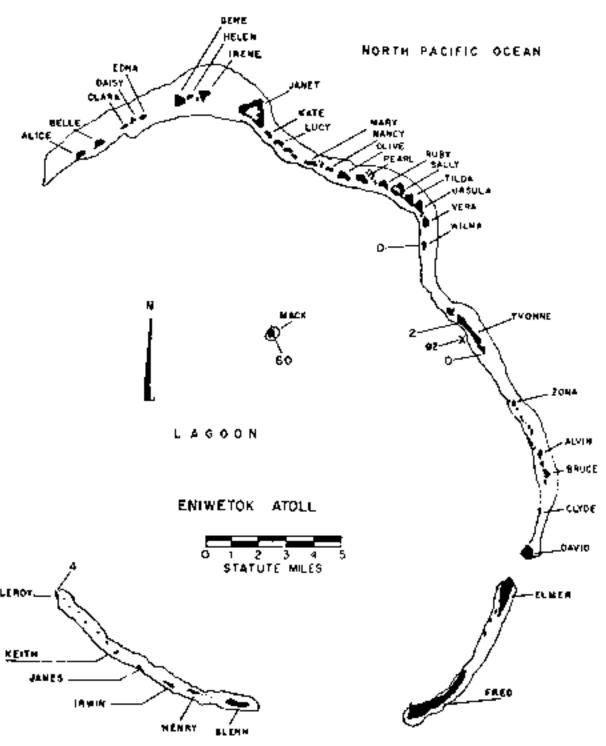


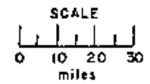
Figure 159. Operation MARDIMCK I - Sequela. Island dose rates in r/hr at Hel hour.

Altitudo	ii-! :	חנים.	50 m 1 15 m	Der Lenga		C .TS
(MSL)	"lr	. jeon <u>I</u>	:15		TIF -	300
feet	degrees	Epo.	dofferies	2.1.17	Jegrees	mp:.
Surface	100	12	080	15	090	81
1,000	090	80	090	13	090	23
2,000	690	22	090	22	090	25
3,000	100	55	100	22	090	2-
4,000),00	26	10C	22	090	23
5,000	10.0	23	100	왕교	090	72
6,000	100	55	16C	20	100	80
7,000	100	22	090	19	100	37
8,000	100	ညှင	100	15	100	25
9,000	100	57	:15	14	100	լի
10,000	100	15	110	26	100	16
12,000	110	20	110	16	090	15
14,000	130	15	130	<u>-</u> 4	239	69
15,000	(120)	(13)	(130)	(13)	(130)	(≎y)
16,000	120	10	130	13	130	3.5
18,000	01.3	C.,	100	L3	120	143
20,000	040	13	იმი	69	430	05
23,000	010	23	010	18	640	16
25,000	940	18	340	25	020	0.
30,000	Ö17	ì':	630	10	320	09
35,000	050	18	osc.	16	020	07
0,000	010	28	3€€	£1	010	3.7
15,000	080	36	010	29	C10	21
0,000	210	24	340	55	300	١.
15,000	610	16	310	12	05C	O3
£0,000	0865	16	100	55	110	18
55,000	100	29	100	30	38 0	29
0,000	630	39	090	ų,	390	48
5,00C	100	55	200	47	196	57
30,00 0	090	55	090	54	290	67
35,000	100	7.5	100	70	090	75
0,000	990	68	100	80	090	76
75,000	090	90	090	90	090	83
000,000	69C	98			090	100
35,000	100	98			090	109
10,000					090	79
12,000					100	82

NOTES:

- 1. Numbers in parenthéses are estimated values.

- Wind data was taken by the Enivelok seather station.
 Tropopause height was 52,000 ft MSL.
 The surface air pressure was \$4.60 psl, the temperature 27.2°C, the dev point \$3.5°F, and the relative humidity 76\$.



Rise rate: 5000 ff/hr

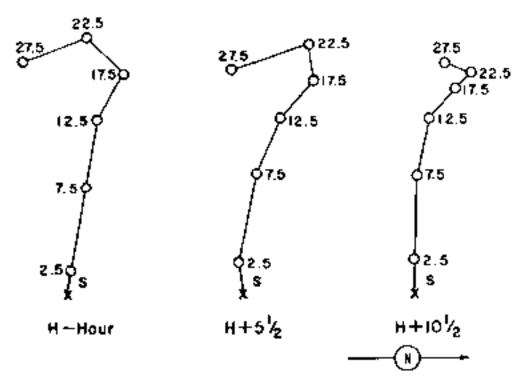


Figure 160. Hodographs for Operation HARITACK I -

Sequoia.

OPERATION INMUTACE : -

Coden

Spondor: UCRL

SITE: IFG - Pikiti - CW of Charlie, b. A. St Crom the island Site elevation: Sea Tevel

HELICAT OF BUHNE: 17.75 ft.

TYLE OF FORCE AND ELACTROST: Supplement of the bester on water

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RMARKOL

Only individual inland these rates are armitable. These were obtained from Radiological Enfety impulsation believed a revery at life hours. The helicopter convey terbologic miled for the pilet cities to lass the aircraft at the desired open, we that a ground reading could be obtained, or to make a size page per the desired open at an elevation of 2% feet. Readings taken at 2% feet were multiplied by a factor of 3% order to obtain a reasonable approximation of the true ground reading. The basic instrument used in the aerial curveys was the AN/FEE-30 survey meter mudicial to read up to NCC s/ms. The title decay approximation was used to extrapolate the SHA hour decernate readings to H+1 hour.

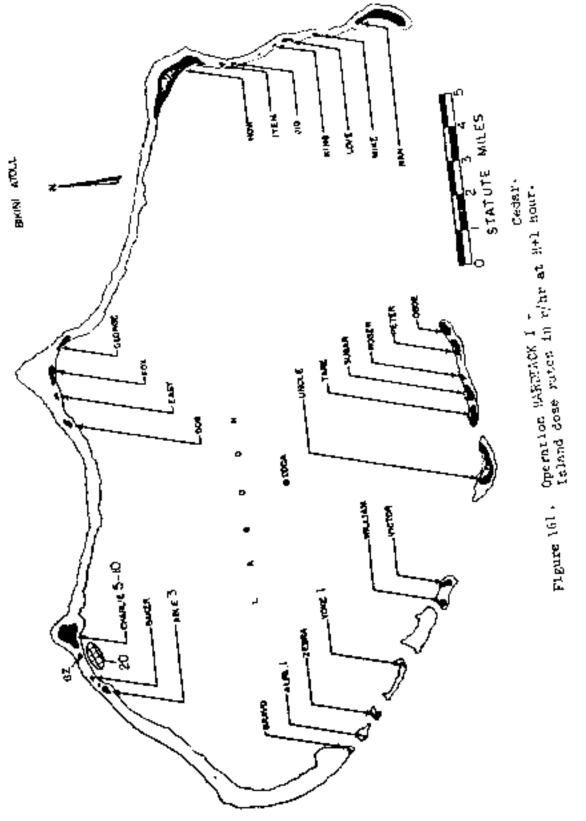


TABLE 58 MINION WIND DATA POR CHARACTER SERVINGS I - CREAK

A) Ui librari	134 july 1	'		95.1	_8-90_6.c	-25.7
(PP(1)	10 r		<u> </u>		. 1. 17	- 11
feet	G-0.17/19/0	650.0	despite to a	::. ; i,	0.4256 (6.9)	7 711
Surface	080	18	090	16	000	5;
1,000	0.90	26	130	17	080	221
2,000	.00	29	100	2) 78	990	110
3,000	112	30	086	7.9	Distr.	29
4,000	200	29	100	35	200	293
5,000	:.0	20%	0.90	25	300	285
6,000	2.00	754	t jet tibu	7.4	360	2.
7,000	.60	.4.	080	- 7	570	, iii,
8,000	1.00	1.5	080	29	100	.27
9,000		23	2002	250	1.0	
10,60.	Q1.442	150	200	3.7	71.0	25
talee.	6,753	.0	QQ +		1387	7.1
14,60	Oth.	13	(10)	. 2	-39	11
یک برزا	(ω_m)	(٤٤)	(")	(r_{-})	(09e)	(10)
16.60	420	-3		·	:50	2
15,55	-1.5	6.5	21.2		Lt.	1:
Pages 1	1773	-:-	Galle.	Calin.	3111	€.
23 per la		. •	Charles	17% 196		7
25,000	(:)	(16)	. 15	10	200	.7
30,00	4.7	711	2743	1	22.5	16
35)000	ρίc	3.5	200	25	20	400
40,000	210	L_{G}	2010	:	22.	1.5
45,000	75/0	47	260	39 46	220	ებ
50,000	7,50	.:ô	220	46	25	0.1
53,000			2/10	38		
55,000	200	.20			290	39
60, 000	090	22			100	26
65,000	080	28			100	31

NOTHER

- 1. Numbers in parenthrons were estimated values.
- Wind data was taken on board thip within 30 hautical miles of the Tower at San Island, Piktal Atoll.
- 3. Tropopulate helight was \$1,000 ft MCL.
- 4. The surface air produce was 14.05 per, the temperature 28.470, the dev point 76.5°F, and the relative homidDy 70%.

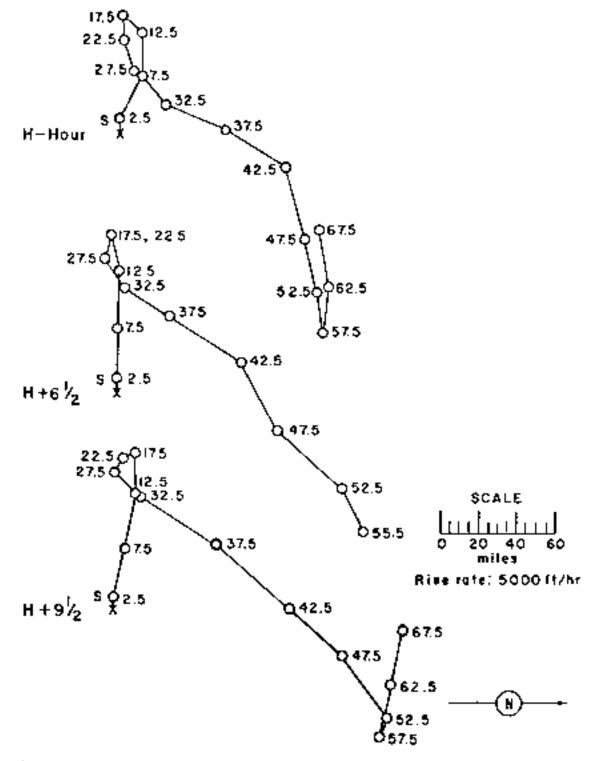


Figure 162. Hodographs for Operation MARDTACK I -

Cedar.

Characteria availabata E -

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	Pro Time	OME
	$\overline{G} \subset C(y) \cup x, \overline{y}$	3.4y 1 5.5
$\overline{T}_{1}(0;0)$	Original	.8 ₇ 0

Sponsor: COM.

Street 199 - Eniwetox - JW 19 Januar 0,000 ft to describe edge of island (ftr- 0)12) 100 301 887 5 1688 181 487 8

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STATE OF PERSON AND BEAUTIFUL OF WELLEY

REMARKS

Only individual is hard done gates are available. There were interest from Hadial gleaf Safety are acceptable to be prior conveys at SA stands. The holicapter surveys tensing a retien for the pilot either to be a the algorithm to extend again, is that a great meating a restant of some obtained, or to cake a play pass over the reclical against as an expection of 25 feet. Provides takes at a feet where multiple of the true of 2 in order to eithely a reasonable approximation of the true ground remainer. The pasis and remains used in the merial conveys was the AN/PDR-59 survey mater medicied to real up to 500 m/hm. The takes decay approximation was used to extrapolate the SAM hour placemate readings to 840 hour.

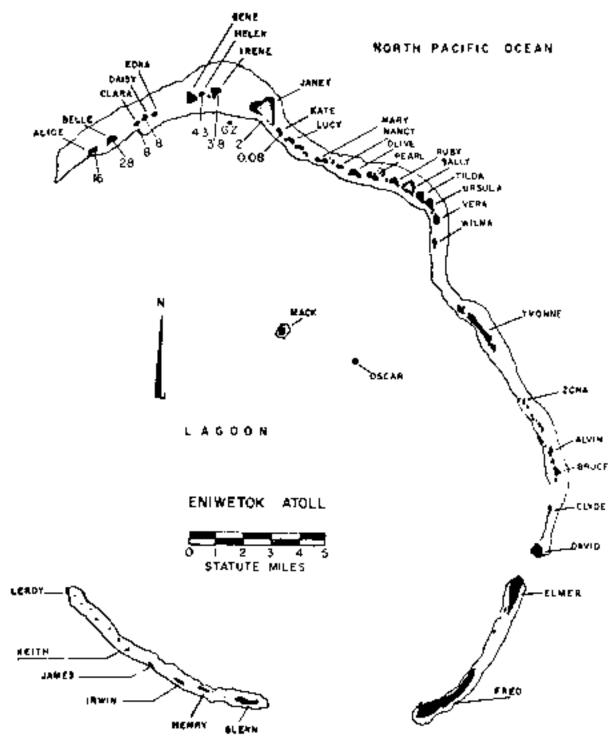


Figure 163. Operation HARDMACK I - Dogwood. Island dose rates in r/hr at if*l hour.

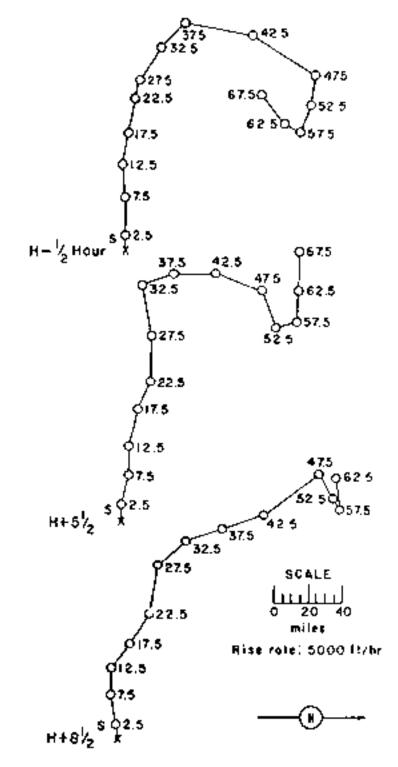
TABLE 59 PRINCIPL WIND ONCE FOR OPPLATION PARTICIPLE.

2000		

Altitude:		Dur.	Mr. Acare		neo' bawar	
$(\mathbf{r}_{i}^{a}\mathbf{r}_{i})$	ine _	17	Di r	- 70 m		
feet	cegroes	op!:	degrees	=]::1	Tive tales:	=====
Surface	290	18	690	19	980	16
1,000	≙80 -	20	050	1''	38 0	16
2,000	୍ଷ୍ଟ	26	0.00	20	070	18
3.000	29C	25	160	7.4	0.40	22
4,000	090	24	100	15	08 0	21
5,000	090	20	100	25	ು6 ು	16
6,0∞	39C	17	160	25	990	14
7,000	390	20	100	15	9)2	15
8,000	680	17	080	:! .	59.:	15
9,000	072	18	630	· · ·	თწა	: 2,
10,000	ುಕಿಂ	20	090	3.7	3,6	14
12,000	100	16	0,0	28	190	14
14,000	100	14	100	20	120	17
15,000	(100)	(57)	(100)	(20)	(195)	(10)
16,000	100	,51	110	22	1(0)	10
18,000	136	22	110	21	120	22
20,000	160	:0	110	17	120	20
23,000	100	229	100	23	110	26
25,000	100	12	070	2.	100	25
30,000	120	51	oéc	پول	140	90
35,000	230	18	160	íē	166	21
40,000	120	36	180	22) (0	275
45,000	210	น็ว	200	29	140	39
50,000	230	16	P)(0	21	2-0	19
55,000	290	17	16C	79	240	55
6¢,000	030	10	990	18	685	źó
65,000	C59	22	690	5-	•••	
70,000	050	144	5 <u>9</u> 6	38		
75,000	050	40	100	(c		
80,000			100	51.	·	
85,000			100	59		
90,000	.		690	76		•-
95,000			200	92		
00,000			100	201		
05,000			090	234	-	

NOTES:

- 1. Support in parentheses are estimated values.
- 2. Wind data was taken by the Entwetck weather station.
- Tropophuse height was 52,000 ft MCL.
 The surface air pressure was 14.63 psi, the temperature 27.4°C. the des point TFF, and the relative hamidity 85%.



Pigure 164. Hodographs for Operation HARDTACK I -

Dogwood.

OPERATION NARDYMEN I -

Poplar

 $\frac{\text{DMTRS}}{\text{DMTRS}} = \frac{\text{PFG Times}}{12 \text{ July 1996}} = \frac{\text{CMT}}{12 \text{ July 1996}} = \frac{\text{$

Sponson: UCRI.

SION: STO * Piking - SW of Charlie, T,100 ft from the swarest circ of lifes! 21° %1' % % 26% 10' %1' % Steplement limit for level.

HEAGIN OF HOUSE STUGE IT

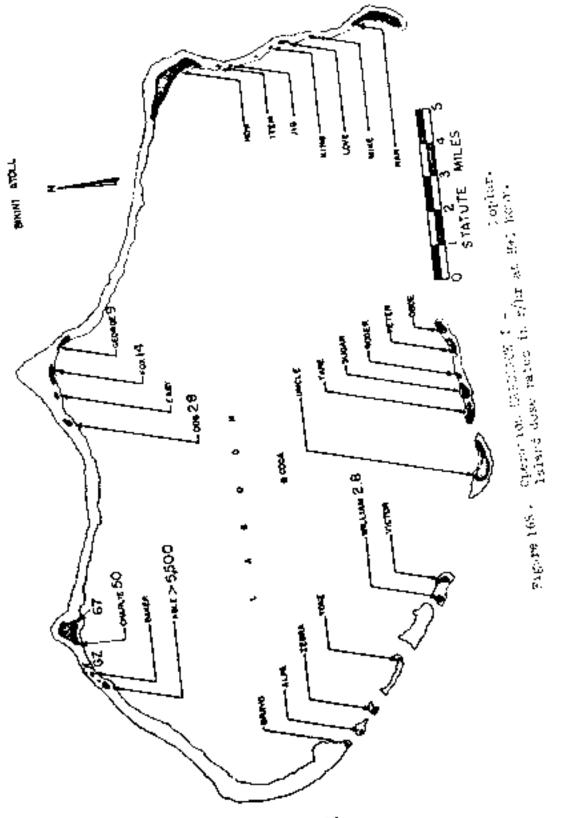
TYPE CRESSOR AND STANSANDS

Surface been the manager of water over med

CLOUR FOR BUILDING > 1,000 on Min.

REMARKS:

Only individual labored dura mater are available. Shake were obtained from the Radicionical Safety organization to implied conveys of H+4 hours. The helicopter curvey technique valled for the pilot either to land the appropriation the desired open, we that a ground reading round be obtained, in the make a blow paid over two desired spot at an elevation of a feet. Readings taken a magnifical term mattiplied by a feet of all in order to obtain a manufactor Approximation of the true ground reading. The tunio instrument used in the merial surveys was the AN/198-fy hereby meter scalified to read up to 500 r/hr. The total decay approximation was used to extrapolate the R44 hour door rate readings to H1 hour.



Authoritie		. ir	85 ⁶ 7 2. 5.		
(E.V.)	Dis	ile i	Hir	<u>. '1 *** ;</u>	
Foot	doj(r) o:	T. 5	megwe.	::. p :::	
Serbece	060	2%	Q1Q	ıβ	
1,000	970	272	:770:	50	
2,000	060	7.1.	.:61.	20	
3,000	060	17		225	
4)coc	060	95	J.W.	. 0	
5,000	05.6	20	0.80	26	
6,200	0/6	71	2.8	11.	
γ_{socc}	071	16	280	3.7	
8,000	5.0		28.5	100	
9,000	0.70	-ï	U to	9.3	
lo,cor	000	13	00%	774	
12,00%	\$25%	- 77	0.00	:	
24,000	100.	2.F	90.00	70	
15,000	(250)	(::)	()	(21)	
16,000	.00	1,8	222	.11	
18,000	2080	:€	1.37	16	
20,000	190	`::	120	.1:	
23,000	392%	W.	1.0	1.6	
25,000	260	7.6	11::	1-4	
30,000			220	Ü);	
39,000			25.0	16	
40,000			020	3.7	
45,000			130	: :	
50,000	• • •	•-	510	30	
55,000		•-	180	124	
60,000			090	25	
65,000		- -	090	્રા.	
70,000			090	36	
72,000	•		080	1.7	

NOTES:

- 1. Numbers in parentheres are estimated values.
- P. Weather observations were sade using the standard rawinsonde system on Man Island (Bikini Atoll) adjacent to the Nun Tower. Additional data was taken on brand decapoyees.
- 3. Tropogenia prings was 19,000 of Milli
- W. The surface air pressure was last2 pai, the temperature 27.9°C, the dew point 83.9°F, and the relative humidity 99%.

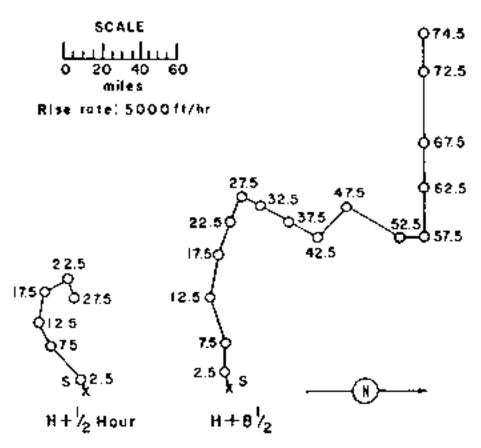


Figure 166. Notographs for Operation MARSTACK I -

Poplar.

OPERATION HARDLACK I . Schools

 $\underline{\mathbf{pyre}}:=\frac{\mathbf{JPG}(\mathbf{Tloc})}{\mathbf{St}(\mathbf{Joly}(\mathbf{Joy}))}=\frac{\mathbf{gyr}}{\mathbf{St}(\mathbf{Joly}(\mathbf{Jyr}))}$ TIME: DOWN 6460

Sponsor: 1595

SITE: Plo - Enlyched - Cit Yvonne 11° 33° 23° 3 160° 33° 23° 3 Site glovetion: Dearlowe!

ISSUED OF RUNDER OF STA

<u>CLOUD TOURS RATION</u>DS - 124 <u>CLOUD BOOKER RESIDENCE</u>S - 134

TYPE OF PERCHASINESSES On waters

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OPENACTOR EDUCATOR 1 -

Pusionia

 $\frac{\text{PFG}(f)(\phi)}{\text{PFG}(f)(\phi)} = \frac{\text{CMF}}{19 \text{ Cuty}} \cdot \frac{\text{CMF}}{1950}$ $\frac{\text{PFG}(f)(\phi)}{\text{PFMS}(f)} = 1100 \qquad \qquad 2300$

Spensor: IASL

SITE: 190 - Shiwetth - 11,000 of Wood Typeine 115 33' N 1686 19' by " E Site clovet.com | Com level

HEJGING OF BURGERS AND TO

TM R OF SELECT NOT FLACTHER.

Surplain Electric Selections, selections.

CLOUD TO DESCRIPTION OF AN ASSOCIATIONS OF THE MESTIVATION OF THE MEST

R376<u>81.2</u>01

Only individual irland dusc rates are available. These were obtained from Eadining, had dafety organization in the option conveys at life bosons. The helicopter curvey technique which for the pilot either to land the alreadt at the desired upit, or that a ground reading could be obtained, be to make a clow pace over the desired upot at an elevation of 35 feet. Readin, a make at 35 feet were multiplied by a factor of 3 recommend to obtain a reasonable approximation of the true ground reading. The basic instrument used in the aerual serveys was the AM/11h-19 curvey exter modified to read up to 300 r/hr. The third is may approximation was used to extrapolate the E+4 hour doze-rate readings to H+1 hour.

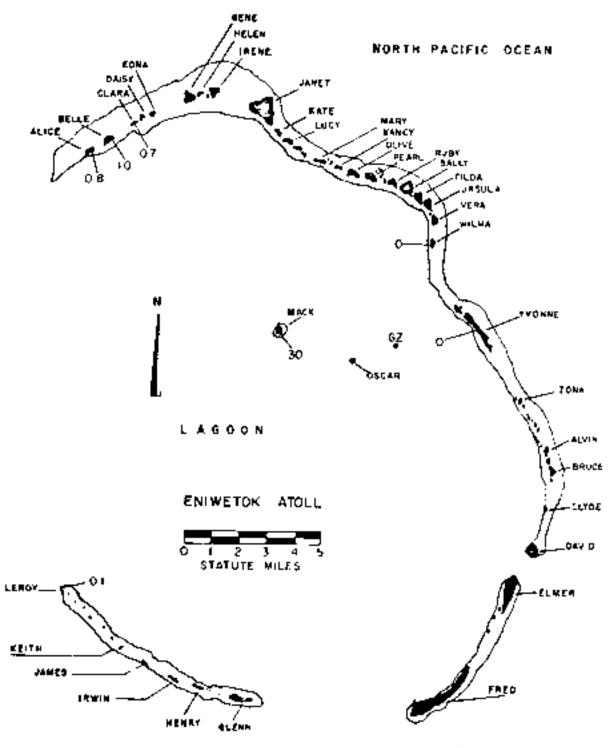


Figure 16". Operation MARDMACK I - Pisonia. Island dose rates in r/hr at H·1 hour.

TABLE 61 SMINKTOK WIND DATA FOR HARDTAIN I -FICONTA

A14140-20	##1 is	::F	Hन€ fic	- i - i	(**) = 1 c.×i=0		
(MOL)	lir	Torra	017	· j: :	-	1000	
feet	degraed	⊞.þi.	degrades	mpn.	rene kerese	wb.	
Surface	Calm	Cale	330	09	070	16	
1,000	150	09	Q30	03	070	25	
2,000	170	10	090	09	ĊγO	20	
3,000	160	14	090	12	080	17	
4,000	140	177	100	13	390	15	
5,000	130	1-	120	þĹ	110	15	
6,000	130	122	140	16	686	15	
7,000	130	λ÷	25C	1-	130	20	
8,000	120	jυ	15C	18	120	30	
9,000	120	∵8	15C	20	110	14	
10,000	120	13	150	1"	320	18	
12,000	223)ź	130	13	710	34	
14,000	133	09	100	22	650	14	
15,000	(150)	(0S)	(690)	(19)	(0.90)	$-(\bar{1}L)$	
16,000	0.40	67	070	15	orn	3.4	
18,000	120	1.7	110	Ğ\$	090	(0	
20,000	120	⊒4	120	όρ	100	0;	
23,000	693	18	090	24	140	ō.	
25,000	060	15	090	17	150	13	
30,000	060	22	060	19.	690	UT.	
35,000	650	21	045	17	650	3 .	
40,000	űřő.	00	050	2	0.50	0.7	
45,000		20	04ن	<u>56</u>	(AC	Űť.	
50,001	650	12	050	15	130	10	
55,000	100	12	210	65	130	i iz	
50,000	120	55	120	36	110	20	
60,000	0,0	31	090	39	690	44	
70,000	các	52	090	3é	690	45	
75,000	0.90	55	100	51	Č9Û	ناز	
80,000	090	69	100	έî	090	76	
35,000	100	68	090	Ϋ́8	000	80	
90,000	090	82	090	87			
95,000	090	75	090	98			
100,000	090	97	090	Βž			
101,000	072	7 :	990	76			
105,000	090	191					
دمه روي	677	***					

- Numbers in percentheses are estimated values.
 Numbers in percentheses are estimated values.
 Wind data was taken by the Entwetok weather station.
 The surface air pressure was 14.07 pcl, the semperature 20.0°C, the dew point 74.0°F, and the relative hubidity 53€.

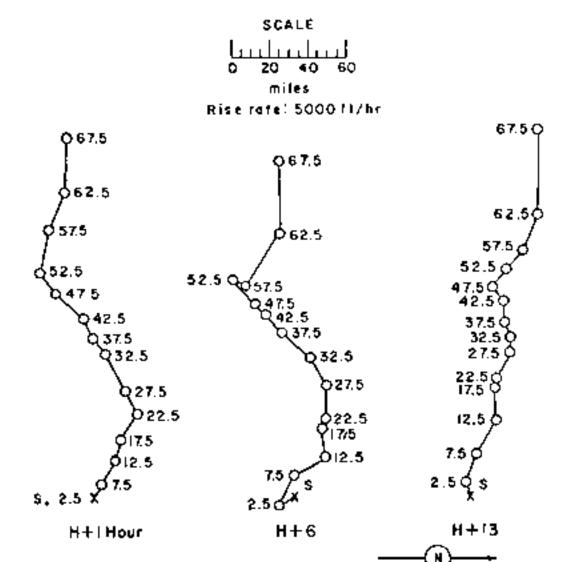


Figure 168. Hodographs for Operation MANUTACK I - Misonin.

Obstation symplex : - Juniper

PPG Time_ SMT 37 July 19,8 স্ভান্ত চিত্ৰ 1000000 <u> 7120;</u> 1770 Cupe.

Spansor: UCRC.

SITES THE FRENCH - 4,000 CT from went and if Tay-216 291 Mill R 167° 22° - 67° - 8 Site elevations for level

MEIGRO ON PROOF TOWER SE

TYPE ON PICKET AND THE STATE OF Sunface burne littin carre gray Land Corp.

CLOUD TOY SHIP STEEL AND AND SHIP MALE <u>CECUD POPRAN DEL</u> COME LUE, ALO CO MARI

SEMARAGE

Only individed take I does noted are seen at all of the same of the confrom Radiological Variety organization is tiregion burn you at 10th hours. The beliepfor slewly fromtique railed for the pilot eliber to land the algoraft at the desired spet, so that a ground emption much be obtained, or to make a slow publisher the descript approach at an elevation. of 25 feet. Regings taken at 25 feet were mostip, and by a factor of 2 in order to obtain a resonably approximation of the trac ground reading. The last of instrument used in the series, especyally the ASSINE-posurvey mater modified to read up to 500 raha. The follow denny approximation was used to extrapolate the H+W hear dose-rate readings to H+. hour.

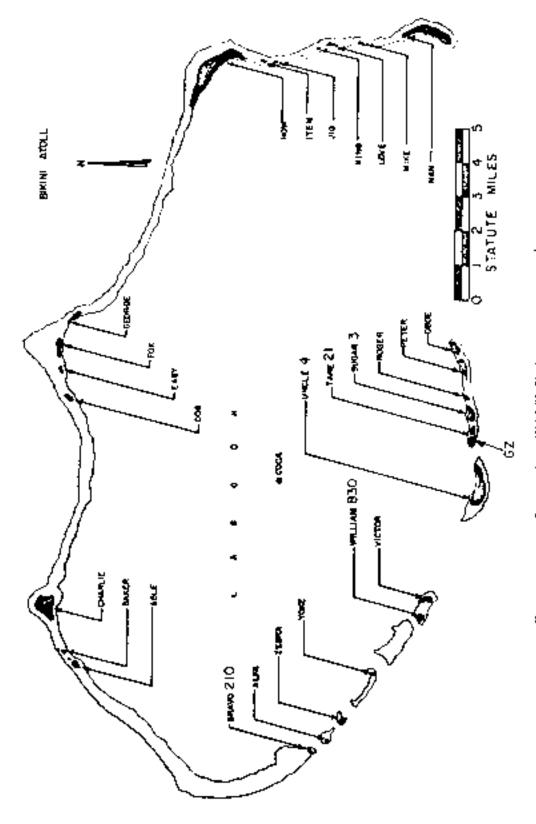


Figure 165. Operation Sallings : - Conter. Conter. Island also make in plantations.

ATTITUTE	1947.77	-:	á 1 . 💆 i	. :	العددات بيل	
(8:6.)	i r	;- n	. r			. ' ; —-
feet	CHETOWN.	70.5	504600	⊤.: r.	institute.	717
Surface	o8c	46	100	49	100	5.7
0.000	::80	:8	100	:6	116	13
2,000	69:	20	166	16	1.00	
3,500	110	21	150	:7	3.0	14
\$,odd	24.65	31	110	17	124	1.6
5,000	100	,4 ₁)	1:0	17	-:	-15
6.000	110	16	1:0	52	: ::	
7,500	110	36	100	20	110	20
8,000	:10	13	690	:2	55.0	16
9,000	110	οv	090	17	25.	15
10,0%	110	10	báo	: 6	T.C.	: 6
12,000	1.30	23	0.90	16	10%	is .
14,000	:	36	336	1:	10.0	19
15,000	(\hat{C}, \hat{A}^{*})	(3)	$(0,\infty)$	(10)	(300)	(iC)
16,000	125	15	100	1-	`lbc'	ie'
18,000	130		1249	23	173	13
20,000	110	=1. :(i)	335	28	7.	15
23,000			125			10
25,000	:4:	32	150			25
30,000		16	1:-			16
35,000	1-0	is	ĝέα		1.2	- 77
40,000	465	:2	915	···:		-:
45,000		10	7.44	15	: · ;.	.3
50,000	igo	.2	125		4.5	13
55,000	2,00		900	0j		
60,000	136	41	136	70		-6
65,000	200	: H	čác	2)		
70,665	1.75	44	080	292		
75,000	000	51	090			
86,000	680	-63	රජ්ර	63		
85,000	U90	67	090	~9		
90,000	č-Ac	67	090	વર્શ		
95,000	ñã.	7€	230	121		
100,00		<u>40</u>	0,-7			
105,000	090	80	•	• •		

NOTE();

- Mumbers in parentheres are estimated values.
- 2. Wenther observations were must estay the paperant resourcede. system on New Island (Bikini Archi) adjusted to the Ham Tower. Additional data was taken on board destroyers.
- 3. Tropopouse seight was \$1,000 ft 900. 4. The subface was pressure was $16.6 \cdot \rm put,$ the temperature $30.8 ^{\circ} \rm C_{\odot}$ the dem point "A.9°F, and the relative fine dity (6%)

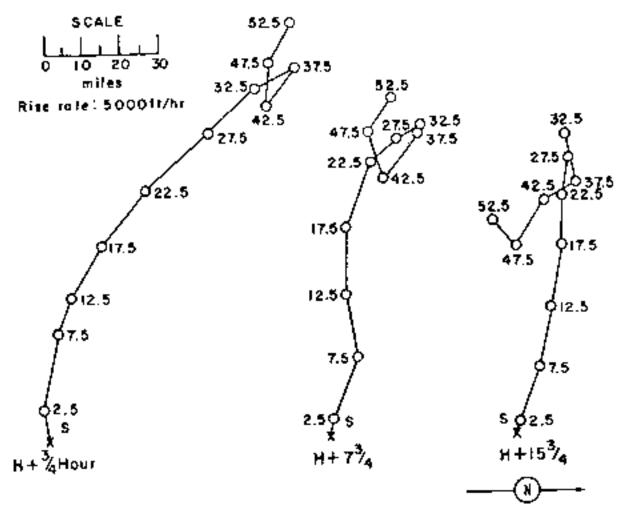


Figure 170. Modegraphs for Operation MARCHACH 1 -

OPERATION CAROTACK : - -

Olive

Spanson: 90%L

MODEL OF ROOMS AND A

 $\frac{CLO(16)}{CLO(16)} \frac{d^2r}{d^2r} \frac{(r+1)\rho_1^2 r}{d^2r} \frac{d^2r}{d^2r} \frac{1}{r^2} \frac{d^2r}{d^2r} \frac{d^$

TYPE OF PERCHASING STREET, STR

REMARKS:

Only individual and party are available. These were iterated from Radiological and the translation and additionable from Radiological and the property of many and the formal for the party of either to land the alternative to make a collection of a translation of the formal reading and a solid as a translation of the many and the solid and the first property of the area of the translation of the translation of the translation of the best presentation of the translational reading. The base construction of the translation of the area of the translation of the t

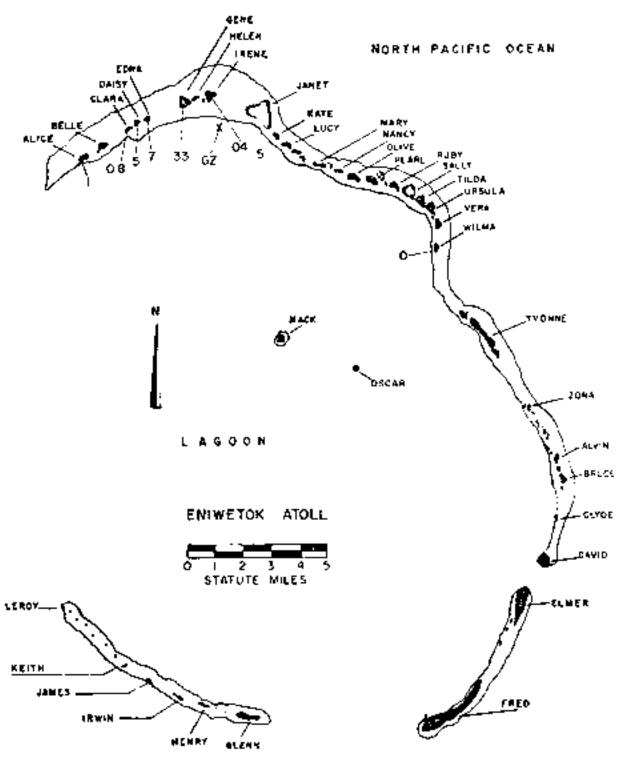


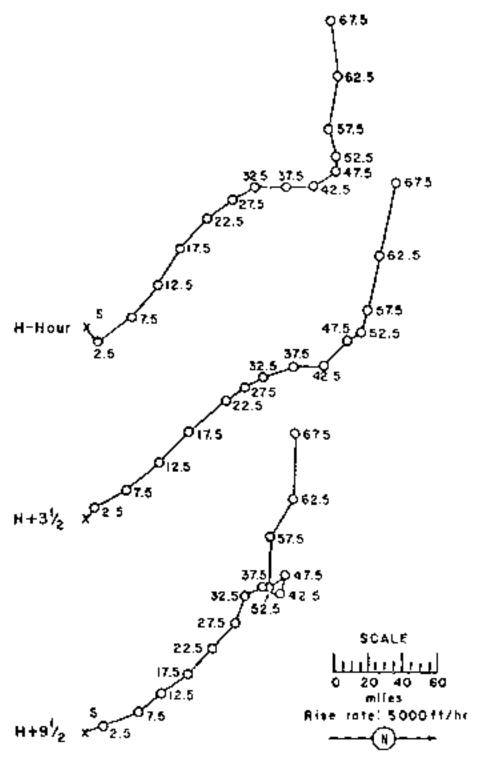
Figure 171. Operation MARDTACK I - Olive. Island dose rates in r/hr at 60 hour.

TABLE 63 ENTYPHIS VIND DATA FOR CUSPATION SARTGACK 1 - CHAVE

Altifoli	<u> </u>		1-:.0	121	***		·· · · · ·	0.11
(P.31)	Le	- · · d	2. 2	:	<u> </u>	. : :	:.r "	11: :
feet.	drajerna	nge.	502305	n k	n greens	-1.	Long Commit	71 -
Surface	310	18	230	:8	130	18	160	21.1
1,000	13C	25	130	23	120	747	160	15
2,000	130	38	130	23	19.	2-	150	1.1
3,000	130	ຂ່າ	:25	2:	1:	22	150	2:
h (00).	130	20	140	24	277	24.4	21.0	21
5,000	130	25	140	57	14.7	5.	286	21
6,000	230	26	(40)	2-	303	28	168	20
7,000	(22)	29	130	58	5440	26.	160	277
5,(6.)	220	29	130	20	3505	28	1441	1
9,001	120	25	130	85	24.2	26	140	14
10,000	220	23	(30)	23	25.7	22	145	2+
32 J. C.	113	29	120	23	132	22	(4):	20
15,000	120	24	120	5.4	130	şh.	130	80
15,000		•	{120}	(03)	(130)	(22)	(1401	(281
16,000	12.1	23	15%	22	17.0	40	440	15
iğ jara					i i i	24	14.5	20
20,000	120	22	1.40	2)	24.	5.5	190	260
23,000	, .	1"	149	ıή	127	j	130	20
25,00	1.0	ē.,	1465	18		:2	14"	:8:
30,000	1:	3	15.5	15	14.4	12	110	14
1.00	100		íŠ.		1540	1	15.5	10
44, 43	<u> </u>	; 4	, Are	i	(6::	ī	20	0)
40.00		1.5	(4.5	14	130	.9	1.70	10
States		Ş.,		:	150		324.0	12
15,000	.4.	17	5.0	15	Иc	3%	370	20
60,00		33	143	22	100	- 1	120	25
6.40%	ä.	33	,85	31	10.5	40	390	36
70,00					216	36	3,60	39
75,000					0%	1,2	690	50
80,000					100	20	100	99 67
85,000		•-		• •	200	πĒ	090	57
90,000					090	82	Ç90	89
92,000					~~~		č90	څو
94,3300					090	90		

NOTE:

- 1. Mumbers in parentheses are estimated values.
- 2. Wind data was taken by the Spinotok wenther station.
- 3. Tropopulse helger was vê, dec it Mil.
- H-hour values were interpointed from H-P; hours and H-B; hours data.
- The surfece wit pressure was 14.64 pc), the temperature 26.400, the dew point 76% F, and the relative hamility 89%.



Pigure to. Hodographs for Operation MARDMACK I - Olive.

CHRIMITICS (SANCEMENT) | -

Pinc

100 Tox 0000 ### 100 y 120 0 0 0 0 0 0 Time 100 0 100 Sportager: GCRI

<u>RIDH</u>: First - Doublet - FW of Chemity Music at the moving the second outside 125 per community B 167 per community B Differences to be Community over

<u>351</u>GRO 10 2050/<u>2</u>5 (10 40

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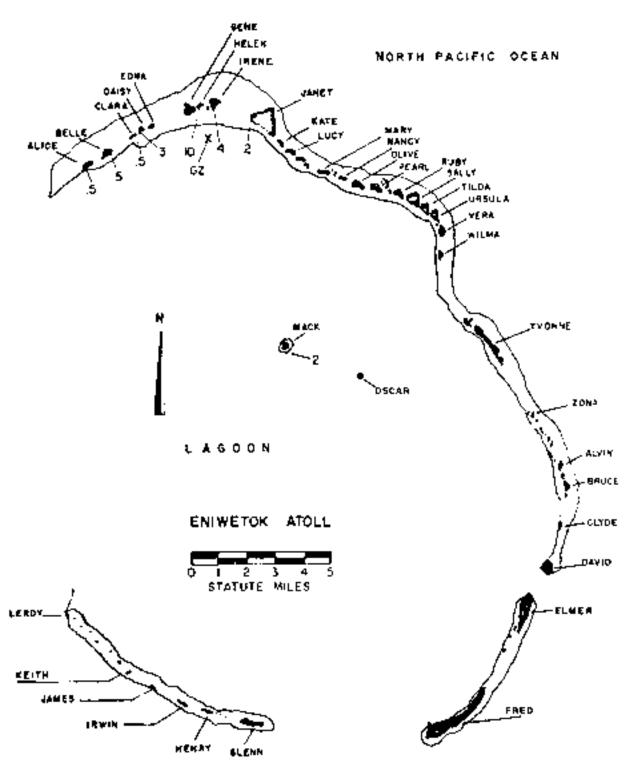


Figure 173. Operation MARIMACK I = Pinc. Island done rates in r/hr at H+1 hour.

Alternation	.;•* :	KT (F	174.4	Arthur.		· · !::
(M:I.)	Pre	1 peed	٢	- 1111	—, · – · ·	Special
(rec)	despersion	1-1 :-	Profes of	—- <u>'</u> –	Fr, 19706.	14.5
ნიგურია	200	18	230	i2	200	95
1,000	210	17			190	ρÁ
2,000	200	17			260	37
3,000	200	17			240	12
4,000	201	17			220	
5,000	50:0	171	220	υv	210	13
6,000	199	12	180	69	220	i3
7,000	:- <u>-</u> -	25	170	ić	220	- 53
9,000	200	ēý.	170	.4	210	4
9,000	200	35	1θC	:5	50.0	:39
10,000	2830	- 65	180	10	200	12
12,000	270	05	180	68	120	:5
14,000	21.0	06	2,70	10	836	10
15,000	$(1+\frac{1}{2})$	(55)	(14.1)	(20)	(51%)	(23)
16,000	130	24	160	76	520	172
15,000	15	65	190		Cala.	Cel-
20,000	170	ેંલે	190	٠.	192	
23,0	14.1	-3	:55		12	79
25,000	10.0	::2	2983	17	150	: 9
30,700	100	26	(34)	13	150	16
35,000	200	24	140	20	120	20
3240 O	100	24	140	21	24.0	56
40,000		ī.				
45,000	200		140	201	120	33
50,000	2.72	16	370	13	180	25
15,000	230	14	130	34	120	1>
60,000	380	23	090	87	130	23
45,000	390	62	•••			
70,000	105	48				
75,000	100	59				
go,000	100	69				
85,600	\$CC	82		**	**-	
90,000	100	91	100	68		
92,000			100	70		
95,000	100	90	***			
100,000	100	99				
105,000	100	57.0				
110,000	100	126				
115,000	100	232				

MOTES;

- Kumbers in permitheses are estimated values.
 Pind data was taken by the Enfactor values station.
- Tropopouse relight was \$2,2.00 ft M25.
 The surface of pressure was 18.00 pst, for traperature 26.700, the deep point 79.977, and the relative humidity 69%.

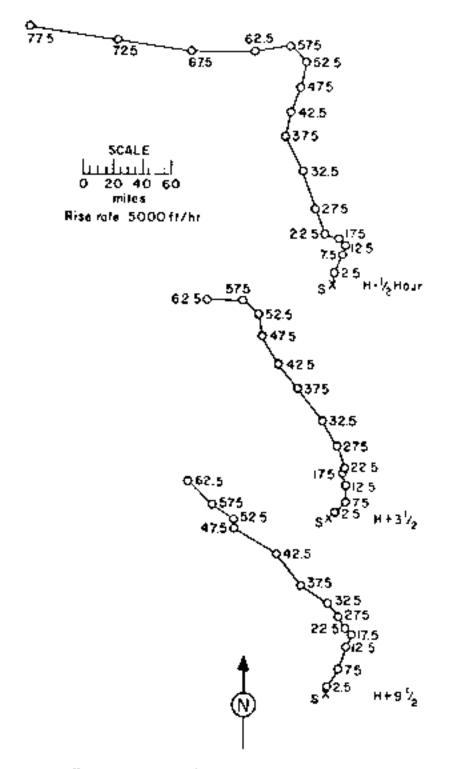


Figure 174 . Hodographs for Operation HARDIACK I -

Fine.

OPERACE OF THE SEARCH I - TAKE

 $\frac{\text{FFO Time}}{\frac{1}{2}} = \frac{\text{FFC}}{\frac{1}{2} \left(\frac{1}{2} \right)\right)\right)}{\frac{1}{2} \right)}\right)\right)}\right)}\right)}\right)}\right)}\right)}\right)}}}\right)}}$

RMARKY: Rollings follows

Sponsor: DOD

HEIGHT OF FUR. T: 1,. 6

MYSTER COMES RECOVERY TO LEGATE STATE OF THE SERVICE OF THE SERVIC

vicinity of James a Jackson

<u>CLOUR FOR SECURITY OF COME.</u>

OPERATION MARGENAGE I -

Q:1: · ·

 $\begin{array}{ccc} \text{PTS} & \text{TS} & \text{SAC} \\ \text{PATE:} & \overline{\text{CA}} & \text{CA} & \text{CA} & \text{CA} \\ \overline{\text{TINE:}} & \text{CA} & \text{CA} & \text{CA} \\ \end{array}$

Spanished (Ye)C, x = (x)y.

EMIGNI CHIPPIT: + Ct.

TYPE OF MARKET CONTRACTOR (CONTRACTOR)

Surface Contractor (Contractor)

 $\frac{\text{CLC}(1,0)}{\text{CLC}(1,0)} \frac{1}{10} \frac{\text{Fig.}(1,0)}{\text{CLC}(1,0)} \frac{1}{10} \frac{\text{Fig.}(1,0)}{\text{Fig.}(1,0)} \frac{\text{Fig.}(1,0)}{\text{F$

REMOVE:

Only alpha most minution resolved from this defination. Surface alpha monitories was employed that the area is Dead Delicey with PAC-PC year-flow propertional alpha monitories. The resolutions were taken in about per month, corrected for the projections. and multiplied by the appropriate about Plag Section to compensate for the respective of the complete construction. The two interpolation lines shown are the most significant ones, since 3,000 perm⁹ is the chronic backers limit and any concentration in except of 1,000 prom⁹ pequires decontamination. It is interesting to note that in the great majority of cause the alpha concentrations in the displicit area were higher on Del thus on Diday.

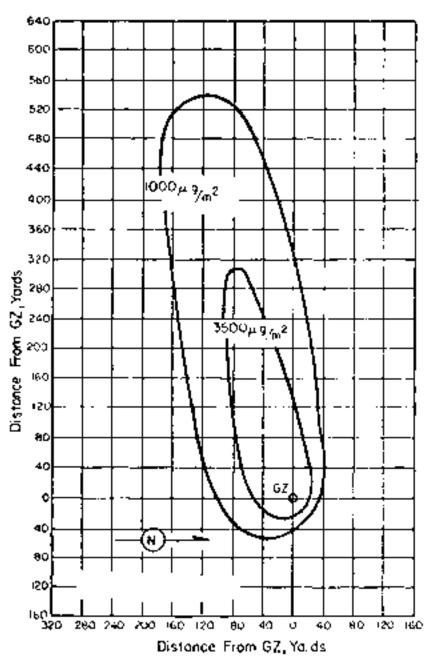


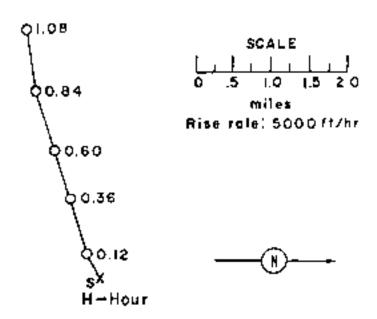
Figure 175. Operation HARDTACK I = Quince. Alpha contomination in micrograms per equace matter.

TARLY 65 RELYMPER VERY DATA ROLL OF CHARACTER SAFERED I - CONTINE

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	٠					_	

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= (MCL)	lir	1 (1)
feet	degrees	1.1.1.
Startform	000	13
26-1	07C	E4
나본원	970	14
723	970	16
96	543	1/

MOTES thank lets was taken by the Emission volume tables.



Migare 1764 Hotograph for Operation HAPPAR I -

Quinter.

OPERATION SERVICEASE I - OPERATOR

	<u> 13 G (T. %.)</u>	
DATES	To Add to	11 Nov 198
對象征		A 3.

Sportier: 1803

Chefro Court State Court

PROPERTY OF FIRST PARTY OF

OPERATION INSPONDED A

Pilo

<u>PACTOR</u> | 100 | 200 | 100 | 200 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 1

Cymen der (1984) - 360

Magnows 19 1 Service 11 190

TWO CONDENS TO BUILDING TOURS OF THE CONDENS TO SHEET AND A STREET OF THE CONDENS TO SHEET AND A STREET AND A

 $\frac{\text{CLOTH}(\mathbb{R}^n)}{\text{CLOT}(\mathbb{R}^n)} = \frac{\text{CLOTH}(\mathbb{R}^n)}{\text{CLOT}(\mathbb{R}^n)} = \frac{\text{CLOTH}(\mathbb{R}^$

ROMARCIO:

The designate entropy were obtained by strend copyly remines rade by screetiful projects. Actual decay reminers it, were used to correct the decerrate residing, to dri happy. The perturb of the pattern in the toland to reliable. That perturb were a secretary as retailed because it was not invest upon troc-field scen-rate reacts a lot upon calculations made from readings taken on five larger and from eachies collected in ottoky paid so sated on \$\frac{3}{2}\$ body.

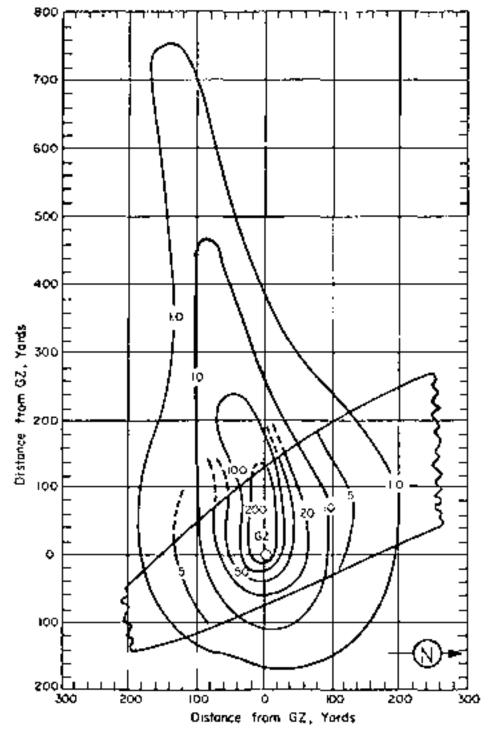
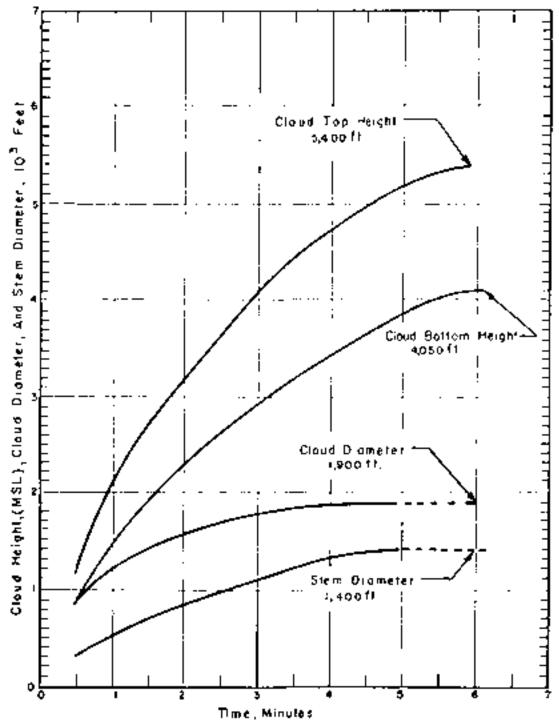


Figure 177. Operation HARTTACK I - Fig. On-site dose rate contours in r/br at H+1 hour.



Pigure 178. Cloud Discretens: Operation MASSICACK I -

Pipe

Altitude Turije	(f-);c:	·r
(MSF)	Dir	20000
feet	defilees	fi.Ju.
0 - 1,000	086	17
1,000 - 2,000	000	19
2,000 - 3,000	100	16
3,000 - N,000	110	L9
4,000 - 5,000	100	18
5,000 - 6,000	100	15
6, 005 - 7,055	090	18
γ ,c co - 3,ccc	0.90	21
8,000 - 0,000	090	21
9,000 -16,0 0	იმი	5.

- NOTED: 1. Vind data was distained by the Peater's rule in a car Yvorne Island (Shiwetok Atoli): which were located 1,000 year and 1,000 year open 60.
 - 2. One surface wir precours was 14.42 par, the temperature 30°C, the dee point 78'8, and the p-intive barility 775.

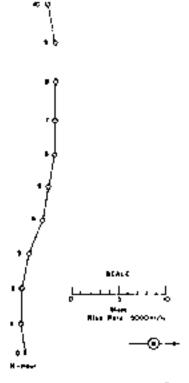


Figure 199. Hodograph for Operation HARDINGN I -

Fig.

OFERNATION ABOUT -

<u>18778: 27 April 10 70 10 2877</u> <u>18778: 27 April 10 10 April 10 7</u>

TOTAL YOUT : 1-2 kt estimated

<u>F. BOSAT 1 (AC.)</u>: Time to use missioners (AV.) Time to any majorate OF Reding at the heart more 120

EMMARKS:

No fallout.

ARGUS !

Sponogram 1000

GETE: District Answering were selected as the control of the contr

HATGHT OF PARTY S 300 Hites

 $\frac{TW(E)CP(\{i,j\},\{i,j\}) + \{i,j\},\{i,j\},\{i,j\})}{H(\{i,j\},\{i,j\},\{i,j\},\{i,j\},\{i,j\})}$

CLOUD FOUND TO BE UN

OSNOCA (2007) -

	Tajana I	Time	GM-1
BVDW	34 A141		30 Aug 1997
<u> 1 2777 (</u>	3.,50		031 5

TOTAL NIMES | 1-2 kt estimated

FINEBALL DATE:

Time to the missesses 500 Time to Selections 500 Radion where maxement 500

Choras Con Total State (St. Choras Sciences Line (St. Choras Sciences Con Choras State (St. Choras Sciences Con Choras State (St. Choras Sciences Choras State (St. Choras Sta

BENNARES: No real of

ARGUS 11

Specialism (Cf.)

 $\frac{\text{SITE} \left(-\beta_{1} \cdot \sin \beta_{1} \cdot \tan \beta_{2} + \beta_{2} \cdot \cos \beta_{2} \right)}{\sqrt{\beta_{1}^{2} \cdot \cos \beta_{2}^{2} + \beta_{2}^{2}}}$

10/10/07 0/ 27 70: - 300 miles

 $\frac{H_{1}(k_{1},k_{2}) \cdot (k_{1}-k_{2}) \cdot (k_{2}-k_{3}) \cdot (k_{3}-k_{3}) \cdot (k_{3}-k_{3}) \cdot (k_{3}-k_{3})}{H_{2}(k_{1},k_{2}) \cdot (k_{3}-k_{3}) \cdot (k_{3}-k_{3}) \cdot (k_{3}-k_{3}) \cdot (k_{3}-k_{3})} :$

OFFRATION AROUS -

ARG08 111

Local Clean DATE: 0.00 10 0 T1M: 0.10

WOTAL YIPS De 1-2 kr estimated

FIRRWALL DATA: Tipo to the minimum of Time to bed marketers; 325 Redices at this maximum of 5%

REMAINS: N. CALLACT

Spansor: 1000

5179) | South Atlantic 49⁰ 301 0 101 241 W

hetait 17 : 500 - 500 miles

TYPE OF BURNING BRACHSOLDS High actions the start

<u>01.000 038 037 0351; 121</u> <u>01.010 000 000 0000000000</u> 000

OPERATION DOUBLE -

Adoi e

 $\frac{1001}{10415} = \frac{68T}{25 \text{ Apr. } 1962} = \frac{68T}{25 \text{ Apr. } 1962}$ $\frac{10415}{71803} = \frac{25 \text{ Apr. } 1962}{1545} = \frac{1545}{1545}$

SPCNOOPG LAGIL

Simp Christian Island, GZ-10

STIE HERVALIGE: Sea Level

HELIGHT OF MARGINE

TYPE OF YURST AND CLACKERS:
Air (tree fall), over
Pacific Ocean

premarios postario -

Aztec

<u>DATE: 27 Apr 1962 27 Apr 1962</u> Time: 0601 1601 SPOSSOR: LAST.

Siff: Christian Island, GC-10

SITE FLEVATION: Sea Level

HEACHT OF BURST:

TYPE OF BURST AND PLANE BURST Air (free full), over Pacitic Ocean

OPERATION DOMINIO -

Aikonsas

D. TΩ; 2 May 1962 2 May 1962 T(ME) 0801 1801

SP09508) L3L

SITE: Caristmes Island, 62-15.

SITE EFECTATION: Son Level

_HERGER OF BUSSE;

TYPE OF BURST ASE PLACEMENT: Air (parachets drop), ever Pacific Ocean GPT APTON TREEDING + Question

1.000 DATE: 4 May 1962 4 May 1962 TUMM: 0904 1904

 $\underline{SPORSO}(t) = LASL$

8130 Christmas Coland, 62-15

SIDE ELEVATION: Sea Level

PERSON OF BURSLE

TYPE OF DIV [r AND PLACEMENT: Arr (free fall), over Parific Crosss

OPERATION DUMINIC -

Frigate Bird

6 Bay 1962 DATE: 6 May 1967 1192: 1330 2330

<u>\$25</u>0806 r - LRt.

<u>SITE</u>: Johnston Island danger area 4° 501 % 149° 49° 8

Stati IDENATION: And Sevel

<u>BE1687 OF</u> BURST :

WYSE OF STOME AND PLACEMENTS Air, from Polarie missile

OPERATION DOMINIO -

Yaken

LOCT GALDATE: 8 May 1962 S H by 1962 <u>TINE</u>: 0801 1800

SPONSOR: LRE

SITE: Christmas Island, 62:10

SITE ELEVATION: Sea Level

HEAGUE OF BURSE:

TYPE OF BURST AND TLACEMENT: Air (parachete drop), over Pacific Ocean

OPERATION DOMINIO --

Mestilla

1.00T CM7 DAJU: 9 May 1907 9 May 1902 Time: 0705 170) <u>\$80850%</u>; LASU

Similar Christmas Island, GZ-10

SETT ELEVATION: Sen Level

HEAGAIN OF BUILDIE

TYPE OF DROST AND PLACEMENT;
Air (free Fall) over

Pacific Geran

OPERATION DOMESTIC -

Muskegon

DATE: 1 May 1962 11 May 1962 VINE: 0537 1537

SPONSOR: LRL

SIJE: Christmas Island, 62-10

SITE KLEVACION: Sen Level

HEIGHT OF BURSTS

TYPE OF MURSI AND PLACEMENT; Air (paradicte drop), over Pacific Ocean

OPERATION DOMINIC -

Sward Fish

DATE: 11 May 1962 | GMT | TIME: 1202 | 2002

SPONSOR: DOD

<u>SITE</u>: ~400 miles west of San Diego 31° 14.7' + 0.3' S

124° 13.3' + 0.3' W

SITE ELEVATION: Sea Level

DEPTH OF RUBST:

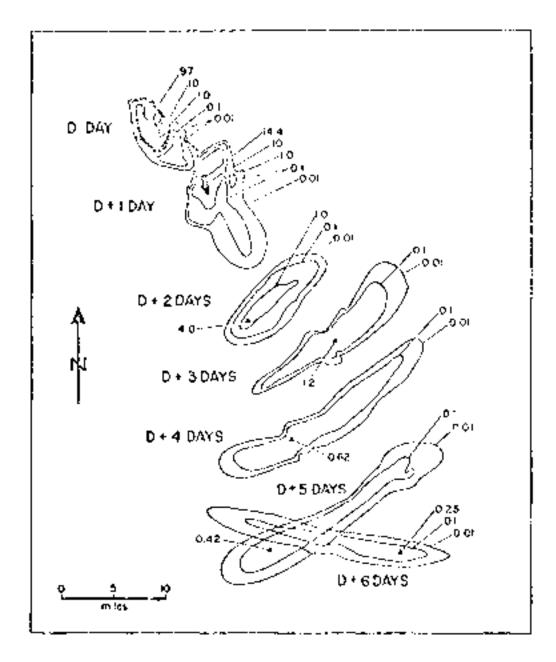
WATER DEPTH: 17,100 ft

TYPE OF BURST AND PLACEMENT: Underwater, from auti-

aubmarine rocket

REMARKS:

Figure 18° illustrates the growth and mavement of the pool of radioactivity resulting from the Sword Fish test. The contours from U-day to BPA days represent readings in wR/hs at 500 feet above the water surface.



Pigure 180 OPERATION DOMINIC - Sword First contours showing prowth and novement of the pool of radio-activity from D-day to D-G days. Conform values in mR/hr at the survey aircraft height of 500 feet

0728At103 0021810 -

Encino

UMPA: 12 May 1962 12 May 1962 TOMA: 0.702 1792

Spanson: LASE

 \underline{SUUU} : Consistency is Land, GZ-12

SITE ELEVATION: Sea Level

BETGET OF BURST'S

TYPE OF LERST AND PLACEMENT: Asy (free fall), over Pacific Ocean

OPERATION DOMINIC -

Swanee

100T GMT EALE: 14 May 1962 14 May 1962 1000: 0521 1521

SPOSSOR: LRL

SITE: Christmas leland, 62-40

SITE SULVETICE: Sala Level

H<u>BBQID OF BURS</u>UL

TYPE OF AURSY AND PLACESTRY Air (paracouse drop), over Pacific Ocean

OPERATION DOMESTIC -

Cherco

 DATE:
 LOCT
 CST

 DATE:
 19 May 1967
 19 May 1967

 TIME:
 0536
 1536

5F03SOR: [JR].

Strate Christman Island, GZ-10

SITE ELEVATION: Sea Revet

HERGH! OF MURST:

TYPE OF BURST AND PLACEMENT: All (parachute drop), over Pacific Ocean CRYBATTON DUCTION =

Traffication

 $\frac{-09.7}{7 \times 50 \, \rm{pg} \cdot 1962}$ DATE: 25 May 1962 Title: 0600 1608

<u> 52008000 - Jan</u>

SIME: Christian Labour, 62-13

<u>\$51: [09.20</u>%, [27]) | Sea Level.

 $100764(2.00) 0.068\underline{Z}_{1}$

TYPE OF BUILDING MODIFIA (1990) (1) Alt quaractors deeps over Pacific Count.

OPERATION DOMESTIC - Namber

 $p_{\text{ACD}} := \frac{1.0\text{CT}}{2.7 \text{ May } 1962} = \frac{681}{2.7 \text{ May } 2962}$ 1130: 9702 1702

SPOSSOR: LAST.

Side: Comistnes Solund, GZ-10

\$176 ERAVAFION: Sea Level

HELTORY OF RURSTY

TYPE OF BUSHT AND PLACEMENTS: Air (free (all), over Pacific Ocean

OPERATION DOMESTO - Alma

637 LOCI DATE: 8 Jun 1962 8 Jun 1962 T1Mb: 0702 1702

SINGSOR: LAST.

SITE: Christmas Island, 62-15

SIT: ELEVATION: Sea Level

HD169: OF BURST:

TYPE OF FORSE AND FLACEHORY: Air (free tall), over Pacific OccurOPERATION ROMINSO ...

Trucker

DATE: 9 Jon 1962 9 Jan 1962 115<u>1</u>: 0537 1537 \$990\$98: 160.

 $\S \{ \underline{x} \underline{y} \}$ Chilines Island, G2-10

5190 0013970000 Sea 10201

BEGUST 68 8 (92)

TS90 Oct 90 DEG AND PLACEMENT; Air (politicate Grop), exce Pagific Column

OPERATION DOMESTS -

Yeso

SP0450R: 1431

\$17%: Christens Inland, 62-20

SITE DEDVITING Sea free I

32/1 CALL OF \$1004 12

TYPE OF FORE AND PLANDERS:
Air (free tell), ever
Proffs Occur

OPERATION COMESTO -

Harlen

<u>LOCT</u> <u>CM1</u> <u>DATU:</u> 10 Jun 1962 <u>12 Jun 1960</u> <u>TIMU:</u> 0537 <u>1537</u> SPONSOR ERL

SITE: Caristness Island, 92-17

SITE CLEVALICA: Sen Fovel

EETGER OF BURSTE

TYPE OF L. RST AND PLACEMENT: Air (paradone drop) over Pactfic Occas origation notinte -

Rheisanda

DATE: 15 Jun 1962 | 15 Jun 1962 1110: 0600 | 1600 <u>\$19735000</u>; LAGE.

SE_SD = Christmas Island, GZ-17

SITE ELEVATORS: See Level

RECORD OF DUDGES

TYPE OF BURST AND PLACED OF ALL () ree (all), over Pacitic Ocean

OPERATION DOMINIO -

Du14.0

DATS: 17 Jen 1962 17 Jen 1962 Time: 0600 1690

SPONSGR: LAST.

SITE: Christmas Esland, GR-20

8132 (0.2720) C3: Sua Level

HELICET OF GURST!

TYPE OF BURN. AND PLACEMENT: Air Clice Lawl), over Pacific Ocean

OPERATION SUMSISSIC -

Fetit

<u>1.007</u> <u>6MT</u> <u>BALE:</u> 19 Jon 1962 19 Jon 1962 TINE: 0501 1501

SPONSURE LST.

SUTE: Christens Island, GZ-17

SITE ELEVATION: Sea Level

princip of prest.

TYPE OF BECST AND PLACEMENT: Air (parachete drop), over Pacific Ocean 0119 March (8011010 4

-ccosi

<u> 32000005: 1</u>400

SiTe: Christman Inland, GZ-10

SITM KIRTACHUR: Son Level

HEADLE, CT. P. SOURS

TYPM OF BURNEY AND PERCUADANTS
Altr (Tree Salt), exter Parentin Conses-

CMSW000L NowD000 - Bigborn

 $\frac{DK^{**}(z)}{D(X^{*})} := \frac{D(X^{*})}{D(x)} \cdot \frac{D(X^{*})}{D(x)} + \frac{D(X^{*})}{D(x)} \cdot \frac{D(X^{*})}{D(x)} \cdot \frac{D(X^{*})}{D(x)} = \frac{D(X^{*})}{D(x)}$

\$10,2000; 15%

SICM(Christman In) and, CV-x)

BEST FORMATION, Beat Jawell

lectratal de l'ografié

TYPE OF BUILD AND ILLUSTRATED AND THE COURTS Parific Communication

CKORATION PARTOTO -

Bluestone

- 1007 - 048 30 dae 1962 - 30 dae 1963 0781 - 1964

SPCNSOR; LAL

SITE: Chiroters Island, SZ-75

SIJN MINACION: See Level.

HEIGHT OF PURCE:

TYPE OF PURSE AND PLACEMENTS: Air (parte atte drop), ever Pacific DecemGPERAGIOS GOME IC - Star Fish Prine

TOTAL YELLO: 1.4 Mt

\$177.7508; 0000

\$1][]: Jebostow Island - 16° 78° es.32° 3 - 169° 37° 48.27° W

SITTLE (ENVIRONCE Sea bevel

<u> [[E]GHT_GF_6</u>Cb=7: 249 m2les

TYPE OF DESIGNATION PROPERTY OF BIRDS AND THE MET THE MET THE STREET OF THE STREET OF

REMARKS:

This event was conducted as a part of the Fish Best Series.

OPERATION HOMINEC -

Sunset

DATE: 0633 1633

Shonsok: LAST.

Sife: Christens Colone, GR-17

SLOG FLANAULCE: Sea Level

HEIGHT OF BURGE:

TYPE OF LURST AND PLACEDING: Air (free fall), ever Pacific Ocean one taylow in additional

Pastico

DATE: \$5 0-37 POOZ 15 0-37 15 0-37 POOZ 15 0-37

SP(7) (72) 130.

SCTE: Christmas Island, GZ-25

SIDE RIEVANDON: Starlarvel.

 $\underbrace{\mathsf{Hist}\mathsf{Girr}(\{\mathcal{O}_{1}\},\{\mathcal{O}_{2}\},\mathcal{S}_{3})}_{\mathsf{CP}}$

TYPE OF FUNDS AND TRACTIONS: Air (parachete Grap), over Pagific Occasi

OPERATION DOMINIO - Androscoggin

DATE: 2 Oct 1962 2 Oct 1962 1990: 0017 1617

SPOYSOR: USL

STLE: Johnston Island 13' 38,5' 8 172' 11.1' W

SINK ELLVALOTE: Sea Level

1077 (1. Ott.) 1965 (1.

TYPE OF PLAST AND PLAST MORE ARE (par a hore drop), over Pacific Ocean

OFERATION DOMESTC - Bumping

<u>1007</u> <u>CMF</u> <u>DATE:</u> 6 Get 1962 6 Oct 1962 <u>T1ME:</u> 0502 1602 SPONSON: LINE

<u>515E</u>: Johnston Island 14° 30° N 168° 13° V

SITE KILLVATION: Sea Level

ROIGHT OF BUILDING

Air (parachure drop), ever Parisic Ocean OPERATION DOMESTS = -

 $C1_1, \cdots a$

<u>1,001 6517</u> Barths (8 Oct 1962 18 Oct 1962 Tittel: 0531 1601

STOTSORS LASE

<u>SiT</u>C: Johnston Island 14° 32° 8 108° 44.2° W

SIME SUFVATIONS: Sea Level

HEIGHT OF BURSE:

TYPE OF EDGEST AND PLACEMENT: Air (free fall), over Pacific Grean

OPERATION DOMINIC - Check Mate

<u>1.00f</u> <u>G47</u> <u>DATΣ</u>: 19 0c: 1962 20 0ct 1962 <u>TDG</u>: 2130 0830 51908808: DGD

<u>SUFE:</u> Johnston Island 16° 04° 20.57° N 169° 36' 35.95° W

SITE ELEVATION: Sea Level

BUIGHT OF BURGIE

TYPE OF BURST AND PLACEMENT: High Attitude, from XM-23 Stryp1 (Sergeant) missile

REMARKS:

This event was conducted as a part of the Fish Bowl Series.

OPERACIOS DOCUMIO - Blue Gill Triple Prime

	1000	GST
DATE:	25 det 1962	7€ Cci 1962
7.0	2259	0959

SPURIOUS: DOD

<u>SITE</u>) Johanton [81 ad 16° 24° 57.33° K 169° 36° 01.15° W

<u>\$170.81/3/410</u>00; Sea Level

HEIGHT OF BUTSET

TYPE OF BURST AND PROCEEDINGS TO MILE THOSE OF THE LO

REMARKS:

This event was conducted as part of the lish Rovi Series.

OFERATION DOMINIC - Culumity

	7.003	GM 11
DATES	27 Oct 1962	27 Sct 1962
TIME;	0446	1546

\$7000000 Edd.

\$ITU: Johnston Island 14° 31.1° 8 168° 15.6° 8

SITE ELEVATION: See Level.

HEIGHT OF BURST!

TYPE OF JUST AND PLACEMENT: Air (paradhate drop), over Pacitic Ocean Overgament Demonstrate - Monsatonic

 $J(\chi_{2,1}^{2,1}) := \frac{2.06 \cdot 7}{30.004} \cdot \frac{1.02}{1.02} = \frac{1.887}{30.004} \cdot \frac{1.002}{1.006}$ TEM: 0501 1601

SPECIAL LCC.

 $\underline{G}(\underline{\mathcal{F}}(\underline{\mathbb{F}}_p)) = \operatorname{distinst}_{\underline{\mathbb{F}}}(\underline{\mathbb{F}}_p) \cdot \operatorname{Indiand}_{\underline{\mathbb{F}}}$ 13" 25,8" 6 175° 10° W

S<u>tup</u> pro<u>vi</u>ologic Sea Sevel

Britain on Bassia

TYPE OF FIME AND PROCEEDS: Air (paraches e drep), over Pacific Occasi

0297ATUCT DOMENIC + King Fish

5.0<u>00</u>0] . . GMT DATE: 1 See 1962 T Keet 1962 T18U: 0110 1210

SPGGS(SC) = 1005

SJEE: Johnston Island 36" 00" 48,61" 2 189" 401 56,02" 2

SITE ELEVATION: Sen used

<u>96169U OF 8008F</u>

TYPE OF BURST AND PROCESSINES High about ode, from they moscile.

REMARKS:

This event was conducted as a part of the Fish Sawl Series.

OPERATION DOMINIC - Tight Rope

DATE: 3 ROV 1963 4 NOV 1962 TIRG: 2030 0730 spondoge nob

 $\underline{SL}(\mathcal{B}_{k}, \mathrm{SL}(\mathcal{G}_{k}^{*}), \mathrm{TR}(\mathcal{B}_{k}^{*})) = \mathbb{N}_{k} \times (\mathrm{Le} \, \mathsf{ve} \, \mathbf{1})$

5616d) 07 30000;

TYPE OF 19951 AND PLACEMENT: Fig's afticome, trom with a Private a classic

$\underline{\mathbf{R}\mathrm{P}}(\lambda)^{\mathrm{P}}(S):$

This event was conducted as a part of the lash Book Spries.

APPENDIX A

Announced United States Nuclear Detenations

Yields are listed as: tow (less than 20 kt)
Intermediate (20 to 999 kt inclusive)
Low Megaton (one to several megatons).

Prior to October 1958, testing was conducted an an intermittent basis and each series of tests was designated by a series name, such as OPERATION CROSSROADS. The United States conducted no tests from October 30, 1958 to September 1961. After resumption of testing, tests were conducted year around and were listed by fiscal year. For example, att NTS tests Juring FY-1952, which ended June 30, 1962, were in the OPERATION NOUGAT series except for four surface tests (Little Feller fand 11, Small Boy and Johnny Boy) designated DOMINIC (1, which were a continuation of the DOMINIC (series conducted in the Pacific.

ANNOUNCED UNITED STATES NUCLEAR DEFONATIONS

3mm 16363	001616673	10047104	1706	PURPOSE	FIELD RENGE
TREMITY FIRST HEST OF	67/16/45 14 4-8098	AL 4 NOGORĐO	10,64	MEAPONS RELAIFO	1961
WORLD MAR IT DAYO\$745 FIRST COMBAT USE-WIRDSHIMA	01/05/45 USE+41R054[MA	HEAT	4,780908	COMB9 L	13 44
MORLO NOR IT SECOND COMPAT	68789745 USE-846654KE	JAPAN DPERATION CROSSROADS	LIRDROP	COMBAT	25 KT
181.6	94/45/98	BIKTHT	A I RD91P	WEAPONS RELATED	25 Kf
ANTER	91/24/46	BIKENE OPERATION SAMINTONE	5	MEADONS RELATED	25 KT
F-88-4	*******	ENTKETOK	rance	MEMBONS PELATED	3746
TORC	01/30/10	ENEWETOR	TOMER	WEAPONS RELATED	49KT
2E BRA	81/1/50	ENIMETON OPERATION BANGER	10164	WEN PONS RELATED	165/
#BLE	15/22/10	NTS	Altenkop	MEAPONS RELATED	JKF
linked	01/26/51	₩.E	LIROGOP	WEBPONS RELATED	BKT
EASY	42/01/51	NES	4180900	WEAPONS RECATED	1.1
BAKEN-2	15/26/20	274	4080814	WEAGONS RELATED	T NO
FOX	15/90/20	NTS DPERATION GRETHMOUSE	MIRCHOP	ME A FONS RELATED	Z2K1
990	15/20/10	ENTHETOR	TOWER	WF B POWS RELATED	
Edsy	04570551	EN 3 ME FOR	10 ME 8	MERSONS RELATED	475
CE ONTE	15/80/50	ENTHETOR	TOWER	WEAPDHS RFLAPFO	
1164	15/57/21	ENTMETON UPENATION BUSTER-JAMSLE	TONER	WERPONS RELATED	
48LE	16/22/01	5 I N	FOWER	MEMPONS RELATED	CESS THAN GLIFT
BAKER	18/28/51	WTS	AIRDANP	WEAFONS RELATED	3.5KT
CHARLIE	19/30/51	MTS	41 90 93 9	MERPOWS RELATED	1441
DOG	11781/51	HTS	11 RORDP	MERFONS RFLATED	ZIKT
FAST	11/48/11	*15	#1804gp	WEAFONS PELATED	3187
SUGAR	15/6/211	WTS	SURFROE	MERPONS RELATED	1,247

ANYOUNCED UNITED STATES NUCLEAR OCTOMATIONS

EVENT NAME	CATE (GCT)	LDCAFION	TYPE	PURPOSÉ	VIELD BANGE
UMCLE	11/24/51	518	CRETER	MEGODIS RELATED	1.24
		DPENATION TUMBLER-SHAPPER			
ABLE	24/10/40	HTS	4140806	WEJFOWS RECITED	Ĭ
BIKES	25/51/10	415	ALRORDA	ME & PONS RELATED	181
CHARLTE	25/22/10	115	LIROROP	MEAGONS RELATED	3147
900	55701755	Hts	#040#1#	ME & FORES PELATED	1961
EBSY	55/10/60	415	TOWFR	WELFORS RELATED	124
f 0.t	45/25/52	x13	TOMER	WEAPOHS RELATED	1187
CEDRICE	6701752	*15	TDNE	MEAPOWS RELATED	ISKT
701	25750790	214	10469	WEAPPINS RELATED	1487
		OPERATION 1YY			
MTKE EXPERIMENTAL	14/31/52 Fu£PHDNUCLEAR	FWINETOK Device	SURFACE	HEAPONS RELATED	10,447
KING	5/41/11	ENT HEROK OPERATION HEROIST. MISTAGE	1140B0P	MEAPONS RELATED	500 x7
4NN1E	6373759	k7\$	70469	WEAPOWS GELATED	LBKT
HANGE	63/24/53	415	TONER	MEAFOWS RELATED	24K7
RUÍM	65/16/60	415	70m8 R	WEAPONS RELATED	192.0
DIXIC	04/06/53	475	4040414	MERFORS RÉLATED	11167
PIT	04/11/53	413	FONER	MELDOYS RELATED	0.241
BIDGES	84/14/53	нъ	JOHER	MEDICAS RELATED	2347
SIMON	15752740	475	TOWER	MEADOWS RELATED	1, 3KT
ENCORE	45/06/53	415	ATROBUP	MFAROMS WELLTED	27HT
	86784754	HTS	10 u E P	MEAPOWS RELATED	32KT
GAABLE FTQEO FROM 23	85725/51 230MM GUN	K15	NO9	WEAPONS RELATED	1581
כו זאוא	85/04/53	415	119080P	MEDIFONS RELATED	61KT
		DPEHATION CASTLE			
BAAND Expeditental	42/28/54 BIKINI THERMONUCLENG DEVICE	BIKINI Device	Sperace	MEANONS PELATED	1547

AMMOUNCED UNITED STATES MUCLERA DETONATIONS

SPENT MANE	CEST BENG	LOCATEON	Jean	#UR# 656	YEELD SANGE
ROMEO	15/92/60	BICINI	37.448	WEAPONS GELRTED	11 MT
#(D)#	15/30/16	BJK 141	SURFACE	ME LPONS RELAIED	113 KI
MOZAG	44725744	BIX FNJ	BARGE	OJETJA SMOSTJA	6.9 MT
YNHKEF	45/48/50	BIKINI	BLRGE	WELFCHS AFLATED	13.5 MT
MCTAB	15711754	¢N3 WE F∆≪	39446	METHORS RELATED	18 ea.1
	200 4 11 4	OPERATION TEADOT	00000		,
	*******		44.7	Carried Section	, k
		S			
Tt SL.A	+1/01/55	*	4 G M E P	METHONS RELATED	121
Tuge	19707755	NTS	rough	MEREGRS RELATED	4.3k.f
#ORNET	13/12/55	Mts.	FONEP	WEAFDNS PELATFO	ž
3OC	55/22/68	MTS	- ONE R	MEASONS RELAISO	9 2 3
475	93723759	N15	CRATER	NEAPONS RELAIGO	ıĸt
*PPLE-1	43/53/68	NTS	AGNO	ME GPONS RELATED	1+41
JHIOG USEN	\$1/29/55	NTS	AIMDROP	WEAPONS PELATED	3x8
‡	\$1/90/18	NTS	41.40804	MEGPONS RELATED	387
POST	44/09/45	нГS	TOMER	HERPCHS RELATED	7#Z
¥ 4	34/15/55	HIS	10 mEP	VERPCHS RELATED	1322
4PPLE-2	\$5/68/58	415	FOWER	MEAPONS RELATED	2943
ZUCCM1#1	05/15/55	NIS OPERATION MICHAN	40 MG A	MEAPONS RCLATCO	2 bk I
121-MS338930 62 MTM9TH	#5/14/55 W-126 DEGREES W		3	WEAPOHS PELATED	30KP
		OPERATION RECEIVE			
LACROSSE	95/40/50	ENIMEROX	SURFACE	MEJPONS AELATED	, v
CMEMOXEE FIRST 4 TR DAGP	03/20/56 BT U.S. Of 6	BIKINI Thermonuclear measur	IRDROP	METHOMS RELATED	SEVERAL MI
Jung.	95/12/50	BIKINI	SURFACE	MEAPONS RELATED	3.5 HI
YON	05/27/56	ENI WE TOR		MEAFONS RELATED	

AMMOUNCED UNITED STATES MUCLEAR REFOMATIONS

EVENT MANE	CATE IGET	LOGNITON	TYPÍ	PUMPOSE	TELM RIMGE
ERIE	46784754	ENIMETOR	TONCE	MEJEGMS RFLATER	
SEMTMOLE	96/06/56	ENTHETOK	Suge 60E	WEAPONS AELATED	
66211620	06/11/56	Bictnl	BARGE	HFAFONS RELATED	
D4 #CKFGOT	06/11/56	EN3 WET DK	1.0 01.5	MEADONS RELATED	
HICKEPOO	96/13/56	ENTHETOR		MERFONS RELATED	
osket	46/16/56	ENTMETOR	41RARDP	UEAGONS RELATED	
tnea	95/12/90	FNIMETOR		WENFONS REENTED	
DAKOTA	96752790	BIKINI	BARGE	WFAPONS RELATED	
HONTAR	95/20/20	ENIMETOR		MERPONS RELATED	
APACHE	95/00/10	ENIMETOR	9**65	MERFONS RELATED	
пече до	97/18/56	BIKINI	BIRGE	MEADOWS RELATED	
TENA	07/20/56	BICINE	BARCE	JE JPONS RELITED	7 11
HUPON	95/13/20	ENTHETOK	BARGE	MENFONS RELATED	
		OPERATIES PLUESBOR			
BOLFZMAN	15/12/51	NTS	TOWFR	WEAFONS RELATED	120
FFANKLIN	56,702,63	5 12	TAMER	MEDRONS BELLITED	1 colons
H358#1	46/05/57	NTS	MOQ TINE	WEARONS RELATED	0.5 Pans
HTLSON	•6/16/53	<u>₹^</u>	HUQ 17#E	MEAFORS AFLATED	10KT
PRINCIPLA	16/24/51	NTS	MQ0 11#R	WEARONS RELATED	1787
0004	.575074	RFS	M0017#6	WE LPANS RELATED	Jukī
OFERO	47/15/5	¥13	TOWER	ME APONS RELATED	1 PKT
NHOT	\$761729	MTS	ROCKFT	MEAFONS RÉLATED	ABDUT 2KT
RFPLER	.3775774	RTS	TOWER	WEARONS SELATED	1847
DMENS	41/25/5.	2T#	HUOTTHE	MELPONS AELATED	9+747
SIONES	15/10/00	HTS	BRELDÓN	HE WAGING ACCUSED	1947
SMASTA	98/19/51	HTS	TONGS	WE APONS PELATED	1787
\$374400	15/12/80	MTS	8411-004	WEAPOWS RELATED	1157

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EVENT HANG	04 16 16/11	M0118307	1 # P E	PURPOSE	TIELD RANGE
FRANKLIN PRINC	48/38/89	N	841,004	METBONS HECKIED	127.4
SHORK	25/15/46	57	TOWER	MERPONS RELETED	***
2411450	89/82/51	518	70459	MEZPONS RELATER	IIKL
NHFELER	18/00/60	*15	BALL DDN	WEAFONS OFLATED	197 (045
1 6PLACE	16/00/6	517	RAN LODN	METFONS AFLATED	141
FIZEAU	45751760	24K	TOWER	KEAPONS PELATED	1367
NENTON	89/16/5F	NTS	8411.004	WE FROMS RELATED	1247
RAINIEN FIRST FUNNEL	09/19/57 EMPLACEMEN	*1*	FUNNEL	MEAFONS GELATED	1.74
UM17NET	15/62/60	215	1045.0	WEAFONS GELATED	1961
CHARLESTON	14720157	MPS	NOOTITE	MERPONS RELATED	1241
MORGAN	10/07/57	NTS	NOD T TEG	WEAPOWS WELATED	SKT
		SALRATION IGROTACK			
YUCCA 12 DEGREES 37		#4/26/5# MIN H-163 DEGREES DI MIN E	BALLODA	NEAPONS RELATED	
CACTUS	16/50/50	ENIMENDS	SURFACE	KERFONS RELLIEG	10 85
F14	05/11/50	BEKINI	99466	NEAPONS RELATED	
SUFFERNUT	05/11/50	CMIMEROX	BARCE	KERPONS RELITED	
NOA	05/12/58	FNEWETOR	300 ggR5	MF.FONS RECATED	1.37 47
DDH ₹₹	05/16/50	ENIMETOX	*	MERFONS RELATED	
нбіст	05/20/54	EWINFIOR	3746	VELEGONS RELATED	
NUTHEG	95/12/51	OFKINI	35468	WEAFONS RELATED	
TELLDWINGS	96/92/50	ENIMETOK	BARGE	WEIPONS RELITED	
PE TOMOSTA	05/56/50	ENĮ AFTOK	39866	WEAFONS RELAIED	
1084550	95/95/50	1017KIN)	BARCE	NEADONS RELATED	
STCANOSE	05/31/56	RIKJHJ	84468	NEAPONS RELLIFO	
3500	D6/62/54	ENIVERGE	BAPGF	WEAFONS ACLAIED	
UMBRELLI	08/08/99	ENIACTOR	¥	WEAPONS PELLIFO	

ANNOUNCED UNITED STATES MUCLEAR DEFONATIONS

EVENT NAME	PAFFECETT	LOCATION	146	PURPOSE	TIFLD RANGE
24.P.E	95/01/98	BIKINI	BARSE	PEAFOWS RELATED	
ASPER	86/11/58	BIRING	BARCE	MEAPONS RELATED	
HAL MUT	86/11/58	EHINETOK	39616	MEJEONS RELITED	
LINDEN	06/18/58	CHIMETOR	84965	MEARONS RELATED	
9E0M009	98/23/98	BIRINS	BARGE	WFIFORS RELITED	
ELDTR	96/22/90	ENTHETOR	35448	HEYFORS RELATED	
0045	85/82/98	ENTHETOK	97 4 6	MF BPGWS RELATED	B.9 HT
HIGHORY	94/62/90	BIKIMI	BARGE	WEAPONS RELLIED	
SEQUOIN	07/01/54	ENTMEROR	39848	MEASONS RELATED	
CEDAR	01/05/56	BIKINE	81866	WEAMUNS RELATED	
000,000	11145754	FALMETON	Battle	WEIMONS RELITED	
POPLAR	07/12/58	BIKINI	Bloce	MESPONS RELITED	
PISONIA	01/11/50	EMINEROK		MEDDONS RELITED	
JUNIPER	0777255	BTKINI	BARSE	MEGNONS RELATED	
34110	07/22/58	(NIMETOR	39748	UEAPONS RECAIĘO	
PINE	05/92/20	FHI WFT OK	39446	METRONS RELITED	
TF bk	89/10/68	JOHNSTON ISL AREN	()JICON	NEAFONS RELATED	MEGALON RANGE
QUÍNCE	09790740	EHINFTOR		MEASONS RELATED	
OPANCE	85/21/64	JOHNSTON ISL 49E4	ROCKET	MEAFONS RPC NTED	HEGGION RAMSE
7 16	95/81/40	ENIMETOR OPERATION AGGLS		WEAFAMS RELATED	
APGUS I About 306 mil	48727788 LES 411170BE	SOUTH AFLANTIC	Macret	NEADONS RELATED	1-7KT
ARGUS TI ABOUT 366 MIC	04/30/54 165 4111/00E	SOUTH ATTANTIC	4DCKÉ T	NEJPONS BELLIED	1-2×1
ARGUS 177 ABDŲT 300 MT	09/46/58 LES 4LTTTUBE	SOUTH ATLANTIC OPPRATION MANDIACK 1	ROCKET	MF. AFONS PELATED	1-2KT
FOOY	85/61/60	A18	BALLOON	METRONS RELATED	29 1045

BENDUNCED UNITED STATES MUCLEAR DETONATIONS

				,	;
3MT4 143A3	94 16 (667)	10071104	Jdkj	PURPOSE	TITE SENGE
HORK	05/62/69	NTS.	8811404	MERPONS RELATED	2*1
SLIGHT VENTING	10/09/58	N T S	FURNE	NEAPONS RELATED	27 TONS
quay	14/10/58	#LS	TOMER	NEA FOMS RELATED	24 TOMS
1,11	10/13/50	MTS	MU TINE	WEAPONS RELATED	1,487
NAMES, 7 GM	16/51/61	NT.S	10169	HEAFONS RELLIES	L.2 TOMS
1,0644	10/16/50	27.5	FUNNEL	WEAPONS RELATED	547
DUAL ARA	10/16/58	HTS	8001198	METPONS RELIFED	17 TOMS
RIO AMUIBA	16/16/50	¥13	TOWER	MEAPORS RECALED	90 1043
SOCORRO	10/25/58	518	H001118	MERPONS RELATED	BKT
MRAMGELO	84/22/44	113	## (O D#	MEJPONS RELATED	115 TONS
RESIDENCE	10/25/20	MTS	MALLOOM	MC.APONS RELATED	188 TONS
SAMFDRO	10/28/58	#15	BALLDOM	HEAFONS ACLATED	4+9KF
10 81 CT	19725/58	NTS	M001118	MERRONS RELATED	Z.24T
EVANS VENTING	10/29/50	ου - Ι	FUNNEL	MEAPONS RELATED	\$\$ 70HS
HIMB0L67	14729758	475	TOPER	WERPONS RELATED	7.8 fONS
Stayin FE	10/30/50	NTS	BALLOOM	MERPONS RELATED	1,387
BLANCA THE USAGE AND THE	10/30/56	MTS	FUNHFL	MEMBONS RELATED	TAPE
		GPERATION IQUENT			
JHELER	13/57/61	NIS	TUHNEL	WFAFGWS RELATED	2.44
CHREM LOW TIELD MEAN!	09/16/61 195 LESS THAN 7	NFS 2dkf	SHRFT	NEMPOUS RELATED	NDI
CHENA	10/10/1	z.z.	TUNKE	MERRONS RELATED	*D1
HJHK	10/29/61	NFS	SHEFF	WELPONS AFLATED	ND1
FISHER	13783761	512	\$14.45 T	WEIFONS MELATED	13.55
CNOME MULTIPLE-PHRPD- 60-00 FT.HIGH	12/10/61 SE EKPERTHENE	12/10/t1 CARLSBAD SWAFT PLONSHA9E Pose fepfrihen im salt.förmed cavity 160-170 FJ.Oiamejer m	SmA ^{FT} Y 160-170 FJ.	PLONSHA9E Olimbier	3.147

ANABUMCED WHITE STATES MUCLEAR DETONATIONS

SVENT NAME	947E (6CT)	_	COCATION	TYPE	PURPOSÉ	TELD RANCE
UYW	19/11/61	÷		3,446	MEADONS RELATED	0.4361
PINGSALL	13/11/51	NTS		SHRFT	WEAPONS RELATED	101
FEATHER	13/22/21	₹ TH		FUHIEL	WEAPONS ACLATED	104
31015	23/80/10	ž		Sile FT	WESPORS AELSTED	4.5KT
160011	11/10/62	î		SHAFT	WF APONS WELSTED	5.9K7
DOM MOUSE	1730/62	ž		SHAFF	NEAFONS RELATED	101
STILLMATER	29/90/20	2		SHEFF	WEAPONS RELATED	2,247
ARMADILLO	29/60/20	N		SHEFT	MEAFONS RELATED	6.587
HANDRAL SEAMILE	42/15/62	ž.		1487	WE AFQUS RELATED	5.443
CHEMONITLE	29/61/20	A TA		SHAFT	MEAMONS RELATED	1.6KT
C005##	29/61/21	÷		SHAFF	NEAFONS RELATED	107
CINARRON	29723762	N		SHAFE	NEAPORS RELATED	11,285
PLATYPUS	12724/62	Ē		SHAFT	WEAMONS RELATED	ron.
PAMPAS	43/10/62	1		SHEFT	30-58 INIDE	101
DANNY BOY BANETER 265 FF.		EPTH &L	MTS DEPTH OL FT. IM BASALT	CALTER	WEASONS RELATED	D.4247
ERMINE	29/90/60	A.		SHAFT	METHOWS RELATED	104
\$07 % 36	29/89/50	N		SHEFT	METRONS RELATED	7+647
3504004	43715762	ž.		SHAF	WEAPONS MELATED	104
HOUSIC	23/82/60	*13		SHAFT	NEAPONS RECATED	181
CHEMCHILLA II	54/31/10	*		SHAFI	MEAPONS WELATED	FD1
BOOM WOUSE II	29/50/10	Z L		SHAFT	MEAPONS RELATED	IDEE
PISSIC	29/90/10	ž		2HBFT	WEAPONS RELATED	F07
HUÚS DN	29/21/41	N TA		SHAFF	WEAPONS RELLIFED	101
PL OTTE	04/14/62	Ş		TONNEL	WELFORS GELATED	1,745
DF NO	29/12/41	\$1N		SHAFT	NEAPONS GELATED	F-04

ANNOUNCED UNITED STRIES NUCLEAR DETONATIONS

EMEMF NAME	On 16 rooms	LOCALION LOCALION	1176	PURPOSE	YJĘLO PANCE
ADDRE THICRAFDIATE A	04/25/42 #EANS 29 TO 10	TAILERNEDIATE MEANS 20 TO 1000 KT	4140A1F	WEBPOWS 4ELATED	THIERHEDIATE
AZTĘG	24/22/42	CHRISTMAS ESL AREA	#145R6P	MEAFORS ACLATED	INTERMÉDIATE
BLACK	04/27/62	HIS	SHAFT	MERPONS MELATED	707
ARKANSAS	29/20/5#	CHAISTMAS 151 49EA	A I 4 DAOP	MERPONS RELATED	NOTESTAN
QUEST4	05/04/62	CHAISTMAS ISL AREA	414DROP	HEAPONS RELATED	SHIERWEDIATE
FRICATE GIAD MARMEND TH MIS	#5/86/62 \$\$tje Liumchío	CHAISTHAS ISC AGEA FADM BOLERIS SUBHAGINE	MESSILE	MEAFONS AFLATED	
PAGA	29721754	NTS	SHAFT	MENFONS MELATED	101
мрыпк	29/00/50	CHAISIMAS IST AREA	4140R0P	MERMONS RELATED	INTERMEDIATE
MESTLLA	29/60/54	CHRISTRES ISL AUFR	41.4090	MEAPONS RELAICO	INICAMEDIALE.
HUSTE GON	45/11/62	CHAISTNAS ISL AREA	41 80800	WEBGONS RELATED	INTEGNECTALE
SECRETSH ANTISCOMENICAL	05/11/67 905<&1 /45R09	OSVIJJOS — EASTERN PACIFIC Bockej jaskos/ syšiem padoť iesi	3	MEAPONS RELATED	101
ENCINO	29,21,50	CHRISTMIS TSL AREL	4040814	MERSONS RELATED	INTERMÉDIATE
AJROVARK	29/21/60	NTS	SHEFT	WEAPONS RELATED	3647
SWAMEE	45/14/62	CHRISTMIS ISC BREA	4146868	METPONS RELATED	THIFAMEDIALS
EFL	45/19/62	SLH	544FT	WE LPONS RELATED	101
CHETCO	59766750	CHRESTHES 151 AREA	414090	MCAPONS RELATED	[MISSONEOTATE
WHITE	05/25/62	NFS	SHAFT	MEAPONS RELATED	FON
TANANA	05/25/62	CHAISTNAS ISL AREA	#IROHOP	HEIPONS RELIFED	F07
14 1 BE	29712750	CHRISTHAS ISC BREA	41 RORG#	MCAPONS RELATED	14TEQHEDIATE
РАССООМ	59718798	N7S	SHEFF	WEAFONS RFLAFFO	r Dre
PACINET	46/06/62	HTS	SHAFT	NEAPONS RELANED	707
#7	96/00/62	CHRISINIS TSL AREL	4CBBB1#	WEIPONS RELATED] WEERMCOLLYE
IRUCKEE	4976079 0	CHAISTMAS TSL AREA	4.1 # DADP	HEJPONS RELATFO	INTERMEDITAL
reso	86/18/63	CHAISTMAS ESC AMEA	418180P	HEAFONS RELNTED	LDK NEGATON
наясея	29/21/94	CHRISTMAS ISU AMEL	41ROROP	MEAJONS RELATED	INTERNEDIATE

ANNOUNCED UNITED STATES MUCLEAR DEIGNATIONS

EVENT NAME	TATE COCE	ri Logaryok	3941	PURPOSÉ	3941h 0771
DES WOTHES	06/13/62	NfS	TUMNEL	NETPONS RELATED	705
RIMCOMADA	29/51/90	CHRESTMAS FSC AREA	4180409	WEAFONS RELATED	INTERMEDIATE
סחר כב	16/17/62	CHRISTMAS ISL AREN	ATROROP	WEAPONS RELATED	INTERMEDIATE
11130	29/61/90	CHRISTMAS (S) AREA	ATRORDO	MERCONS GELATED	101
DANKH I	29/12/98	HTS	14462	MÉ4PONS RELATEO	L D#
010mt	29/22/90	CHRISTMAS ISL AMEN	4080917	MEDDONS RELATED	JMTERMEDIATE
PICHDRM	06/27/82	CHRISTHAS ISL RREA	AIRD4DP	MEAPONS RELATED	MEGATON HANGE
HAYMUREA	96/27/62	MTS.	SHAFT	MEAPONS RELATED	56#F
MARSHMALLOM	29/92/90	113	TUMMEL	ME.FOWS RELATED	707
R. LESTONE	23/06/90	CHRISTMAS ISC AREA	AIRDMOP	HEAPONS RFLATED	COM HEGSTON
SACRAMENTO	16/36/62	NIS	1487	MEADONS RELATED	CON
		DEFRATION STOCKE			
SEGAN ERCAVATION EXPI	BETTERF-CE	#F7#676 #PE4!MEMP-CRATER 1280 FT.O(4M 320 FT.	CANTER PLONSHARE 320 FT.06EP-THERMOMUCLEAR DEV.	FLONSHARE CLEAR DEV.	1 DQKT
LITTLE FELLERIT SLIGHTLY MODUE	87787762 680UND.	MTS DOMINIC IS SERIES.	Sutfaté	VEAPONS RFLATED	1 01
STARFISH PRIME OT/49, High Altirusf-458 KM	07749/62 458 KM	JOHNSTON ISL AREA	ADCKET	VEAPONS RELATED	1.4 REGATORS
13SHUS	29/01/40	CHRISTMAS TSL ARFA	414090	ME FPONS RELATED	[NIEGHEOTATE
PAHLIDA	59711765	SHAISIMES IST FACE	4640RDP	WEAPONS RELATED	LOM WEGSTON
JOHNNY BDY SLIGHTLF ANDYE	97711/62 6400mb.	MTS DOMJ416 31 SEQUES.	SURFACE	WARONS RELATED	6.5
HF RR I HAG	17733162	27.8	SHAFT	HEAPONS RELATED	#07
SMALL BOY Stightly ARGUE	01/11/62 GROUND.	HTS DOMINIC 11 SERIES.	SURFACE	MEADOWS RELATED	ron
LITTLE FELLEW 4000 PARTICIPA	87/17/62 41104. SLE	BY/17/62 4T5 [PATTOM, SLIGHTLY ABOVE GROUPD, SORIN	SURFASE MONIMIC II SERIES.	WEAFONS RELATED	, O.
ATCHIL	29/12/10	+7.5	SHAFT	HEAMONS RELATED	* Q *
TORK	98724762	MT.S	SHAFT	NEAPONS 9ELATED	HQ 1
ROBAC	2975780	MTS	SHAFT	HEAPONS RELATED	70)

ANNOUNCED UMITED STATES NUCLEAR DETOMATIONS

EVENT NAME	0.4 FE 16 CF 1	_	8	10011100	ı	1406	PURPOSE	TIFED RANCE
14641	49/11/65	_	F14			SHEFF	NEWFONS RELATED	101
9E B4	24/42/60		HTS			SHIF	WEBFONS RELATED	101
ALLEGHENY	24/62/60	_	61.5			SHAFT	WEN FOWS RELATED	רפא
AMD40SCG&GIM	10/02/62		JOHNSTON 15L AREA	151	AREA	4) RONGP	WEAPONS RELATED	141CR4EDIATE
MISSISSIPPI	18/05/62		HTS			SHIFF	HEAFONS RFLATED	110 KT
BUMPT NG	11/06/62		JOHNSICH IST AREA	3	48.54	4180939	WEAPONS RELATED	FQ#
ROMMORE	29/23/65		NT3			SHEFT	MEAPONS RELATED	NO.
CHAMA	29/01/01		JOHNSTON ISL AREA	12	18£1	414BBBB	MEAPONS RELATED	LOW MEGATOM
# NAIDT COOF	10/19/2	_	H73			SHEFF	METBONS BETTLED	104
CHECKNATE High Albifude	10/11/01 · [ENS OF K	¥	JOHNSTOM TSC AREA	131	AREA	ROCKFI	MEMPONS RELATED	707
BLUEGILL SPRIME RIGH BLITTUDE	10/26/62 - TENS CF R	£	JOANSTON 151 LAEL	3	1461	ROCKET	NEAPONS RELATED	SUBMEGATON
SANTÉE	19/2//62		11			SHEFF	MERMONS RELATED	r _D v
CALAMITT	10/27/62		JOHNSTON ISE AREA	ž	A QE Y	AIRDROP	MEGRONS RELATED	14TERNEDITTE
HOUSHIONIC	11/10/62		HOTSHADE	ž	TBET	ATERROP	MEAGONS RELATED	NEGATOR PANGE
KIMSFISH HIGH #LTIFUDE	11/01/67 - 16NS OF K	5	NOTANSION IS	13	1381	ROCKET	NEJPONS RELATED	SUBMEGNION
TIGHTPOPE HIGH ALTITUDE	11/04/62 - TENS CF K	Ē	JOANSTON TST BREB	ž	1961	ROCKFI	WEAFONS RELATED	*O1
AMAGOSTIA DEUTGE OFWELOPMENT	11/27/62 PHENT		ž.			34471	PLOMSMARE	10 1
TFNDRAG	12/07/67		NTS			SMEFF	JOINT VS-UK	104
M00100M	12/12/42	_	17			TUNNEL	WEAGONS RELATED	.01
NOMBAT	29/21/21		NTS			SMEFT	WE LPGMS RELATED	707

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