EXTRACTED VERSION

OPERATION REDWING

410882

Radiological Safety

HQ Joint Task Force Seven

1956

NOTICE

This is an extract of OPERATION REDWING, Radiological Safety, which remains classified SECRET/RESTRICTED DATA as of this date.

Extract version prepared for:

Director
DEFENSE NUCLEAR AGENCY
Washington, D.C. 20305

1 JULY 1983

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9. PERFORMING ORGANIZATION NAME AND ADDRESS		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
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This report has had the classified information removed and has been republished in unclassified form for public release. This work was performed by Kaman Tempo under contract DNA001-79-C-0455 with the close cooperation of the Classification Management Division of the Defense Nuclear Agency.

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)
Operation REDWING
Radiological Safety

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)
The meteorological observations at the test site for 17 shots of Operation REDWING are presented along with the forecasts of the fallout pattern expected. These predictions are compared with the observed radiological field.

FOREWORD

This report has had classified material removed in order to make the information available on an unclassified, open publication basis, to any interested parties. This effort to declassify this report has been accomplished specifically to support the Department of Defense Nuclear Test Personnel Review (NTPR) Program. The objective is to facilitate studies of the low levels of radiation received by some individuals during the atmospheric nuclear test program by making as much information as possible available to all interested parties.

The material which has been deleted is all currently classified as Restricted Data or Formerly Restricted Data under the provision of the Atomic Energy Act of 1954, (as amended) or is National Security Information.

This report has been reproduced directly from available copies of the original material. The locations from which material has been deleted is generally obvious by the spacings and "holes" in the text. Thus the context of the material deleted is identified to assist the reader in the determination of whether the deleted information is germane to his study.

It is the belief of the individuals who have participated in preparing this report by deleting the classified material and of the Defense Nuclear Agency that the report accurately portrays the contents of the original and that the deleted material is of little or no significance to studies into the amounts or types of radiation received by any individuals during the atmospheric nuclear test program.

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OPERATION REDWING

RADIOLOGICAL SAFETY

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STF-7

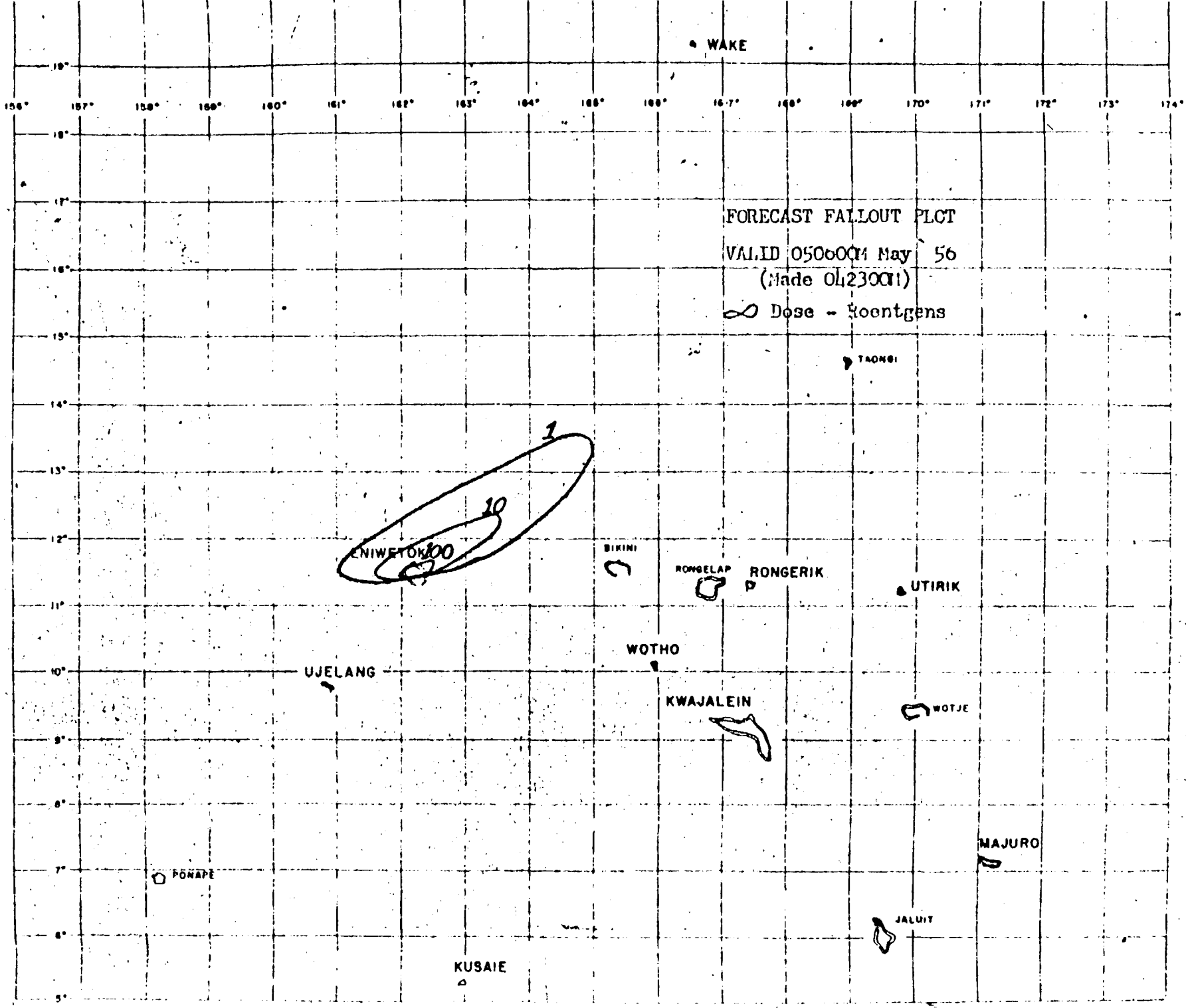
TAB A

LACROSSE EVENT

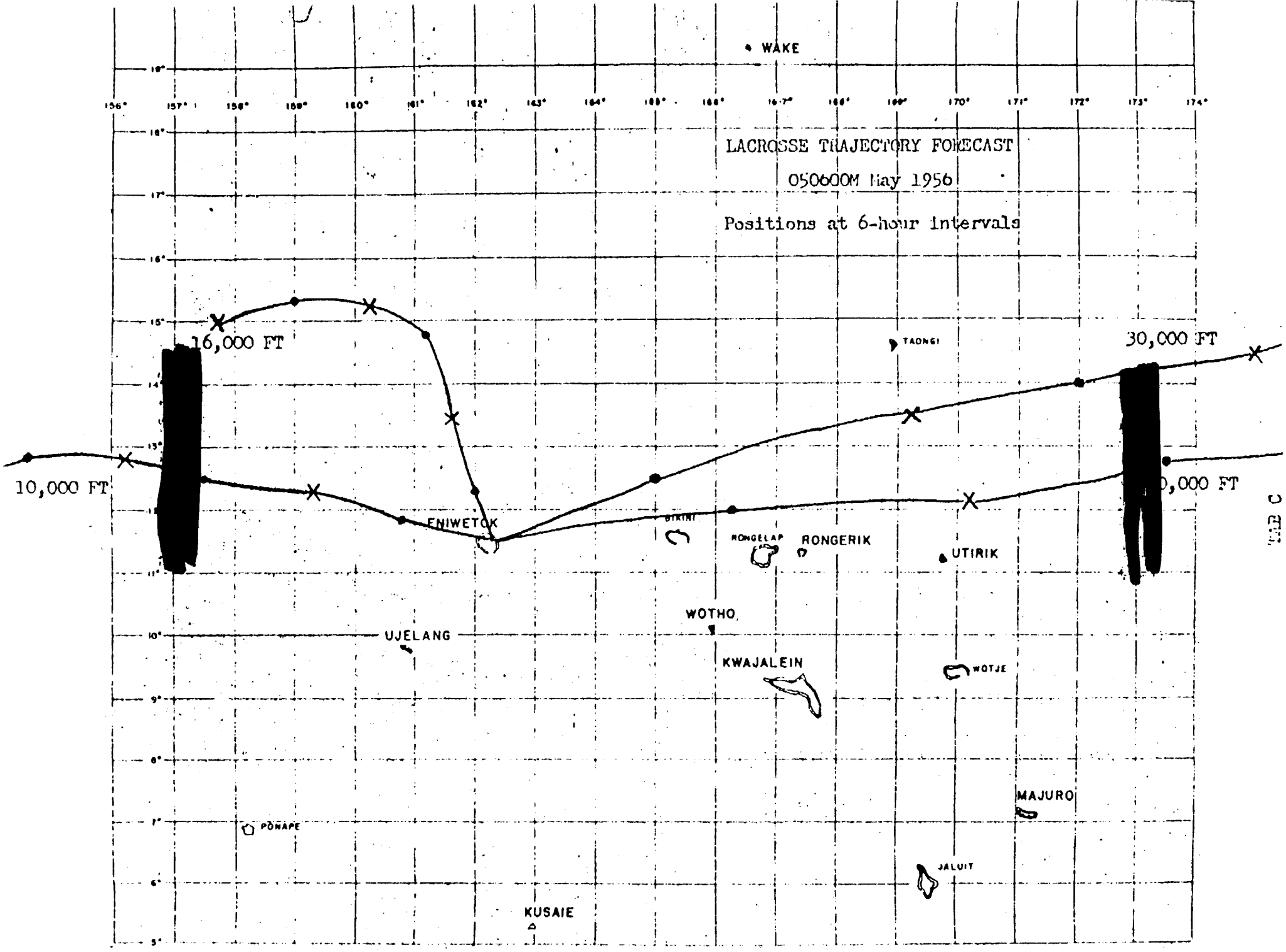
OPERATION REDWING

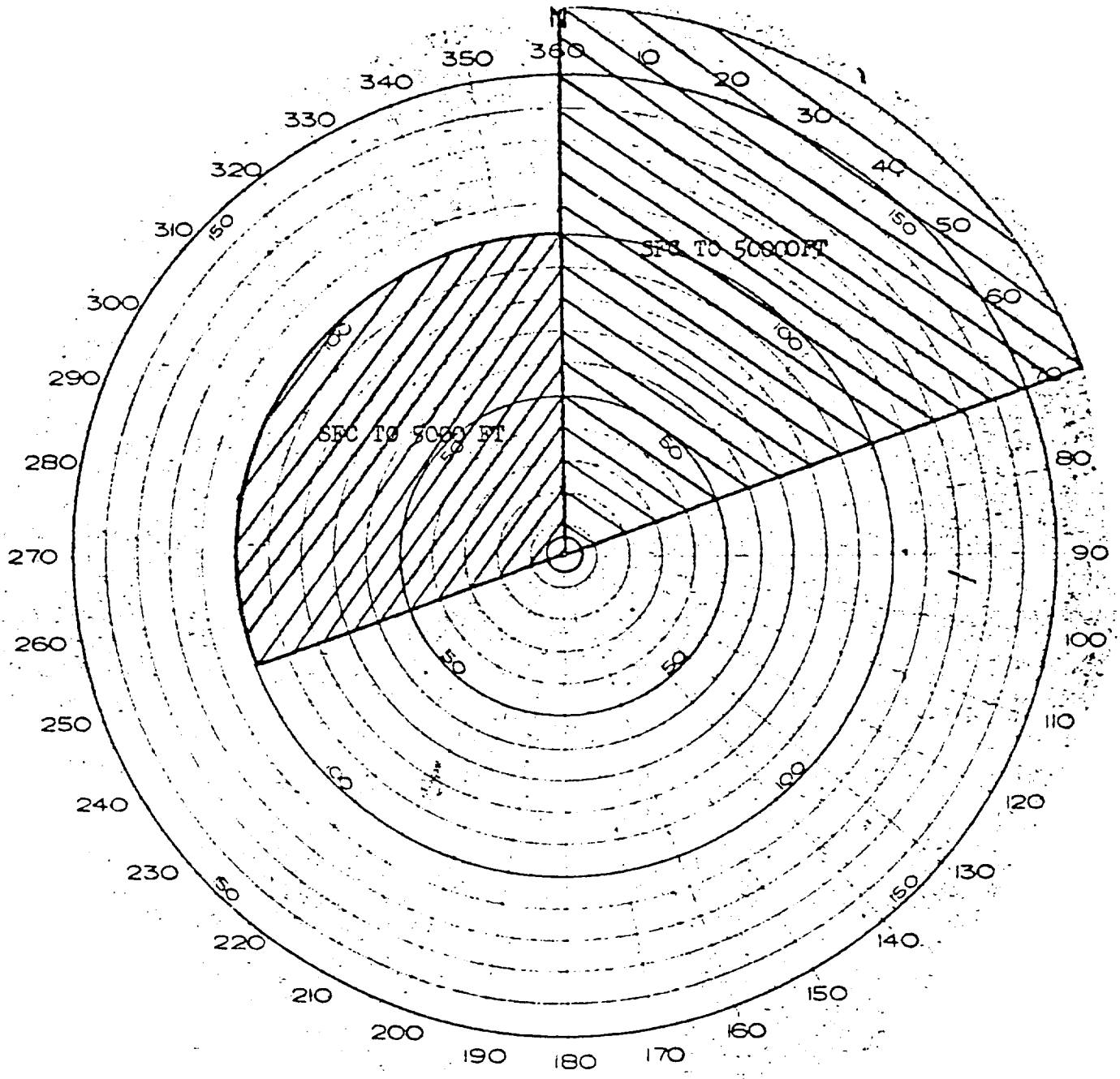
1. The atomic device, LACROSSE, was detonated at 0625M, 5 May 1956 at the surface on the island of RUNIT in the ENIWETOK Atoll. The LACROSSE cloud reached an altitude of approximately 40,000 feet. The cloud sheared at approximately 18,000 feet with the stem and lower portion of the cloud moving West, the upper portion moving to the Northeast. The initial helicopter survey indicated that the fallout was developing as forecast. Based on the initial helicopter survey and aerial monitoring reports, reentry hour was established as 0745M, 5 May 1956. All RADEX notices were withdrawn at 1310M, 5 May 1956 and the ENIWETOK area was open to aircraft.

2. The fallout prediction for LACROSSE was based on a surface burst with a maximum yield on the order of 60 kilotons. The forecast fallout plot (see TAB B) shows the fallout falling to the Northeast with long axes lying along a true bearing of 50°. The rather limited information on fallout for LACROSSE prevents a quantitative comparison of the actual and forecast patterns.


WAKE
FORECAST FALLOUT PLOT
VALID 050600Z May 56
(Made 042300Z)
Dose - Roentgens
TAONGI
1
10
100
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE

TAB B


WAKE
LACROSSE TRAJECTORY FORECAST
050600M May 1956
Positions at 6-hour intervals
16,000 FT
30,000 FT
10,000 FT
TAONGI
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE

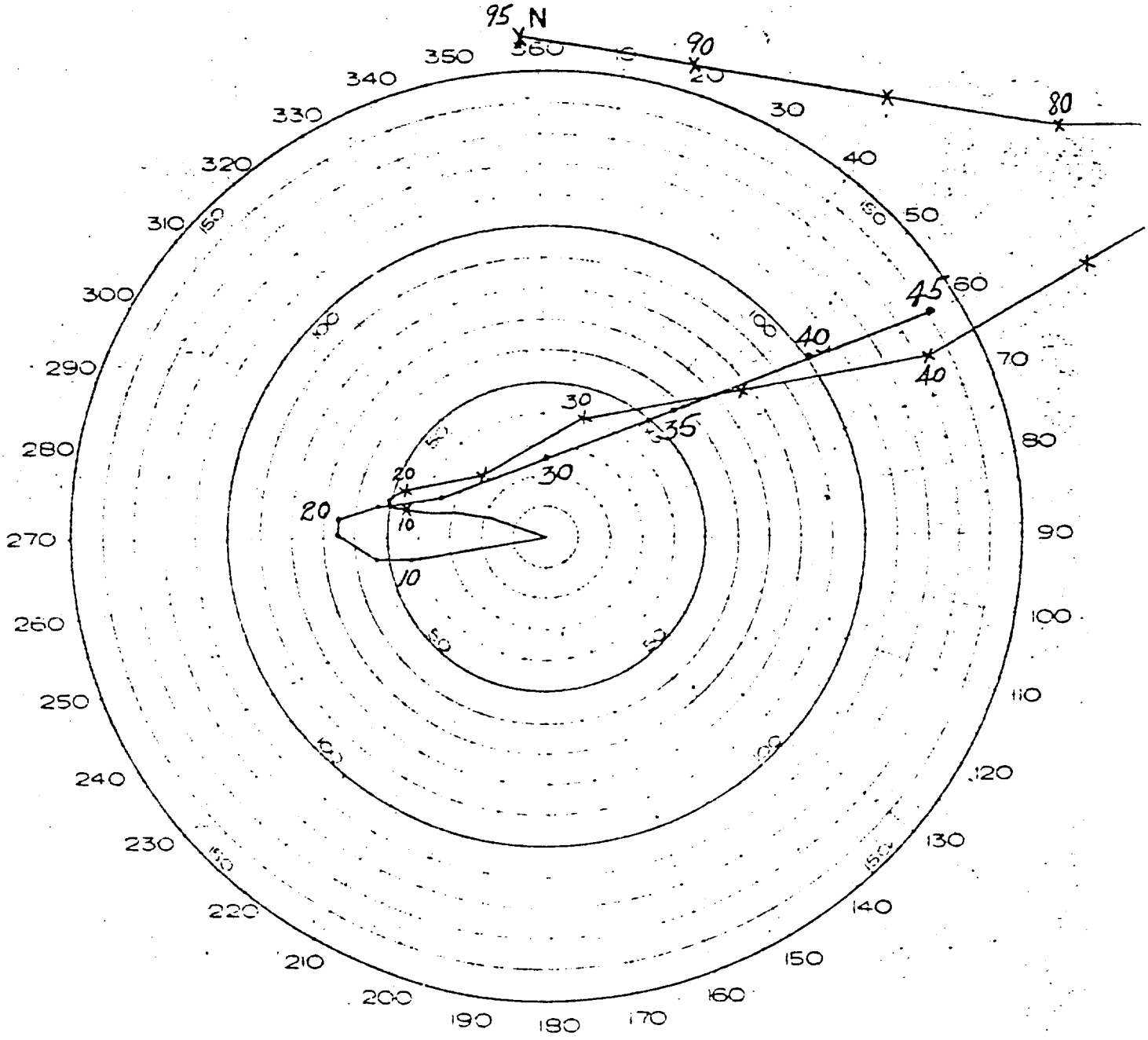


AIR & SURFACE RADEX - LACROSSE
(H TO H+6 HRS)

TAB D

HODOGRAPH

RESULTANT WINDS AND SURFACE RADEX



TAB E

HEADQUARTERS
JOINT TASK FORCE SEVEN
APO 437
San Francisco, California

5 May 1956

ENIWETOK OBSERVED WEATHER FOR 5 MAY 1956
LACROSSE. SHOT TIME 0625Z

Sea Level Pressure	1008.5 mb
Temperature	81°F
Dew Point	77°F
Relative Humidity	84%
Surface Wind	080°, 16 kts
Visibility	More than 10 miles

CLOUDS: 1/10 cumulus, bases 1500 ft, tops 4,000 ft; 1/10 altostratus, bases 18,000 ft, tops 19,000 ft; 5/10 cirrostratus, bases 43,000 ft, tops 44,000 ft. (Cloud bases and tops reported by aircraft)

There were no showers or other precipitation within 50 miles of Eniwetok.

STATE OF SEA: Eniwetok Lagoon: Average of highest 1/3 of waves 1.5 ft. on east side of lagoon increasing to 2.7 ft. on west side of lagoon. Open Sea: Average of highest 1/3 of waves 4.5 to 6 ft., direction 080°.

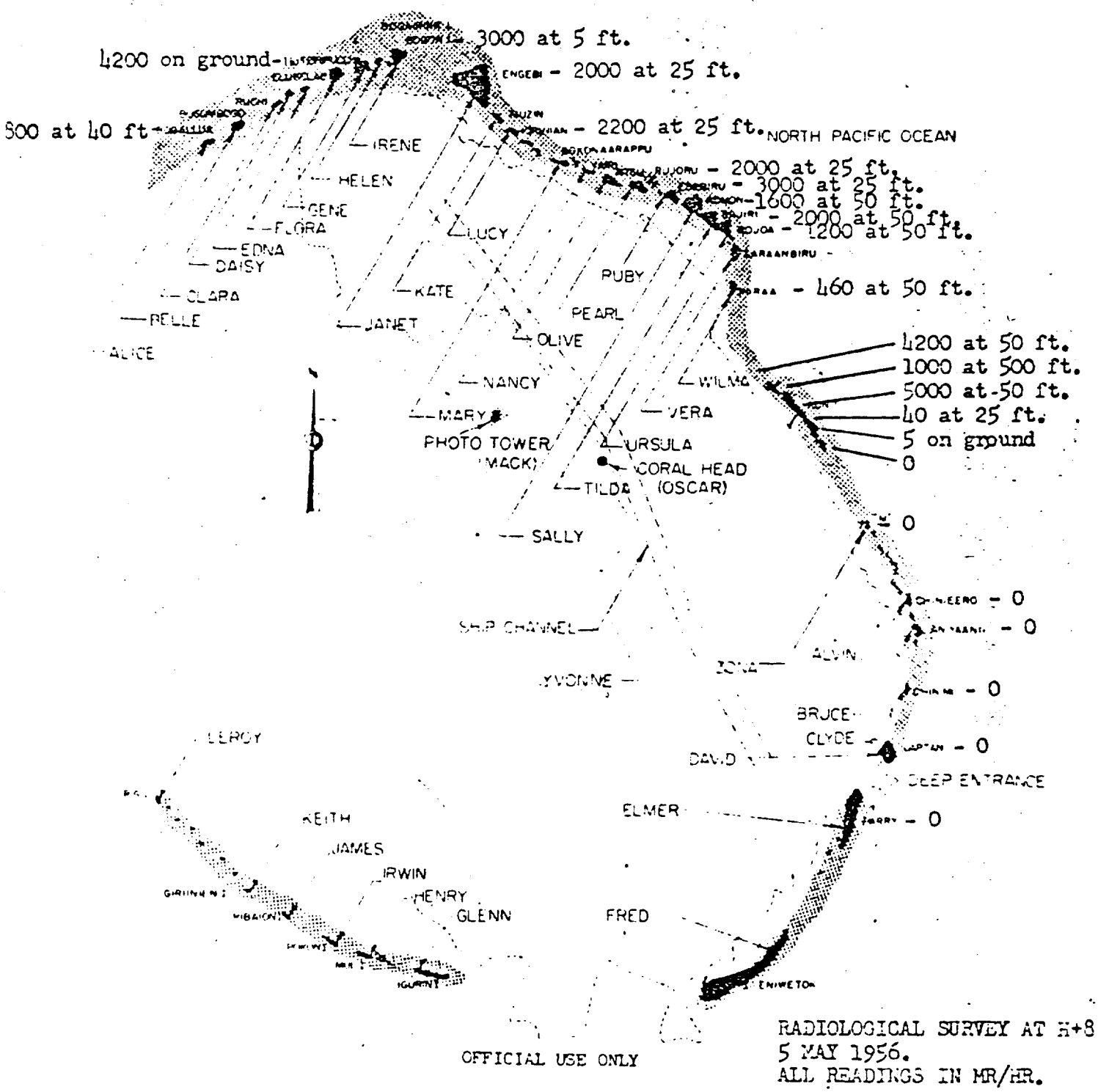
ENIWETOK SOUNDING

Pressure Millibars	Height Feet	Temperature °C	Dew Point °C
1008	Sfc	27.2	23.8
1000	250	26.4	23.4
910		20.2	18.8
850	4,890	18.1	09.2
811		17.3	-02.5
700	10,270	09.5	-12.5
662		06.2	-15.8
611		02.2	-01.8
600	14,400	01.8	-09.8
500	19,140	-09.2	-12.2
445		-13.2	-29.2
400	24,720	-17.5	M
345		-26.2	-39.8
314		-30.8	-36.8
300	31,580	-33.2	-39.2
270		-38.5	-44.2

Pressure Millibars	Height Feet	Temperature °C	Dew Point °C
200	40,530	-55.0	M
150	46,360	-69.8	M
104		-80.0	M
100	53,960	-79.2	M
078		-76.0	M
066		-70.0	M
059		-71.0	M
050	67,390	-64.6	M
014		-47.0	

ENIWETOK WINDS ALOFT

Height Feet	Direction Degrees	Speed Knots	Height Feet	Direction Degrees	Speed Knots
Surface	080	15	25,000	260	24
1,000	100	24	30,000	240	37
2,000	110	24	35,000	260	52
3,000	110	24	40,000	260	60
4,000	110	25	45,000	240	59
5,000	110	29	50,000	240	61
6,000	100	30	55,000	280	39
7,000	100	28	60,000	130	8
8,000	090	23	65,000	130	13
9,000	090	20	70,000	080	10
10,000	100	20	75,000	110	28
12,000	100	11	80,000	090	42
14,000	110	5	85,000	100	56
16,000	150	4	90,000	100	63
18,000	230	4	94,000	100	57
20,000	240	13			


4200 on ground-
800 at 40 ft
3000 at 5 ft.
- 2000 at 25 ft.
- 2200 at 25 ft.
NORTH PACIFIC OCEAN
- 2000 at 25 ft.
- 3000 at 25 ft.
-1600 at 50 ft.
- 2000 at 50 ft.
-1200 at 50 ft.
- 460 at 50 ft.
4200 at 50 ft.
1000 at 500 ft.
5000 at 50 ft.
40 at 25 ft.
5 on ground
0
IRENE
HELEN
GENE
FLORA
EDNA
DAISY
CLARA
BELLE
ALICE
JANET
KATE
LUCY
PEARL
RUBY
OLIVE
NANCY
MARY
PHOTO TOWER
(MACK)
VERA
URSULA
CORAL HEAD
(OSCAR)
TILDA
SALLY
WILMA
SHIP CHANNEL
YVONNE
ZONA
ALVIN
BRUCE
CLYDE
DAVID
DEEP ENTRANCE
ELMER
LEROY
KEITH
JAMES
IRWIN
HENRY
GLENN
FRED
OFFICIAL USE ONLY
RADIOLOGICAL SURVEY AT H+8 HOU
5 MAY 1956.
ALL READINGS IN MR/HR.

TAB F

INDEX

TAB

TAB A

CHEROKEE EVENT

OPERATION REDWING

1. CHEROKEE was detonated over NAMU Island (CHARLIE) of BIKINI Atoll at 0551M, 21 May 1956. The estimated burst altitude was 5,000 feet. The cloud reached an estimated height of 80,000 feet with the lower portion moving to the Northwest and upper and main portion moving generally to the East-Northeast at approximately 10 knots. Early reports on cloud height and initial cloud movement were provided by cloud penetration and sampler aircraft. All reports gave low intensities and confirmed the forecast cloud trajectories. As expected, the radiation exposure of the aircraft crews was relatively low.

2. ZEBRA and ZEBRA I P2V radiation reconnaissance aircraft were placed in holding patterns so located and oriented as to intercept any cloud segments moving toward ENIWETOK or the task force fleet. (See TAB I for ZEBRA and ZEBRA I holding patterns.)

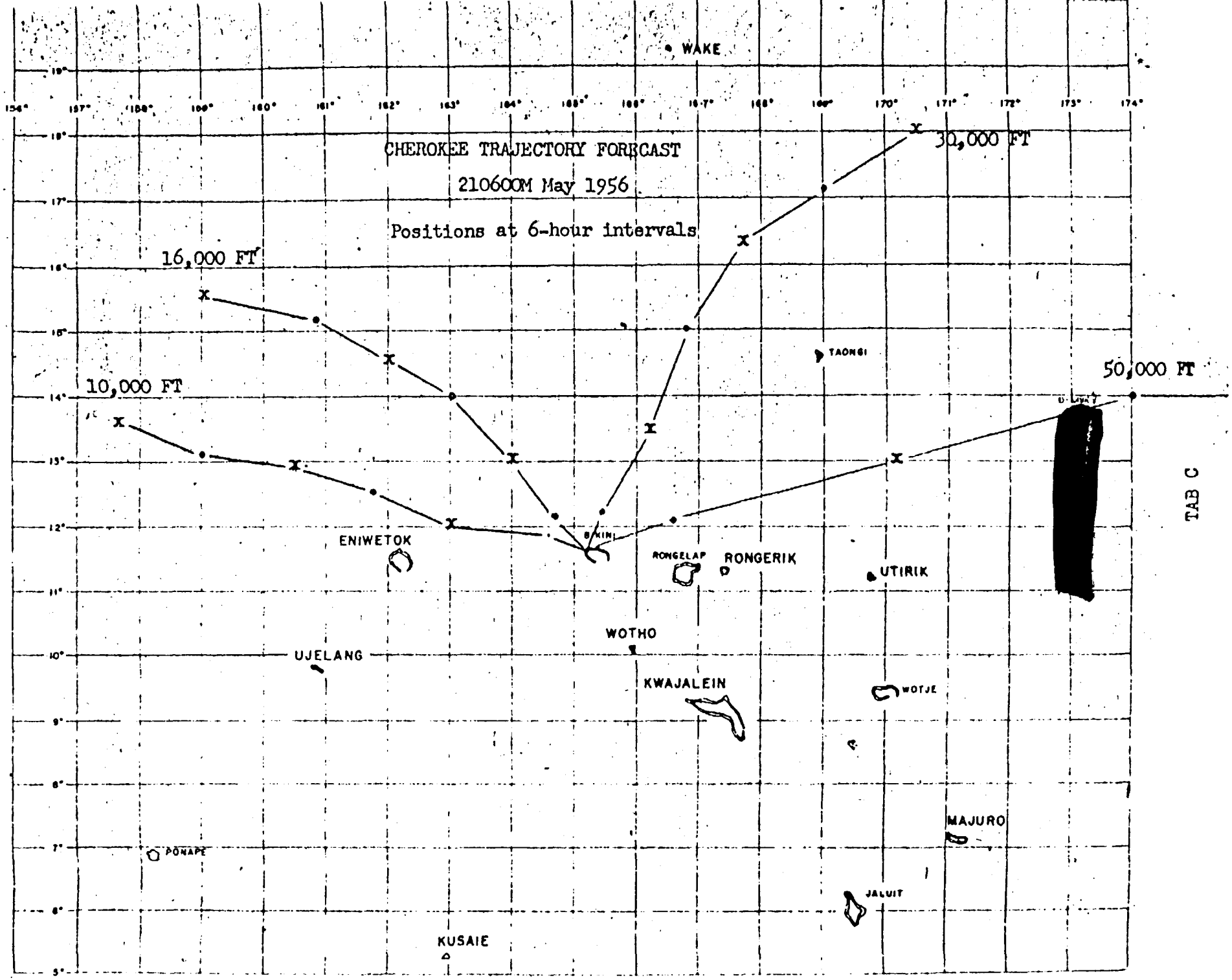
3. WILSON I (WB-50 cloud tracker) conducted a search beginning at H+6 hours in a 30° sector, true bearing 060° through 090° with apex on RONGERIK, and extending 300 miles to the East. (See TAB G.) Two contacts were made, in each case, the intensities were less than 10 mr/hr. WILSON II search shown in TAB G encountered no significant radiation.

4. The initial helicopter radiation survey showed radiation readings on the islands of BIKINI Atoll to be negligible. Based on the initial surveys, reentry hour was estimated as 1000M, 21 May (H+4 hours). All RADEX notices were withdrawn by H+12 hours.

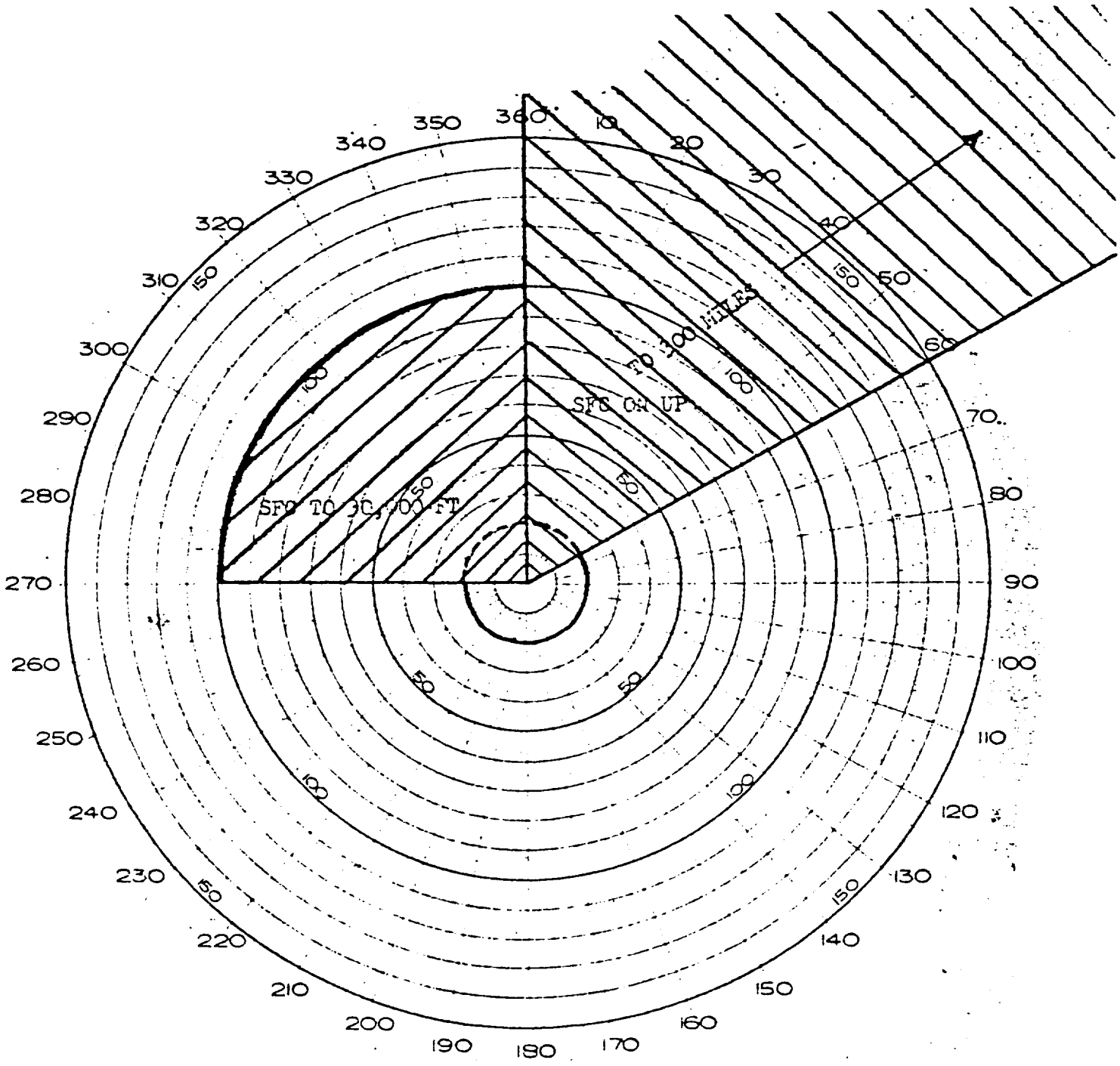
5. The Off-Atoll Monitoring Stations (TAB G) reported all intensities no higher than background through CHEROKEE plus three days.

6. The fallout forecast for CHEROKEE (TAB B) was based on the assumption that the fission yield would approach [redacted] and that fuse malfunction would result in a surface burst of the weapon. Safety considerations dictated the use of these two assumptions. Actually, the most probable pattern was expected to be less than 1/1000 of the predicted pattern. The measured fallout as indicated previously was negligible.

Page TAB B Deleted

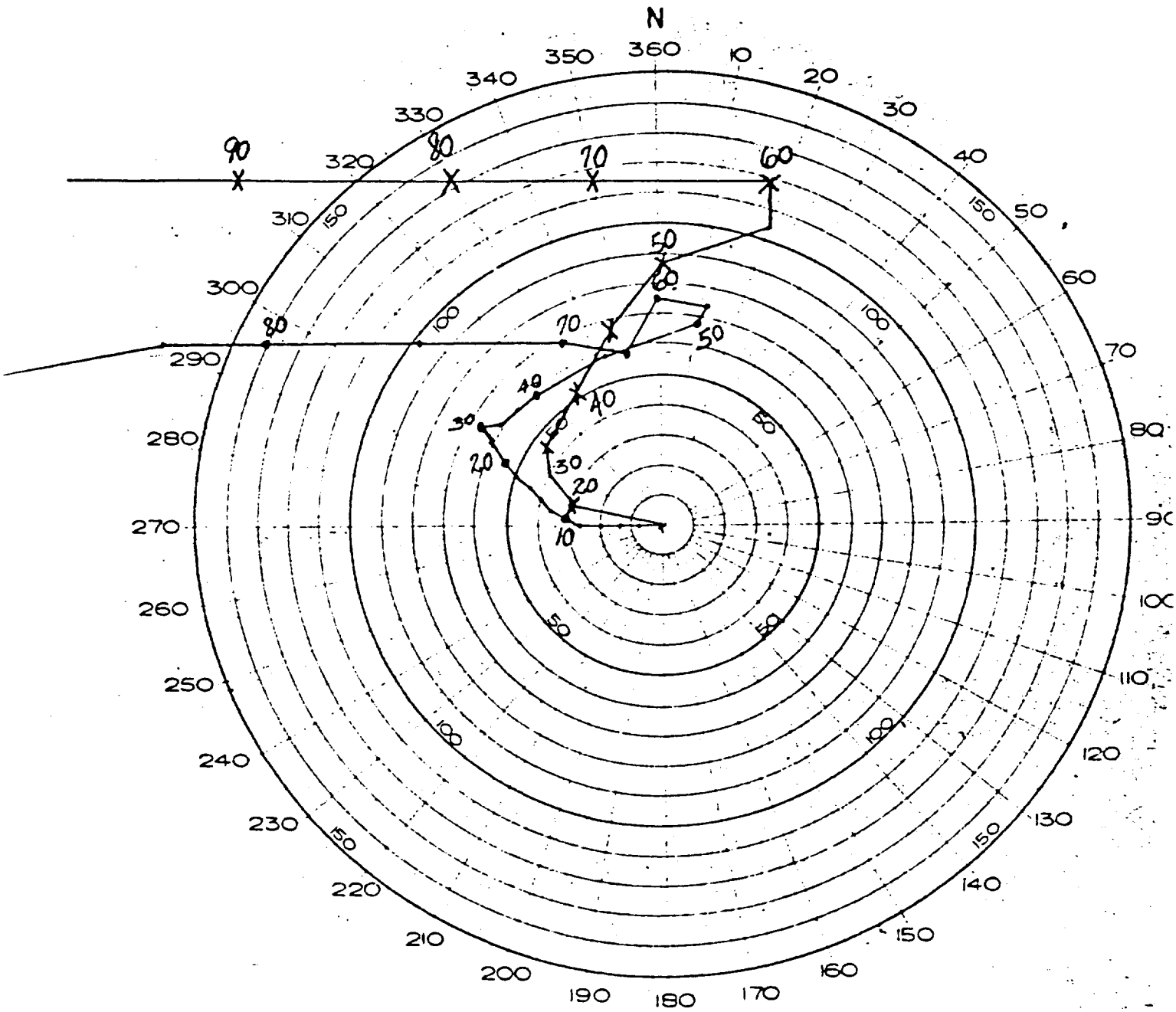

WAKE
CHEROKEE TRAJECTORY FORECAST
210600M May 1956
Positions at 6-hour intervals
30,000 FT
16,000 FT
10,000 FT
50,000 FT
TAONGI
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE

TAB C



AIR & SURFACE RADEX - CHEROKEE
(H TO H+6 HRS)

TAB D


N
360
10
20
30
40
50
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70
80
90
100
110
120
130
140
150
160
170
180
190
200
210
220
230
240
250
260
270
280
290
300
310
320
330
340
350
OBSERVED FOR 210600M May 56
FORECAST FOR 210600M May 56
(Made 210100M)

TAB E

HEADQUARTERS
JOINT TASK FORCE SEVEN
APO 437
San Francisco, California

21 May 1956

BIKINI OBSERVED WEATHER FOR 21 MAY 1956
CHEROKEE. DETONATION TIME 0551M

Sea Level Pressure	1009.6 mb
Temperature	81°F
Dew Point	73°F
Relative Humidity	76%
Surface Wind	140°, 10 kts
Visibility	More than 10 miles

CLOUDS: 2/10 cumulus, bases 1800 ft, tops 2500 ft; 2/10 cirrus at 38,000 ft.

WEATHER: Very widely scattered showers. There were three showers in the vicinity of the atoll at shot time: one very light shower just to the south of TARE; one light shower, which was dissipating, near BRAVO; and a light shower east of NAN.

STATE OF SEA: Bikini Lagoon: Average of highest 1/3 of waves; 3.0 ft. at anchorage, 2.5 ft. near Namu. The predominant direction of waves at anchorage was 135°; near Namu, 100°. Open Sea: Average of highest 1/3 of waves; 4.0 ft. The predominant direction of waves in open sea was 100°.

BIKINI SOUNDING

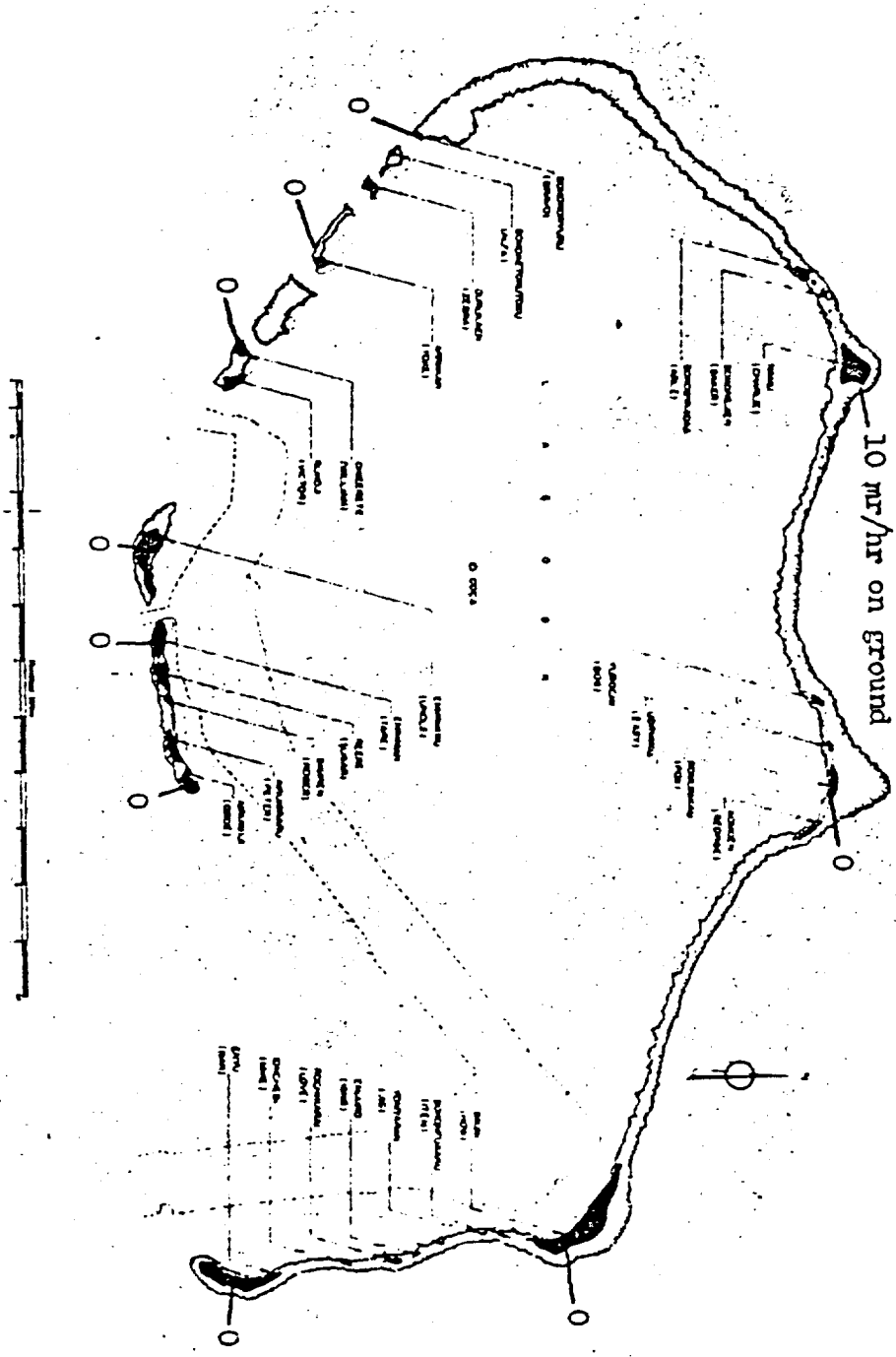
Pressure Millibars	Height Feet	Temperature °C	Dew Point °C
1009	Sfc	27.2	22.2
1000	320	26.5	22.5
916		18.5	17.5
850	4,930	15.5	10.8
835		15.2	09.5
823		13.5	13.5
772		10.5	10.2
716		06.2	02.2
710		07.2	03.5
700	10,230	07.2	03.5
500	19,080	-07.8	-10.2
453		-10.2	-14.5

ENIWETOK SOUNDING (continued)

Pressure Millibars	Height Feet	Temperature °C	Dew Point °C
400	24,700	-17.2	-20.8
300	31,530	-33.8	-42.2
266		-40.2	-48.8
250	35,630	-43.9	M
200	40,380	-56.1	M
150	46,210	-67.9	M
106		-81.0	M
100	53,910	-80.9	M
080		-80.0	M

BIKINI WINDS ALOFT

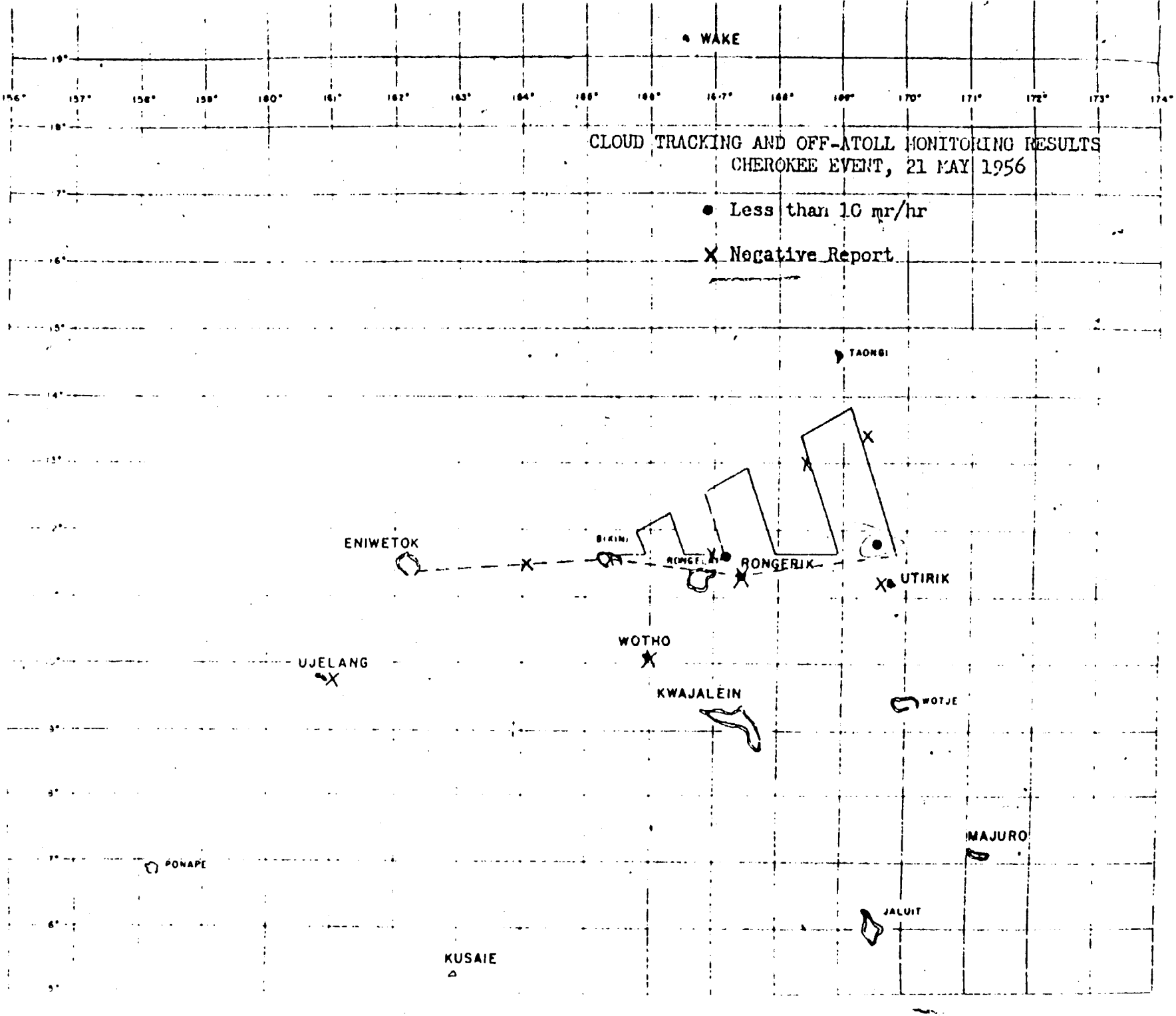
Height Feet	Direction Degrees	Speed Knots	Height Feet	Direction Degrees	Speed Knots
Surface	140	10	25,000	150	09
1,000	100	17	30,000	140	06
2,000	090	20	35,000	260	06
3,000	090	20	40,000	230	15
4,000	090	21	45,000	240	26
5,000	090	18	50,000	250	32
6,000	090	14	55,000	210	07
7,000	090	14	60,000	100	17
8,000	090	13	65,000	030	20
9,000	100	11	70,000	100	22
10,000	120	11	75,000	090	47
12,000	120	12	80,000	090	50
14,000	140	14	85,000	080	55
16,000	140	15	90,000	080	61
18,000	130	15	95,000	090	74
20,000	140	18	100,000	090	81



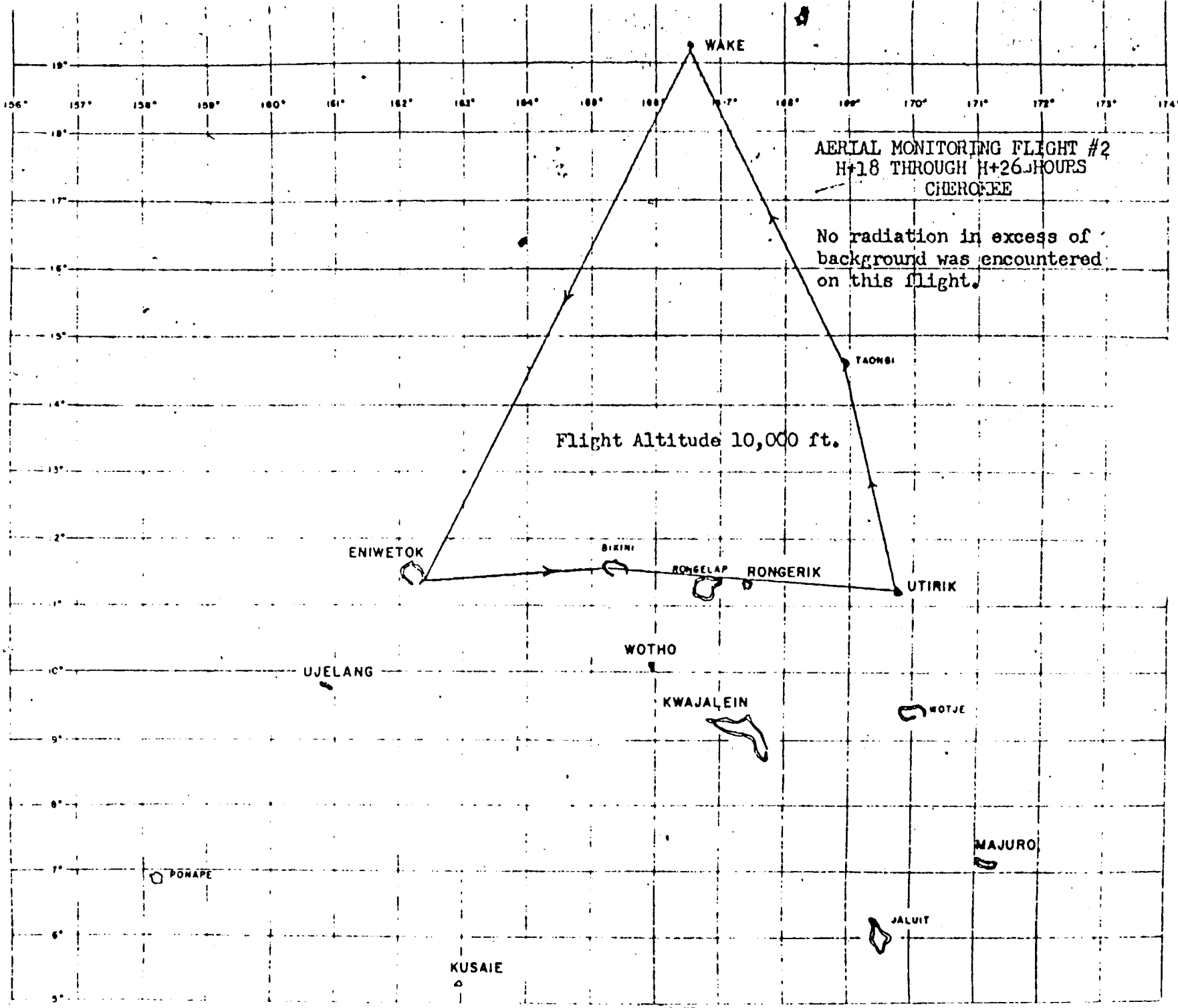
MAP OF BIKINI ATOLL

INITIAL RADIOLOGICAL SURVEY
MADE AT H+3 HRS, 21 MAY 1956

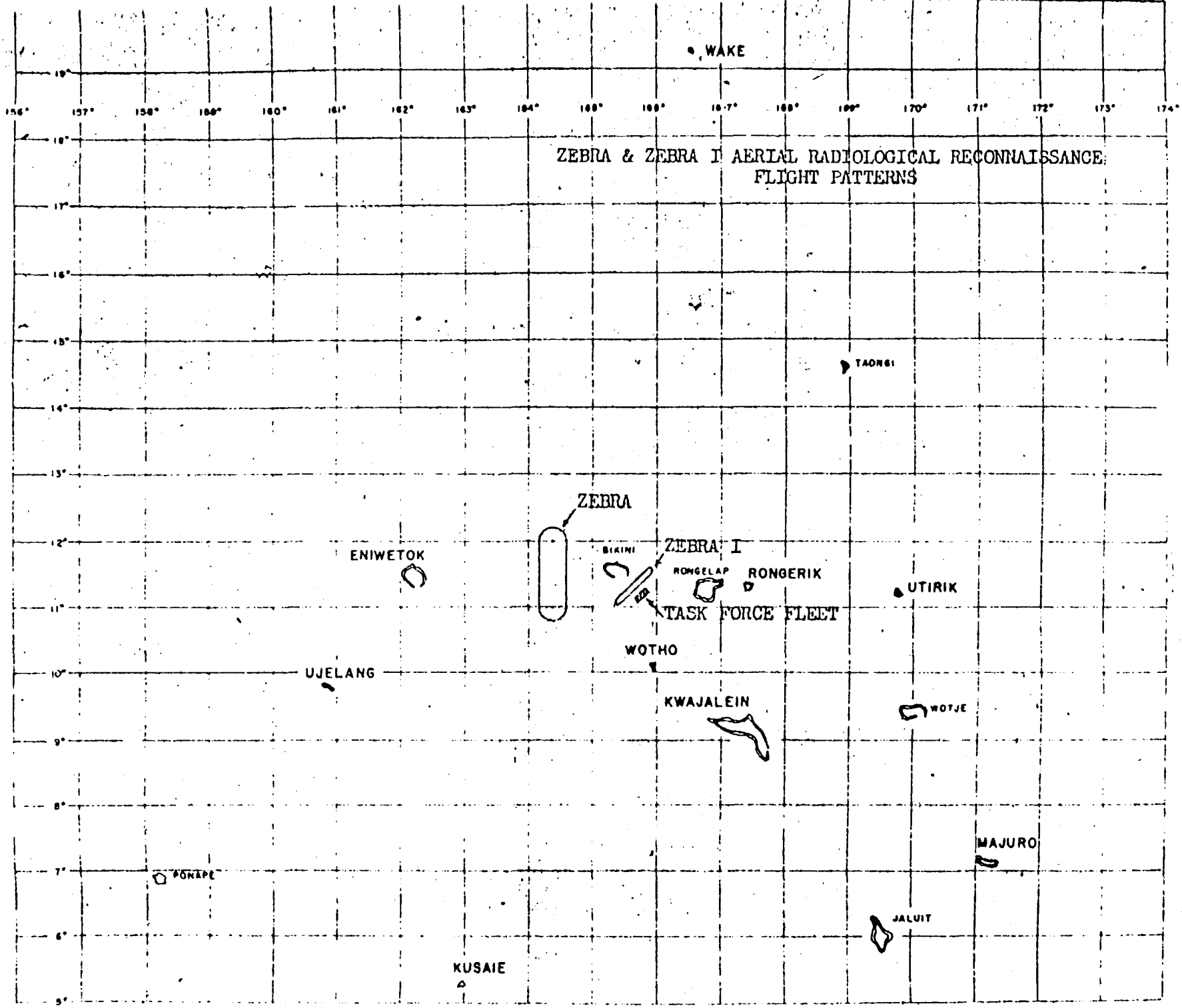
TAB F


WAKE
CLOUD TRACKING AND OFF-ATOLL MONITORING RESULTS
CHEROKEE EVENT, 21 MAY 1956
Less than 10 mr/hr
Negative Report
TAONGI
ENIWETOK
BIKINI
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE

TAB G


WAKE
AERIAL MONITORING FLIGHT #2
H+18 THROUGH H+26 HOURS
CHEROKEE
No radiation in excess of background was encountered on this flight.
TAONGI
Flight Altitude 10,000 ft.
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE

TAB H


WAKE
ZEBRA & ZEBRA I AERIAL RADIOLOGICAL RECONNAISSANCE
FLIGHT PATTERNS
TAONGI
ZEBRA
ZEBRA I
BIKINI
ENIWETOK
RONGELAP
RONGERIK
UTIRIK
TASK FORCE FLEET
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE

EX3 I

HEADQUARTERS
JOINT TASK FORCE SEVEN
APO 437
San Francisco, California

28 May 1956

BIKINI OBSERVED WEATHER FOR 28 MAY 1956
ZUNI. DETONATION TIME 0556M

Sea Level Pressure	1010.5 mb
Temperature	81°F
Dew Point	76°F
Relative Humidity	80%
Surface Wind	090°, 12 kts
Visibility	8 Miles

CLOUDS:

Surface observation: (taken aboard USS ESTES)

2/10 Cumulus	2,000 ft
1/10 Altostratus	8,000 ft
5/10 Cirrostratus	35,000 ft

Aircraft observation: (of Bikini Area)

	BASE	TOPS
3 to 4/10 Altocumulus and Altostratus	8,000 ft	12,000 ft
4 to 6/10 Alto stratus	17,000 ft (Thin Layer)	
4/10 Cirrus	25,000 ft	27,000 ft
4 to 7/10 Cirrus and Cirrostratus	35,000 ft	40,000 ft

WEATHER: No shower activity observed either visually or by radar at shot time.

STATE OF SEA: Open sea; wave heights 6 feet; Period 6 seconds. Direction 070°. Sea water temperature, 83°F.

RD Status Removed. Auth: DF, J-2 Div, 31 May 56
Subj: Downgrading of Document"

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NO 92 OF 100 COPIES, SERIES A

HQ JTF SEVEN LOG NR:
CRD-292-56E

INDEX

TAB A

ZUNI EVENT

OPERATION REDWING

1. The atomic device, ZUNI, was fired at 0656M, 28 May 1956. The shot location was at the surface on the western tip of ENIWAN Island (TARE) of BIKINI Atoll. The cloud reached an estimated 80,000 feet. Cloud penetration and sampler aircraft reports at H+30 minutes indicated that the general cloud movement was to the North at 15 knots. The lower portion of the stem moved at approximately 15 knots to the West.

At H+3 hours P2V reconnaissance aircraft intercepted the lower cloud 70 miles West of BIKINI at 12,000 feet. Cloud penetration aircraft made several penetrations of the visible cloud during the period of H+30 minutes through H+1½ hours with moderate intensities encountered (60 - 100r).

2. The fallout forecast (TAB B) for ZUNI was based on a surface burst of 5-megaton yield. Fission yield was assumed to be on the order of [redacted].

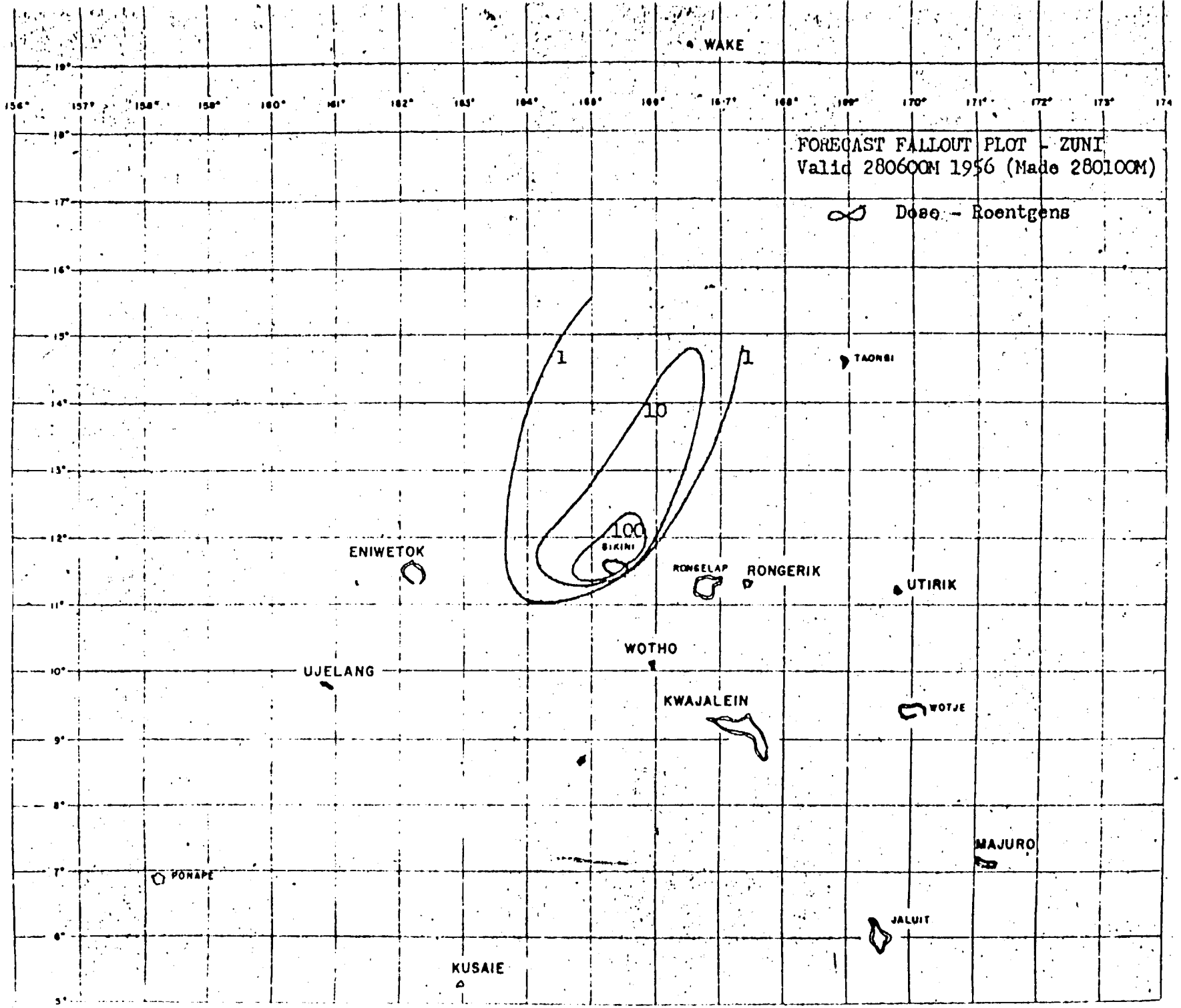
3. ZEBRA I reported background intensities at H+1 hour at a position five miles South of ENYU (NAN). Based on this report ZEBRA I was instructed to make a low altitude survey of ENYU and the anchorage. At H+1½ hours ZEBRA I reported the NAN air strip and the anchorage "clean". The initial helicopter

survey beginning at H+1½ hours confirmed the ZEBRA I reports. Based on the cloud penetration and ZEBRA I aircraft and initial helicopter survey, reentry hour was set for 0900M, 23 May.

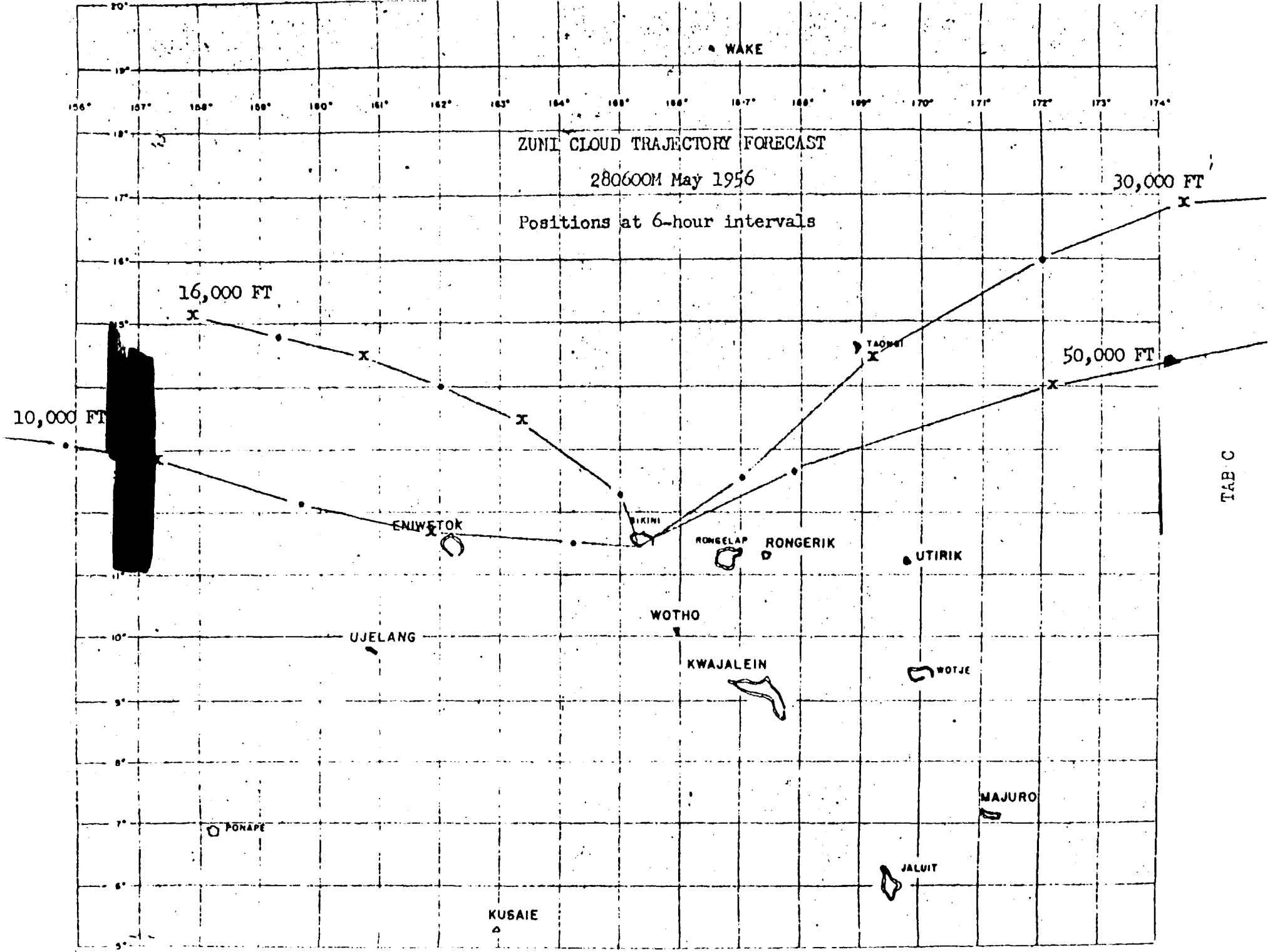
4. WILSON I conducted a search beginning at H+6 hours in a 20° sector, true bearing 075° through 090° with apex on RONGERIK, and extending 300 miles to the East (TAB G). Flight Plan ABLE was flown on D+1 day.

5. The wind pattern for ZUNI maintained the forecast stability and all significant fallout occurred within the danger area. The 30,000 foot level turned in to the Southeast sometime late on shot day. This caused light fallout on islands to the southeast of BIKINI. Most stations reported intensities of three or four times background by the end of the D+1 Day. BIKINI experienced light fallout on D+1 Day with average intensities on the order of five mr/hr. ENIWETOK received very light fallout on D+1 Day.

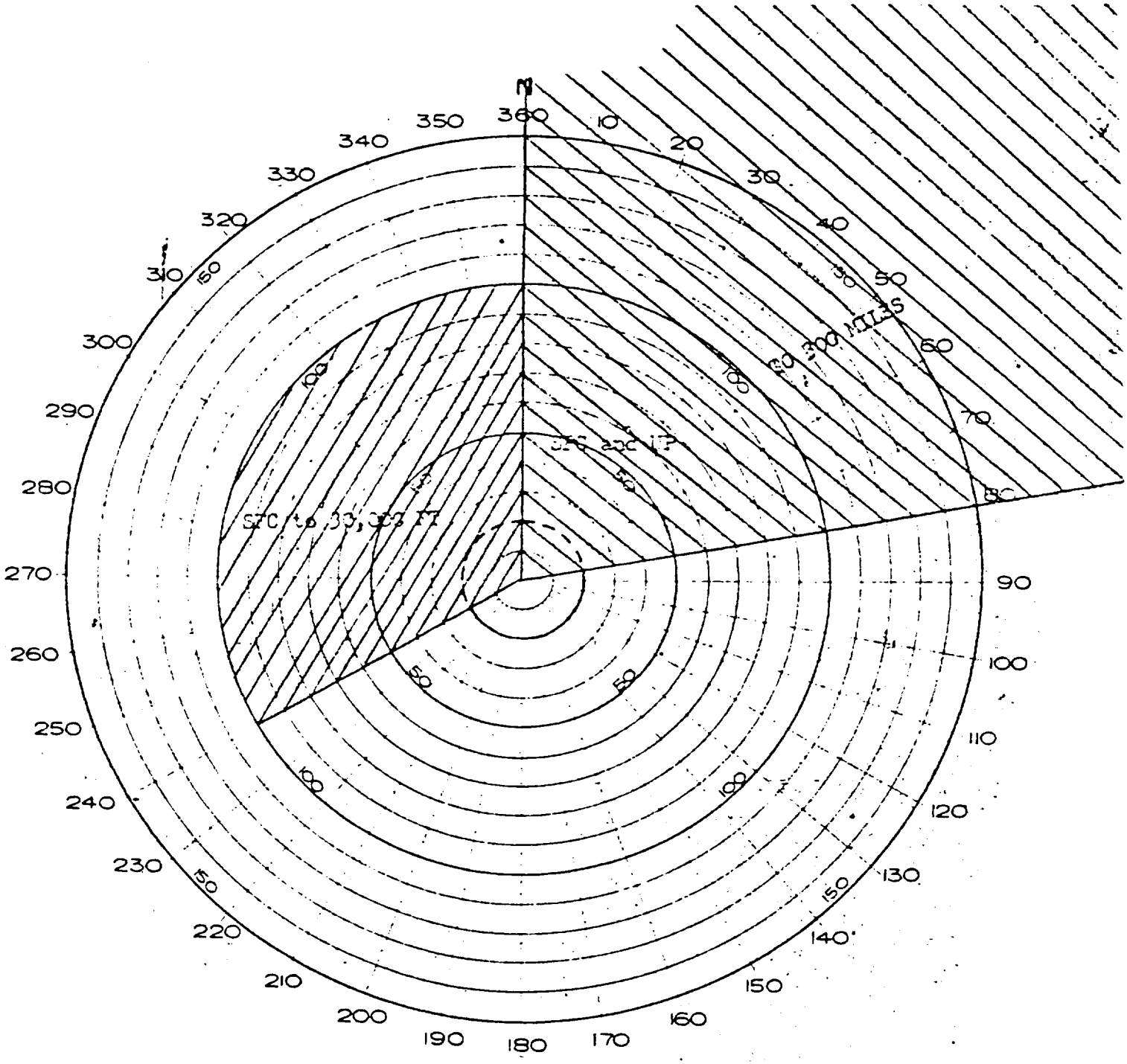
6. RONGERIK reported four mr/hr at 1600M on D+2. The RONGERIK station continued to report increasing intensities through 1800M, D+1 when a peak of 13 mr/hr was reached.


WAKE
FORECAST FALLOUT PLOT - ZUNI
Valid 280600M 1956 (Made 280100M)
Dose - Roentgens
1
1
10
100
BIKINI
TAONSI
ENIWETOK
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE

TAB B

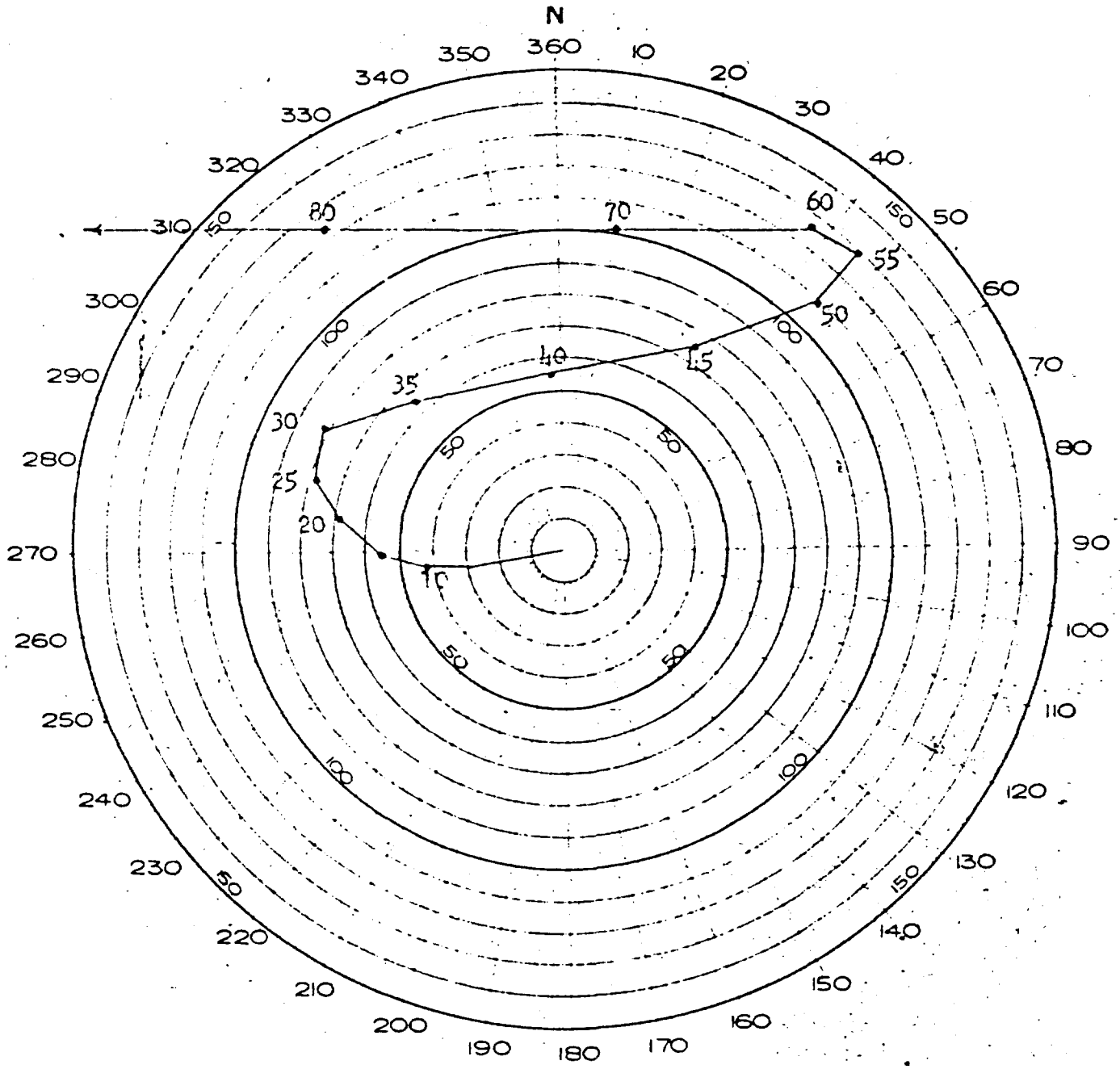

WAKE
ZUNI CLOUD TRAJECTORY FORECAST
280600M May 1956
Positions at 6-hour intervals
30,000 FT
16,000 FT
50,000 FT
10,000 FT
TAONGI
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE

TAB C



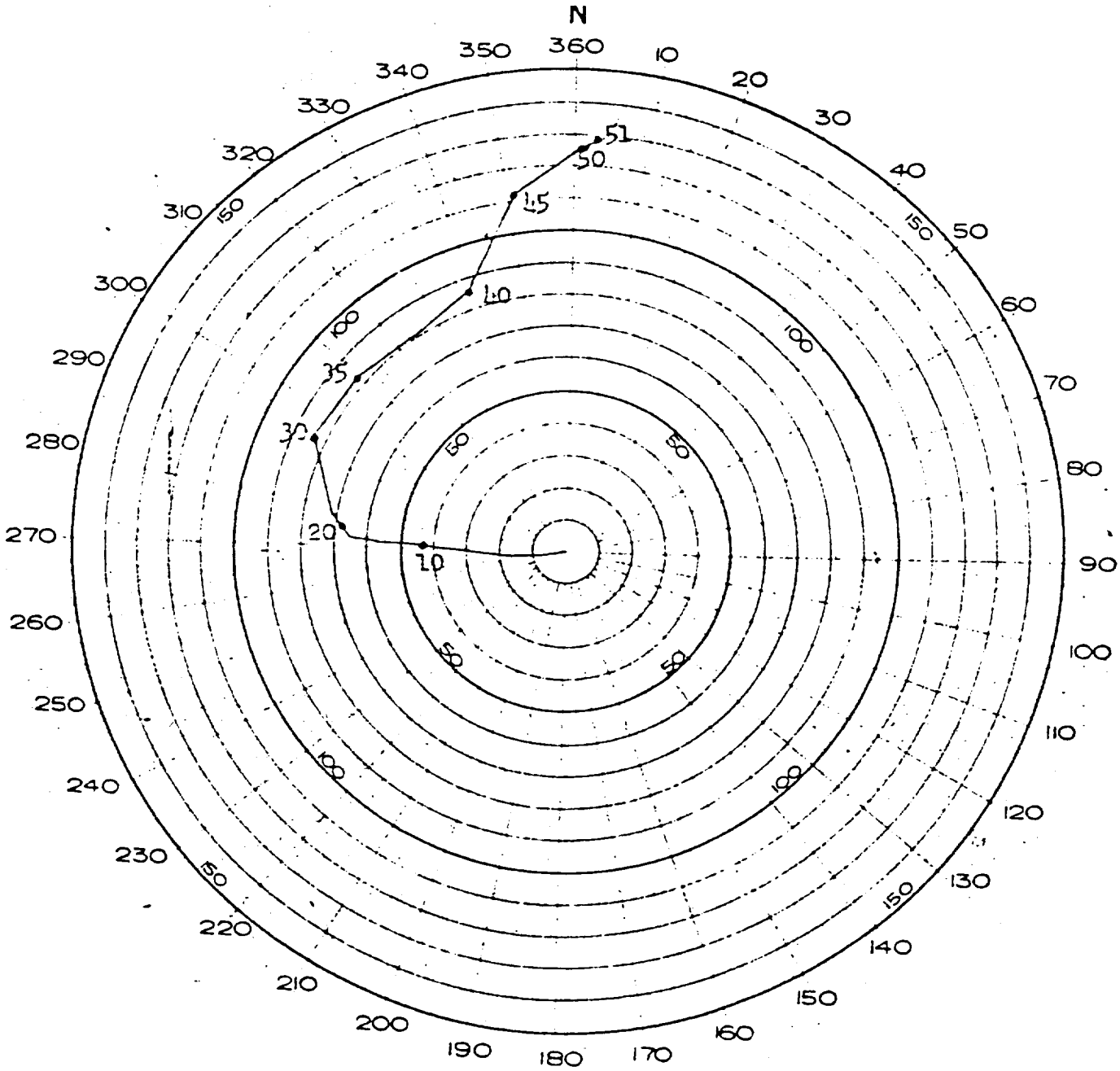
AIR & SURFACE RADEX - ZUNI
(H TO H+6 HRS)

TAB D



FORECAST FOR 280600M May 1956 (ZUNI)
(Made 280100M)

TAB E



OBSERVED WINDS FOR 28060GM May 1956
(ZUNI)

TAB E

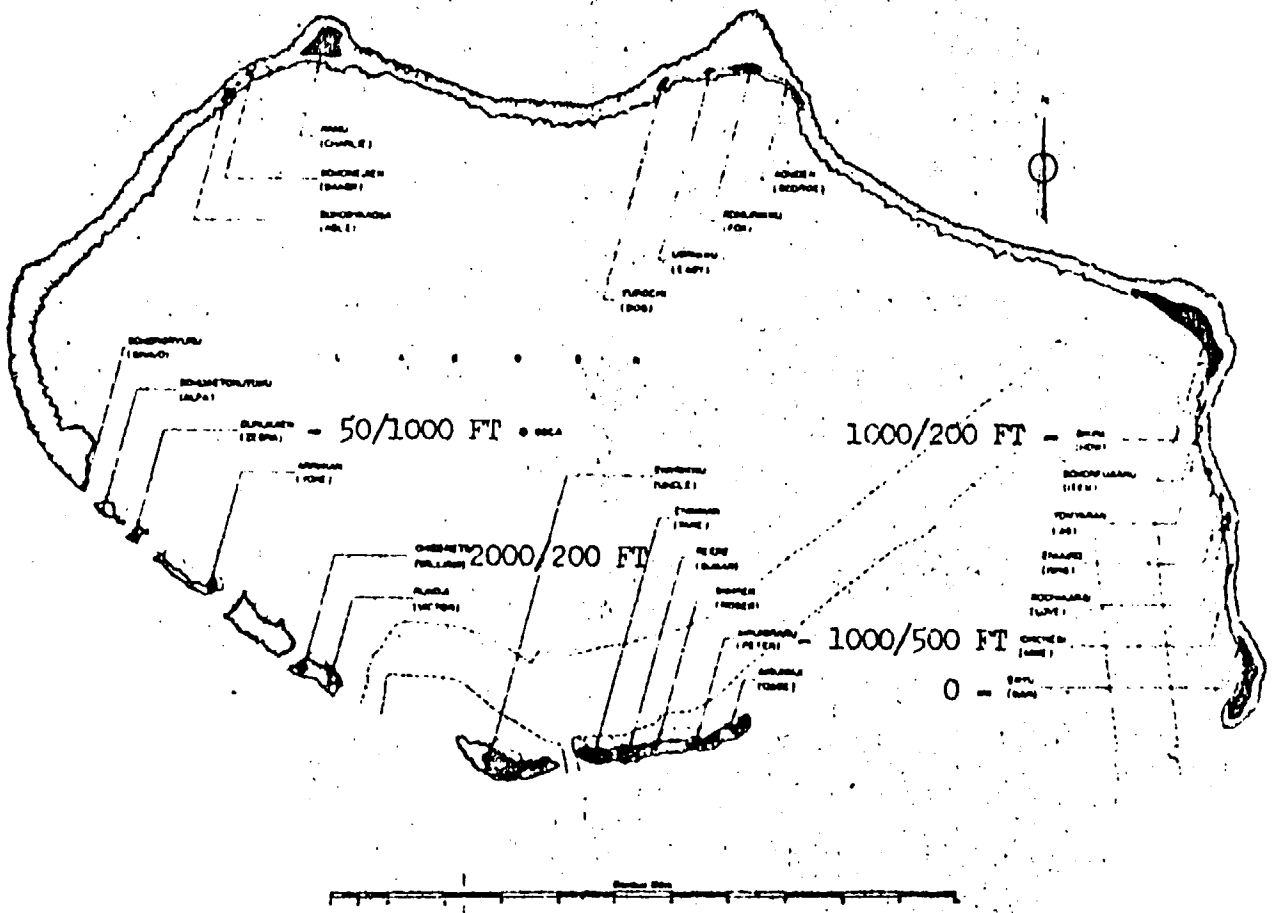
BIKINI SOUNDING

Pressure Millibars	Height Feet	Temperature °C	Dew Point °C
1000	310	27.2	22.8
894	3,543	19.5	15.2
850	4,950	17.8	08.8
784	7,251	15.2	-04.5
773	7,644	14.2	00.2
738	8,924	12.5	-09.5
716	9,711	09.5	02.2
704	10,171	10.2	-14.5
700	10,340	09.8	M
618	13,747	05.5	-17.5
538	17,356	-04.2	-13.5
526	17,946	-04.8	-22.8
500	19,260	-07.0	-19.0
400	24,880	-17.5	-28.2
358	27,526	-22.2	-34.8
300	31,580	-32.8	-42.2
267	34,285	-38.8	-48.2
250	35,700	-42.7	M
200	40,510	-54.1	M
150	46,340	-69.8	M
116	51,214	-79.0	M
100	54,010	-80.4	M
94	55,151	-81.0	M

BIKINI WINDS ALOFT

Height Feet	Direction Degrees	Speed Knots	Height Feet	Direction Degrees	Speed Knots
1,000	080	23	20,000	140	10
2,000	070	22	22,000	140	12
3,000	070	24	24,000	160	15
4,000	090	24	26,000	170	18
5,000	090	21	28,000	160	14
6,000	100	19	30,000	170	12
7,000	100	19	32,000	210	27
8,000	100	19	34,000	220	21
9,000	100	19	36,000	230	29
10,000	100	20	38,000	230	38
12,000	090	21	40,000	220	40
14,000	090	15	45,000	210	35
16,000	110	10	50,000	240	25
18,000	100	10	51,000	250	25

MAP OF BIKINI ATOLL



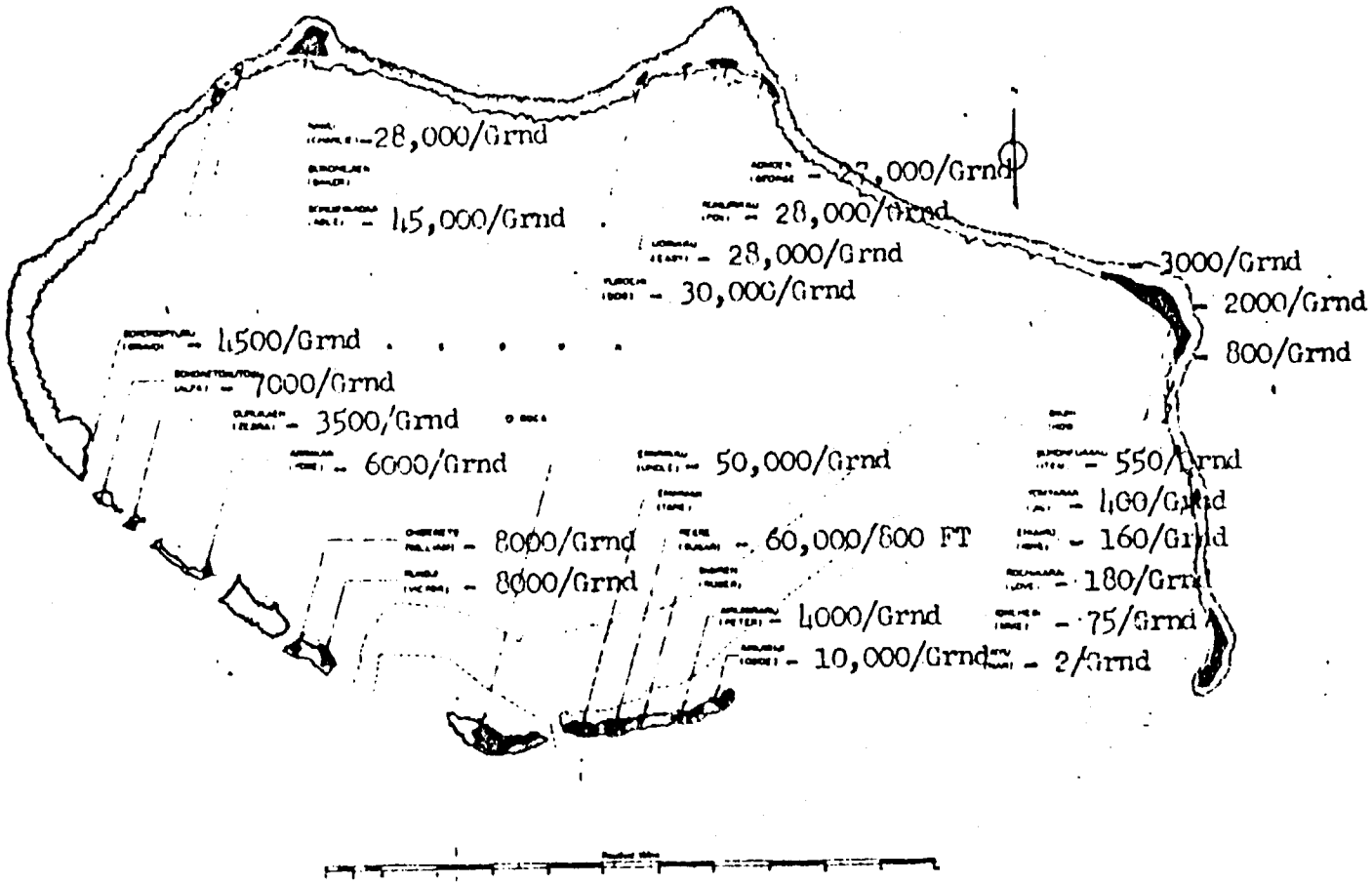
INITIAL RADIOLOGICAL SURVEY
MADE AT H+3 HRS, 28 MAY 1956

(Readings in mr/hr)

TAB F

1

MAP OF BIKINI ATOLL



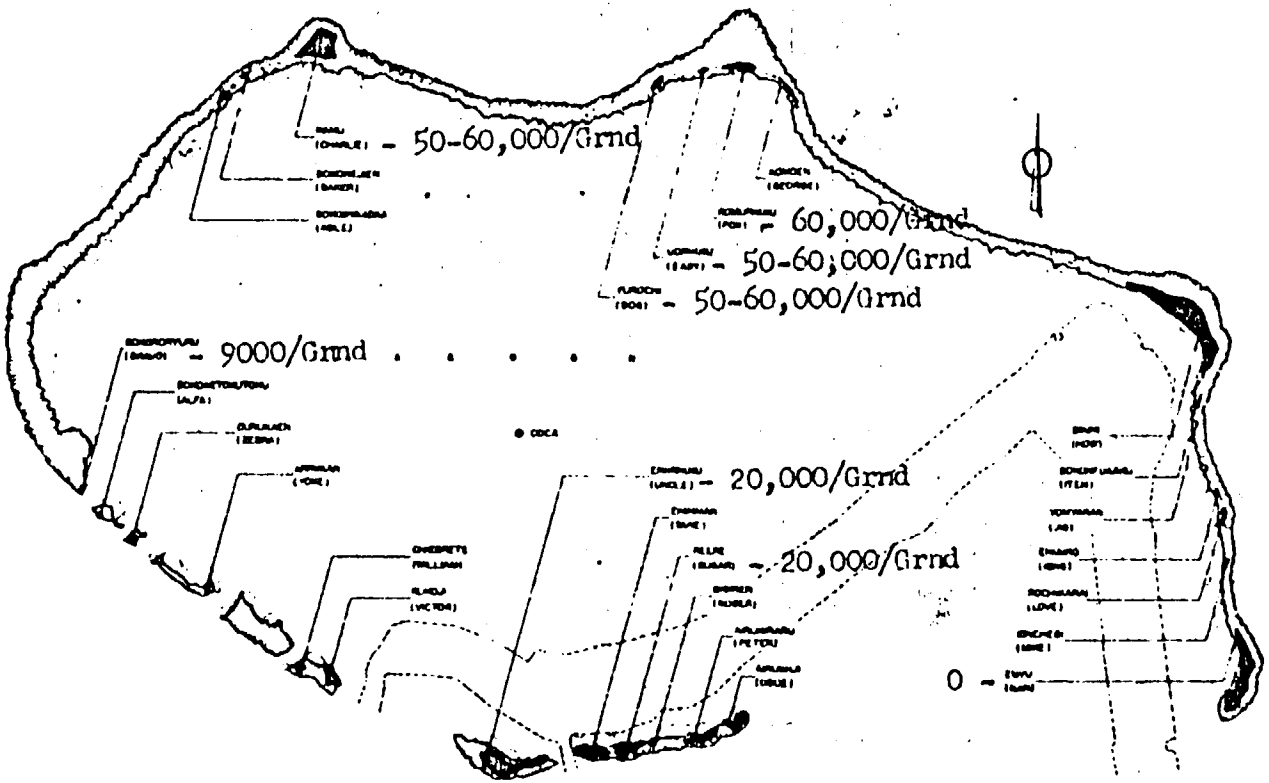
RADIOLOGICAL SURVEY MADE AT
H+6 HRS, 28 MAY 56

(Readings in mr/hr)

TAB F

2

MAP OF BIKINI ATOLL



RADIOLOGICAL SURVEY MADE AT
H+8 HRS, 28 MAY 56

(Readings in mr/hr)

TAB F

RAD LOG Page 1 of 1 pages
JGT JR
4-17-56

RADIATION LOG RONGERIK Island

INCLUSIVE DATES 5/29-30/56 MONITOR RADSAFE

Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS: (location, special or routine readings, aerial or continuous monitoring checks - message time group
5/29	0800	BODY 254	3.2	
"	1000	"	5.8	
"	1200	"	6.0	0.25 on HASL (10 mr/hr)
"	1630	"	12.0	0.33 on HASL (20 mr/hr)
"	1800	"	13.0	
"	2100	"	12.0	
"	2200	"	12.0	
"	2300	"	12.0	
"	2400	"	12.0	
5/30	0600	"	10.0	0.33 on HASL (20 mr/hr)
"	1200	"	9.0	0.30 on HASL (15 mr/hr)
"	1800	"	8.0	0.30 on HASL (15 mr/hr)
"	2400	"	8.0	0.28 on HASL (12 mr/hr)

RAD LOG
JGT JR
4-17-56

RADIATION LOG UJELANG Island

INCLUSIVE DATES 5/29-30/56 MONITOR MILLS

Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS: (location, special or routine readings, aerial or continuous monitoring checks-message time group
5/29	1200	#1	0.01	
"	1830	"	0.10	
"	2045	"	0.12	
"	2145	"	0.10	
"	2240	"	0.12	
"	2300	"	0.12	
5/30	0745	"	0.25	
"	1200	"	0.24	

RAD LOG
JGT JR
4-17-56

RADIATION LOG UTIRIK Island

INCLUSIVE DATES 5/29-30/56 MONITOR CHADWICK

Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS: (location, special or routine readings, aerial or continuous monitoring checks-message time group
5/29	1202	#1	0.03	
"	1800	"	0.03	
"	2200	"	0.03	
"	2300	"	0.03	
"	2400	"	0.03	
5/30	0600	"	0.03	
"	1200	"	0.03	
"	1800	"	0.03	
"	2400	"	0.03	

TAB F

RAD LOG
JGT JR
4-17-56

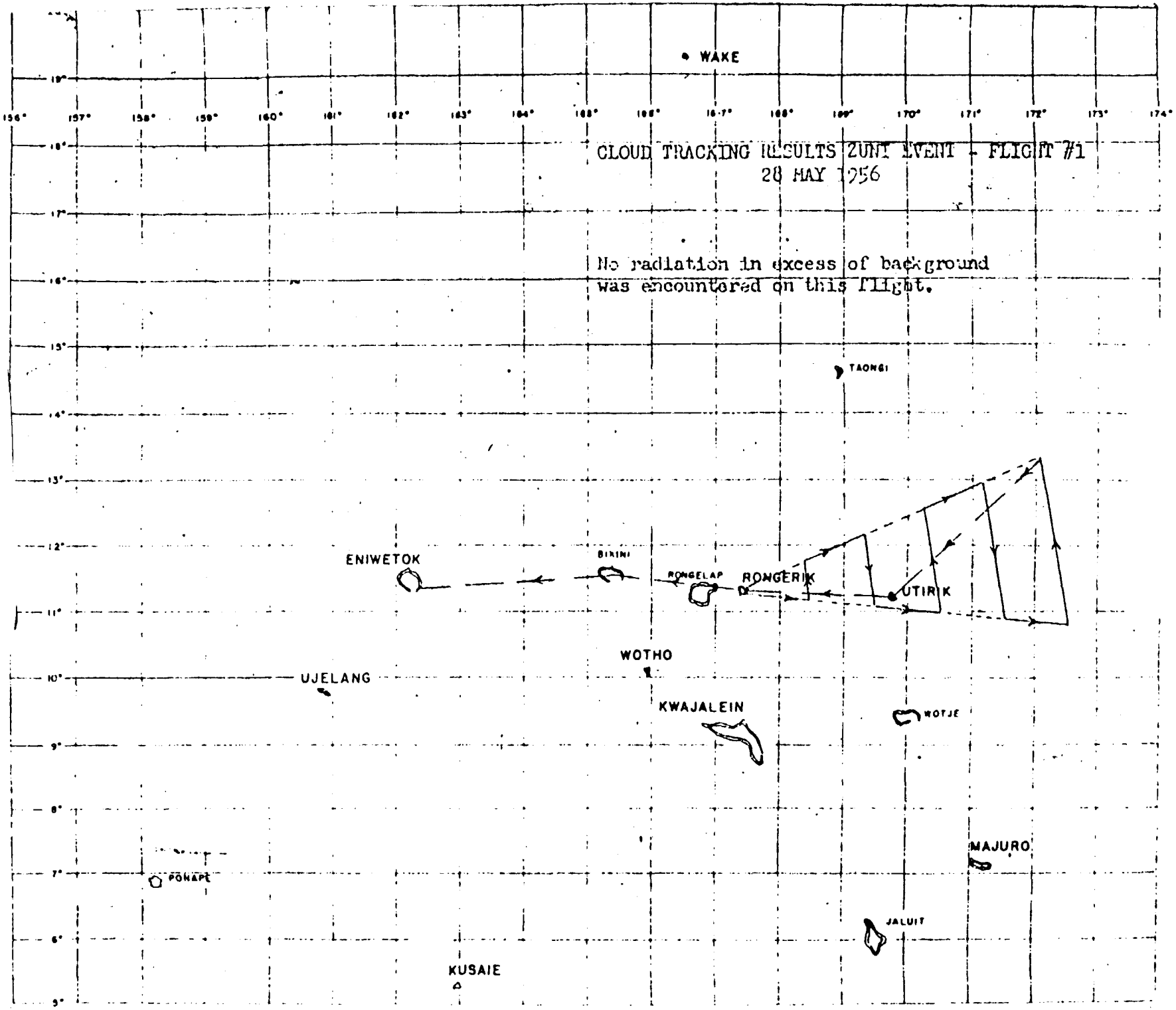
RADIATION LOG WOTHO Island

INCLUSIVE DATES 5/29-30/56 MONITOR ANDERSON

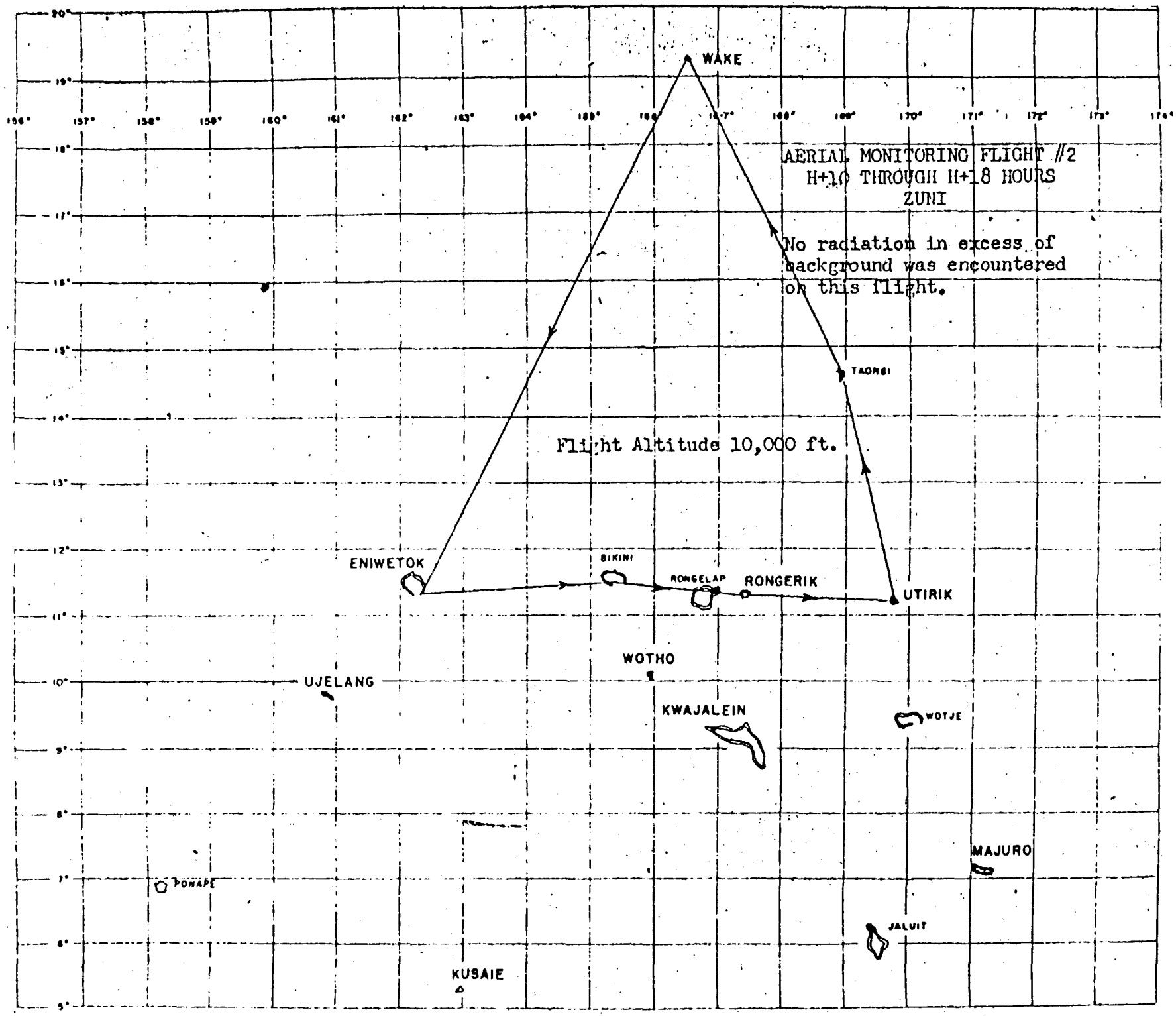
Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS: (location, special or routine readings, aerial or continuous monitoring checks-message time group
5/29	1500	#1	0.1	
"	1815	"	0.3	
"	2100	"	0.7	
"	2205	"	1.2	
"	2300	"	1.7	
"	2400	"	2.1	
5/30	0130	"	2.8	
"	0300	"	5.0	
"	0400	"	6.0	
"	0500	"	5.0	
"	0700	"	4.5	
"	1200	"	4.5	
"	1800	"	4.5	
"	2400	"	4.0	

TAB F

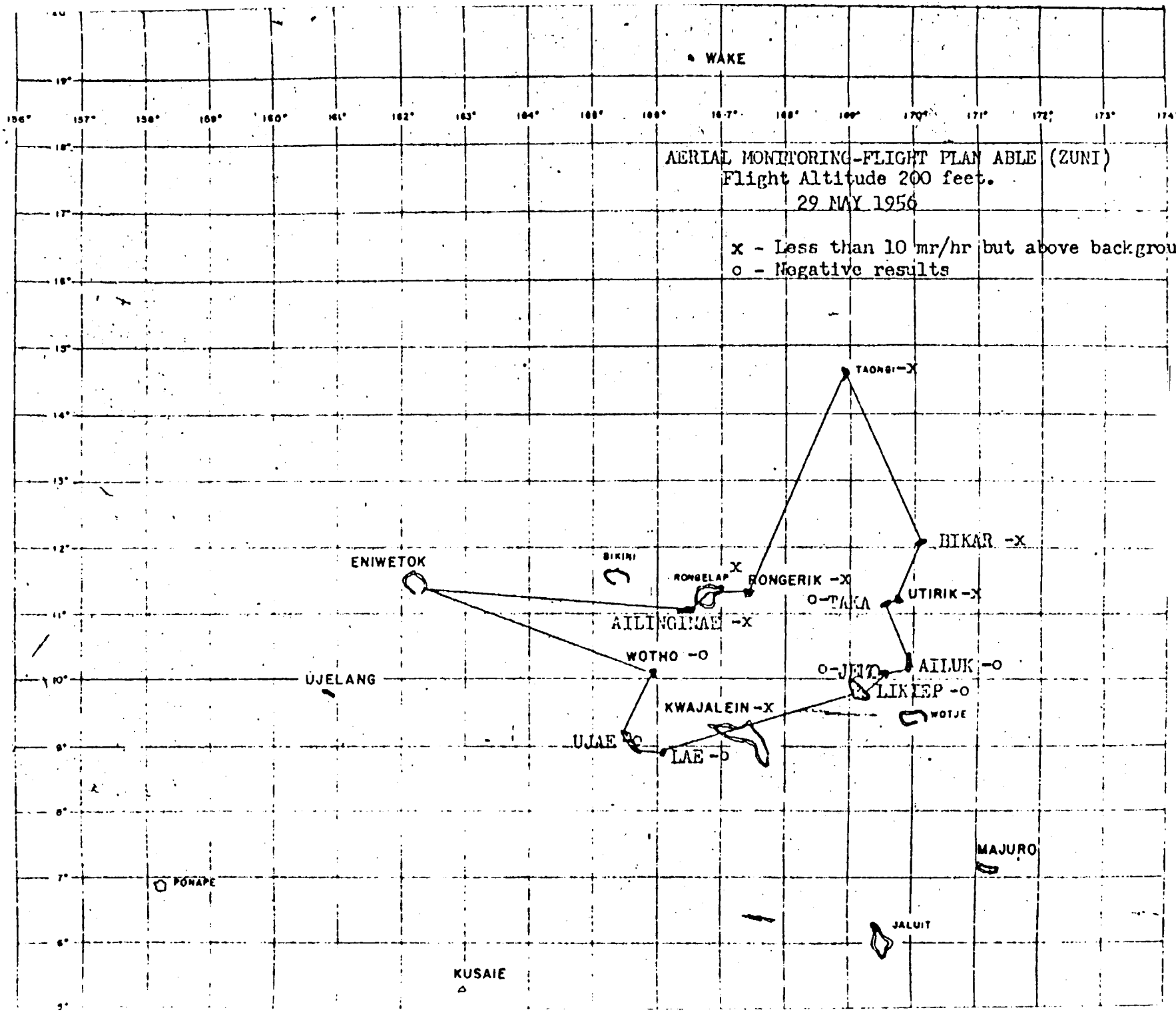
7


WAKE
CLOUD TRACKING RESULTS ZUNI EVENT - FLIGHT #1
28 MAY 1956
No radiation in excess of background
was encountered on this Flight.
TAONGI
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE
156°
157°
158°
159°
160°
161°
162°
163°
164°
165°
166°
167°
168°
169°
170°
171°
172°
173°
174°
19°
18°
17°
16°
15°
14°
13°
12°
11°
10°
9°
8°
7°
6°
5°

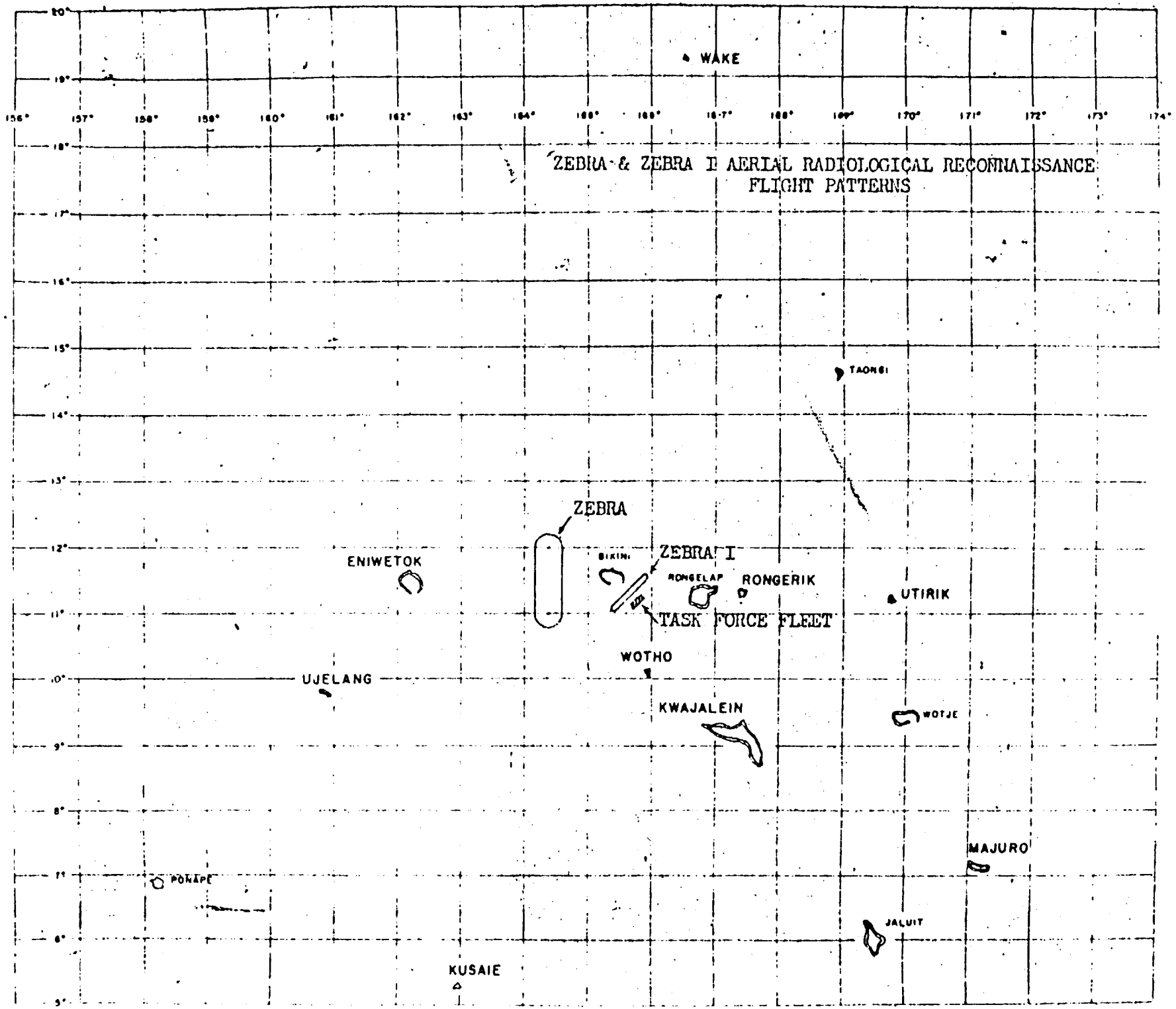
TAB C


WAKE
AERIAL MONITORING FLIGHT #2
H+10 THROUGH H+18 HOURS
ZUNI
No radiation in excess of background was encountered on this flight.
TAONGI
Flight Altitude 10,000 ft.
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE

TAB H


WAKE
AERIAL MONITORING-FLIGHT PLAN ABLE (ZUNI)
Flight Altitude 200 feet.
29 MAY 1956
x - Less than 10 mr/hr but above background
o - Negative results
TAONGI -X
BIKAR -X
ENIWETOK
BIKINI
RONGELAP
X
RONGERIK -X
UTIRIK -X
AILINGINAE -X
WOTHO -O
UJELANG
AILUK -O
LIKIEP -O
KWAJALEIN -X
WOTJE
UJAE
LAE -O
MAJURO
PONAPE
JALUIT
KUSAIE

TAB I


WAKE
ZEBRA & ZEBRA I AERIAL RADIOLOGICAL RECONNAISSANCE
FLIGHT PATTERNS
TAONGI
ZEBRA
ZEBRA I
BIKINI
ENIWETOK
RONGELAP
RONGERIK
UTIRIK
TASK FORCE FLEET
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE

TAB J

INDEX

TAB

TAB A

YUMA EVENT

OPERATION REDWING

1. The YUMA device was fired at 0756M, 28 May 1956. The shot was fired on ACMOEN Island (SALLY) of ENIWETOK Atoll. The YUMA cloud reached an estimated height of 8,000 feet, and moved to the East at approximately 10 knots.

2. The fallout forecast was based on an expected yield of at 200 feet.

3. P2V-surveys at H+1 Hour indicated very light fallout at shot point and essentially no fallout on the islands to the north and south of shot site.

4. Reentry hour was established at H+1½ hours.

5. No detectable increase in radiation background was noted at the various safe monitoring stations located South of the Proving Ground.

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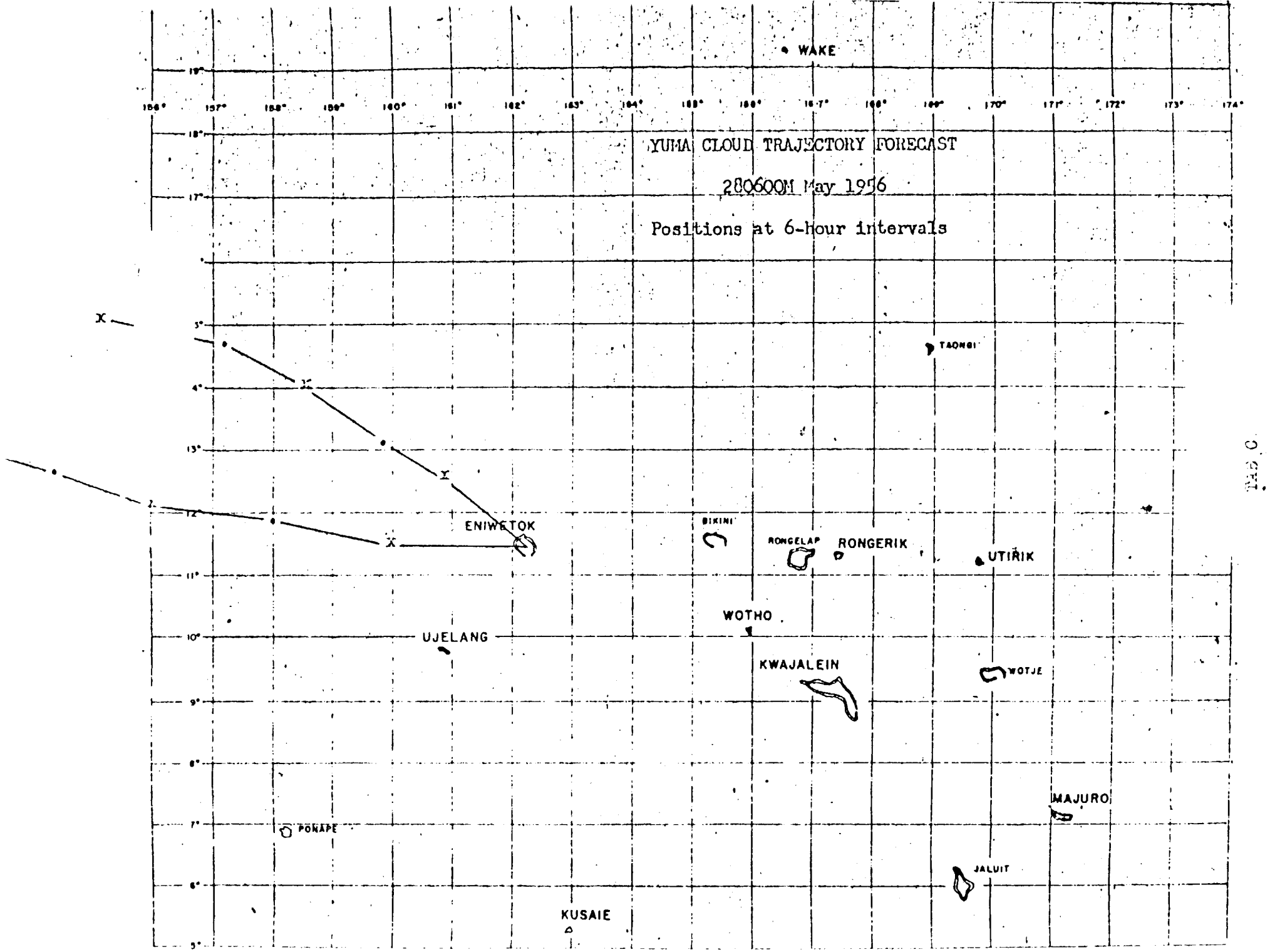
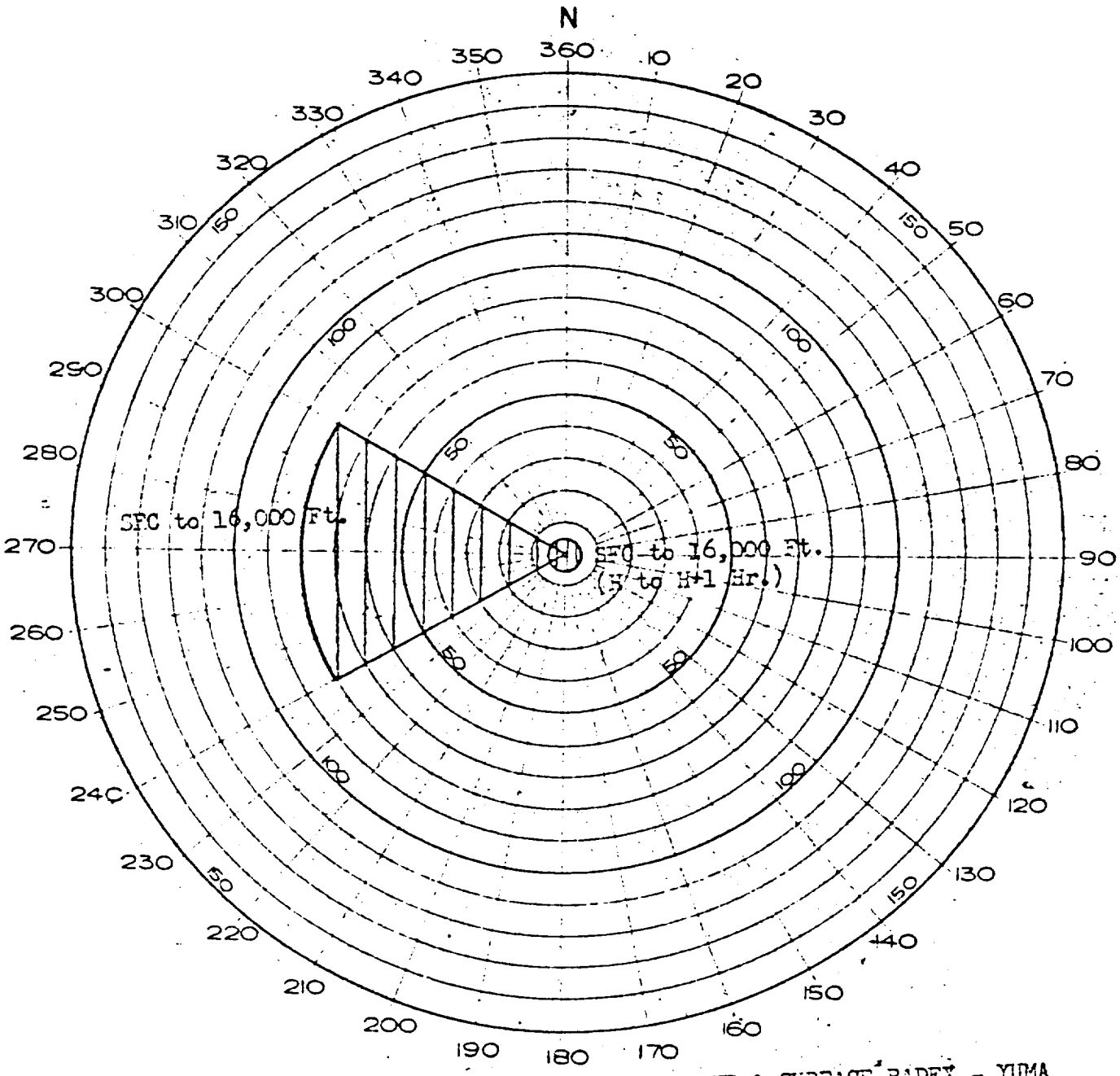
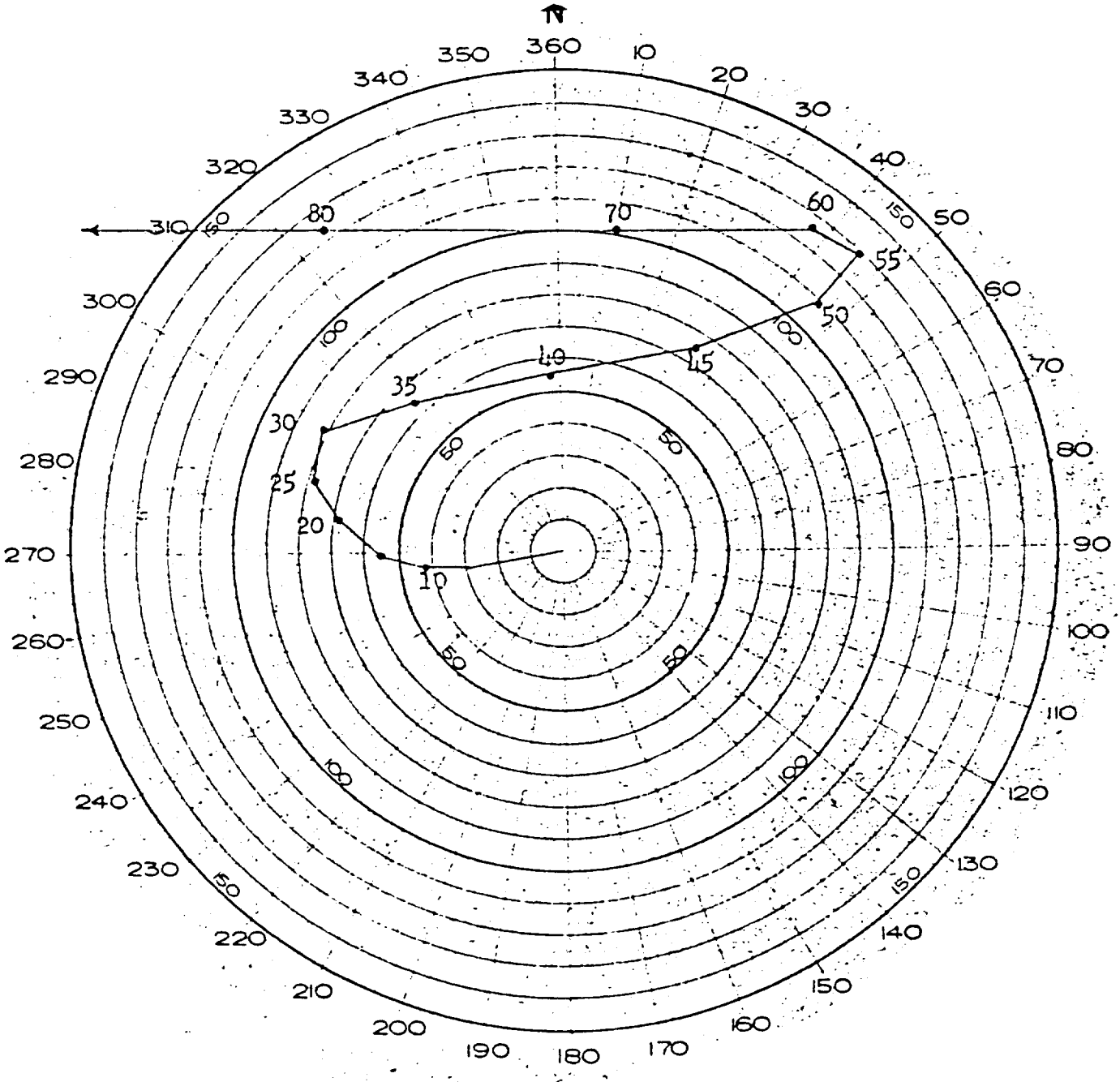

WAKE
YUMA CLOUD TRAJECTORY FORECAST
280600M May 1956
Positions at 6-hour intervals
TAONGI
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE

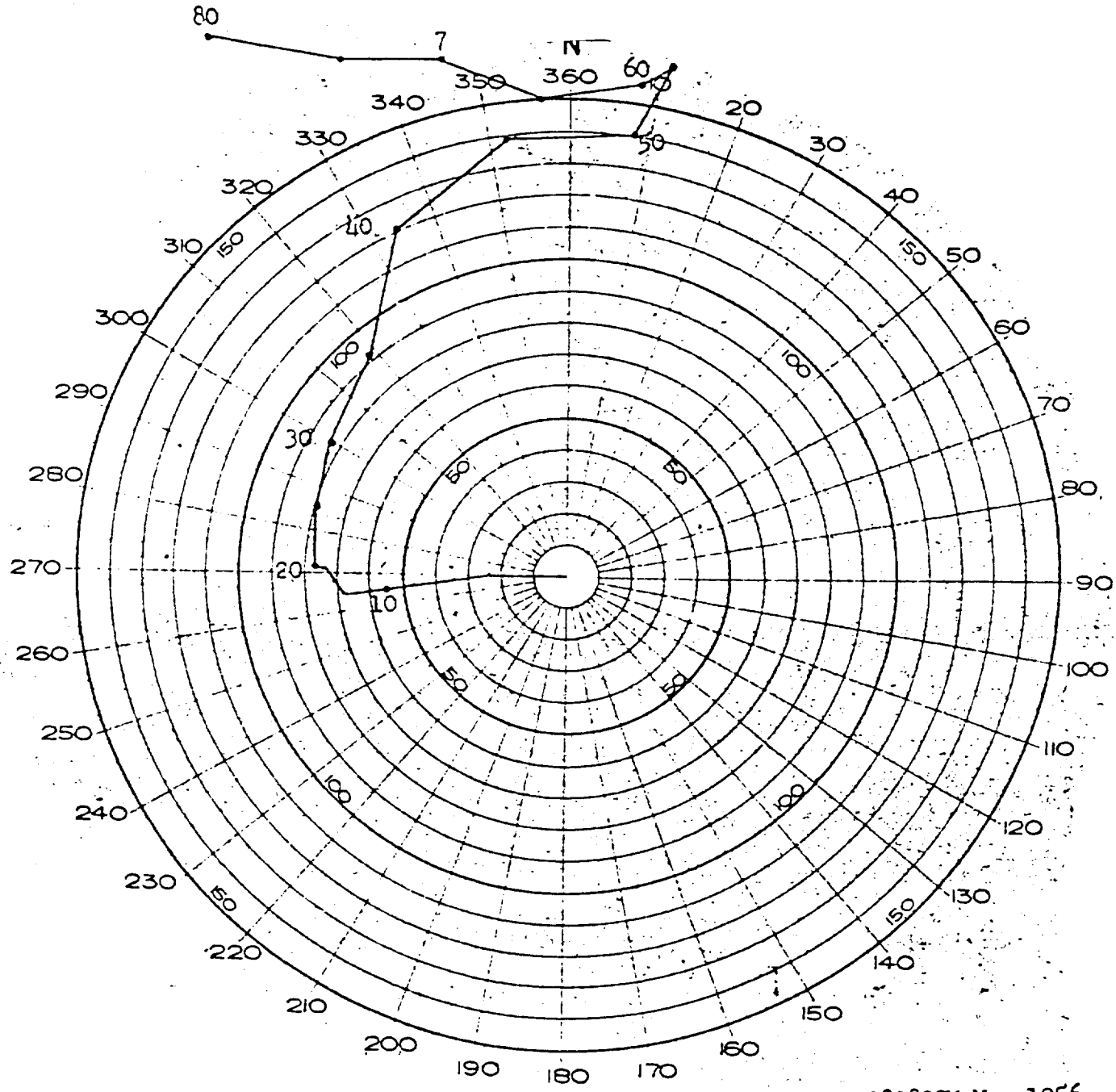


AIR & SURFACE RADEX - YUMA
(H TO H+6 HRS)

TAB D



FORECAST FOR 280600M May 1956 (YUMA)
280100M)



OBSERVED WINDS FOR 280800M May 1956
(YUMA)

TAB E

HEADQUARTERS
JOINT TASK FORCE SEVEN
APO 437
San Francisco, California

C O R R E C T E D C O P Y

31 May 1956

YUMA

THIS REPORT SUPERCEDES ENIWETOK OBSERVED WEATHER REPORT FOR YUMA DATED 28 MAY 1956

ENIWETOK OBSERVED WEATHER FOR 28 MAY 1956
AT DETONATION TIME 0756M

Sea Level Pressure	1010.2 mb
Free Air Surface Temperature	81.7°F
Wet Bulb Temperature	76.9°F
Dew Point Temperature	75.0°F
Relative Humidity	80%
Surface Wind	080° at 18 kts; gusts to 20 kts
Visibility	10 miles

CLOUDS

5/10 cumulus; bases 1500 feet; tops 5000 feet - one top 8-10,000 feet 25 miles southeast
3/10 altocumulus; bases 18000 feet; tops 19000 feet (1/10 transparent)
10/10 cirrostratus; bases 30,000 feet; tops 34,000 feet (9/10 transparent)

WEATHER

Widely scattered light showers. The only shower near the shot point passed north of Eniwetok Island at H-10 minutes and was 3 miles west of Eniwetok at shot time. Thirty (30) mile clear area approaching shot point.

STATE OF SEA

Ocean Side: Wave heights 7 feet, period 6 seconds, direction 080°
Lagoon Side: Wave heights greater than 1 foot.

ENIWETOK SOUNDING (272000Z)

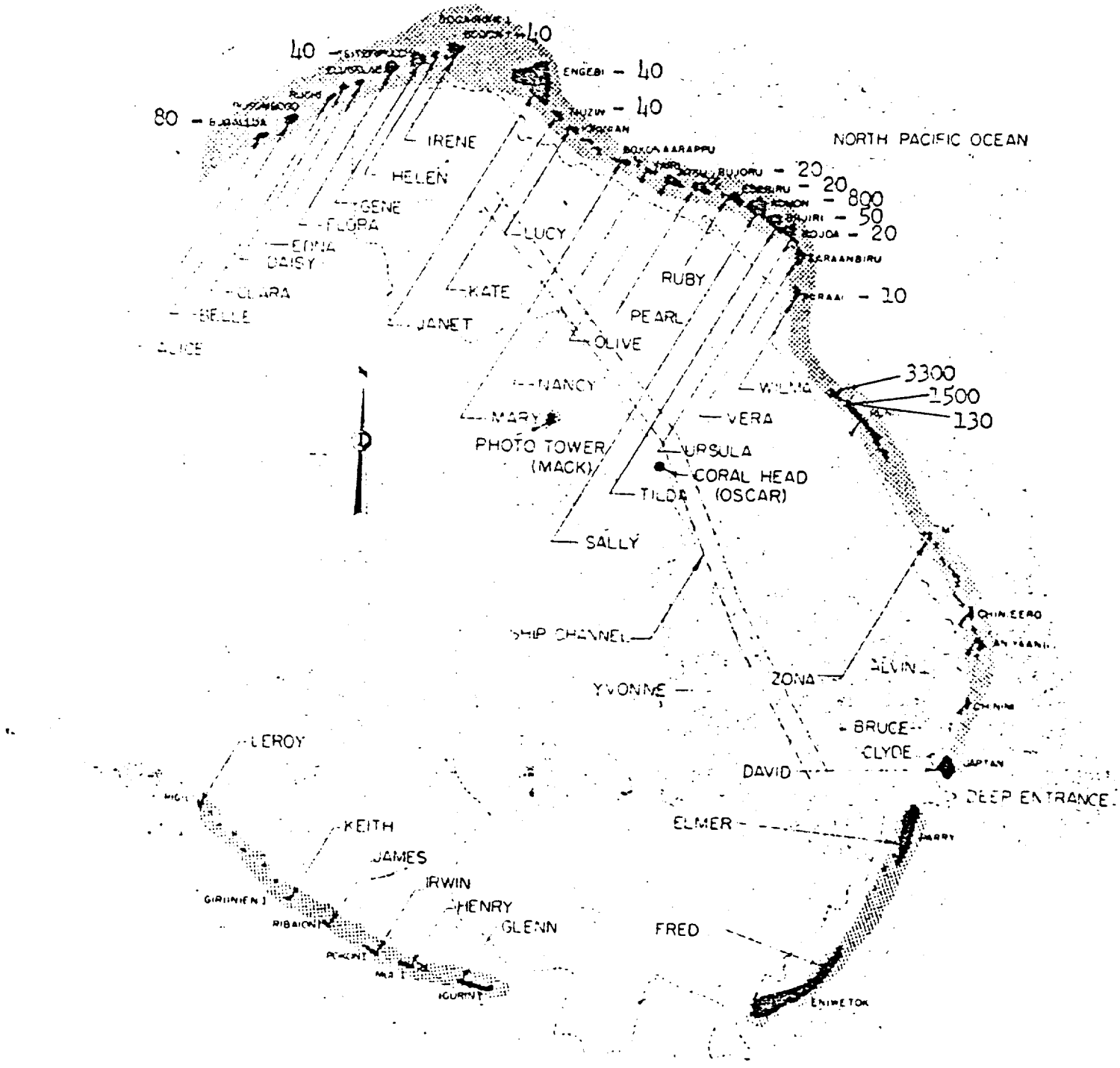
Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
1000	280	27.0	22.5
906	3,117	20.4	17.2
850	4,930	17.8	10.5
831	5,545	16.8	07.9

C O R R E C T E D C O P Y

Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
814	6,135	16.0	11.8
755	8,432	12.4	09.8
700	10,300	09.8	02.5
680	11,122	08.5	-05.3
642	12,631	05.2	-02.8
635	12,959	04.8	-06.5
600	14,450	02.1	-03.1
569	15,814	-00.7	-06.7
547	16,929	-01.0	-10.6
500	19,200	-05.8	-15.2
441	22,441	-12.2	-20.5
400	24,840	-15.4	-27.5
300	31,740	-32.0	-38.6
200	40,700	-55.4	M
150	46,520	-69.3	M
100	54,240	-77.9	M
50	67,610	-63.2	M
25		-48.9	M

WINDS ALOFT (272000Z)

Height (Feet)	Direction (Degrees)	Speed (Knots)	Height (Feet)	Direction (Degrees)	Speed (Knots)
			24,000	160	22
1,000	090	29	26,000	200	14
2,000	090	29	28,000	250	12
3,000	090	30	30,000	190	19
4,000	090	31	32,000	190	25
5,000	090	29	34,000	210	29
6,000	080	29	36,000	220	31
7,000	080	31	38,000	200	35
8,000*	080	33	40,000	210	38
9,000	080	32	45,000	230	44
10,000	080	27	50,000	270	39
12,000	080	21	55,000	210	25
14,000	090	13	60,000	060	12
16,000	140	14	65,000	080	32
18,000	150	12	70,000	110	33
20,000	100	10	75,000	090	32
22,000	140	26	80,000	100	41



(YUMA)
RADIOLOGICAL SURVEY MADE AT
H+4 HRS, 28 MAY 56
All readings at ground level.
(Readings in mr/hr)

INDEX

TAB

TAB A

ERIE EVENT

OPERATION REDWING

1. The ERIE device was fired at 0615M, 31 May 1956. The device was positioned atop a 300-foot tower located on RUNIT Island (YVONNE) of ENIWETOK Atoll. The cloud reached an estimated height of 30,000 feet with the lower portion below 20,000 feet moving to the West, and the 20,000-to 30,000 foot section moving to the Southwest.

2. The fallout forecast for ERIE was based on an expected yield of .

3. Post-shot surveys indicated a good agreement between the forecast and measured fallout. The monitoring stations at WOTHO, UTIRIK and UJELANG reported no significant increase in radiation background during the three days following ERIE.

4. Based on the post-shot radiological surveys, reentry hour was established as 0830M, 31 May 1956.

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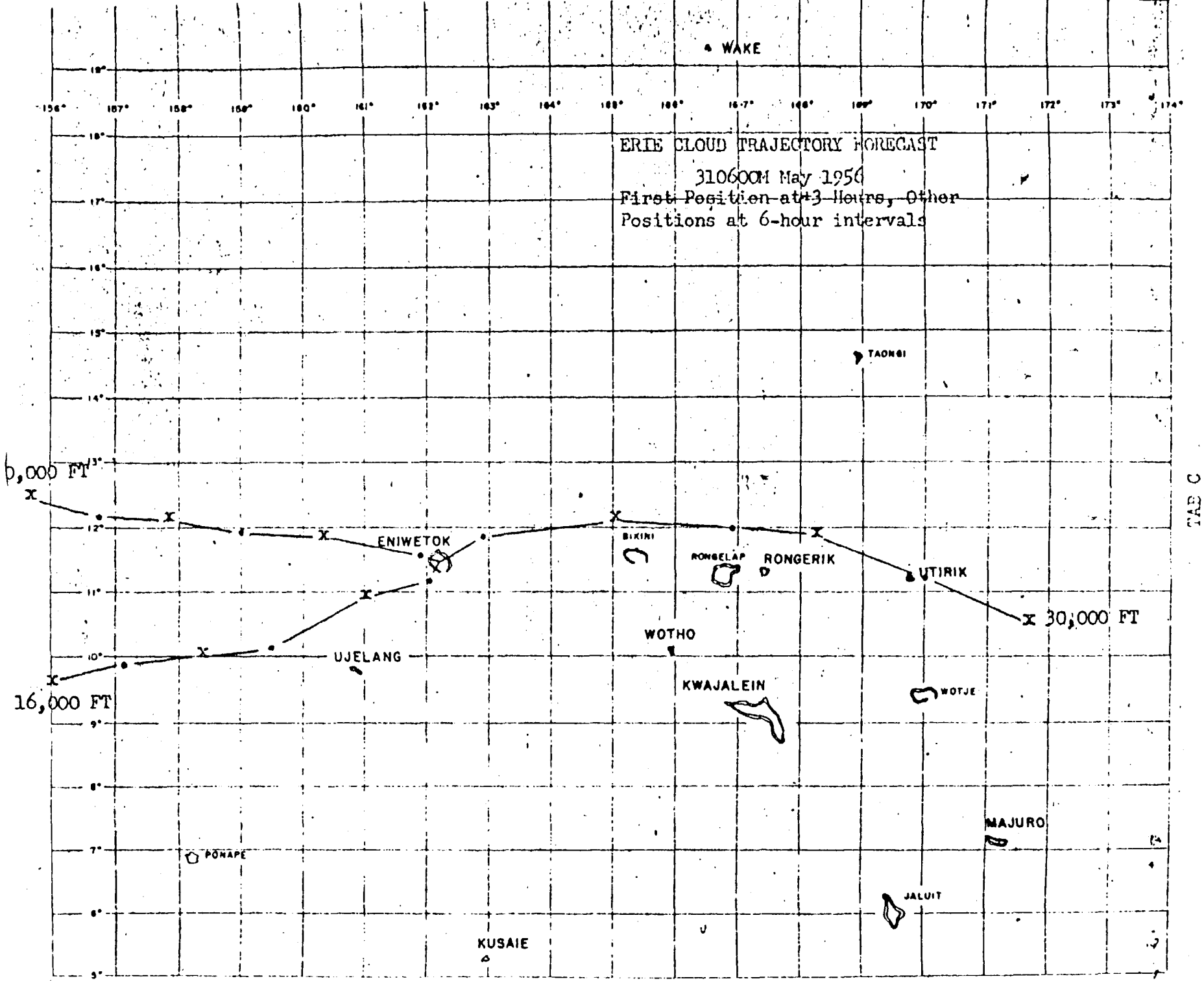
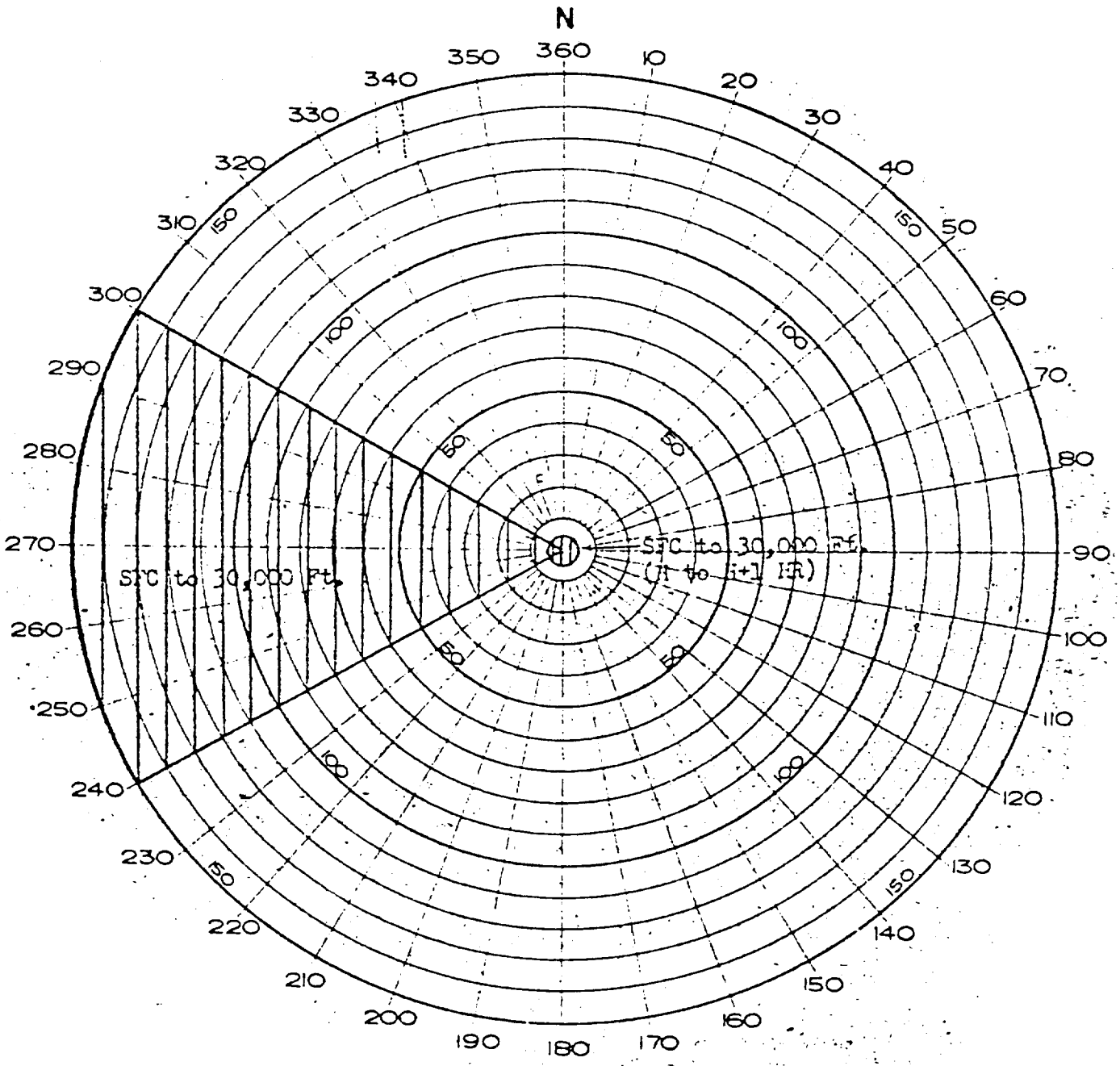
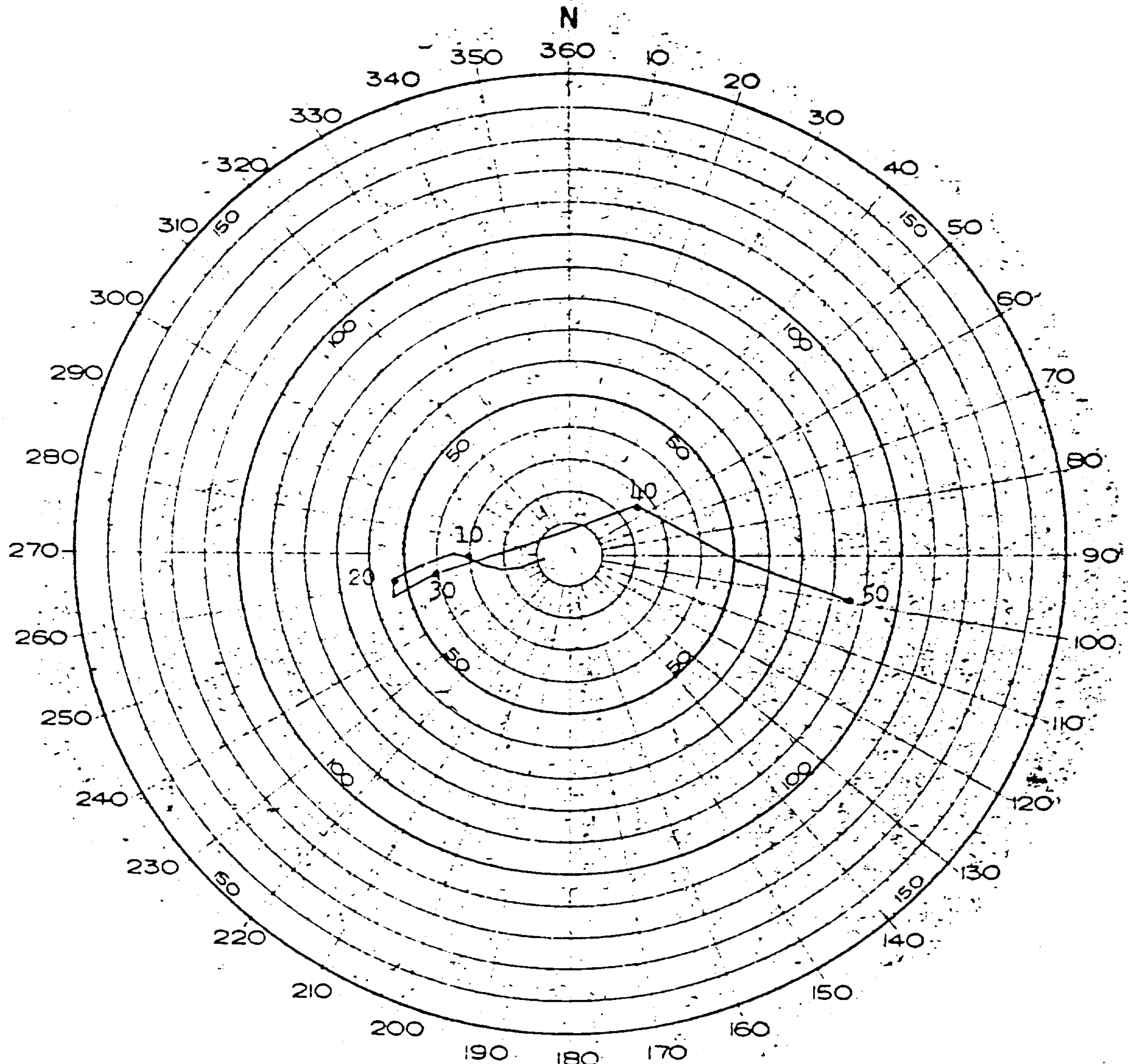

WAKE
ERIE CLOUD TRAJECTORY FORECAST
3106OOM May 1956
First Position at +3 Hours, Other
Positions at 6-hour intervals
TAONGI
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
30,000 FT
WOTHO
UJELANG
KWAJALEIN
WOTJE
16,000 FT
MAJURO
PONAPE
JALUIT
KUSAIE

TAB C



AIR & SURFACE RADEZ - ERIE
(H to H+6 HRS)

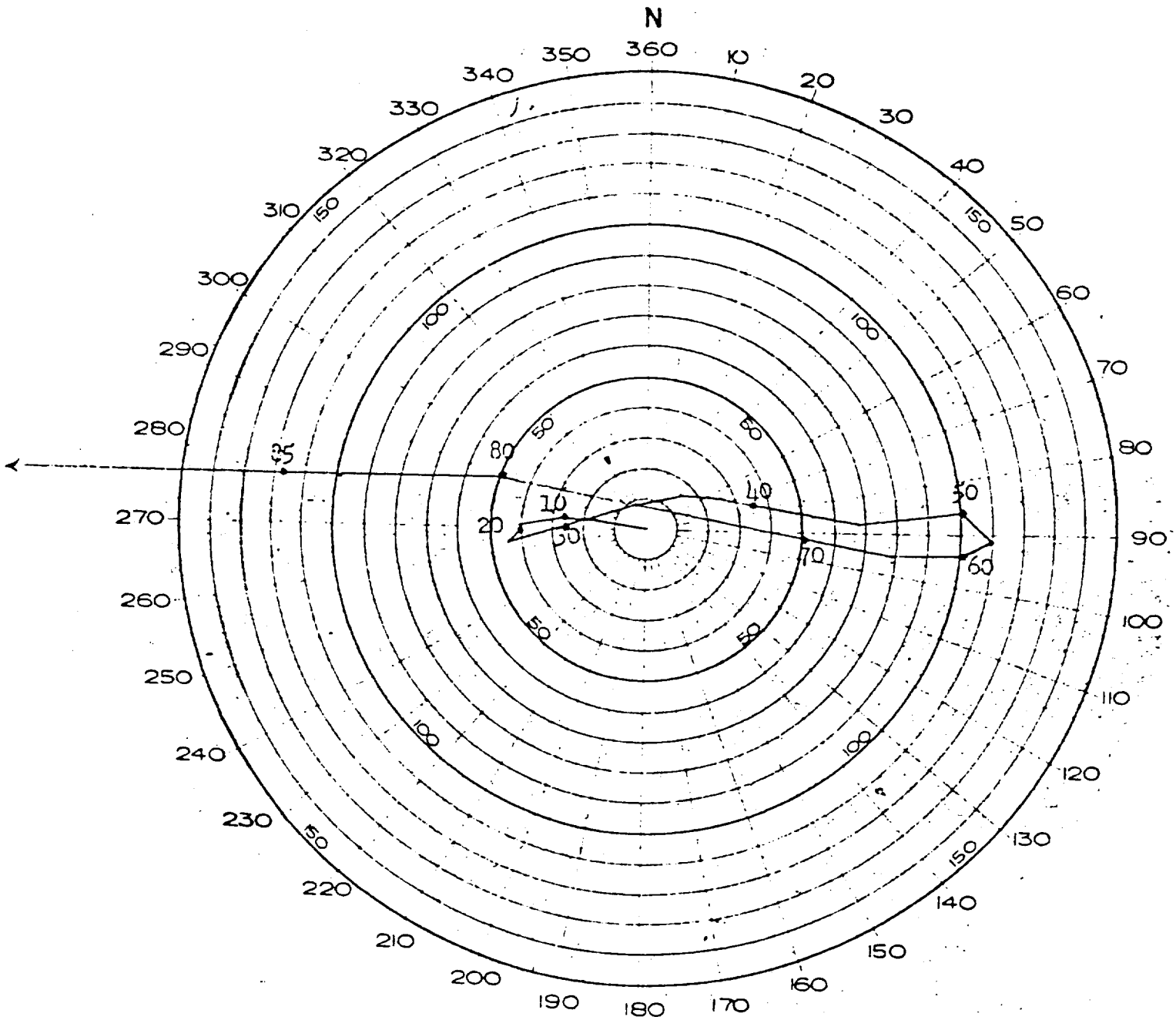
TAB D



FORECAST FOR 310600Z May 1956 (ERIE)
(Made 310300Z)

TABLE

1



OBSERVED WINDS FOR 3106GCT May 1956
(ERIE)

TAB E

HEADQUARTERS
JOINT TASK FORCE SEVEN
APO 437
San Francisco, California

31 May 1956

ENIWETOK OBSERVED WEATHER FOR 31 MAY 1956
ERIE. DETONATION TIME 0615M

Sea Level Pressure	1009.1 mb
Free Air Surface Temperature	80.3°F
Dew Point Temperature	73.5°F (Wet Bulb 75.4°F)
Relative Humidity	80.2%
Surface Wind	100° at 12 kts; gusts to 15 kts
Visibility	Over 10 miles

CLOUDS

1/10 cumulus; bases estimated 1500 feet (no tops reported - estimated to be at 3500-4000 feet approximately 10 miles east of station)
2/10 altocumulus; bases estimated 19,000 feet; thin but opaque (possibly 1000 feet thick)
10/10 cirrostratus; bases estimated 30,000 feet; no tops reported (9/10 transparent)

WEATHER

No showers reported in local area. In general appeared clear and exceptionally good visibility. No haze apparent.

STATE OF SEA

Ocean Side: Wave heights 4.5 feet, period 5 seconds, direction 090°.
Lagoon Side: Wave heights less than 1 foot.

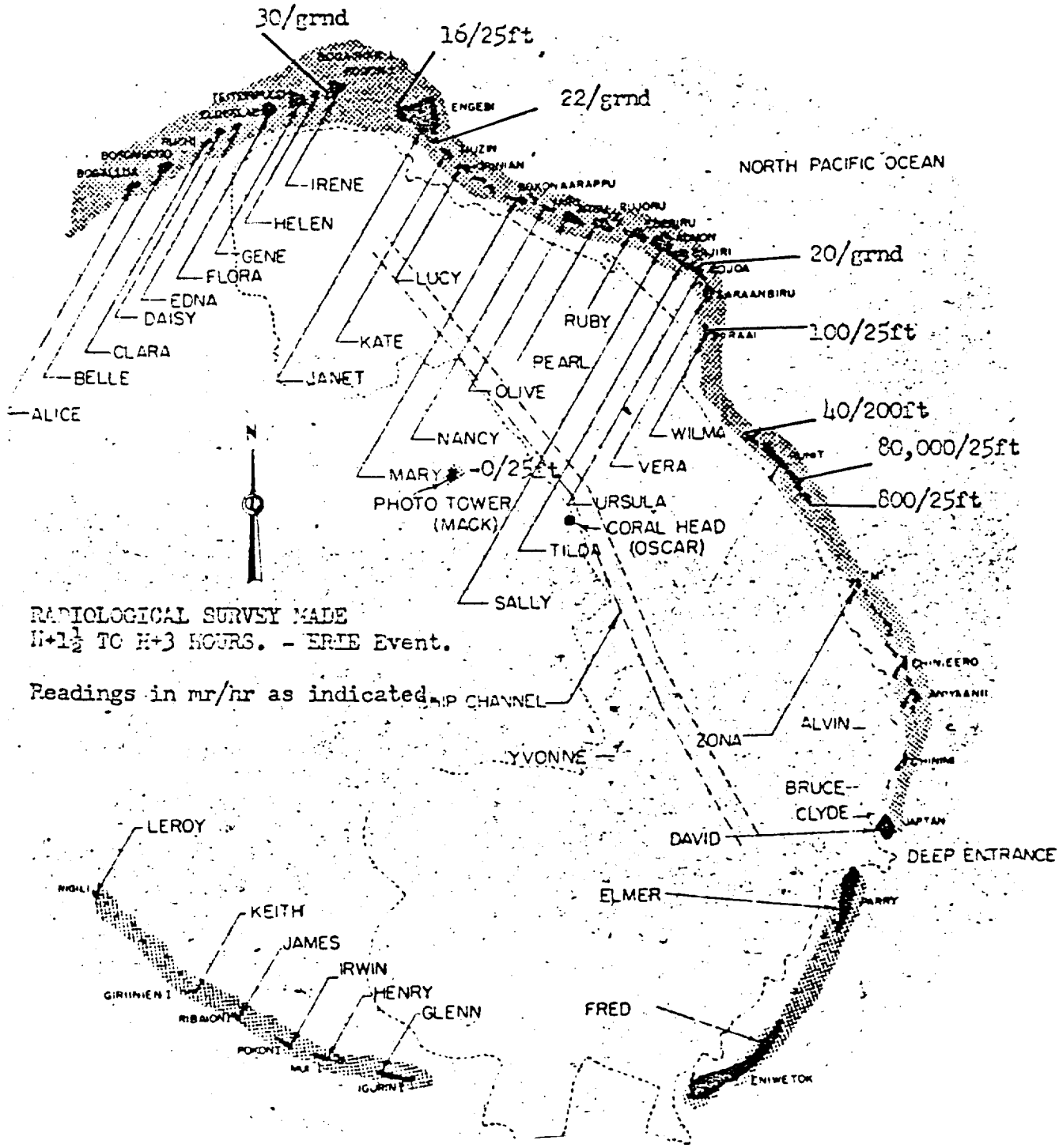
ENIWETOK SOUNDING (301700Z)

Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
1000	280	26.5	21.6
850	4,920	17.3	09.7
796	6,791	16.8	02.5
700	10,310	10.8	-07.4
693	10,630	10.3	-07.8
600	14,440	-00.9	-16.2
500	19,130	-09.2	-23.5
423	23,327	-15.3	-29.2
417	23,688	-14.1	-28.2
400	24,720	-16.4	-30.3

Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
300	31,590	-33.2	-45.6
296	31,824	-34.1	-46.4
200	40,480	-56.3	M
150	46,300	-68.2	M
100	54,070	-78.7	M
98	54,462	-78.7	M
83	57,611	-76.0	M
76	59,383	-68.8	M
73	60,072	-71.5	M
64	62,664	-71.1	M
55	65,617	-62.7	M
50	67,580	-61.6	M
25	81,896	-54.0	M
14	94,449	-44.1	M

WINDS ALOFT (301700Z)

Height (Feet)	Direction (Degrees)	Speed (Knots)	Height (Feet)	Direction (Degrees)	Speed (Knots)
1,000	100	24	32,000	260	23
2,000	100	24	34,000	250	34
3,000	100	20	35,000	240	38
4,000	100	18	36,000	260	36
5,000	090	17	38,000	270	32
6,000	090	14	40,000	280	32
7,000	080	09	42,500	280	32
8,000	100	07	45,000	280	31
9,000	100	05	47,500	280	28
10,000	080	04	50,000	260	33
12,000	100	05	52,500	280	31
14,000	090	08	55,000	320	16
16,000	080	09	57,500	020	08
18,000	070	12	60,000	080	10
20,000	360	06	65,000	090	23
22,000	050	03	70,000	100	29
24,000	060	11	75,000	100	35
25,000	260	13	80,000	100	63
26,000	260	15	85,000	090	69
28,000	250	17	90,000	090	64
30,000	250	19	94,000	090	67


30/grnd
16/25ft
22/grnd
NORTH PACIFIC OCEAN
20/grnd
100/25ft
40/200ft
80,000/25ft
800/25ft
IRENE
HELEN
GENE
FLORA
EDNA
DAISY
CLARA
BELLE
ALICE
JANET
KATE
LUCY
RUBY
PEARL
OLIVE
NANCY
MARY
-0/25ft
PHOTO TOWER
(MACK)
VERA
URSULA
CORAL HEAD
(OSCAR)
TILDA
SALLY
WILMA
N
RADIOLOGICAL SURVEY MADE
H+1½ TO H+3 HOURS. - ERIE Event.
Readings in mr/hr as indicated
SHIP CHANNEL
YVONNE
ZONA
ALVIN
BRUCE
CLYDE
DAVID
DEEP ENTRANCE
ELMER
FRED
LEROY
KEITH
JAMES
IRWIN
HENRY
GLENN
ENIWETOK

TAB F

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TAB

TAB A

SEMINOLE EVENT

OPERATION REDWING

1. SEMINOLE was detonated on the ground at BOGON Island (IRENE) in the ENIWETOK Atoll at 1255½M, 6 June 1956.

2. Fallout prediction was based on a maximum yield of and a 30,000-foot cloud height. Actually, the cloud rose to only about 16,000 feet. The lower portion of the cloud followed the trade winds moving west; while the upper one-fifth was caught in low velocity westerlies. The fallout followed the predicted path; however, intensities higher than those predicted were encountered on BOGAIRIKK (HELEN), the nearest island west of the shot site.

3. P2V aircraft based at Kwajalein flew the two radiological reconnaissance missions, YOKE and YOKE I, on SEMINOLE-Day. YOKE pattern, to the Southwest of ENIWETOK, encountered no radiation and was secured at 1700M, 6 June. A second P2V, YOKE I, flew a pattern over the ENIWETOK lagoon calculated to intercept any movement of radioactive fallout in the direction of the task force fleet. No radioactivity was encountered. This aircraft also conducted a lagoon and atoll survey at ENIWETOK and returned to base at 1630I, 6 June.

4. No increase in background was noted on any of the off-atoll radsafe stations. In view of this, no cloud tracking missions were flown.

5. Reentry hour was announced as 1530M.

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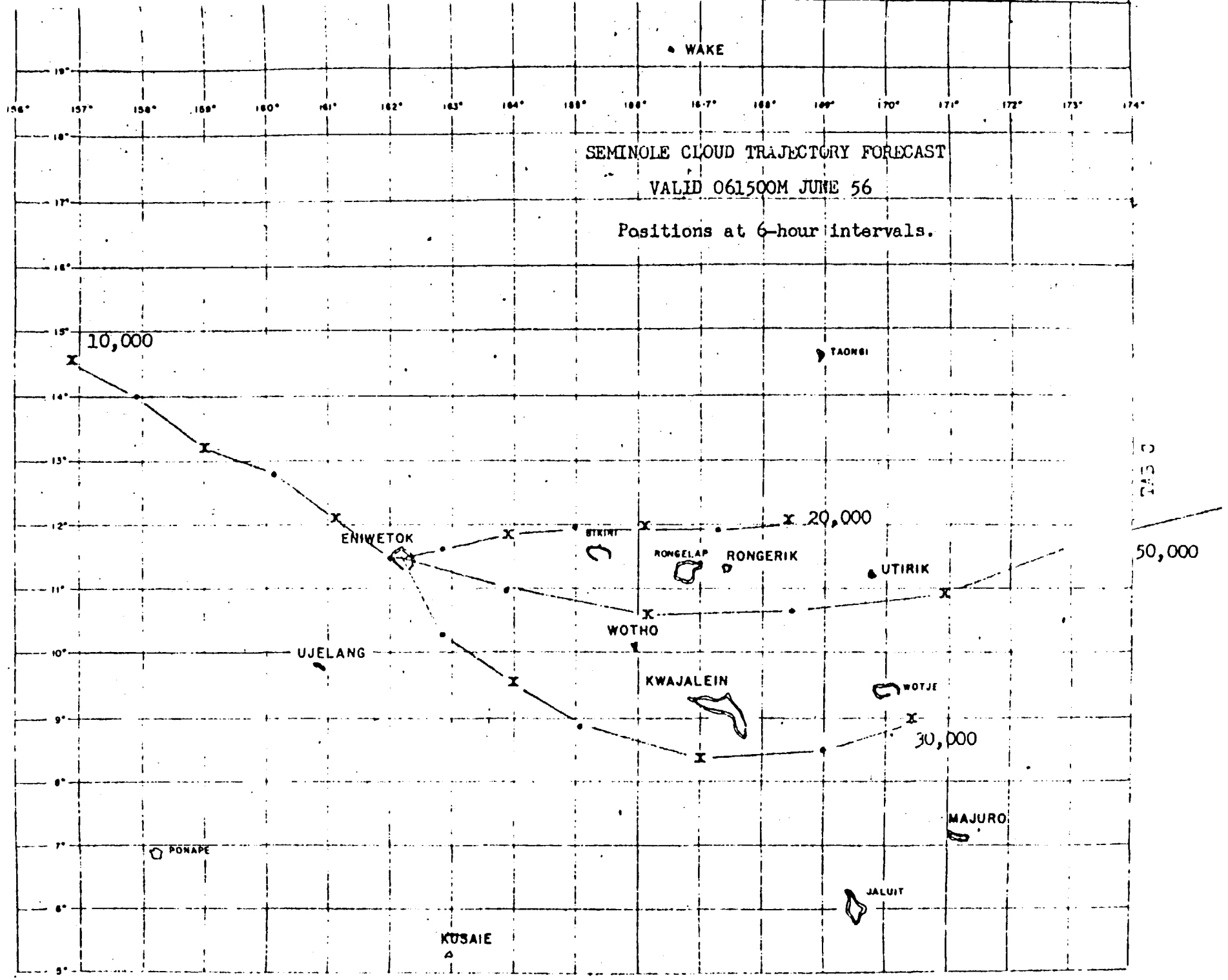
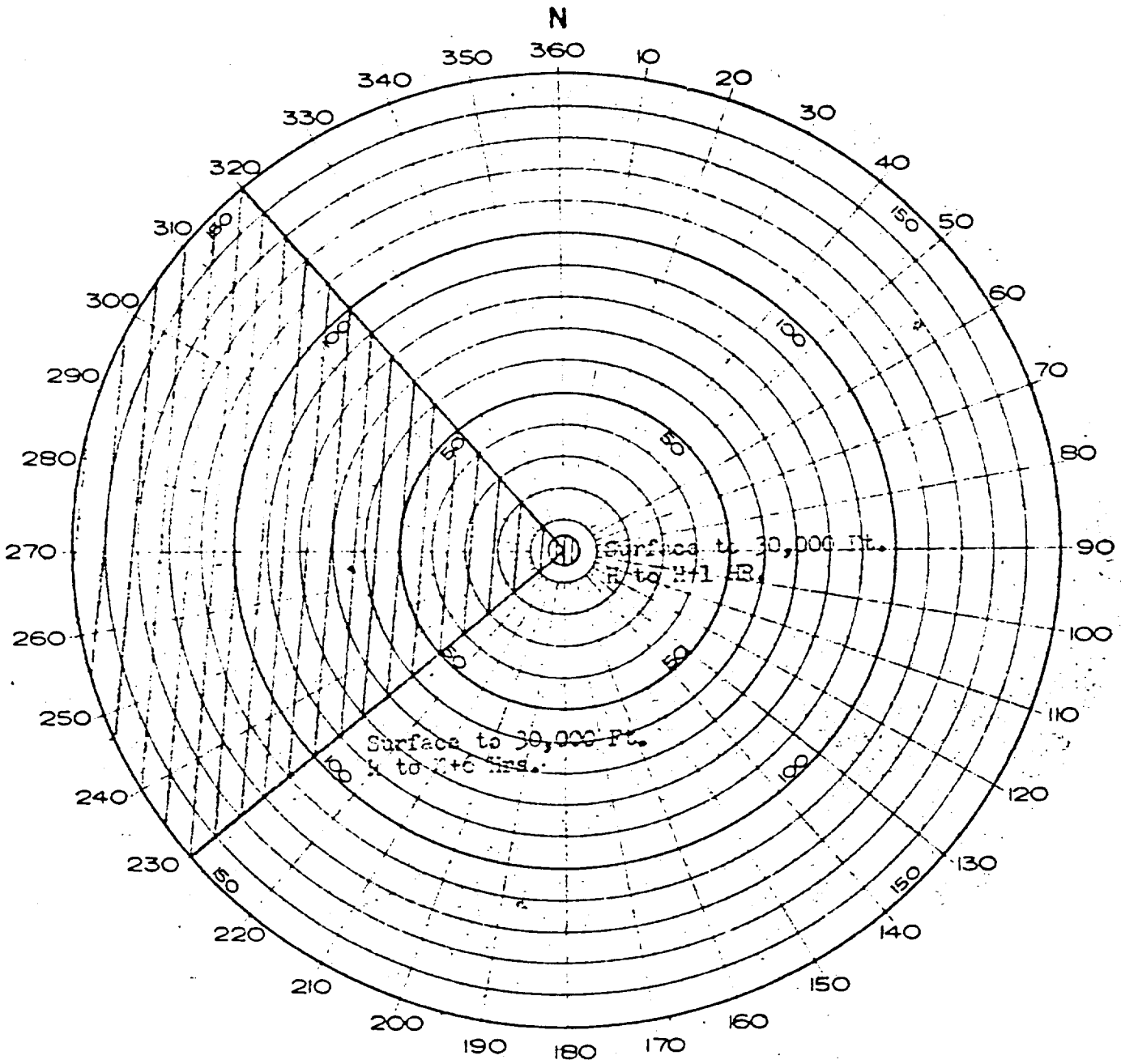
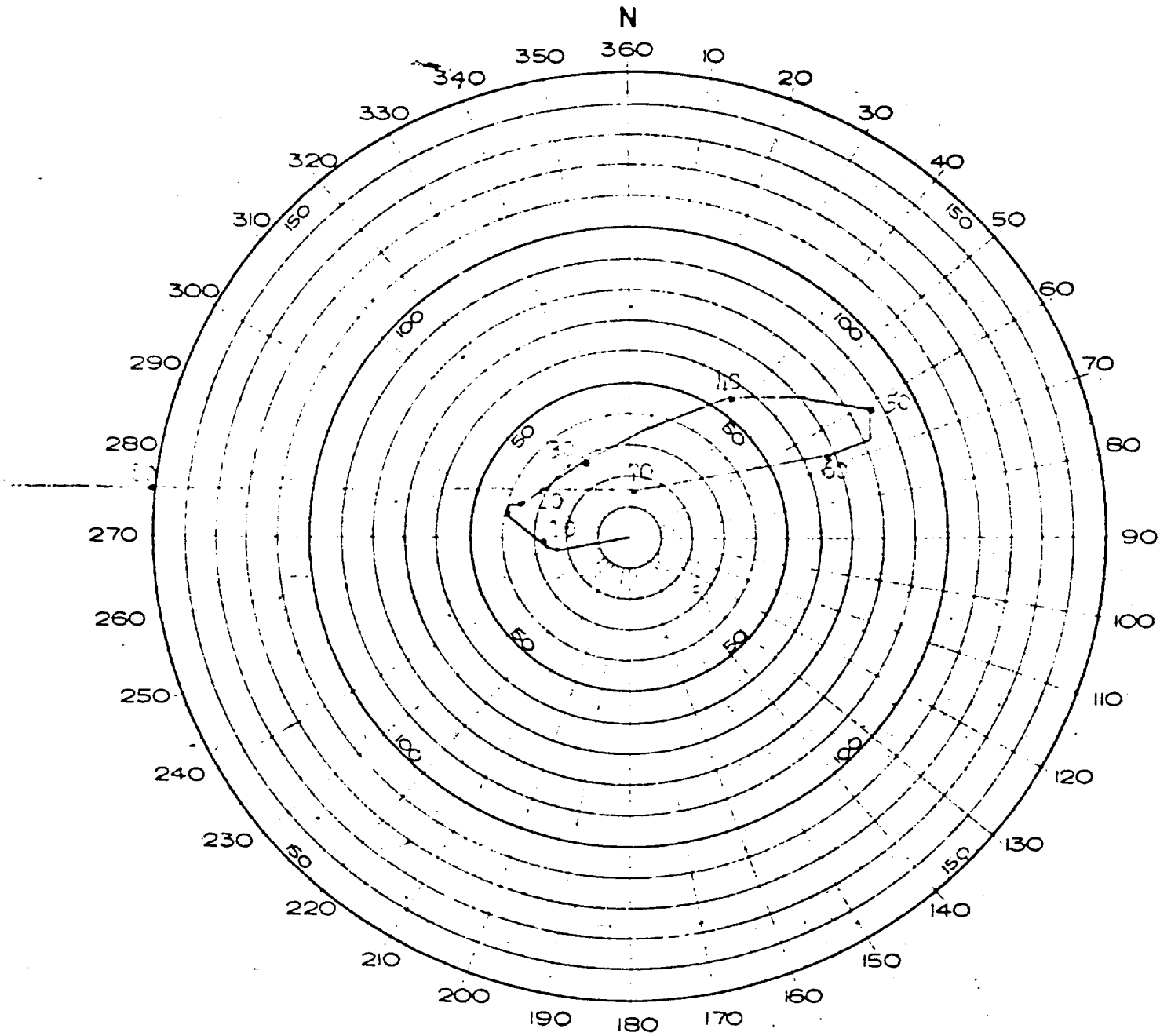

WAKE
SEMINOLE CLOUD TRAJECTORY FORECAST
VALID 061500M JUNE 56
Positions at 6-hour intervals.
10,000
TAONGI
ENIWETOK
BIKINI
RONGELAP
RONGERIK
20,000
UTIRIK
50,000
WOTHO
UJELANG
KWAJALEIN
WOTJE
30,000
MAJURO
PONAPE
JALUIT
KUSAIE



SEMINOLE AIR & SURFACE RADAR

TAB D

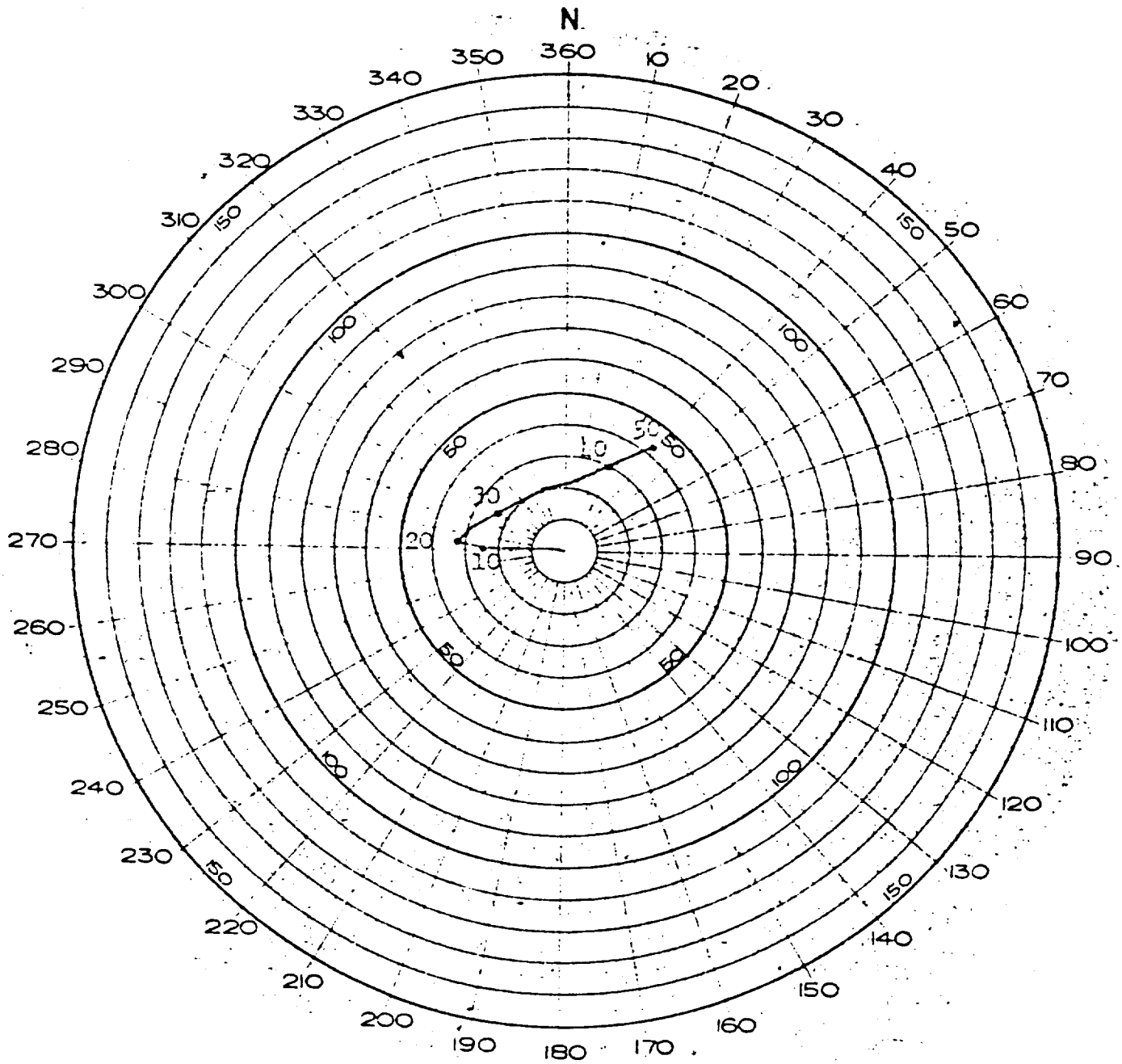


FORECAST MADE 0520GCT JUNE 1956

VALID 0612GCT

- SEMINOLE EVENT -

FIG. 3



OBSERVED WINDS FOR

061020Z JUNE 1956

- SEMINOLE EVENT -

TAB D

HEADQUARTERS
JOINT TASK FORCE SEVEN
APO 437
San Francisco, California

6 June 1956

SEMINOLE

ENIWETOK OBSERVED WEATHER FOR 6 JUNE 1956
AT DETONATION TIME 1255M

Sea Level Pressure	1010.5 mbs
Free Air Surface Temperature	86.9°F
Wet Bulb Temperature	79.2°F
Dew Point Temperature	76.5°F
Relative Humidity	71.0%
Surface Wind	095° at 11 knots
Visibility	Over 10 Miles

CLOUDS

2/10 cumulus; bases estimated at 1500 ft, tops estimated below 4000 ft.
1/10 stratocumulus; bases estimated at 3500 ft, tops below 4000 ft.
No middle clouds.
7/10 cirrostratus; estimated at 30,000 ft; very thin (all transparent).

AREA WEATHER SUMMARY FROM AIRCRAFT REPORTS

Small scattered cumulus in area 100 miles to the east and as far north and south as the eye could see from 8,000 ft. Tops seemed to increase near Eniwetok to 3500-4000 ft. and total 3/8 sky coverage outside lagoon. No towering cumulus observed. Appeared to be a line of scattered cumulus about 15 miles north of the atoll with tops rising to 6-8,000 ft. No showers observed.

STATE OF SEA

Ocean Side: Wave heights 4 feet, period 6 seconds, direction 090°.
Lagoon Side: Wave heights about 1 foot.

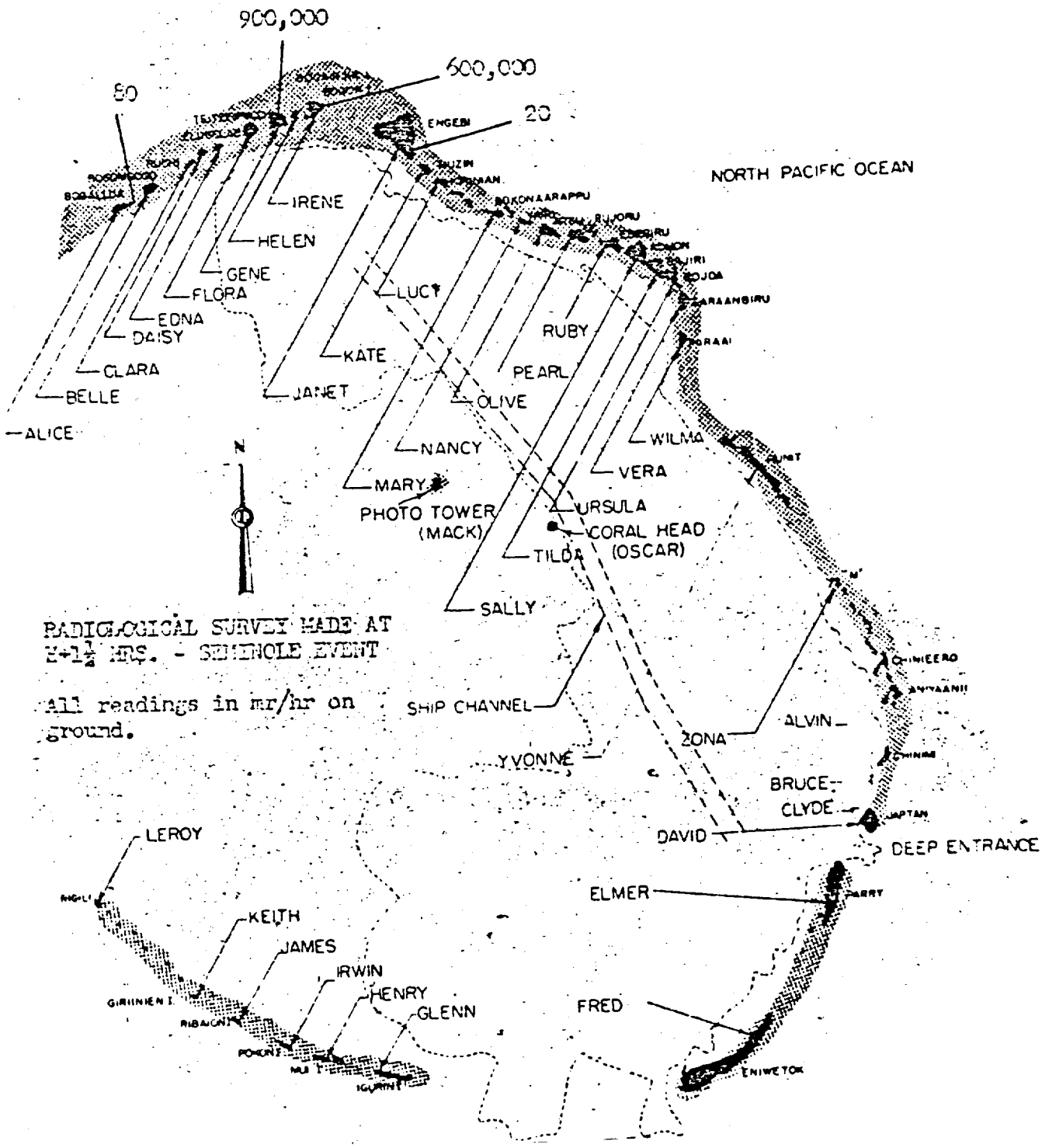
ENIWETOK UPPER AIR SOUNDING (060000Z)

Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
1000	340	27.5	22.2
850	4,980	18.2	10.8
700	10,360	09.2	-02.2
600	14,510	02.2	-14.5
500	19,260	-07.5	-20.2
400	24,870	-17.5	-31.2
347	28,281	-24.5	-37.8

Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
300	31,740	-33.2	M
200	40,660	-54.8	M
150	46,510	-68.5	M
112	52,165	-76.0	M
100	54,310	-74.0	M
63	63,320	-69.0	M
50	67,900	-60.5	M
25	82,244	-53.1	M
20	87,106	-45.2	M
10	102,546	-39.2	M

WINDS ALOFT (060000Z)

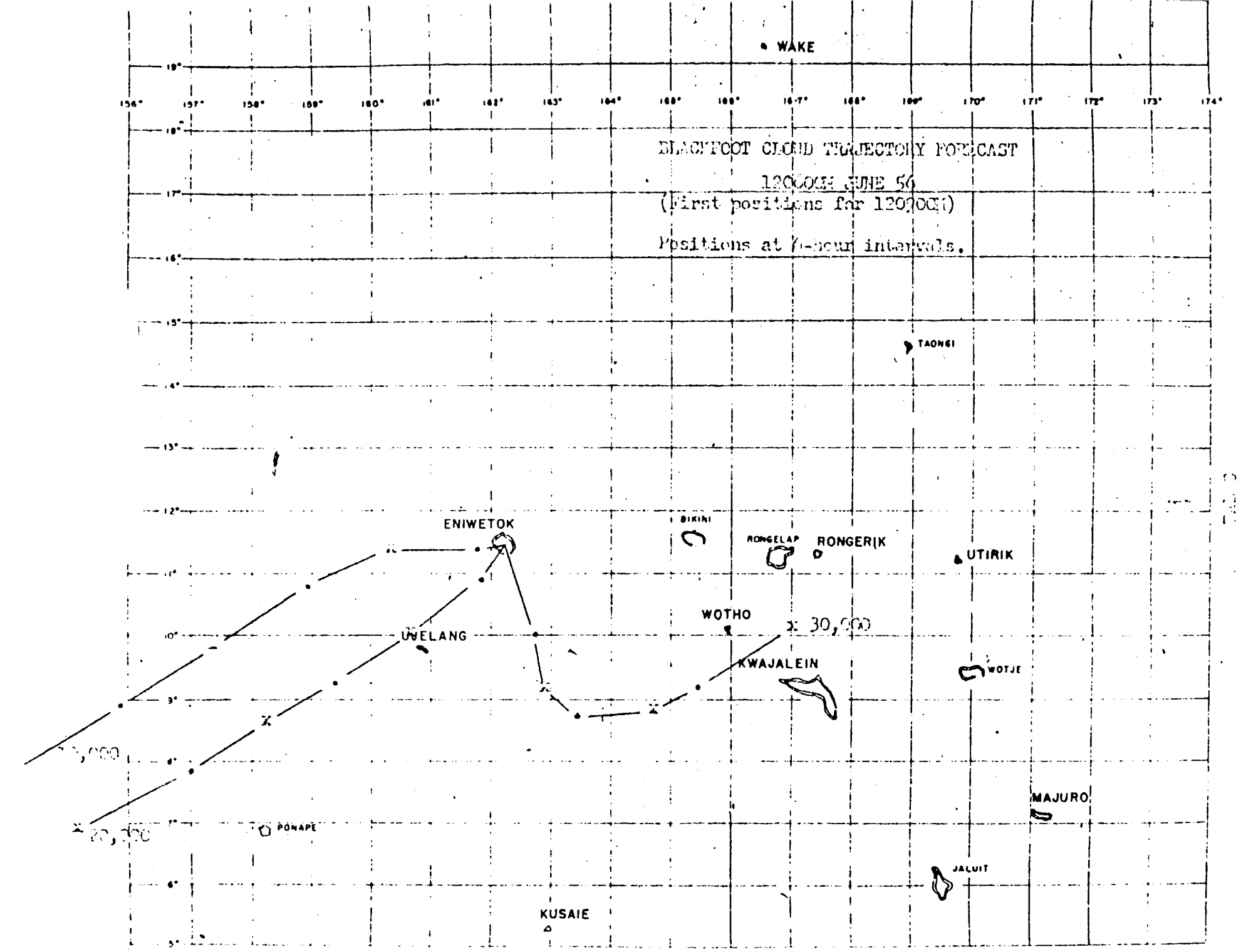
Height (Feet)	Direction (Degrees)	Speed (Knots)	Height (Feet)	Direction (Degrees)	Speed (Knots)
1,000	090	14	34,000	250	21
2,000	090	14	35,000	250	20
3,000	090	16	36,000	250	19
4,000	090	16	38,000	250	19
5,000	090	16	40,000	240	17
6,000	100	13	42,500	250	22
7,000	100	09	45,000	250	22
8,000	100	09	47,500	260	21
9,000	090	11	50,000	260	16
10,000	090	12	52,500	250	10
12,000	090	10	55,000	360	04
14,000	090	04	57,500	110	06
16,000	100	04	60,000	090	11
18,000	110	02	65,000	090	23
20,000	040	07	70,000	070	39
22,000	310	06	75,000	090	52
24,000	240	06	80,000	090	55
25,000	230	08	85,000	100	65
26,000	240	07	90,000	100	67
28,000	270	08	95,000	100	70
30,000	250	12	100,000	100	59
32,000	230	18			

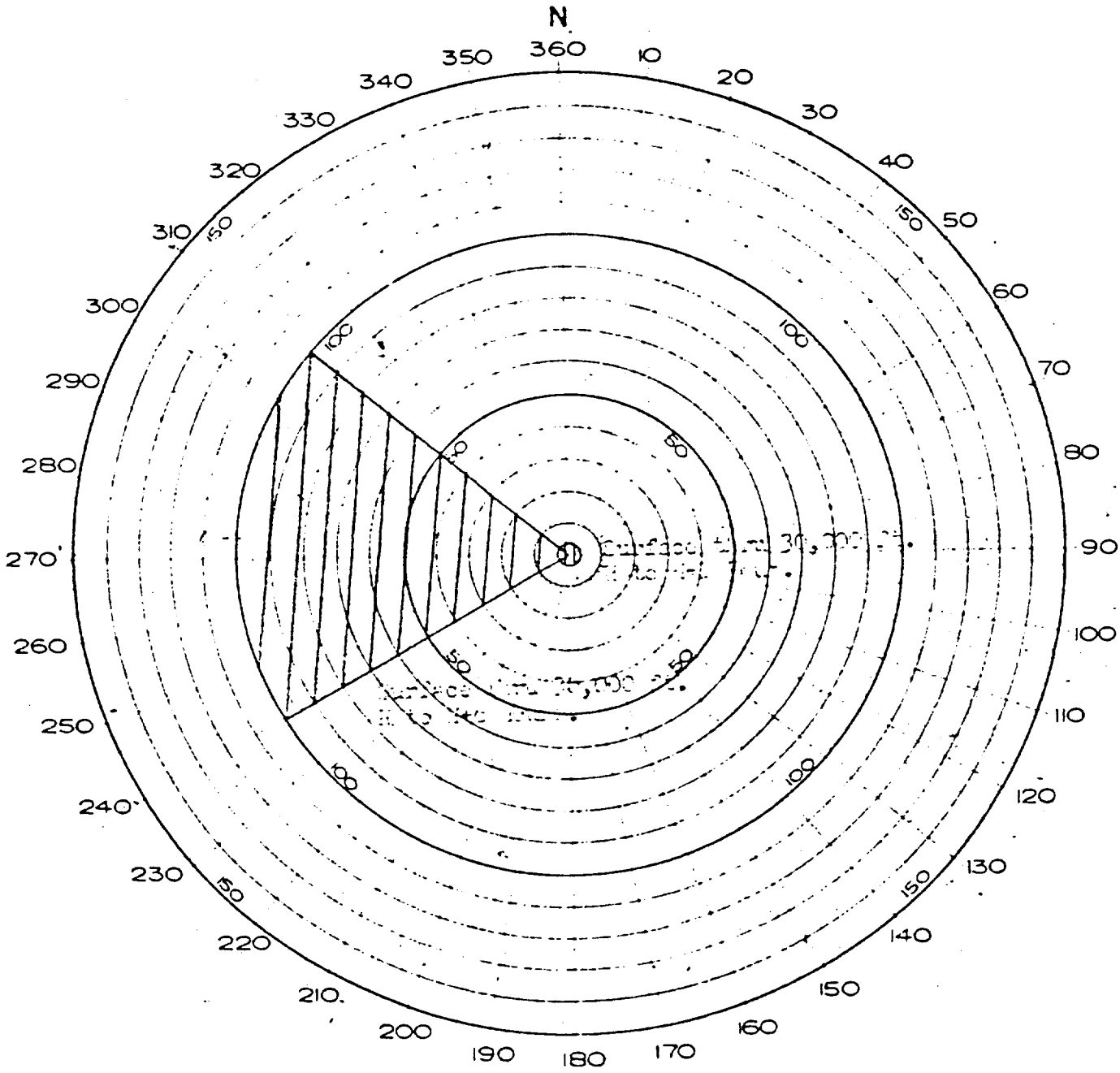

900,000
600,000
80
20
NORTH PACIFIC OCEAN
IRENE
HELEN
GENE
FLORA
EDNA
DAISY
CLARA
BELLE
ALICE
LUCY
KATE
JANET
RUBY
PEARL
OLIVE
NANCY
MARY
PHOTO TOWER
(MACK)
WILMA
VERA
URSULA
CORAL HEAD
(OSCAR)
TILDA
SALLY
N
RADIOLOGICAL SURVEY MADE AT
Y+1½ HRS. - SEMINOLE EVENT
All readings in mr/hr on ground.
SHIP CHANNEL
YVONNE
ZONA
ALVIN
BRUCE
CLYDE
DAVID
DEEP ENTRANCE
ELMER
LEROY
KEITH
JAMES
IRWIN
HENRY
GLENN
FRED

TAB F

INDEX

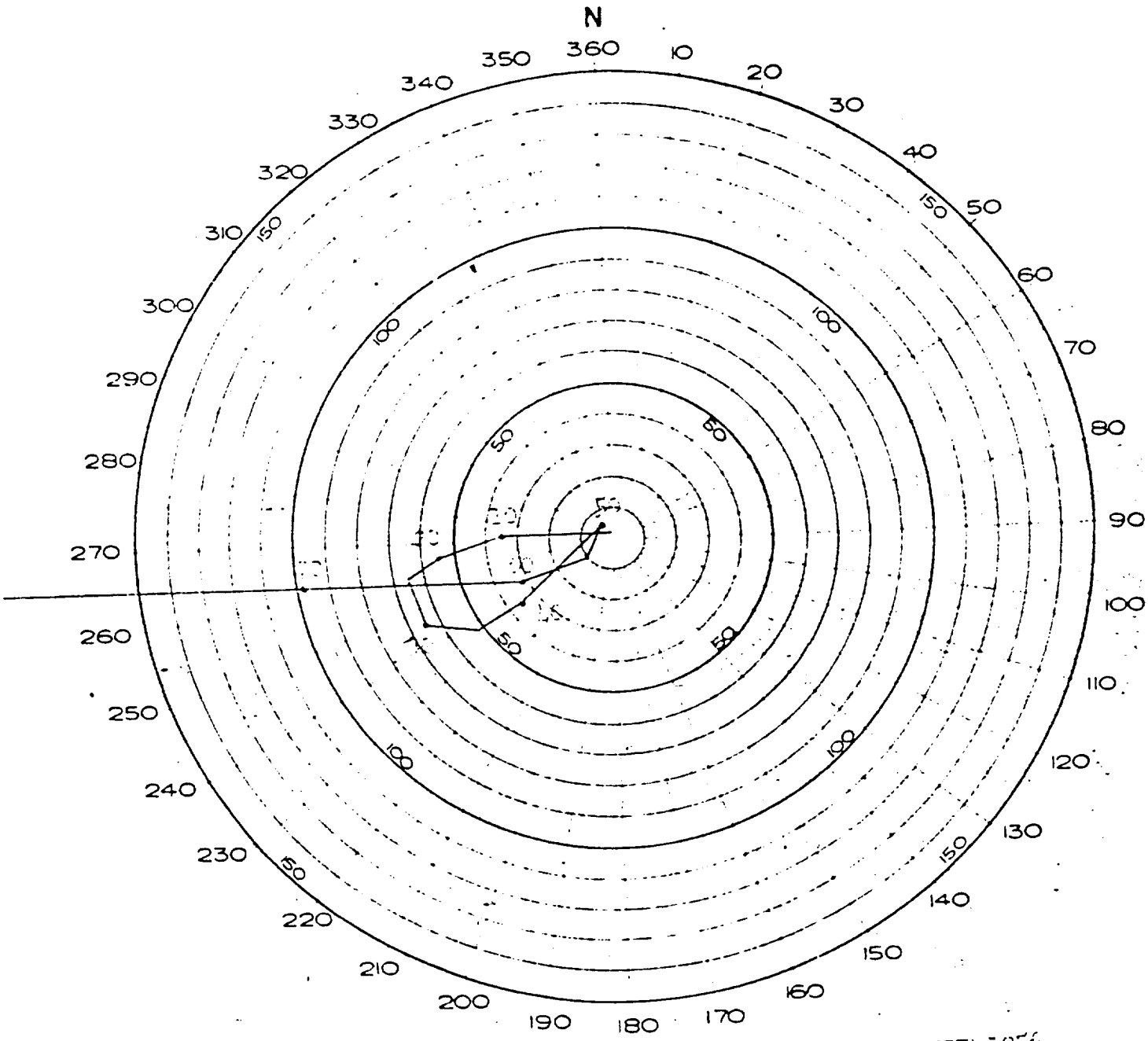
TAB


WAKE
BLACKFOOT CLOUD TRAJECTORY FORECAST
120000Z JUNE 56
(First positions for 120000Z)
Positions at 6-hour intervals.
TAONGI
BIKINI
ENIWETOK
RONGELAP
RONGERIK
UTIRIK
WOTHO
30,000
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE



AIR & SOURCE RISK

- [illegible] EVENT -


N
360
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200
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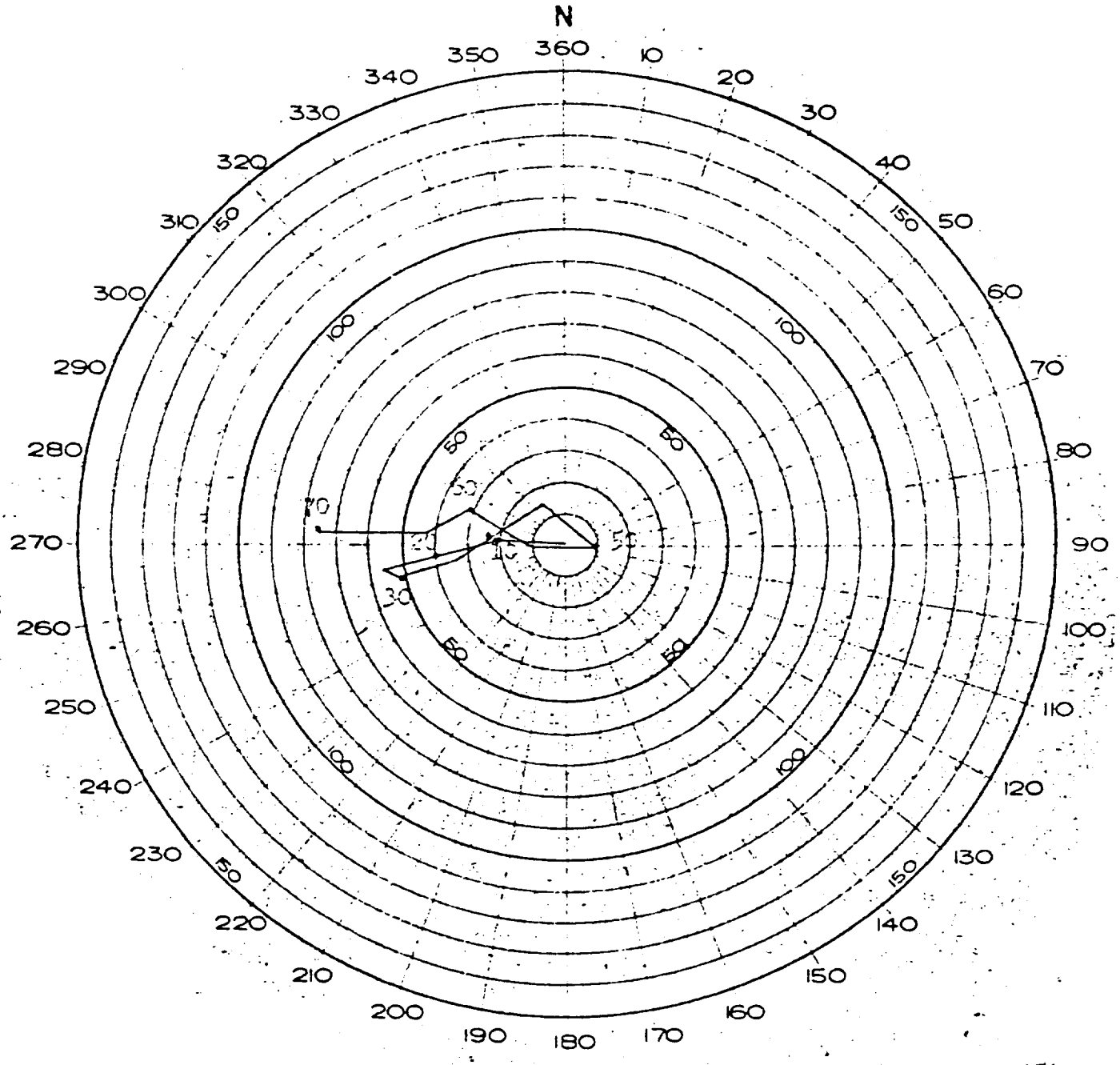
270
280
290
300
310
320
330
340
350
50
100
150



OBSERVED WINDS FOR 1200GCT JUNE 1956

- BLACKFOOT EVENT -

TAB E

JOINT TASK FORCE SEVEN

San

12 June 1956

BLACKFOOT

ENIWETOK OBSERVED WEATHER FOR 12 JUNE 1956
AT DETONATION TIME 0626M

Sea Level Pressure	1012.5 mb
Free Air Surface Temperature	81.1°F
Wet Bulb Temperature	77.2°F
Dew Point Temperature	75.8°F
Relative Humidity	84.0%
Surface Wind	075° 10-14 knots
Visibility	10 miles

CLOUDS:

2/10 cumulus; estimated at 1500 ft. Large cumulus with shower activity located 7½ miles bearing 060° from Eniwetok. Top of this cumulus measured by radar at 37,000 ft.
1/10 stratocumulus; base estimated at 4500 ft.
2/10 or more altocumulus; estimated at 9000 ft. (opaque)
8/10 cirrostratus; estimated at 30,000 ft. (thin) (4/10 transparent)

AREA WEATHER SUMMARY FROM AIRCRAFT REPORTS:

3/8-5/8 cumulus over Eniwetok area with bases at 1500 feet and tops generally at 5000-7000 feet. Cumulonimbus located south of GZ with top at 35,000 feet. Some cumulonimbus tops estimated at 45,000 feet to northeast and north of GZ (no distance estimated). A scattered line of cumulonimbus about 30 miles east of GZ with tops estimated at 40,000 feet.

8/10 altostratus; bases at 13,500 ft with tops at 15,000 feet.

8/10-9/10 cirrostratus (very thin); based at 30,000 feet which appeared to be "breaking up" and dissipating.

Rain showers were observed to the east and west of GZ, no distances estimated.

STATE OF SEA:

Ocean Side: Wave heights 5 feet, period 6 seconds, direction 090°.
Lagoon Side: Wave heights less than 1 foot.

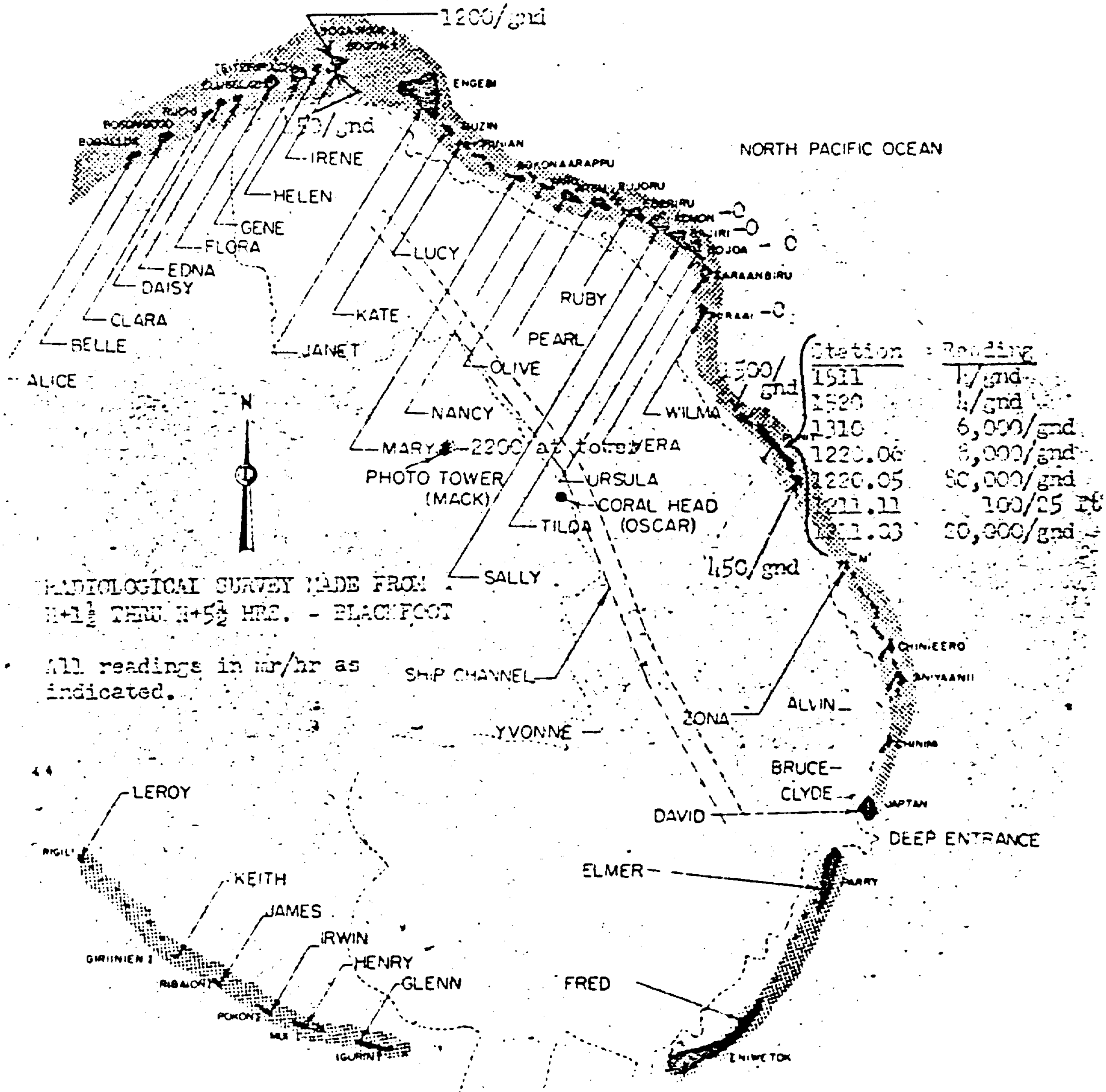
ENIWETOK UPPER AIR SOUNDING (111715Z)

Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
1004	-	26.4	23.7
1000	364	26.3	23.6
850	5,016	17.7	13.3
748	8,530	11.0	05.4

Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
700	10,380	09.0	01.0
684	10,991	08.3	-00.9
600	14,521	00.9	-08.3
572	15,748	-01.9	-11.1
506	18,963	-06.4	-15.4
500	19,258	-07.0	-16.2
446	22,146	-12.5	-24.2
424	23,425	-16.0	-28.5
400	24,856	-18.5	-30.5
300	31,680	-34.0	-44.5
298	31,791	-34.6	-45.1
247	36,089	-43.2	M
200	40,604	-55.0	M
165	44,587	-66.0	M
150	46,411	-71.0	M
138	M	-75.0	M
109	52,461	-81.8	M
103	53,445	-78.7	M
100	54,029	-78.8	M
90	56,069	-78.0	M
60	63,858	-64.1	M
50	67,513	-65.2	M
47	68,570	-65.8	M
41	71,496	-61.4	M

WINDS ALOFT (Release time 111715Z)

Height (Feet)	Direction (Degrees)	Speed (Knots)	Height (Feet)	Direction (Degrees)	Speed (Knots)
1,000	090	12	28,000	060	10
2,000	090	13	30,000	050	07
3,000	100	21	32,000	330	04
4,000	100	16	34,000	290	06
5,000	100	13	35,000	280	12
6,000	100	11	36,000	250	16
7,000	100	10	38,000	250	39
8,000	100	10	40,000	240	30
9,000	090	08	42,500	240	26
10,000	070	08	45,000	240	20
12,000	080	08	47,500	270	19
14,000	090	07	50,000	310	19
16,000	090	08	52,500	010	12
18,000	070	14	55,000	090	17
20,000	070	08	57,500	100	27
22,000	050	06	60,000	120	23
24,000	080	08	65,000	060	15
25,000	090	08	70,000	090	31
26,000	090	10	71,000	090	31


1200/gnd
70/gnd
IRENE
HELEN
GENE
FLORA
EDNA
DAISY
CLARA
BELLE
ALICE
LUCY
KATE
JANET
RUBY
PEARL
OLIVE
NANCY
WILMA
MARY — 2200 at tower
VERA
PHOTO TOWER (MACK)
URSULA
CORAL HEAD (OSCAR)
TILDA
SALLY
ENGEBI
NORTH PACIFIC OCEAN
-0
-0
-0
-0
1500/gnd
450/gnd
N
SHIP CHANNEL
YVONNE
ZONA
ALVIN
BRUCE
CLYDE
DAVID
DEEP ENTRANCE
JAPTAN
PARRY
ELMER
FRED
ENIWETOK
LEROY
KEITH
JAMES
IRWIN
HENRY
GLENN
RADIOLOGICAL SURVEY MADE FROM H+1½ THRU H+5½ HRS. - BLACKFOOT
All readings in mr/hr as indicated.

Station	Reading
1511	[illegible]
1520	[illegible]
1310	6,000/gnd
1220.06	8,000/gnd
1220.05	50,000/gnd
1211.11	100/25 Ft
1211.03	20,000/gnd

TAB F

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TAB

TAB A

FLATHEAD EVENT

OPERATION REDWING

1. The FLATHEAD Shot was fired at 0626M, 12 June 1956 on a barge located approximately one-half mile South of YUROCHI Island (DOG) in the BIKINI Atoll. The cloud reached an estimated 60,000 feet. The lower portion of the cloud and stem moved to the West at approximately 15 knots.

2. The fallout forecast for FLATHEAD was calculated on the basis of a water surface burst and a fission yield of Program TWO fallout summary on H+1 Day indicated the fallout sector as 240° through 050° extending 100 miles with probable hot line on bearing 010° with an average intensity on the surface of the water of 1 mr/hr. The plus 48-hour summary gave same sector with hot line definitely fixed on bearing of 310°. Program TWO surveys confirmed the fallout forecast to be within the acceptable error of forecasting.

3. Cloud penetration aircraft reported the middle and upper portion of the cloud moving to the northeast at H+1 Hour. The cloud continued to move in a general north-northeasterly direction throughout H+3 Hours.

4. The aerial monitoring (P2V aircraft) reported the ENYU (NAN) airstrip to be free of debris and radiological hazards. Based on survey information Reentry Hour was established at 0830M, 12 June. The initial helicopter survey at H+3 hours reported fallout still occurring over the reef and lagoon in the vicinity of YUROCHI (DOG). In general, the initial

survey found radiation levels to be much lower than anticipated. The complete helicopter survey [redacted] confirmed the low contamination levels encountered by the initial survey. Several plausible reasons have been advanced for the absence of heavy contamination. The most reasonable being that the water waves generated by the blast washed over the land areas and washed the early fallout away.

6. WILSON I cloud tracker was directed to make a standard E-type search beginning at H+6 hours in a sector, true bearing 030° through 060°, with apex on BIKINI. WILSON I was instructed to return via UTIRIK and RONGERIK. WILSON I reported no intensity greater than 50 mr/hr. WILSON II flew the pattern indicated in TAB , beginning at H+16 hours. WILSON II encountered intensities no greater than 10 mr/hr. Low intensities were encountered throughout the flight indicating a general smearing of the bomb debris by the light and variable winds at various levels.

7. The off-atoll monitoring stations submitted radiation reports on an hourly schedule beginning at 0800M, 12 June, and continued on this schedule through 2000M, 12 June. No significant increase in background radiation readings were observed at any of the off-site locations through H+3 days.

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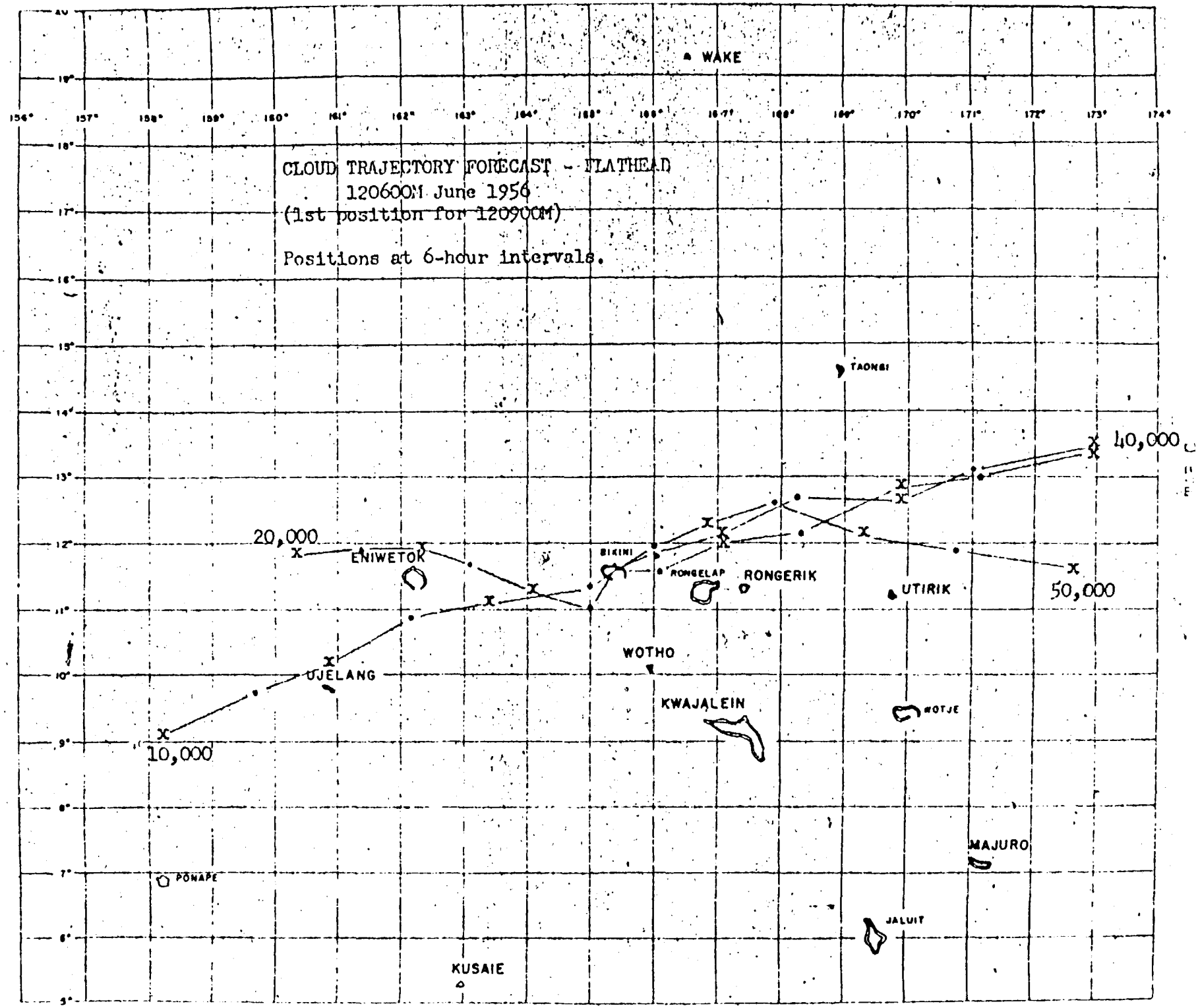
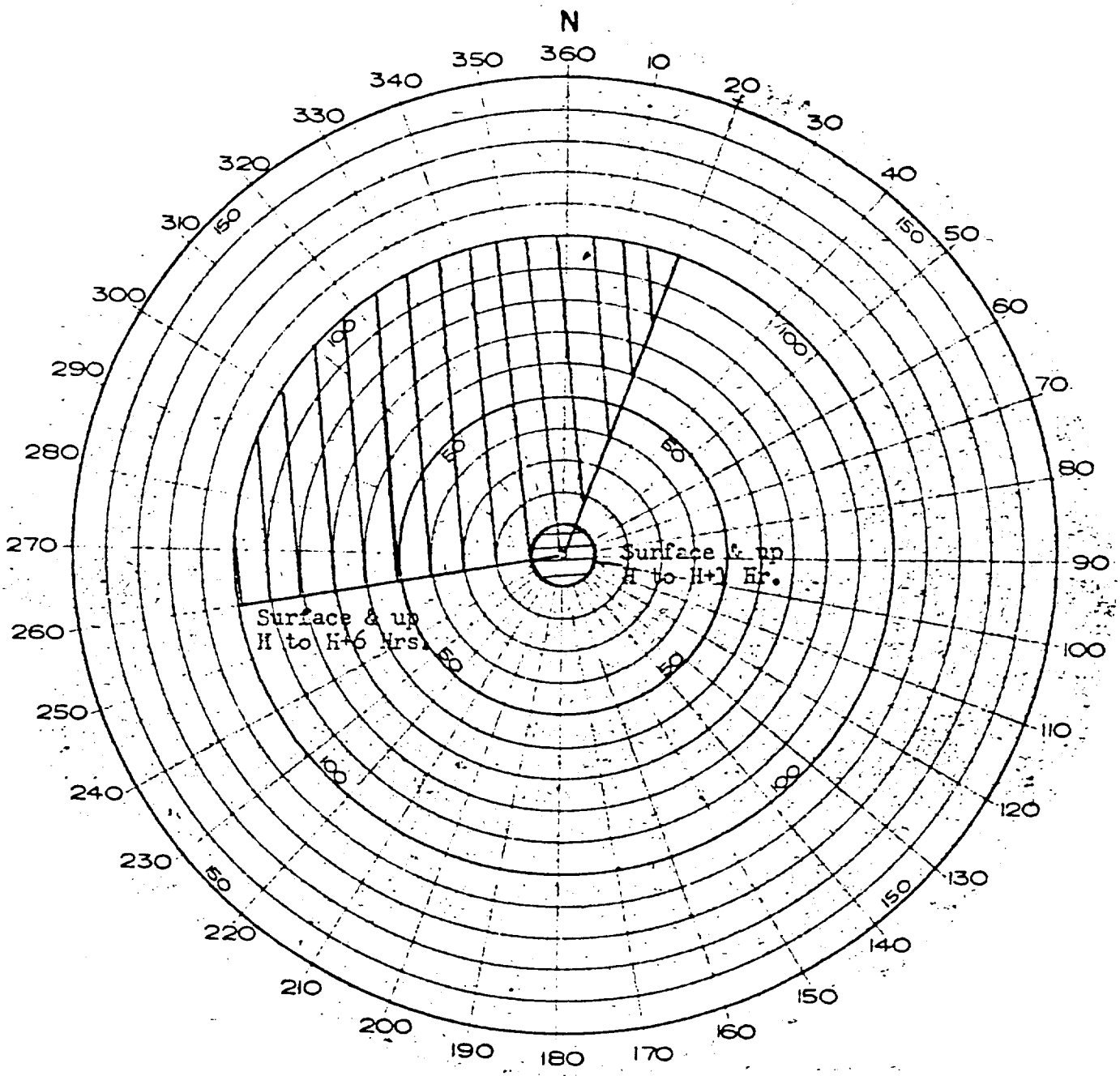
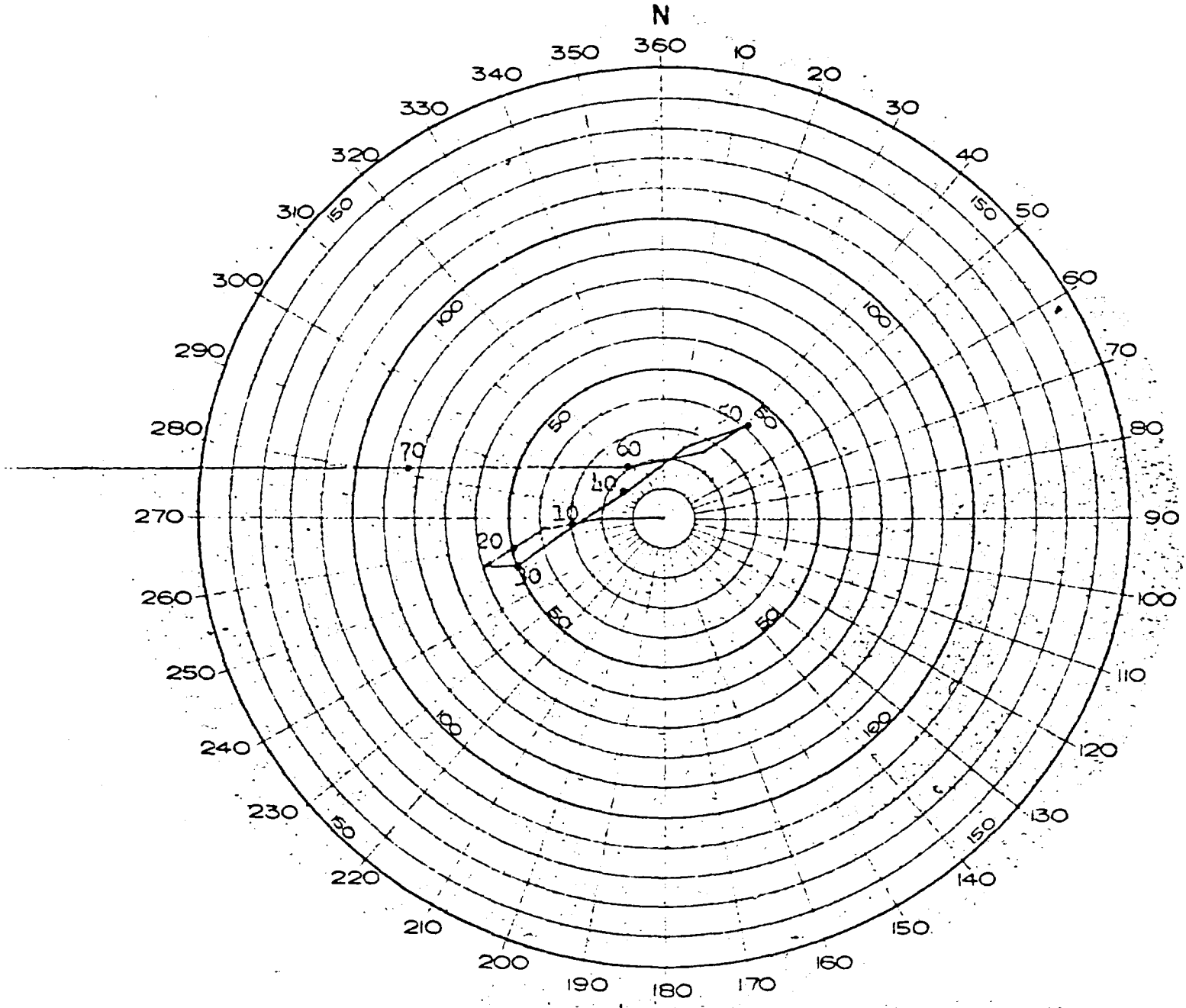

WAKE
CLOUD TRAJECTORY FORECAST - FLATHEAD
120600M June 1956
(1st position for 120900M)
Positions at 6-hour intervals.
TAONGI
40,000
20,000
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
50,000
WOTHO
UJELANG
KWAJALEIN
WOTJE
10,000
MAJURO
PONAPE
JALUIT
KUSAIE



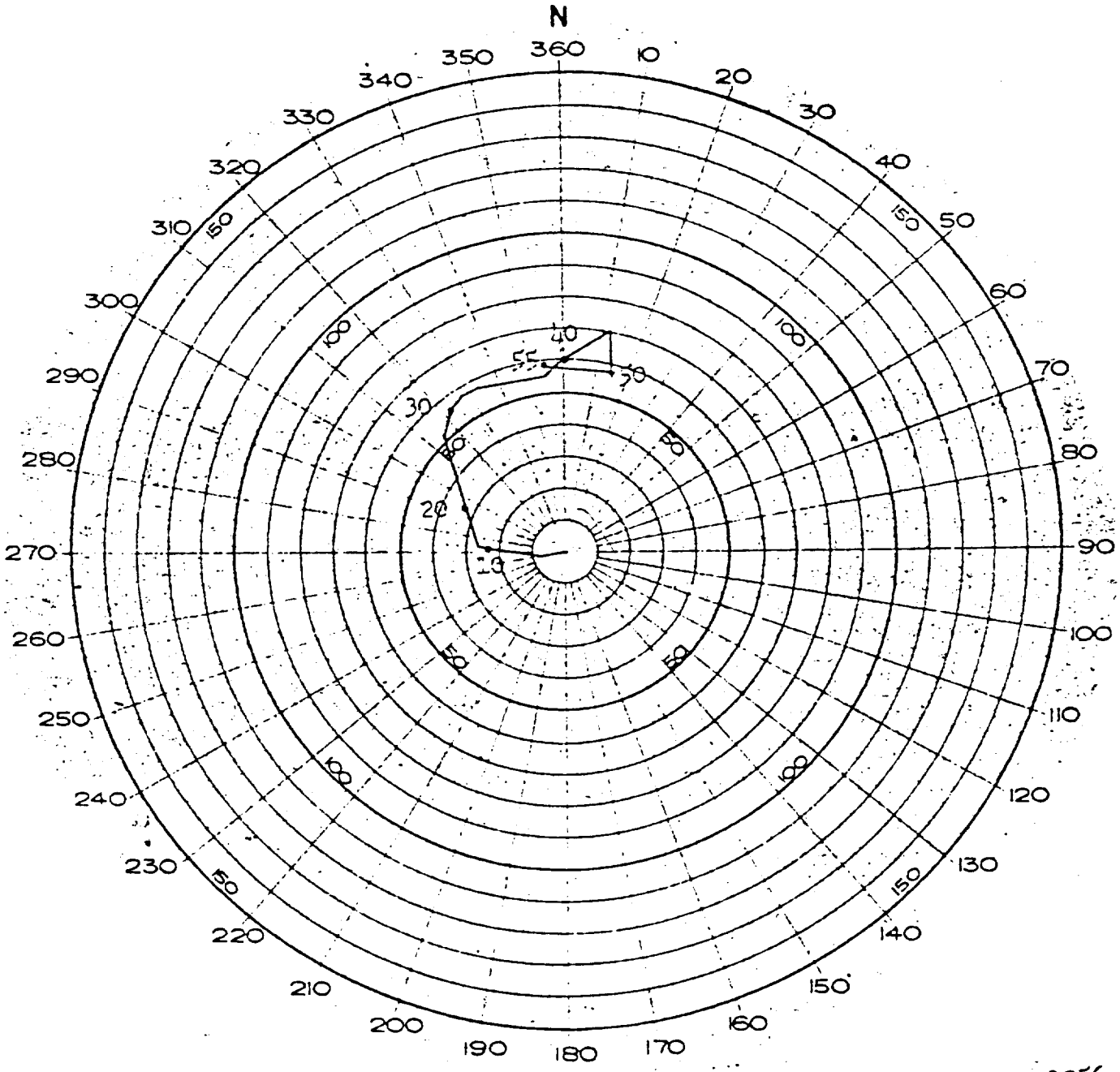
AIR & SURFACE RADEX - FLATHEAD

TAB D



FORECAST FOR 120600M June 1956 - FLATHEA
(Made 120100M)

TAB E



OBSERVED WINDS FOR 12080011 June 1956
FLATHEAD Event

TAB E

HEADQUARTERS
JOINT TASK FORCE SEVEN
APO 437
San Francisco, California

12 June 1956

FLATHEAD

BIKINI OBSERVED WEATHER FOR 12 JUNE 1956
AT DETONATION TIME 0626M

Sea Level Pressure	1012.9 mb
Free Air Surface Temperature	82.0°F
Dew Point Temperature	76.0°F
Relative Humidity	82.0%
Surface Wind	050° at 10 knots
Visibility	10 miles

CLOUDS:

4/10 stratocumulus and cumulus; bases estimated at 2000 ft.

10/10 cirrostratus; bases estimated at 30,000 feet.

WEATHER:

No shower activity reported.

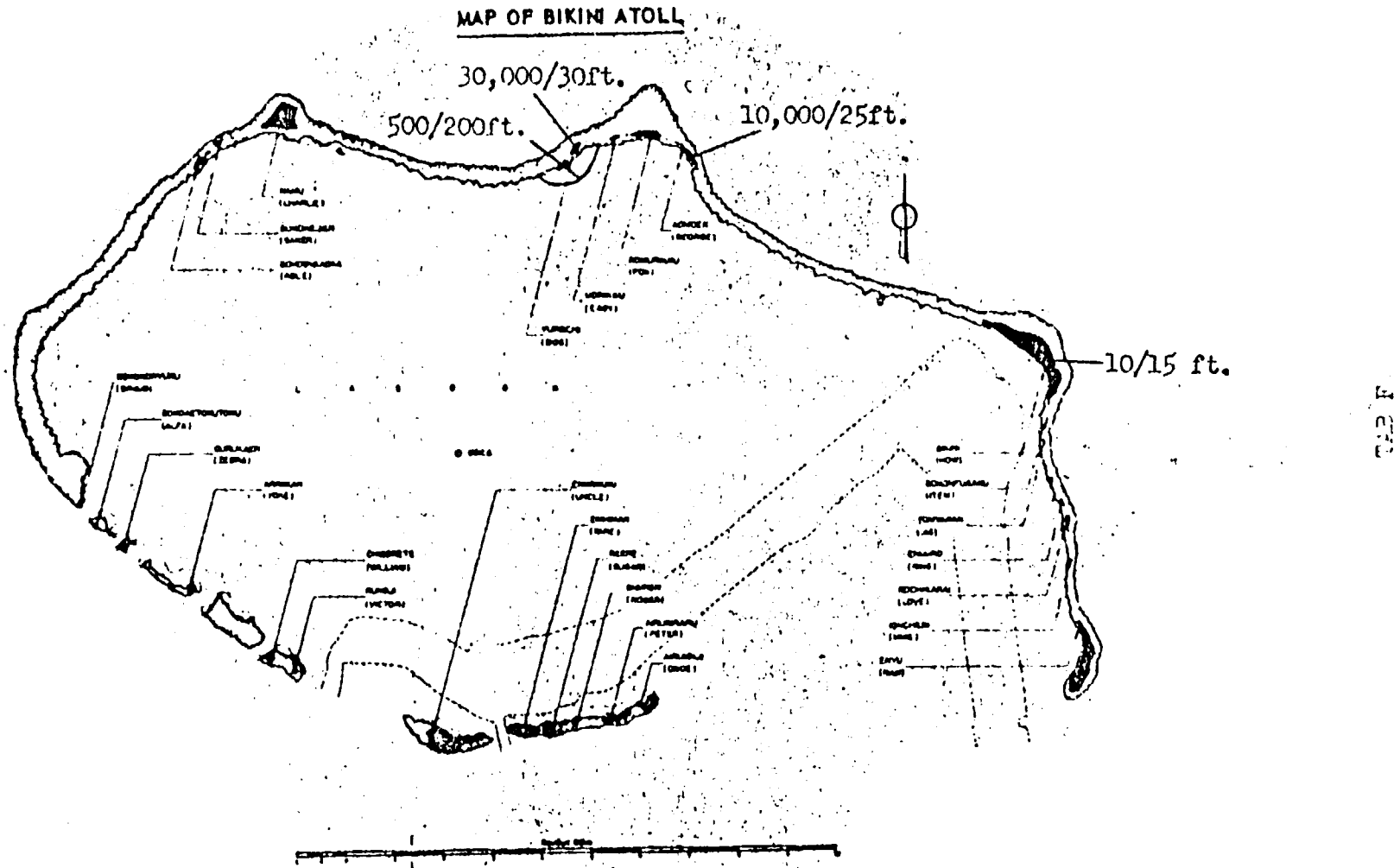
BIKINI UPPER AIR SOUNDING (111900Z)

Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
1011	110	27.8	24.5
1000	380	26.8	23.5
947	1,903	22.2	19.5
850	5,020	17.2	11.8
770	7,759	14.2	01.5
735	9,022	10.8	-02.2
700	10,380	08.5	-02.4
666	11,713	06.8	-02.5
640	12,705	05.2	-08.8
611	14,042	02.8	-06.2
560	16,327	-02.8	-10.2
543	17,126	-04.8	-20.5
525	17,995	-04.2	-19.2
500	19,250	-08.2	-11.8
400	24,840	-19.2	-30.5
356	27,592	-25.2	-37.5
300	31,670	-32.3	M

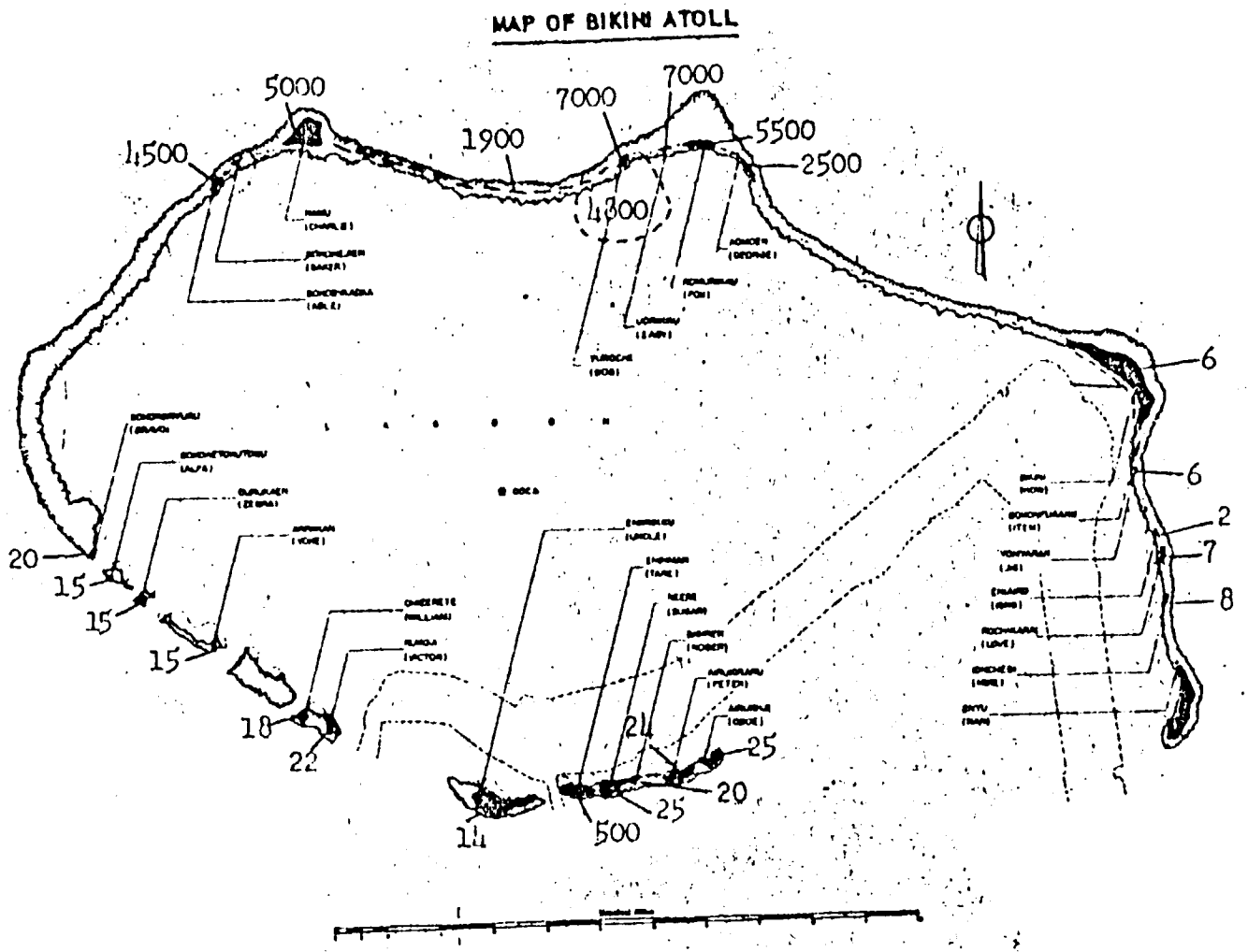
Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
250	35,800	-42.3	M
200	40,630	-54.4	M
150	46,450	-69.9	M
122	50,393	-80.0	M
116	51,345	-79.0	M
112	52,001	-81.0	M
100	54,090	-78.0	M
88	56,430	-76.0	M
68	61,548	-65.0	M
58	64,711	-61.0	M

WINDS ALOFT (311940Z)

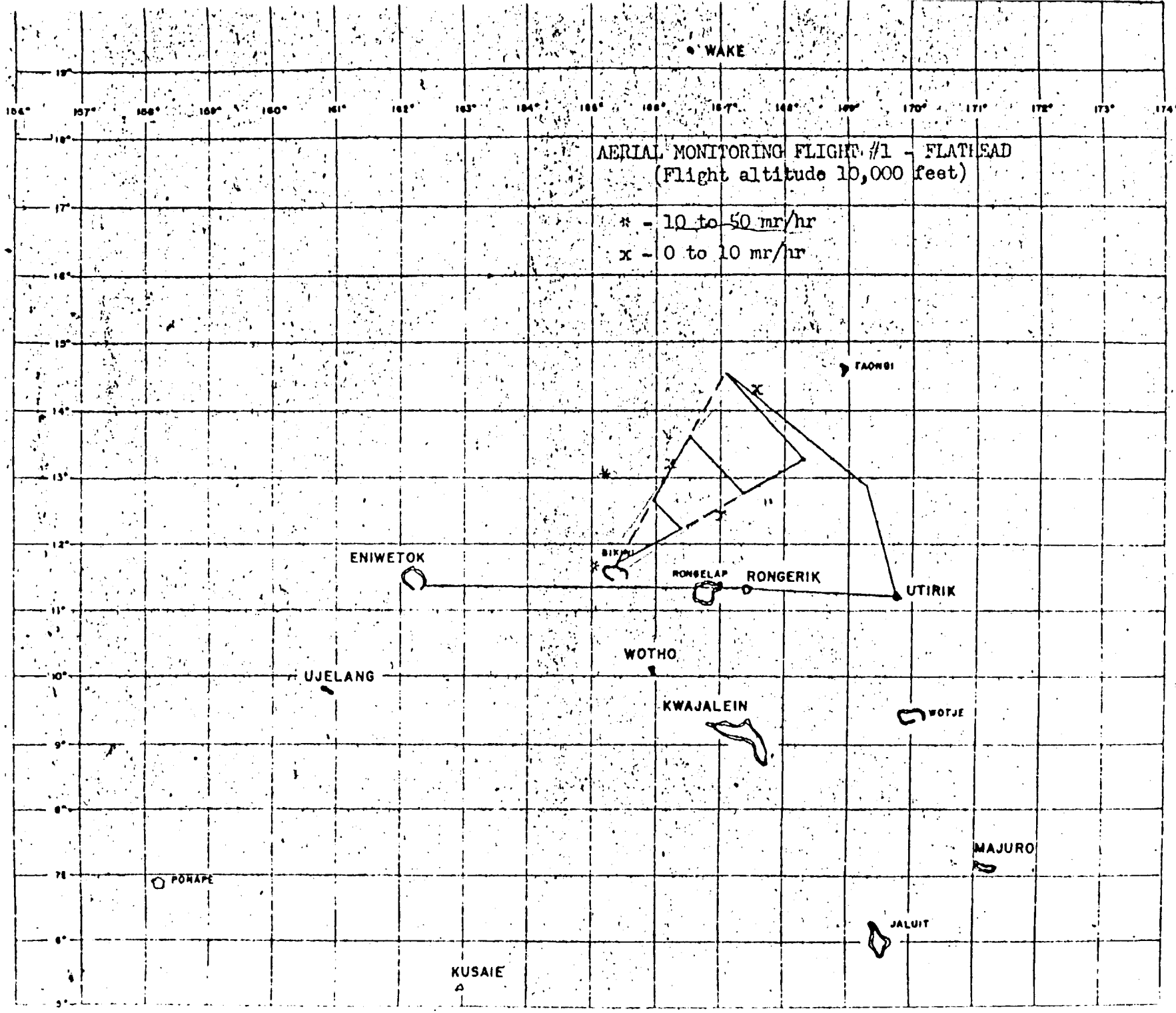
Height (Feet)	Direction (Degrees)	Speed (Knots)	Height (Feet)	Direction (Degrees)	Speed (Knots)
1,000	070	20	18,000	150	12
2,000	080	17	20,000	160	11
3,000	090	13	22,000	150	10
4,000	100	11	24,000	160	13
5,000	100	11	26,000	170	15
6,000	100	12	28,000	170	16
7,000	090	12	30,000	200	18
8,000	090	09	32,000	220	17
9,000	100	07	34,000	240	14
10,000	100	06	36,000	260	19
12,000	090	04	38,000	260	29
14,000	130	05	40,000	230	18
16,000	160	09	45,000	240	17
			50,000	360	13
			55,000	100	17

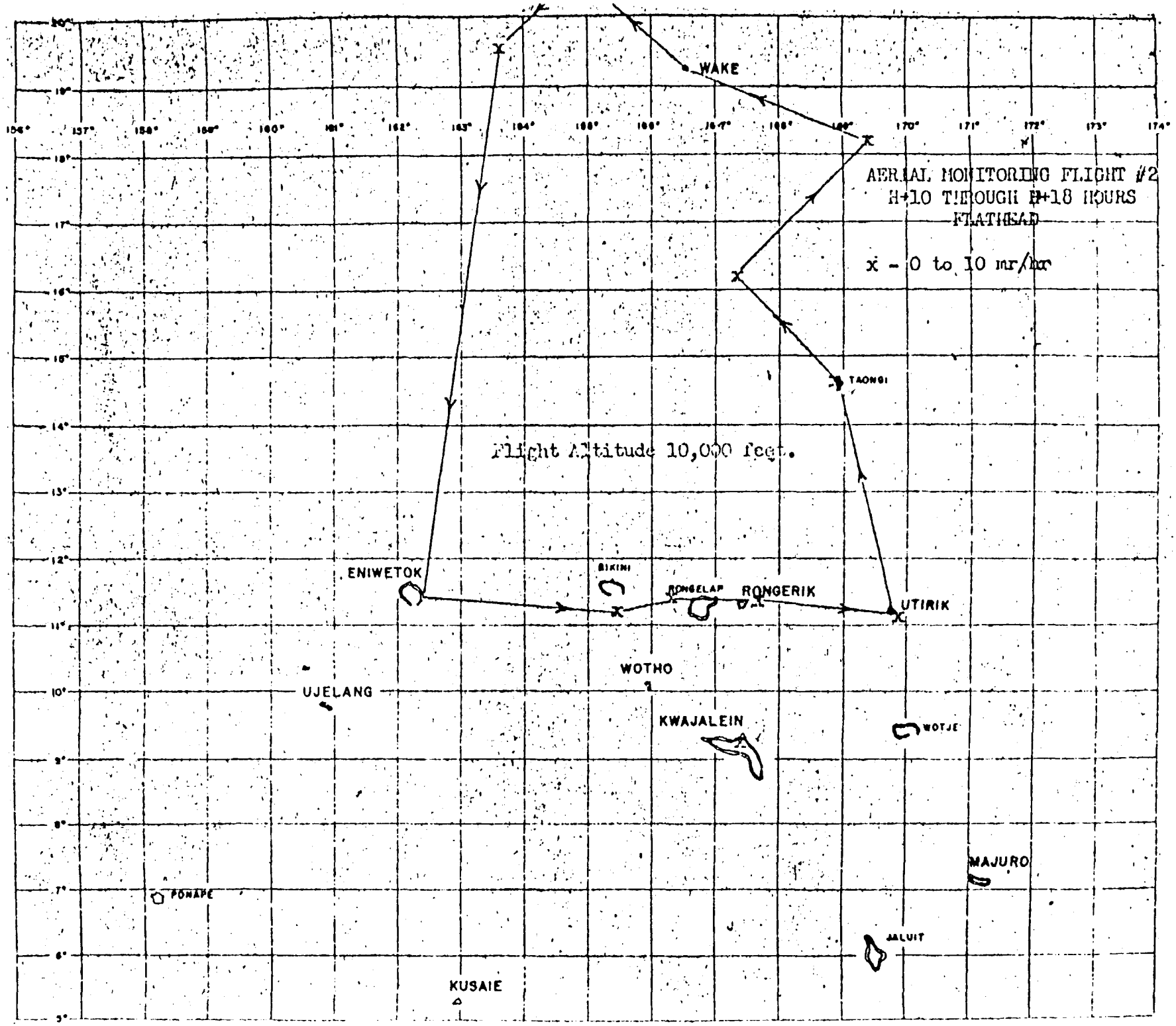


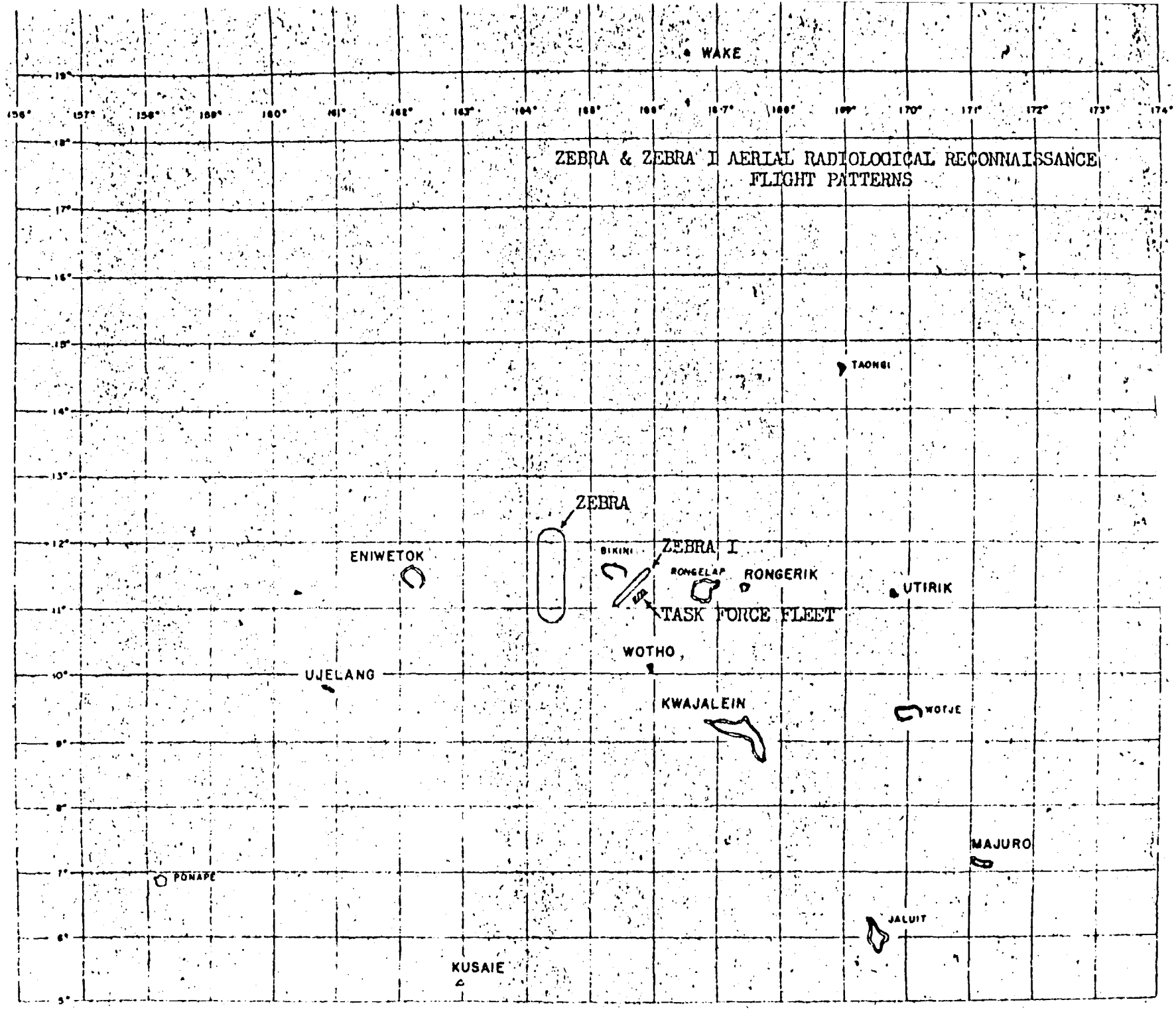
INITIAL RADIOLOGICAL SURVEY
MADE AT H+3 HRS. (FLATHEAD)



All readings in mr/hr at 25 ft. altitude.
at H+7 to H+8 Hrs. (FLATHEAD)


WAKE
AERIAL MONITORING FLIGHT #1 - FLATHEAD
(Flight altitude 10,000 feet)
* - 10 to 50 mr/hr
x - 0 to 10 mr/hr
FAONGI
BIKINI
ENIWETOK
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE


WAKE
AERIAL MONITORING FLIGHT #2
H+10 THROUGH H+18 HOURS
FLATHEAD
x - 0 to 10 mr/hr
TAONGI
Flight Altitude 10,000 feet.
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE


WAKE
ZEBRA & ZEBRA I AERIAL RADIOLOGICAL RECONNAISSANCE
FLIGHT PATTERNS
TAONGI
ZEBRA
ZEBRA I
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
TASK FORCE FLEET
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE

TAB I.

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TAB A

KICKAPOO EVENT

OPERATION REDWING

1. The KICKAPOO device was detonated at 1126M, 14 June 1956 located on ACMOEN Island (SALLY) in ENIWETOK Atoll. The KICKAPOO cloud reached an estimated height of 18,000 feet. Cloud movement was difficult to observe due to being partially obscured by the low clouds and rain showers over a major portion of the ENIWETOK area.

2. The fallout forecast for KICKAPOO was based on an assumed yield of The expected cloud height was 18,000 feet. The 10-roentgen line (dose to infinity) extended 10 miles to the southwest.

3. YOKE and YOKE I flights were flown following the detonation for radiological reconnaissance and survey. The surveys indicated that the cloud was following the predicted path. Following the final survey at 1400M, the aircraft were released. No unexpected deviation of the cloud was detected. Cloud tracking WB-50 aircraft were not employed for RadSafe missions.

4. Based on information furnished by the P2V and initial helicopter surveys, reentry hour was established as 1330M.

5. Off-atoll stations, with the exception of UJELANG, reported no increase in background. UJELANG reported a 0.3 mr/hr increase in background.

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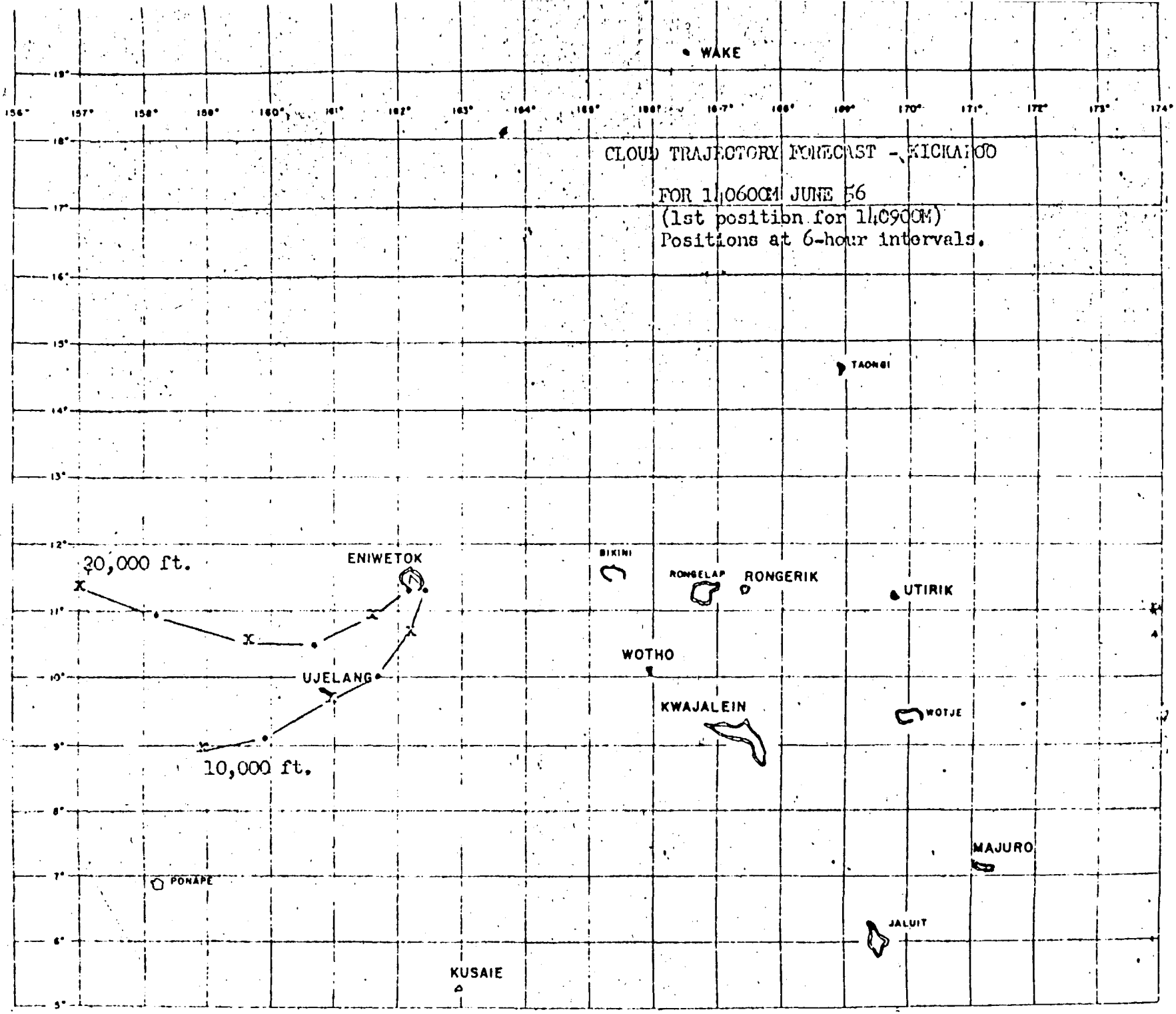
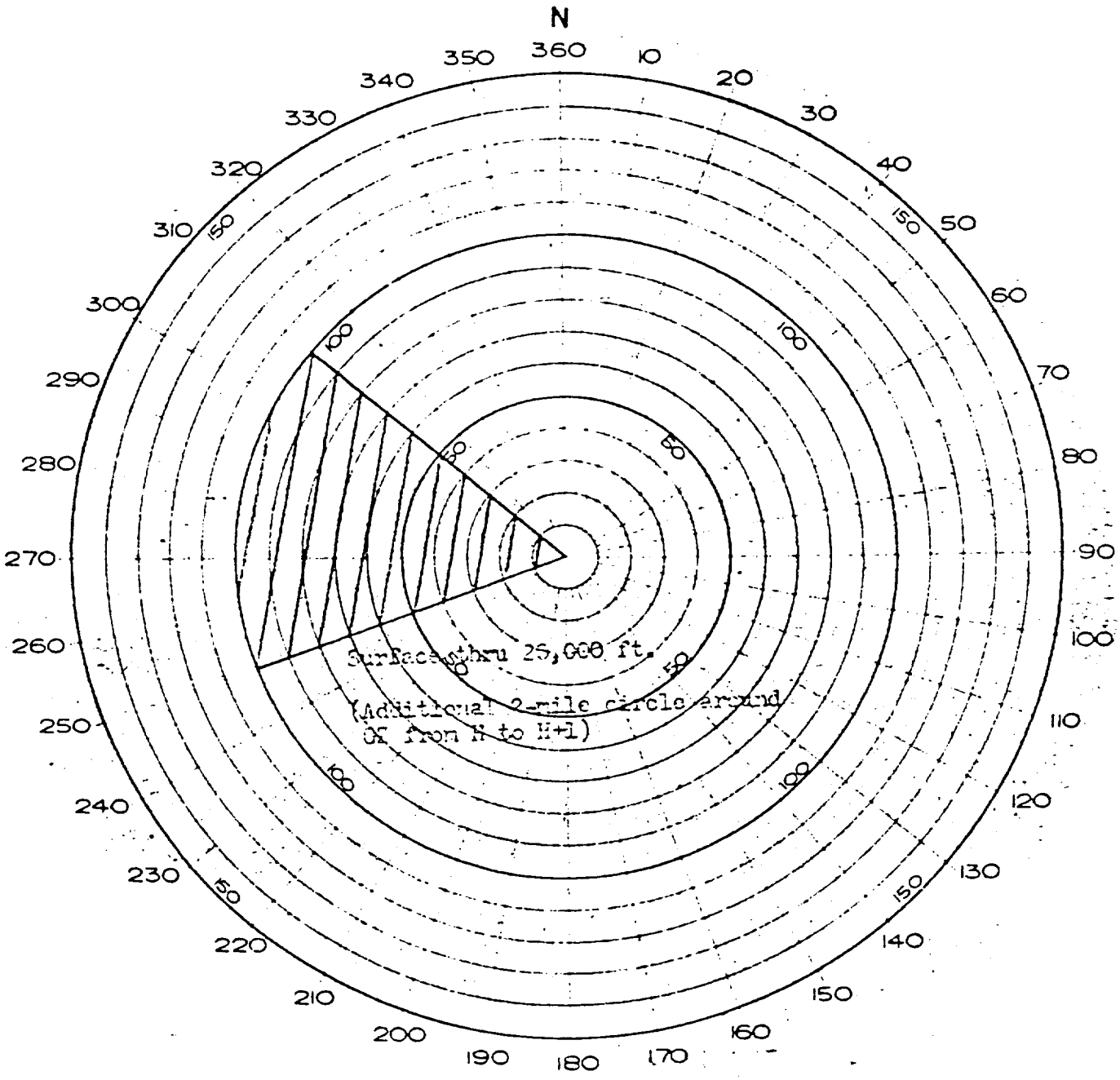
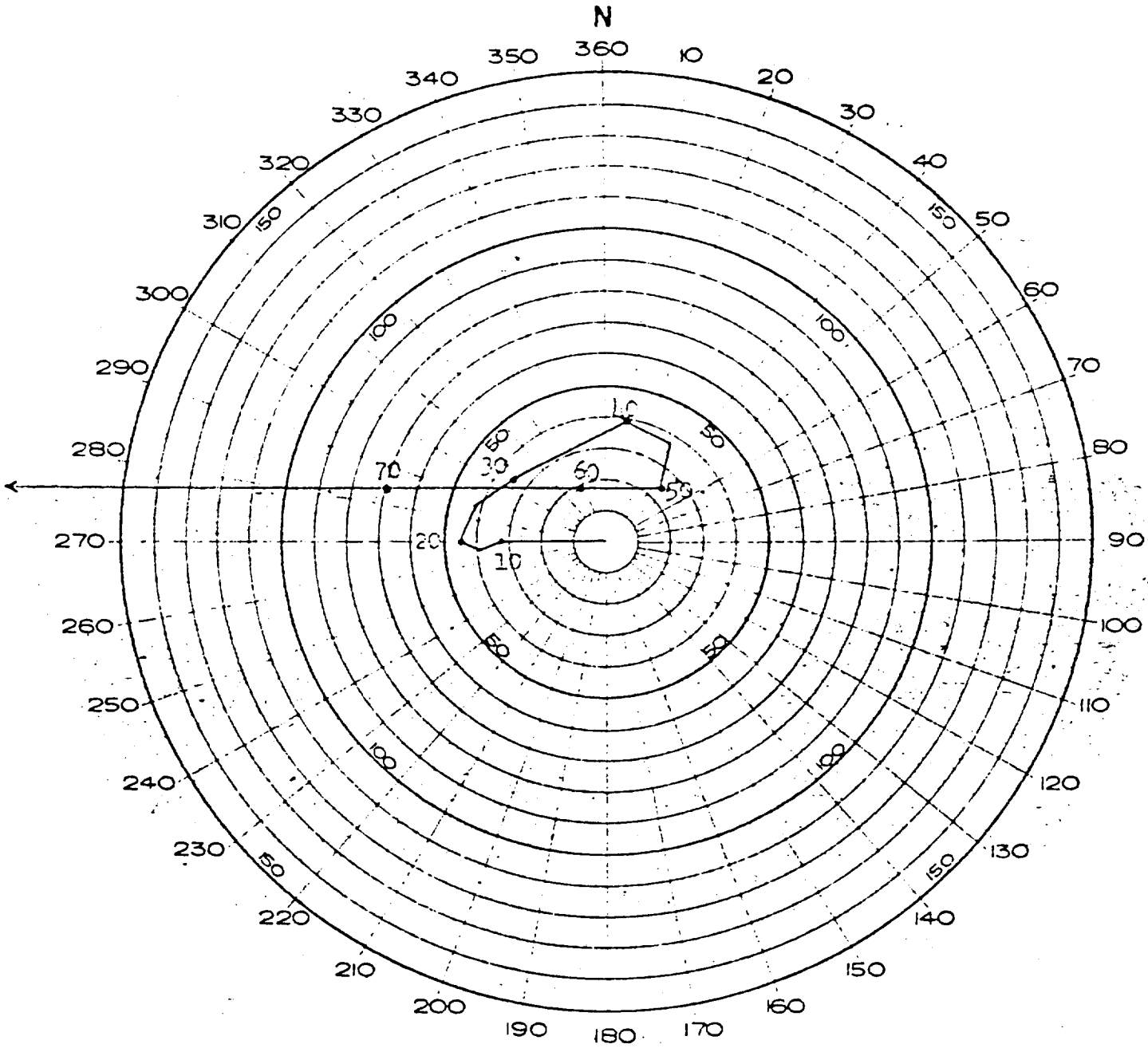

WAKE
CLOUD TRAJECTORY FORECAST - KICKAPOO
FOR 1,0600M JUNE 56
(1st position for 1,0900M)
Positions at 6-hour intervals.
TAONGI
20,000 ft.
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
10,000 ft.
MAJURO
PONAPE
JALUIT
KUSAIE

Fig C



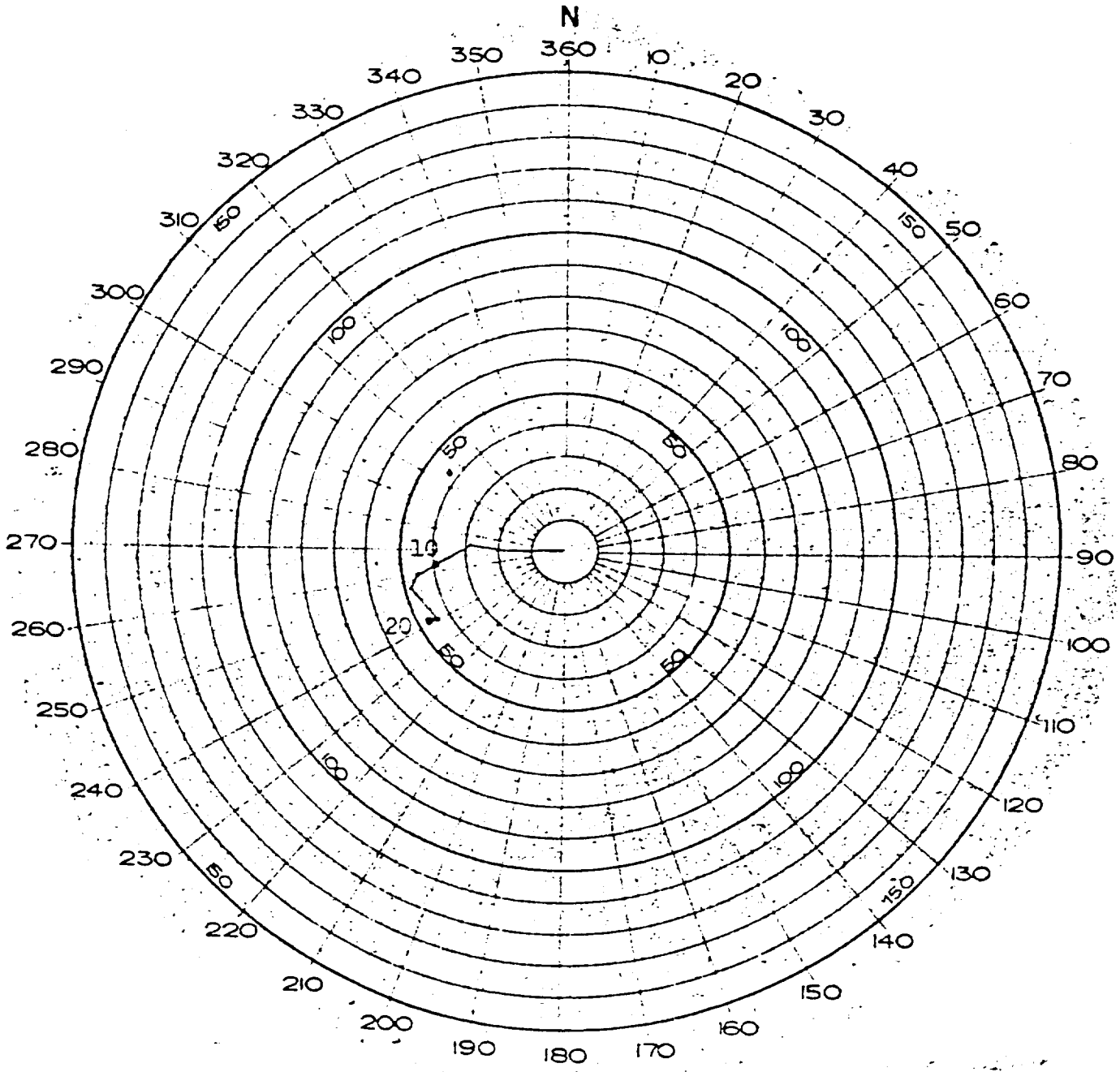
AIR & SURFACE RADEX - KICKAPOO
H to H+6 Hrs.

TAB D



FORECAST FOR 11.0600Z JUNE 1956 * KICHAPOO
(Made 11/0200Z)

TAB E



OBSERVED WINDS FOR 140700H June 1956
KICKAPOO Event -

(NOTE: Winds at double scale)

TAB F

HEADQUARTERS
JOINT TASK FORCE SEVEN
APO 437
San Francisco, California

15 June 1956

KICKAPOO

ENIWETOK OBSERVED WEATHER FOR 14 JUNE 1956
AT DETONATION TIME 1126M

Sea Level Pressure	1009.8 mbs
Free Air Surface Temperature	85.6°F
Wet Bulb Temperature	78.1°F
Dew Point Temperature	75.3°F
Relative Humidity	71.0%
Surface Wind	090° - 6 knots
Tropopause	55,570 ft, -78°C
Visibility	10 Miles

CLOUDS:

2/10 cumulus; estimated bases at 1500 ft. with radar reports indicating tops at 18,000 to 21,000 feet.
1/10 stratocumulus; bases at 2500 feet.
6/10 altocumulus; estimated at 12,000 feet. (thick) (all opaque)
4/10 cirrus; estimated at 30,000 feet. (mostly transparent)

AREA WEATHER SUMMARY FROM AIRCRAFT: (located approx. 13 miles NE of GZ)

Broken cumulus clouds (4-6/8) with tops at 10,000 to 11,000 ft. (no showers or cumulus over GZ) Widely scattered cumulus tops over 15,000 ft. in area. One cumulus buildup to 15,000 ft. located west of GZ.

RADAR OBSERVATIONS:

Heavy cumulus buildups evident by echoes to northeast and north of GZ area. Dissipating cumulus touching southern end of GZ island at shot time. Rain showers to the NE thru E (est. 7 miles away).

STATE OF SEA:

Ocean Side: Wave heights 4 feet, period 7 seconds, direction 090°.
Lagoon Side: Less than one foot swells.

ENIWETOK UPPER AIR SOUNDING (release time 1115M)

Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
1000	310	26.7	21.5
996		25.7	20.4
892		18.3	15.1
850	4,930	16.3	13.5
755	8,301	12.3	09.5
700	10,310	10.0	05.8
688		09.5	04.8
658	12,008	07.1	-06.8
638		05.8	-02.5
609		03.1	-01.6
600	14,460	02.6	-02.0
552	16,699	-00.2	-05.5
543	17,093	-01.0	-14.1
506	18,898	-04.4	-20.9
500	19,230	-04.9	-20.9
472		-07.0	-21.6
400	24,880	-17.0	-31.9
386	25,787	-17.2	M
300	31,780	-31.6	M
260		-39.3	M
209		-55.5	M
200	40,720	-57.3	M
150	46,530	-69.0	M
137		-72.0	M
105		-78.2	M
100	54,270	-77.0	M
88	58,464	-73.7	M
76		-72.7	M
50	67,810	-62.6	M
39		-57.5	M
32		-51.6	M
27		-52.6	M
25	72,320	-49.5	M
24		-48.0	M
08	107,448	-41.7	M
07	110,348	-35.7	M

TAB A

BLACKFOOT EVENT

OPERATION REDWING

1. BLACKFOOT device was fired at 0626M, 12 June 1956 on a 200-foot tower located on the northern tip of RUNIT Island (YVONNE) of ENIWETOK Atoll.

2. The fallout forecast for BLACKFOOT was based on an expected yield of The forecast indicated a light fallout pattern extending westward across the ENIWETOK Lagoon. The forecast was verified by the post-shot radiological surveys.

3. The initial cloud moved to the West. Cloud tracking aircraft reports verified the forecast cloud movement.

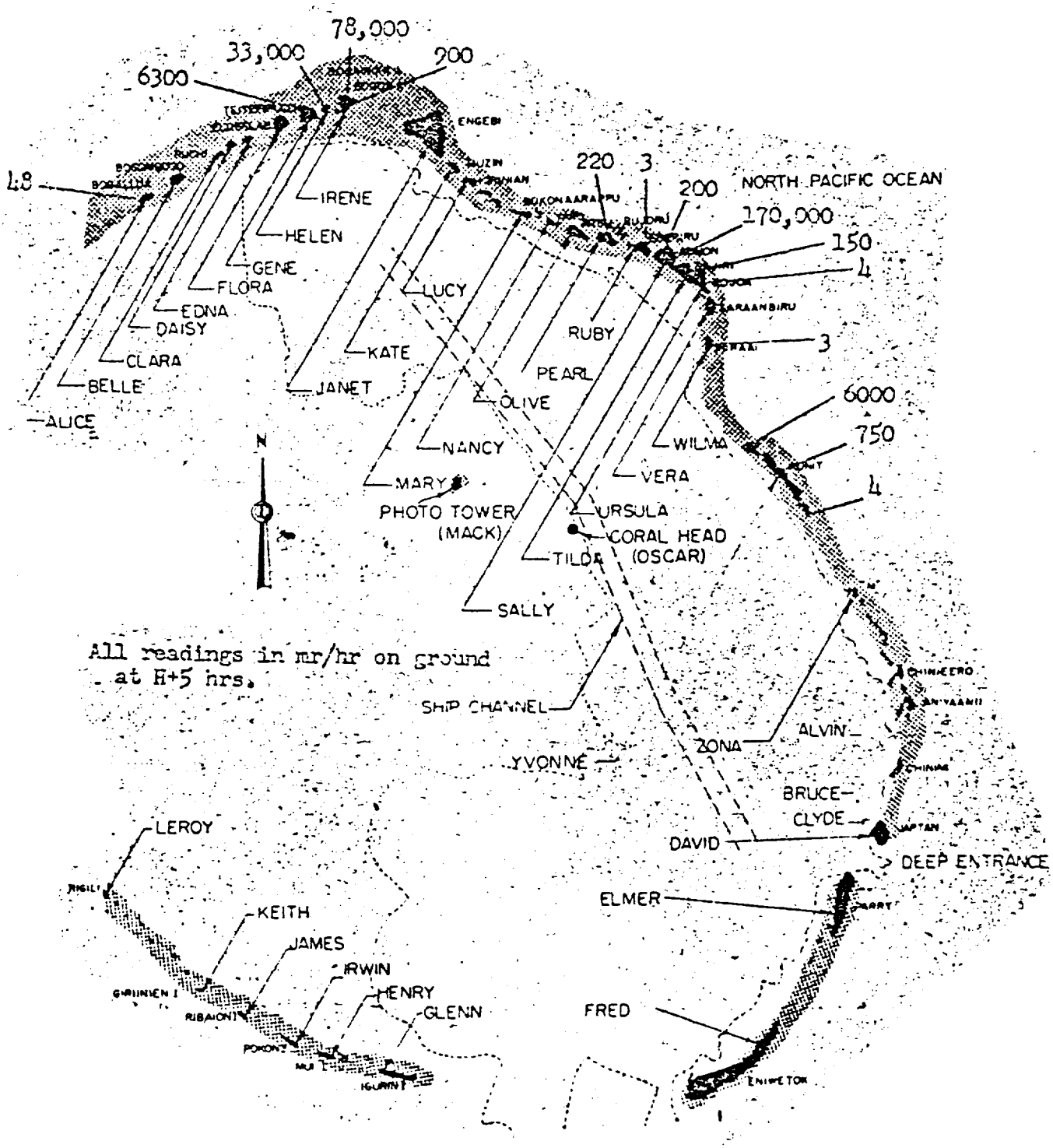
4. Based on the results of initial radiological survey of the atoll, reentry hour was announced as 0830M, 12 June 1956.

5. Monitoring stations and aerial surveys showed no detectable increase in activity at other than the ENIWETOK Lagoon area.

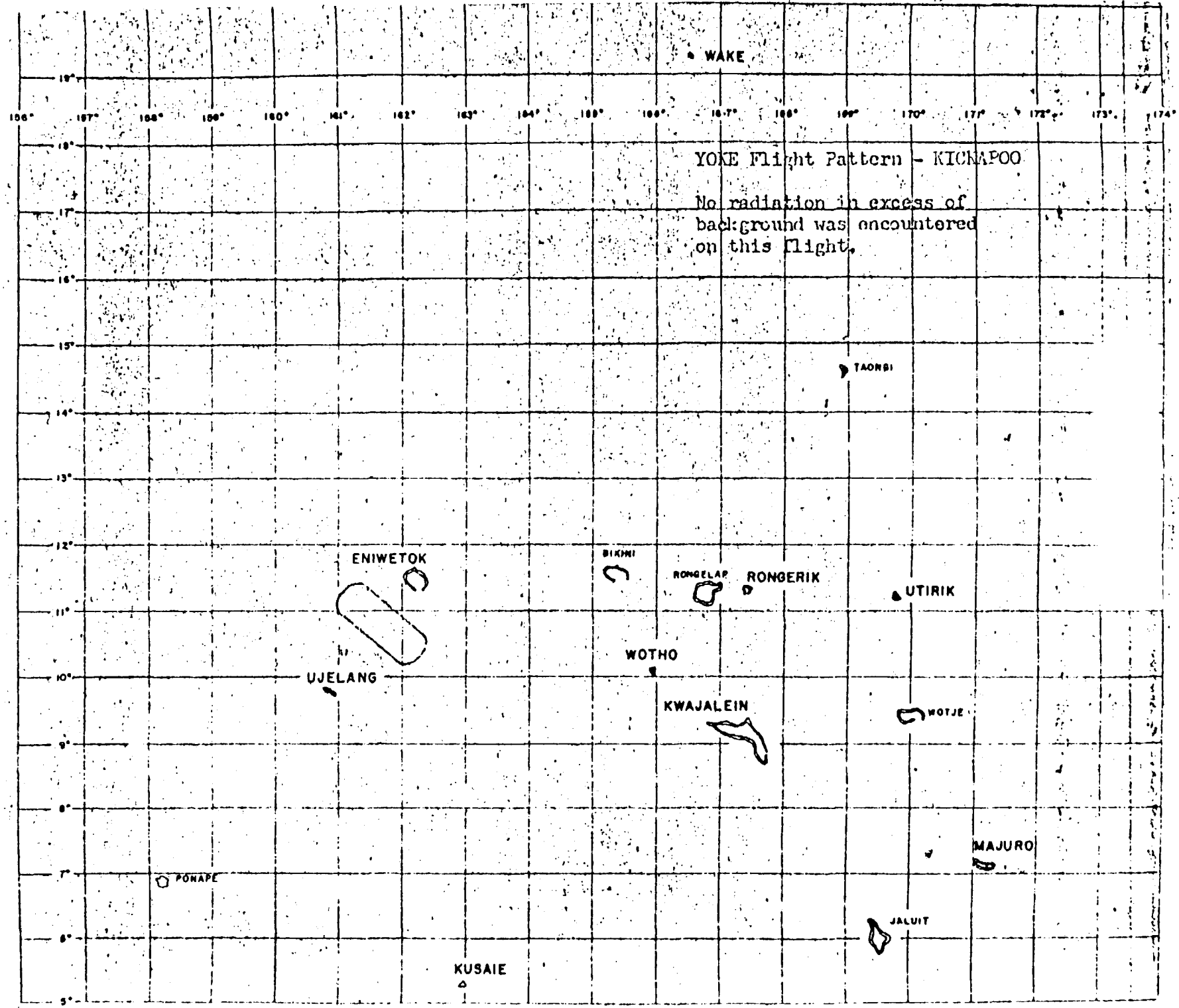
Page TAB B Deleted

WINDS ALOFT (release time 1115M)

Height (Feet)	Direction (Degrees)	Speed (Knots)	Height (Feet)	Direction (Degrees)	Speed (Knots)
1,000	090	10	34;000	350	10
2;000	090	12	35;000	350	10
3;000	090	15	36,000	360	11
4;000	090	14	38;000	360	15
5,000	100	12	40;000	360	17
6;000	120	10	42;500	020	19
7,000	100	6	45,000	350	19
8;000	080	4	47;500	320	21
9;000	060	8	50;000	340	21
10;000	030	9	52;500	030	22
12;000	030	11	55;000	060	23
14;000	030	9	57;500	070	21
16,000	020	5	60;000	080	21
18,000	020	10	65,000	100	27
20;000	070	10	70;000	090	40
22;000	040	10	75;000	090	67
24,000	030	11	80;000	100	64
25,000	020	9	85;000	100	62
26,000	030	8	90;000	090	72
28;000	010	8	95,000	100	78
30;000	360	8	98,000	100	78
32,000	350	10			


78,000
33,000
6300
200
48
220
3
200
NORTH PACIFIC OCEAN
170,000
150
4
3
6000
750
4
IRENE
HELEN
GENE
FLORA
EDNA
DAISY
CLARA
BELLE
ALICE
JANET
KATE
LUCY
RUBY
PEARL
OLIVE
NANCY
MARY
PHOTO TOWER
(MACK)
WILMA
VERA
URSULA
CORAL HEAD
(OSCAR)
TILDA
SALLY
N
All readings in mr/hr on ground
at H+5 hrs.
SHIP CHANNEL
YVONNE
ZONA
ALVIN
BRUCE
CLYDE
DAVID
DEEP ENTRANCE
ELMER
FRED
LEROY
KEITH
JAMES
IRWIN
HENRY
GLENN

TAB G


WAKE
YOKE Flight Pattern - KICKAPOO
No radiation in excess of background was encountered on this flight.
TAONSI
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE

TAB H

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TAB A

OSAGE EVENT

OPERATION REDWING

1. OSAGE device was detonated at 1311M, 16 June 1956 at an altitude of 700 feet. The shot took place over RUNIT Island (YVONNE) of ENIWETOK Atoll.

2. The cloud attained a maximum height of 21,000 feet within about five minutes after detonation. Throughout the assent the stem trailed the puff. The stem and upper part of the puff appeared to dissipate within 10 minutes after detonation leaving a brownish-orange colored cloud at an estimated altitude of 19,000 feet.

3. Movement of the cloud was not apparent to the observer on Parry Island; however, aircraft reported the cloud moving due north at less than 10 knots.

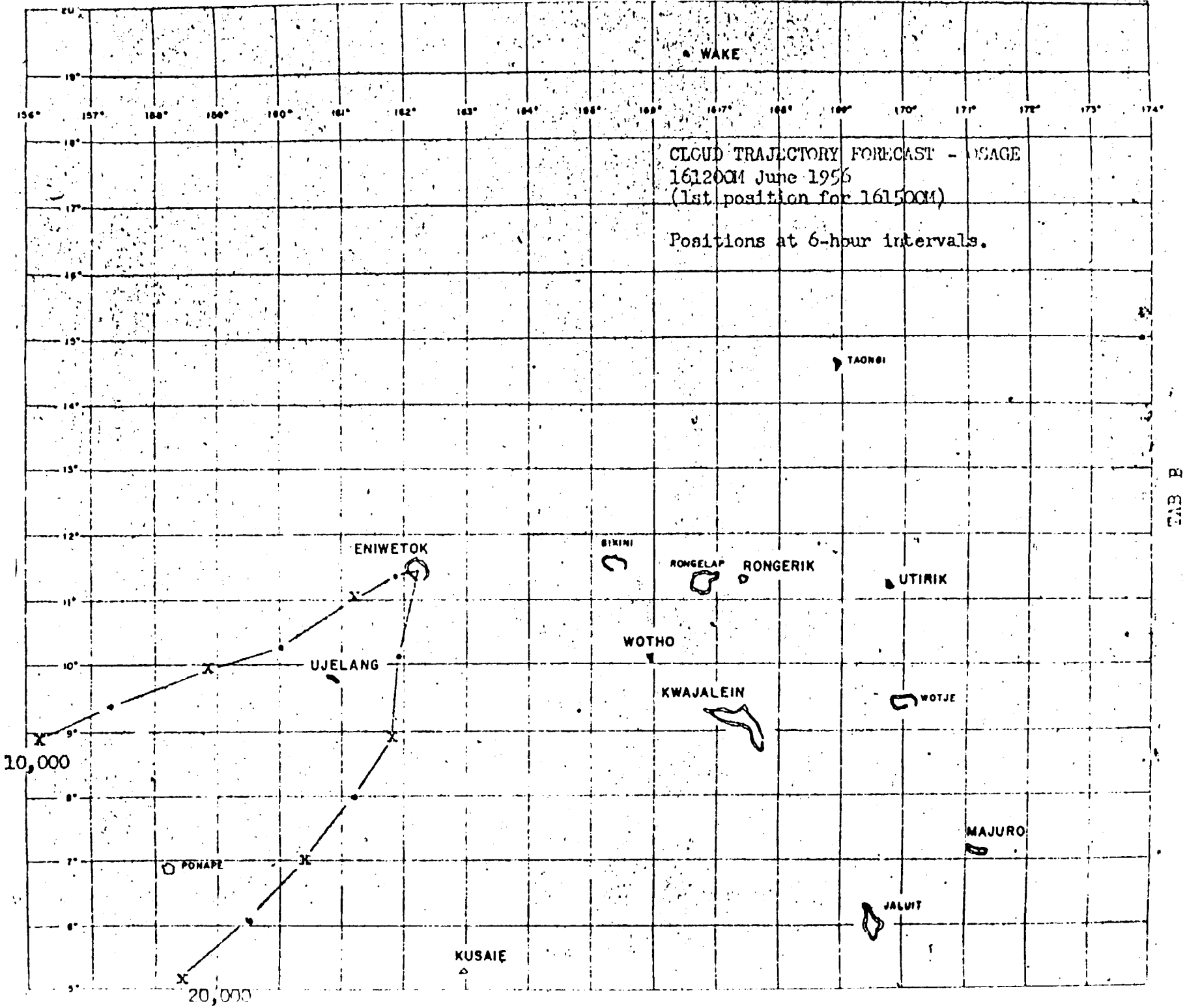
4. P2V aerial reconnaissance and survey aircraft conducted a survey of the islands North of JAPTAN at H+1 Hour. The results of the P2V survey showed that OSAGE had deposited very little fallout on any of the islands in the ENIWETOK Atoll.

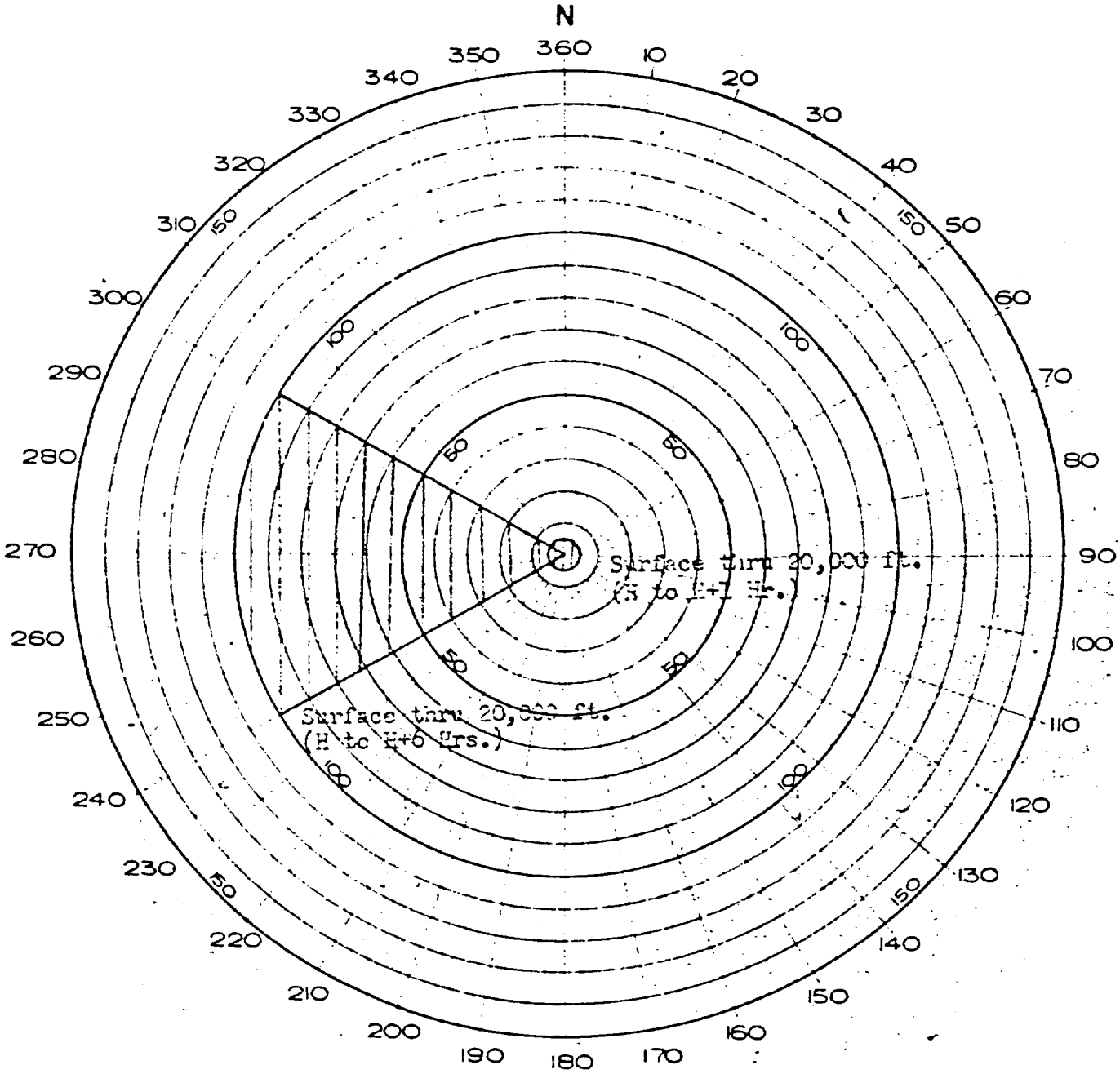
5. Based on the P2V lagoon survey, reentry hour was announced for 1300M, 16 June. Air and surface radex notices were withdrawn concurrent with the reentry announcement.

6. WB-50 cloud trackers were not utilized for OSAGE.

7. Ground monitoring stations at the off-atoll locations reported no increase in background throughout D+2 days. The close-in stations (WOTHO, UJELANG and UTIRIK) were placed on an hourly radiation reporting schedule at shot time. The stations were directed to resume the normal [illegible]-day schedule at 1600M after the P2V survey indicated that the cloud was moving as forecasted, and that no fallout had occurred within the [illegible]METOK Lagoon areas.

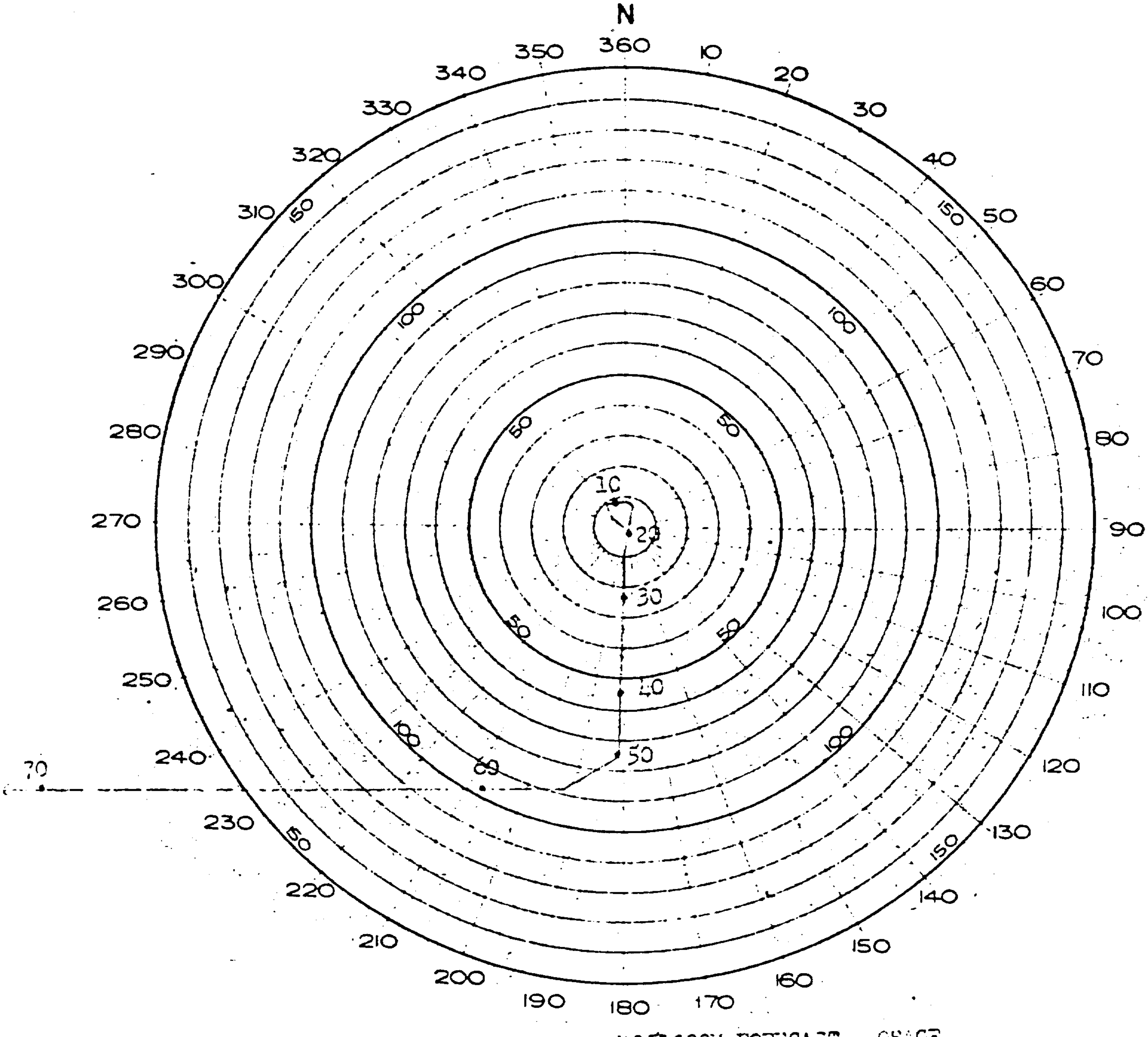
8. The fallout forecast for OSAGE was made on the basis of a near-surface burst producing approximately Since no significant [illegible]diation was expected in the height of burst, the most probable conditions [illegible]icate no fallout outside the immediate shot island.


WAKE
CLOUD TRAJECTORY FORECAST - USAGE
1612001 June 1956
(1st position for 1615001)
Positions at 6-hour intervals.
TAONGI
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
10,000
MAJURO
PONAPE
JALUIT
KUSAIE
20,000



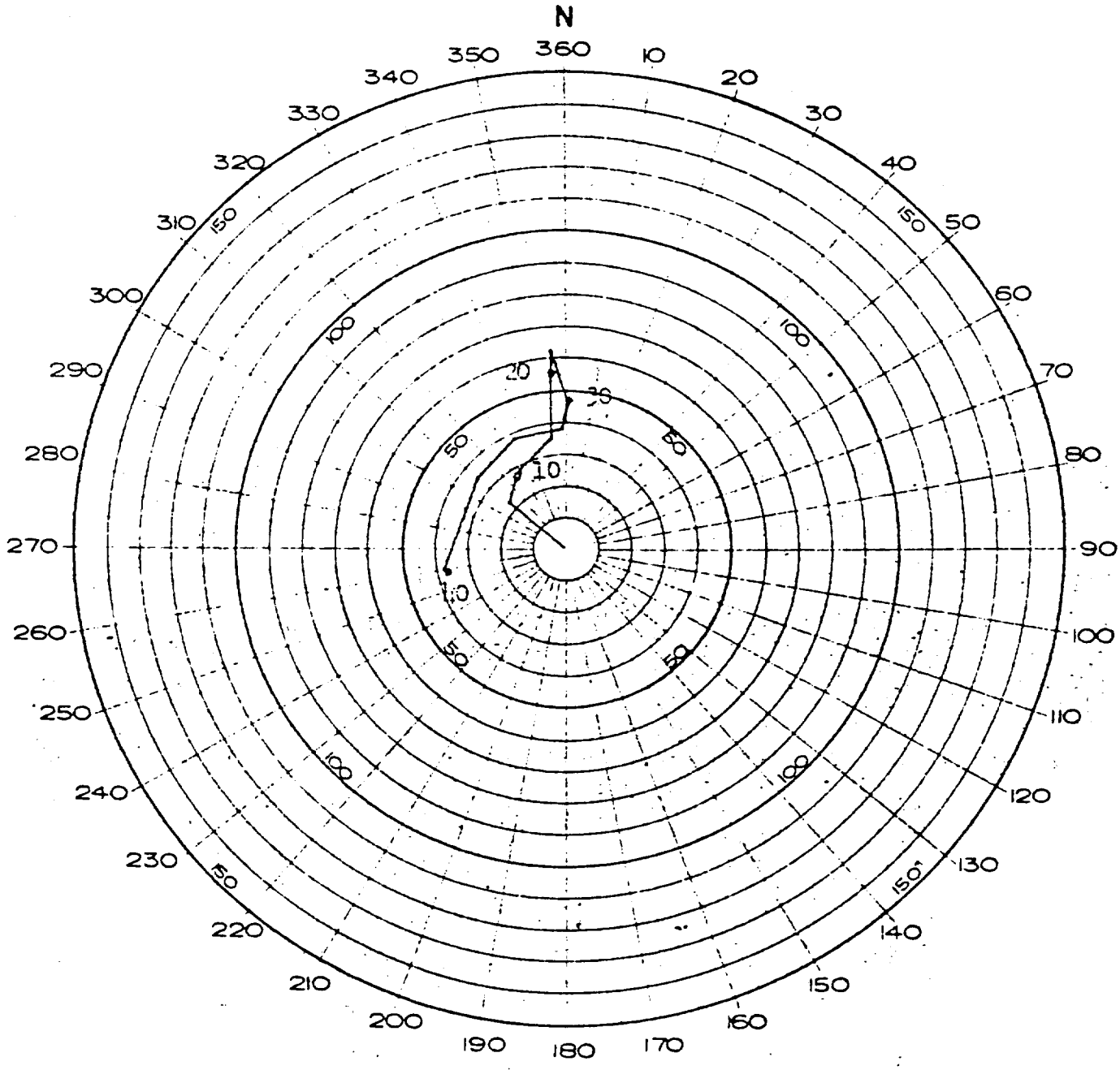
AIR AND SURFACE RADEX - OSAGE
H to H+6 Hours.

TAB C



151900M FORECAST - OSAGE
Valid 160600M June 1956

TAB D



OBSERVED WINDS FOR 1600Z4 June 1956
CHAGE Event

TAB D

HEADQUARTERS
JOINT TASK FORCE SEVEN
APO 437
San Francisco, California

18 June 1956

OSAGE

ENIWETOK OBSERVED WEATHER FOR 16 JUNE 1956
AT DETONATION TIME 1314M

Sea Level Pressure	1008.5 mb
Free Air Surface Temperature	85.9°F
Wet Bulb Temperature	79.0°F
Dew Point Temperature	76.6°F
Relative Humidity	74.0%
Surface Wind	140° - 11 knots
Visibility	10 miles

CLOUDS:

3/10 cumulus; estimated bases at 1800 ft., tops 5-7,000 ft. Towering cumulus in all quadrants.
Less than 1/10 altostratus; estimated at 9,000 ft. (thin)
6/10 cirrostratus; based at 30,000 ft. (very thin and transparent)

AREA WEATHER SUMMARY FROM AIRCRAFT:

5/8 to 6/8 cumulus clouds within 60 miles (all directions) of Eniwetok. Cumulus based at 1600 ft. with 2/3 of tops at 5,000 ft.; remaining 1/3 tops to 10,000 ft. and an occasional top to 20,000 ft. Cirrostratus (5/8) based at 30,000 ft.

RADAR OBSERVATIONS:

Towering cumulus all quadrants within 25 miles of station with tops measured at 10-12,000 ft. Towering cumulus between 25 and 75 miles of station with tops measured at 15-20,000 ft.

STATE OF SEA:

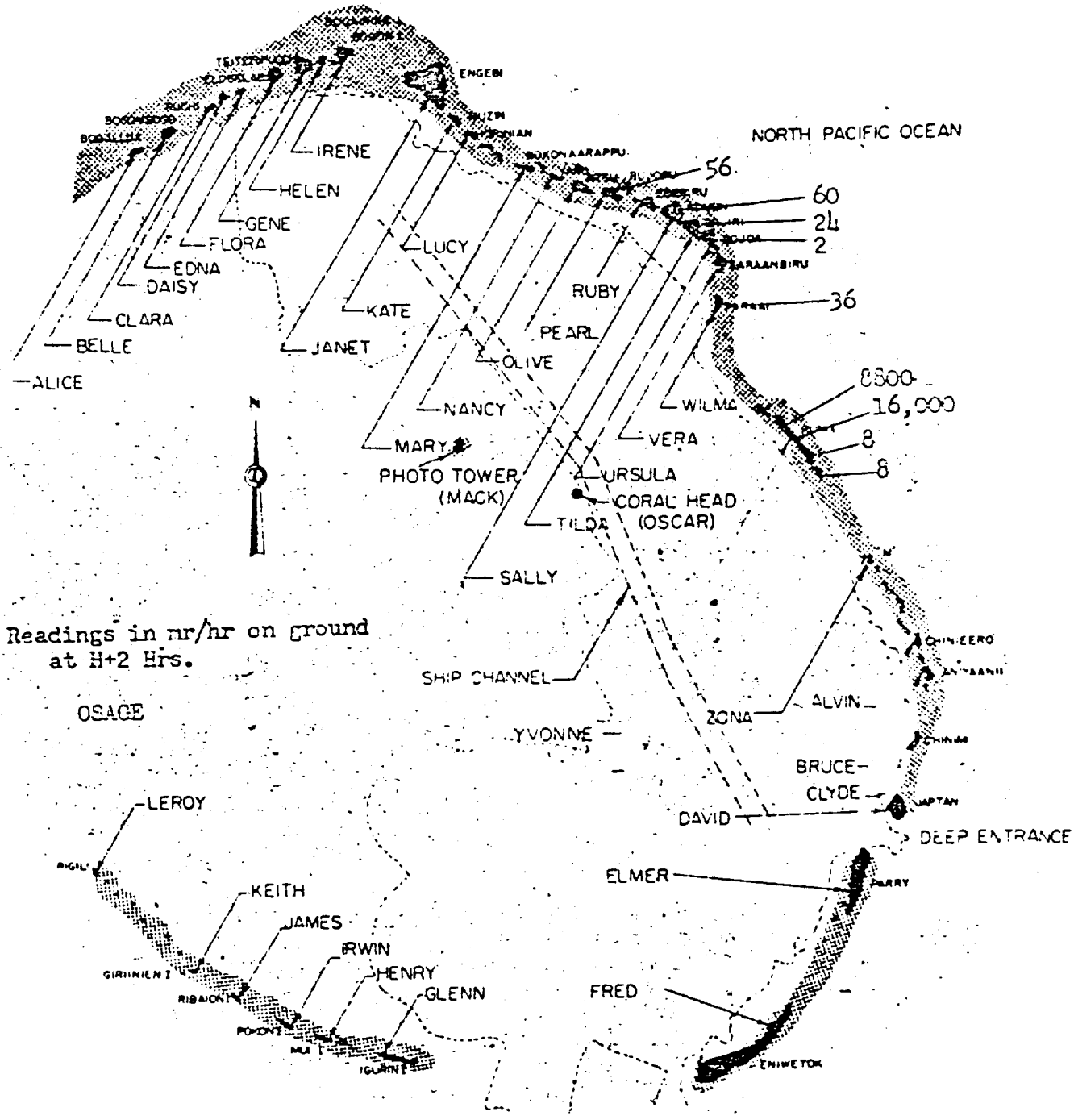
Ocean Side: Wave heights 3.5 ft., period 6 seconds, direction 100°.
Lagoon Side: Less than one foot.

ENIWETOK UPPER AIR SOUNDING (Release time 1230M)

Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
1000	280	27.9	23.4
986	689	26.7	22.5
850	4,940	17.8	10.5
700	10,330	09.2	-01.2
630	13,156	04.0	-07.5
600	14,470	02.8	-10.5
558	16,404	00.7	-16.5
504	19,029	-05.5	-22.8
500	19,250	-05.8	M
400	24,910	-15.0	M
300	31,830	-30.8	M
200	40,860	-52.2	M
150	46,770	-66.2	M
118	51,509	-72.4	M
100	54,660	-73.5	M
98	55,118	-73.8	M
66	62,372	-71.5	M

WINDS ALOFT (Release Time 1230M)

Height (Feet)	Direction (Degrees)	Speed (Knots)	Height (Feet)	Direction (Degrees)	Speed (Knots)
1,000	130	14	26,000	240	4
2,000	130	16	28,000	290	4
3,000	130	16	30,000	020	4
4,000	140	16	32,000	340	8
5,000	150	15	34,000	020	7
6,000	160	14	35,000	030	13
7,000	170	12	36,000	040	17
8,000	180	8	38,000	050	21
9,000	180	8	40,000	050	23
10,000	170	10	42,500	080	8
12,000	220	11	45,000	160	6
14,000	230	12	47,500	120	10
16,000	210	13	50,000	110	12
18,000	200	10	52,500	130	5
20,000	200	6	55,000	140	6
22,000	190	8	57,500	140	6
24,000	210	5	60,000	140	6
25,000	230	4	62,000	130	6


NORTH PACIFIC OCEAN
IRENE
HELEN
GENE
FLORA
EDNA
DAISY
CLARA
BELLE
ALICE
LUCY
KATE
JANET
RUBY
PEARL
OLIVE
NANCY
MARY
PHOTO TOWER
(MACK)
URSULA
CORAL HEAD
(OSCAR)
TILDA
SALLY
WILMA
VERA
56
60
24
2
36
8500
16,000
8
8
N
Readings in mr/hr on ground
at H+2 Hrs.
OSAGE
SHIP CHANNEL
YVONNE
ZONA
ALVIN
BRUCE
CLYDE
DAVID
DEEP ENTRANCE
LEROY
KEITH
JAMES
IRWIN
HENRY
GLENN
ELMER
FRED

TAB E

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TAB

TAB A

INCA EVENT

OPERATION REDWING

1. The INCA device was fired at 0956M, 22 June 1956, from atop a 200-foot tower located on RUJORU Island (PEARL) of ENIWETOK Atoll. The bomb cloud reached an estimated height of 42,000 feet. The stem and cloud moved to the west at approximately 10 knots. The stem appeared to contain more surface debris than usual for tower shots of similar magnitude and height of burst.

2. The fallout forecast was based on a yield of The actual yield exceeded this value by approximately

3. Initial helicopter and P2V surveys verified the fallout forecast. Shot island and the lagoon area to the west were the only areas which gave appreciable radiation readings. The cloud was tracked by 27 aircraft to a range of 100 miles. At 100 miles the cloud was approximately 50 miles long and 15 miles across with an average intensity of 50 mr/hr at 10,000 feet altitude through INCA plus 3 days.

5. Based on the radiological surveys of the atoll by helicopter and P2V aircraft, reentry hour was announced as 1200M, 22 June 1956.

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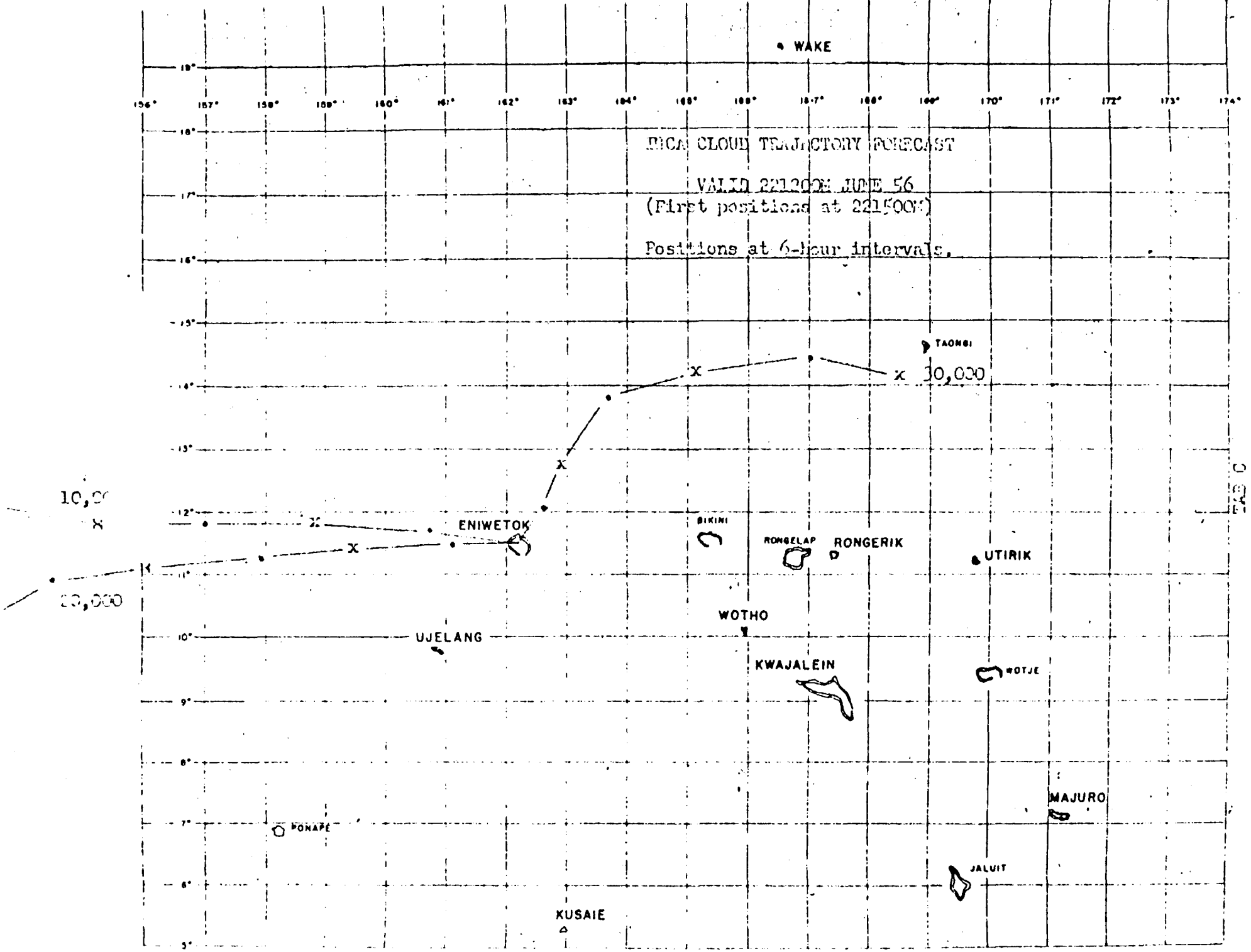
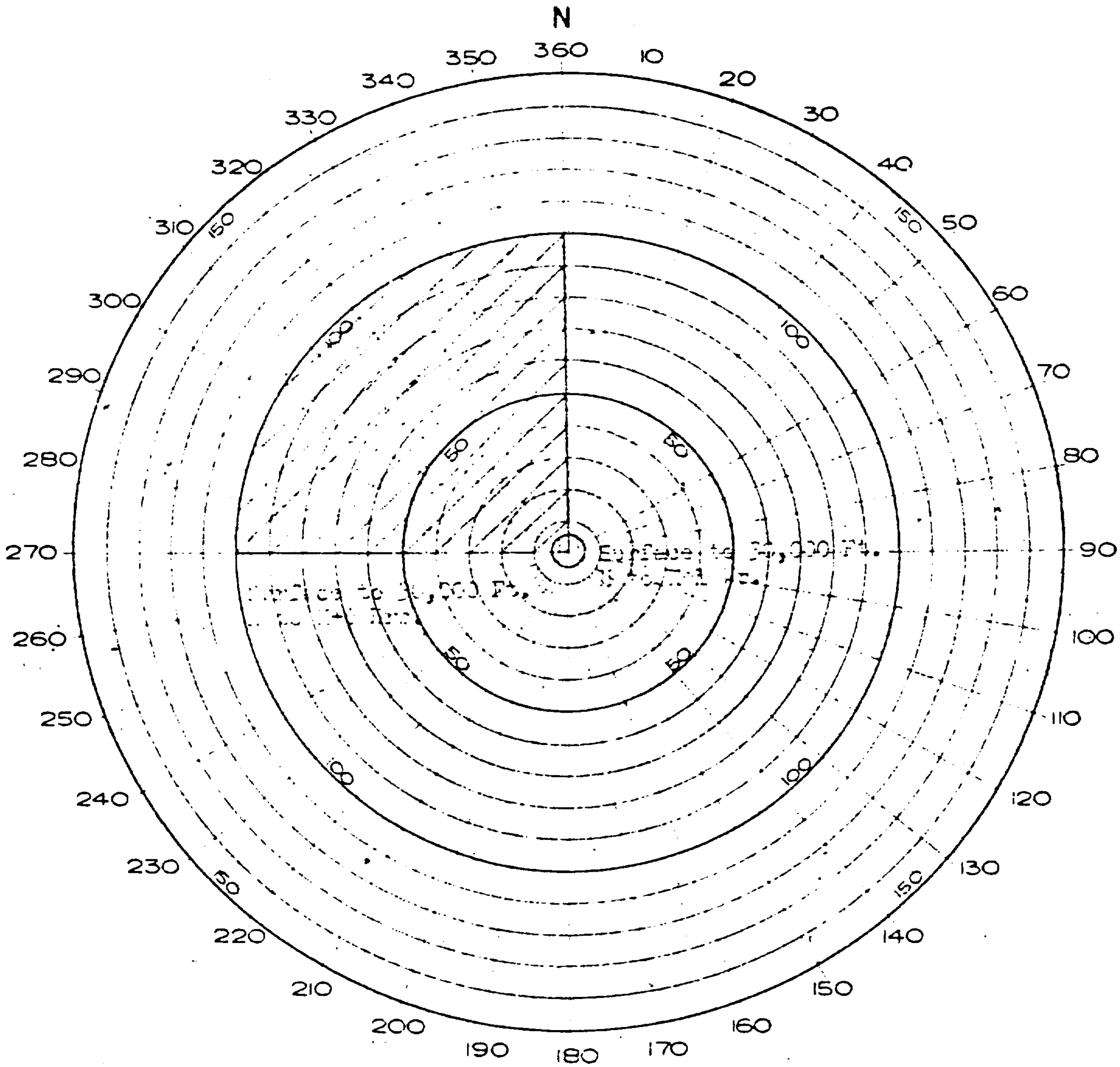


ECA CLOUD TRAJECTORY FORECAST

VALID 221200Z JUNE 56

(First positions at 221500Z)

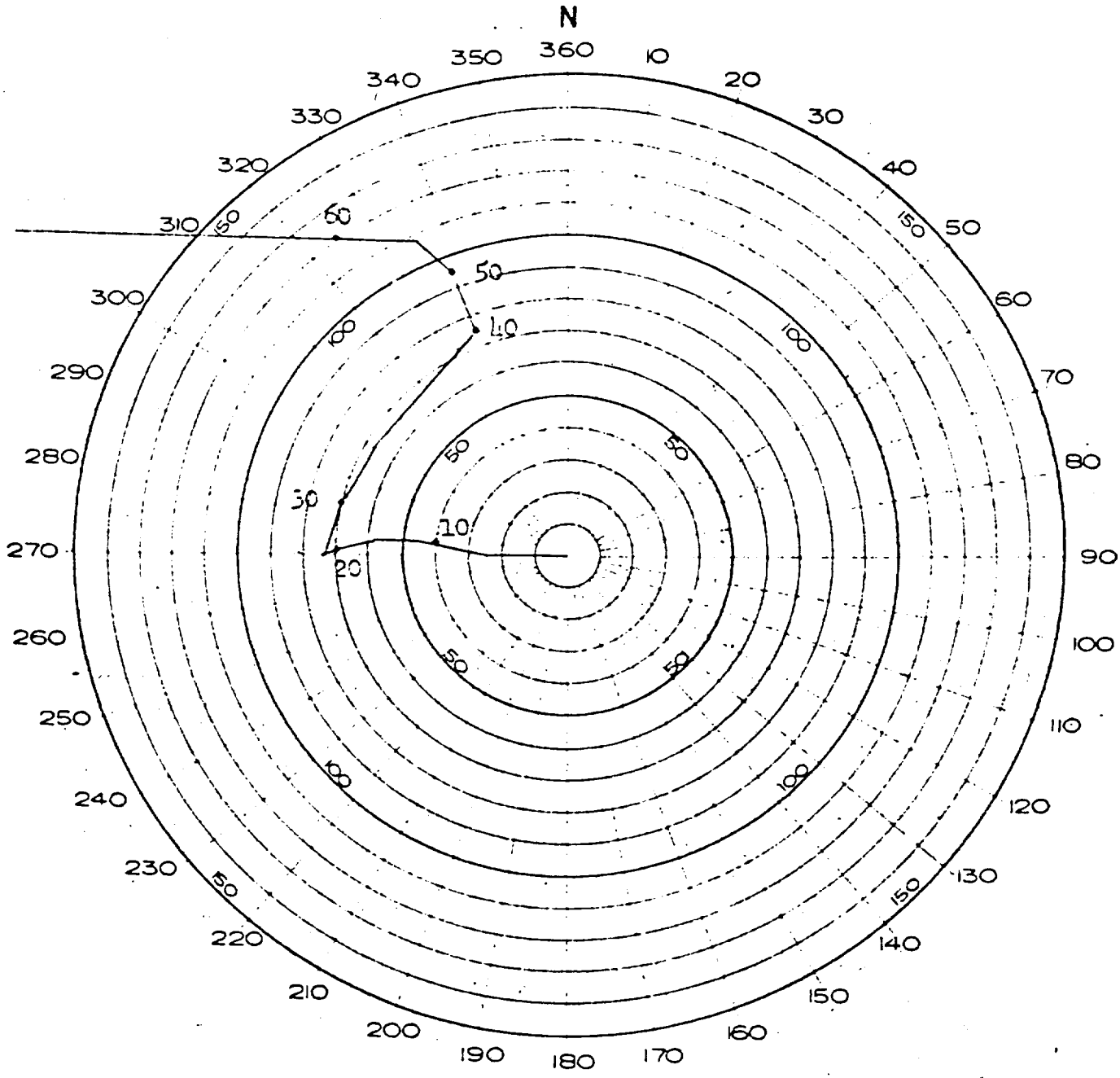
Positions at 6-hour intervals.



AIR & SURFACE RADAR

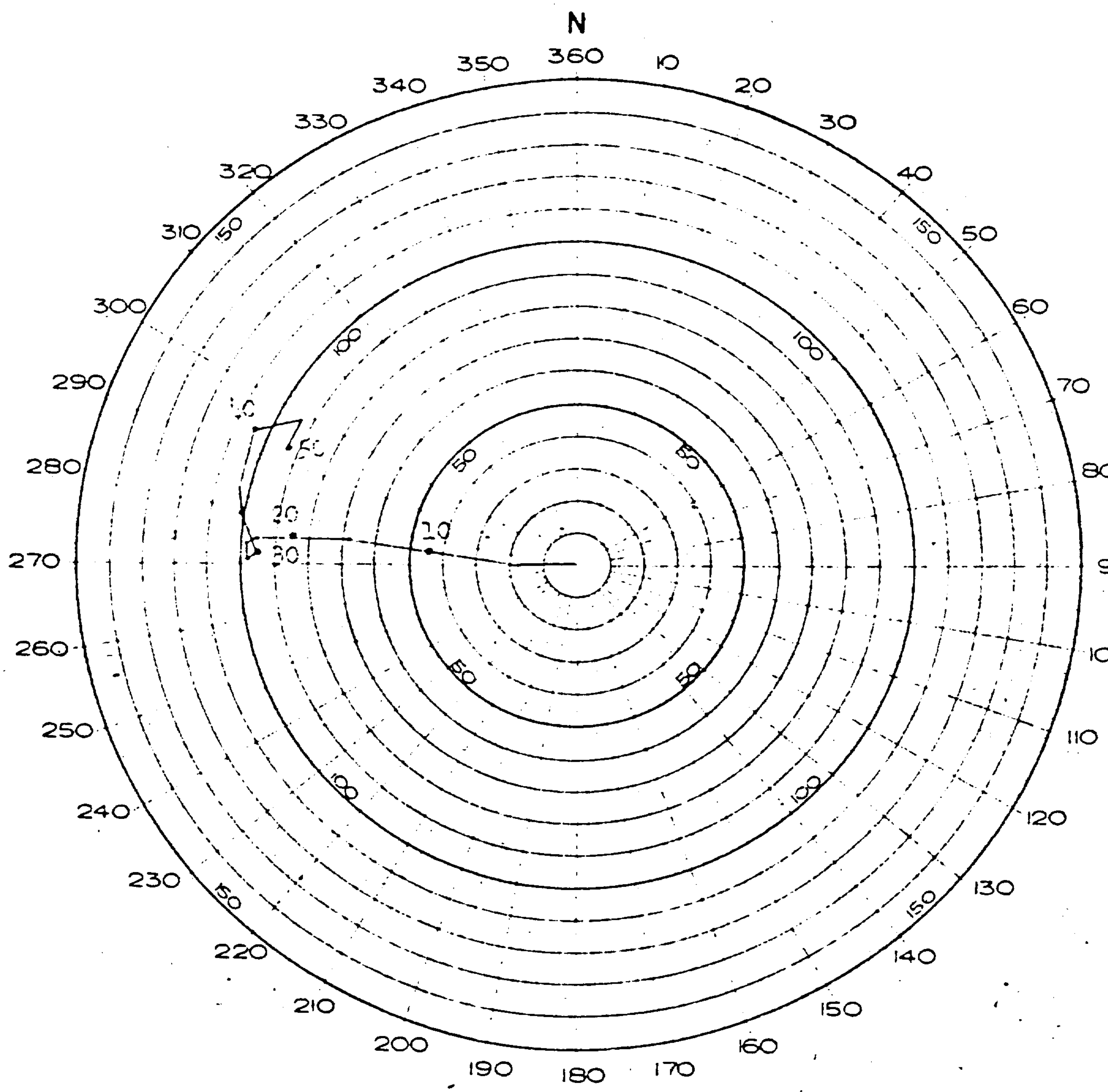
- [illegible] -

TAB D -



FORECAST FOR 220600Z JUNE 1956 - INCA
(Made at 220100Z)

FIG. 5



ENIWETOK Observed Winds for 221200Z JUNE 56
- INCA Event -

TAB E

2

HEADQUARTERS
JOINT TASK FORCE SEVEN
APO 437
San Francisco, California

22 June 1956

INCA

ENIWETOK OBSERVED WEATHER FOR 22 JUNE 1956
AT DETONATION TIME 0956M

Sea Level Pressure	1009.8 mbs
Free Air Surface Temperature	83.3°F
Wet Bulb Temperature	78.3°F
Dew Point Temperature	76.6°F
Relative Humidity	81.0%
Surface Wind	130° - 11 knots
Visibility	Over 10 miles

CLOUDS:

2/10 cumulus; bases estimated at 1800 ft., tops 5-8,000 ft. (moving from southeast).
10/10 cirrostratus; bases estimated at 23,000 ft., tops over 30,000 ft. (all opaque).

WEATHER:

No showers observed.

AREA WEATHER SUMMARY FROM AIRCRAFT:

Narrow band of scattered cumulus clouds averaging 3/10 to 4/10 coverage to the southeast of GZ. (Distance not reported) Tops of cumulus at 8,000 ft. Cirrostratus overcast based at 25,000 ft. (measured) with tops at 31,000 ft. Cirrus opaque and dense. Target area was clear of cumulus clouds at 0931M.

STATE OF SEA:

Ocean Side: Wave heights 6 ft., period 7 seconds, direction 090°.
Lagoon Side: Wave heights 1.5 ft.

ENIWETOK UPPER AIR SOUNDING (Release time 0910M)

Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
1000	280	25.5	22.5
850	4,920	17.2	10.2
804	6,562	14.5	06.5
778	7,447	15.2	06.5
700	10,320	10.5	03.2
600	14,480	01.8	-07.5
580	15,420	-00.5	-08.2

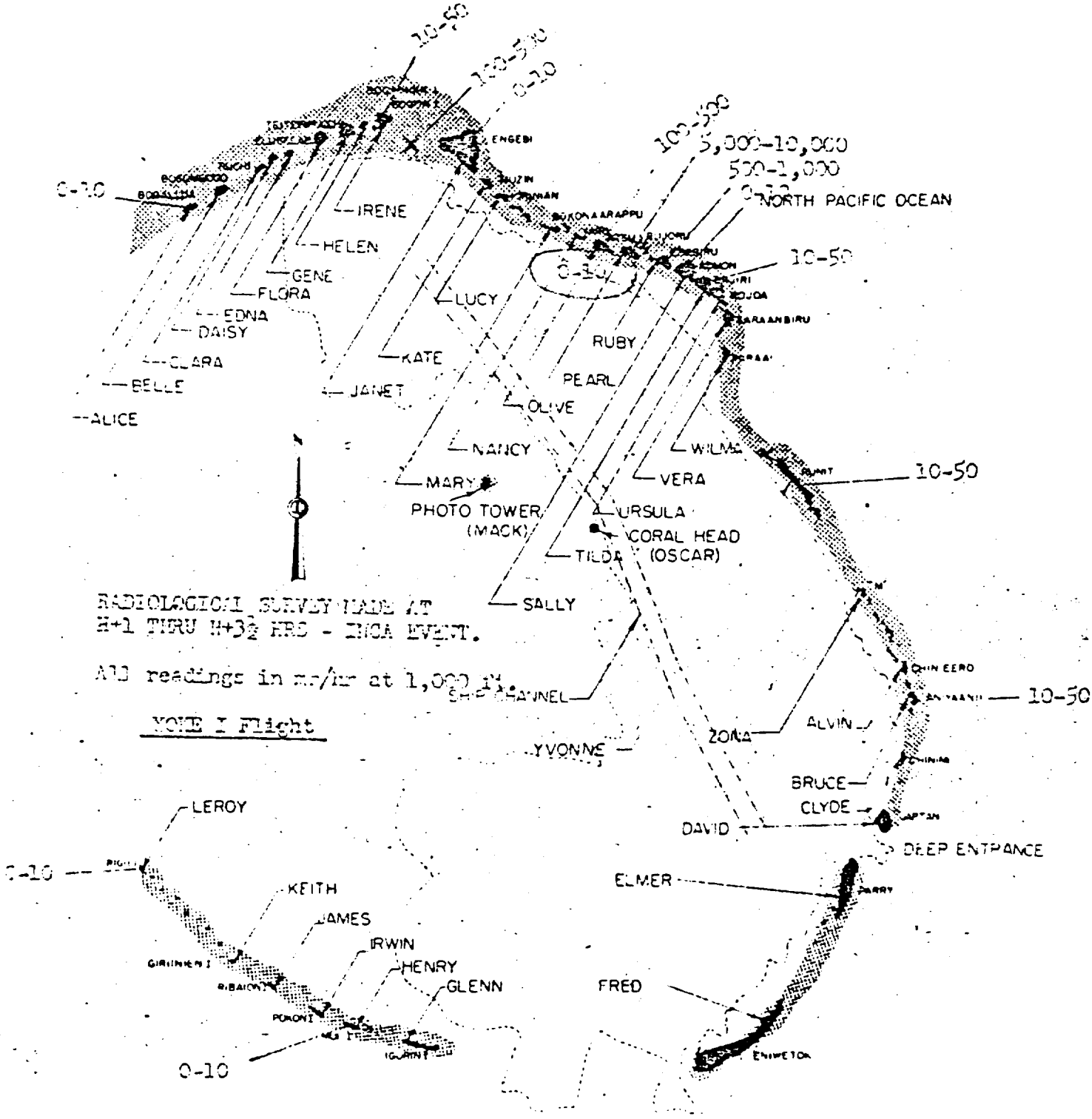
ENIWETOK UPPER AIR SOUNDING (Release time 0910M)
(Continued)

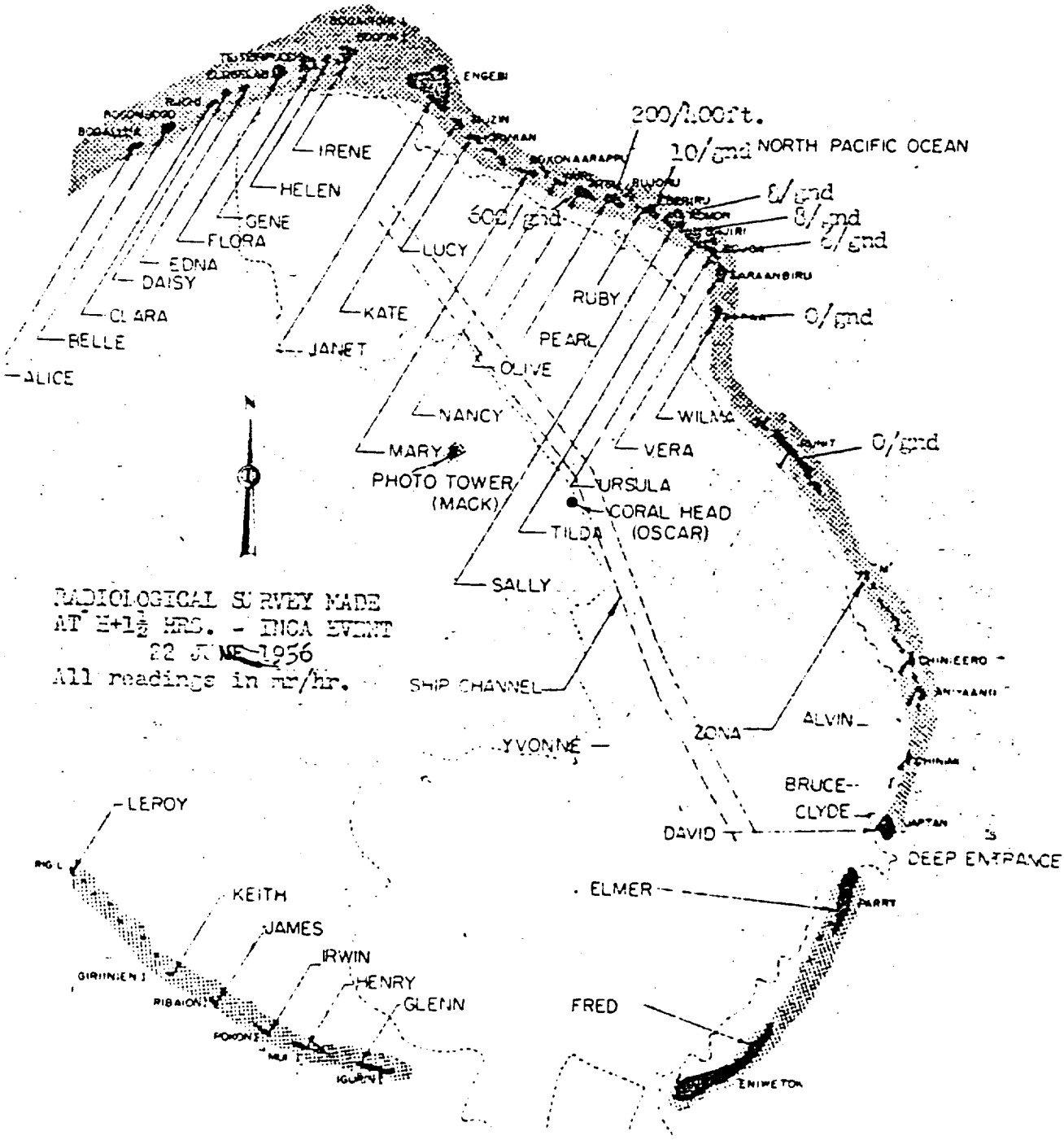
Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
500	19,240	-05.2	-20.5
496	19,423	-05.5	-22.2
474	20,636	-07.8	M
438	22,638	-13.2	-27.5
400	24,880	-17.8	-24.8
300	31,750	-31.5	-38.2
265	34,547	-38.2	-46.2
200	40,720	-55.0	M
150	46,560	-69.0	M
144	47,346	-71.0	M

Balloon burst.

WINDS ALOFT (Release time 0910M)

Height (Feet)	Direction (Degrees)	Velocity (Knots)	Height (Feet)	Direction (Degrees)	Velocity (Knots)
1,000	100	17	22,000	070	21
2,000	100	19	24,000	030	20
3,000	110	23	25,000	010	22
4,000	110	25	26,000	030	18
5,000	110	25	28,000	130	6
6,000	110	25	30,000	240	6
7,000	100	25	32,000	210	11
8,000	100	25	34,000	210	19
9,000	090	25	35,000	210	22
10,000	090	25	36,000	210	22
12,000	090	25	38,000	210	24
14,000	100	25	40,000	210	26
16,000	100	24	42,500	220	30
18,000	080	21	45,000	230	31
20,000	080	19	47,500	230	31


10-50
100-500
0-10
100-500
5,000-10,000
500-1,000
0-10
NORTH PACIFIC OCEAN
0-10
IRENE
HELEN
GENE
FLORA
EDNA
DAISY
CLARA
BELLE
ALICE
LUCY
KATE
JANET
0-10
10-50
RUBY
PEARL
OLIVE
NANCY
MARY
PHOTO TOWER
(MACK)
URSULA
CORAL HEAD
(OSCAR)
TILDA
SALLY
WILMA
VERA
10-50
RADIOLOGICAL SURVEY MADE AT
H+1 TIRU H+3½ HRS - ZEBRA EVENT.
All readings in mr/hr at 1,000 ft.
YOKE I Flight
SHIP CHANNEL
YVONNE
ZONA
ALVIN
10-50
BRUCE
CLYDE
DAVID
DEEP ENTRANCE
LEROY
0-10
KEITH
JAMES
IRWIN
HENRY
GLENN
0-10
ELMER
FRED


200/1.00rt.
10/gnd
NORTH PACIFIC OCEAN
8/gnd
8/gnd
8/gnd
600/gnd
0/gnd
0/gnd
IRENE
HELEN
GENE
FLORA
EDNA
DAISY
CLARA
BELLE
ALICE
JANET
KATE
LUCY
RUBY
PEARL
OLIVE
NANCY
MARY
WILMA
VERA
URSULA
TILDA
SALLY
PHOTO TOWER
(MACK)
CORAL HEAD
(OSCAR)
RADIOLOGICAL SURVEY MADE
AT E+1½ HRS. - DIGA EVENT
22 JUNE 1956
All readings in mr/hr.
SHIP CHANNEL
YVONNE
ZONA
ALVIN
BRUCE
CLYDE
DAVID
DEEP ENTRANCE
ELMER
FRED
LEROY
KEITH
JAMES
IRWIN
HENRY
GLENN

INDEX

TAB

TAB A

DAKOTA EVENT

OPERATION REDWING

1. DAKOTA was detonated at 0606M, 26 June 1956 on a barge south of YUROCHI Island (DOG) in the BIKINI Atoll. The cloud reached an estimated altitude of 70,000 feet. Lower cloud movement was to the northwest, the middle cloud moved to the east-northeast and the upper cloud west-northwest.

2. The fallout prediction for DAKOTA was based on a total yield of and a cloud height of 60,000 feet.

3. Early P2V reconnaissance at 0730M indicated background readings in the BIKINI Channel; 0.2 mr/hr at 200 feet over ENYU (NAN), IONGHEBI (NIKE) and BIKINI (HOW) Islands; 0.25 mr/hr at 200 feet over ROCHIKARI (IVVE) Island; and readings of 3.0, 5.0, 50.0, 5.0 mr/hr at 200 feet over AINUKILJI (OBOE), REERE (SUGAR), ENIRMAN (TARE), and ENIIRIKKU (UNCLE) Islands respectively. These latter readings were residual radiation from NUTI shot and showed no increase attributable to DAKOTA. No damage was apparent on ENYU and the airstrip was clear of debris. Reentry hour was established as 0900M, 26 June 1956.

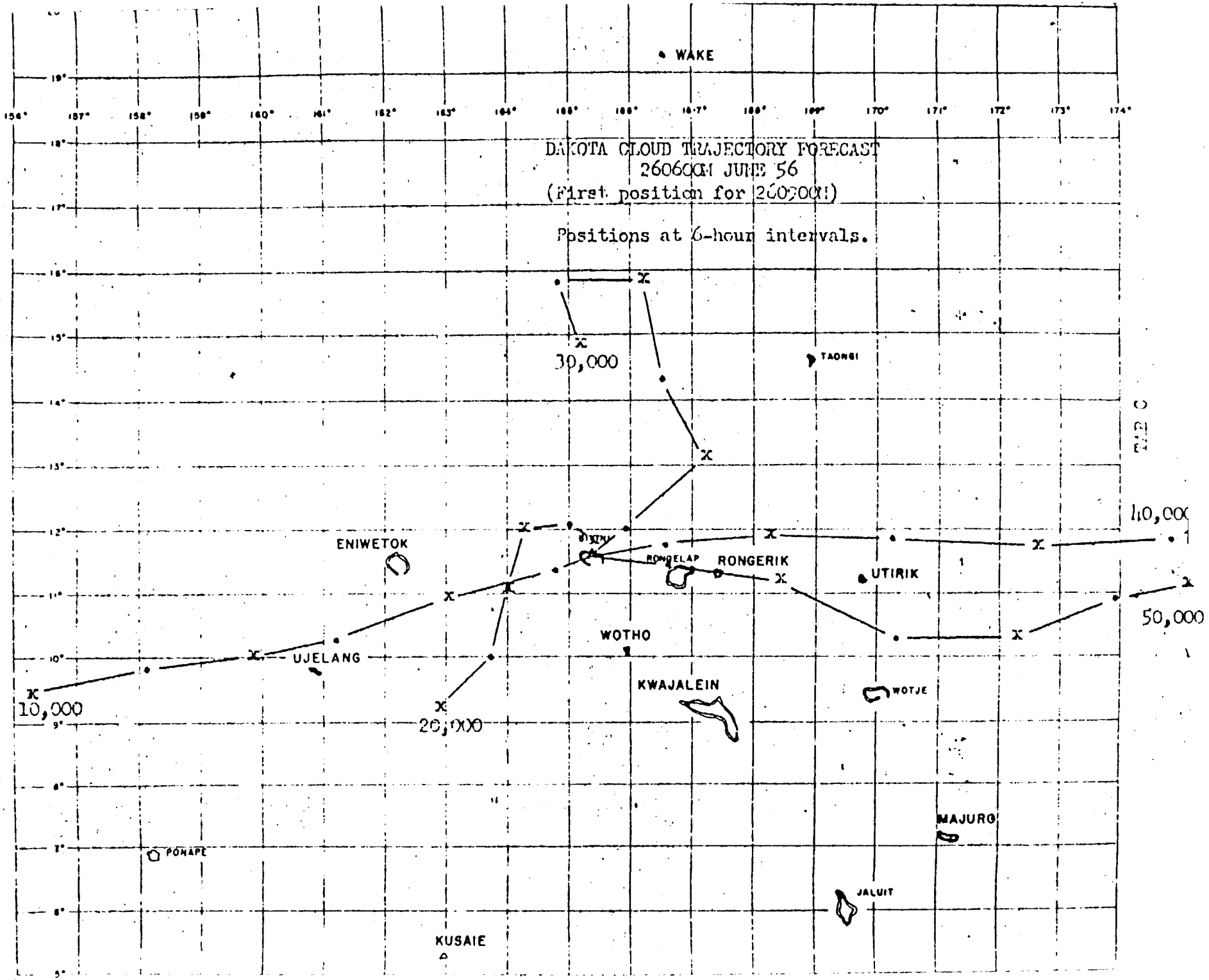
4. The initial helicopter survey was completed at 0900M. Contamination levels were considerably lower than predicted in spite of the increase yield achieved. The pattern, however, followed the predicted path.

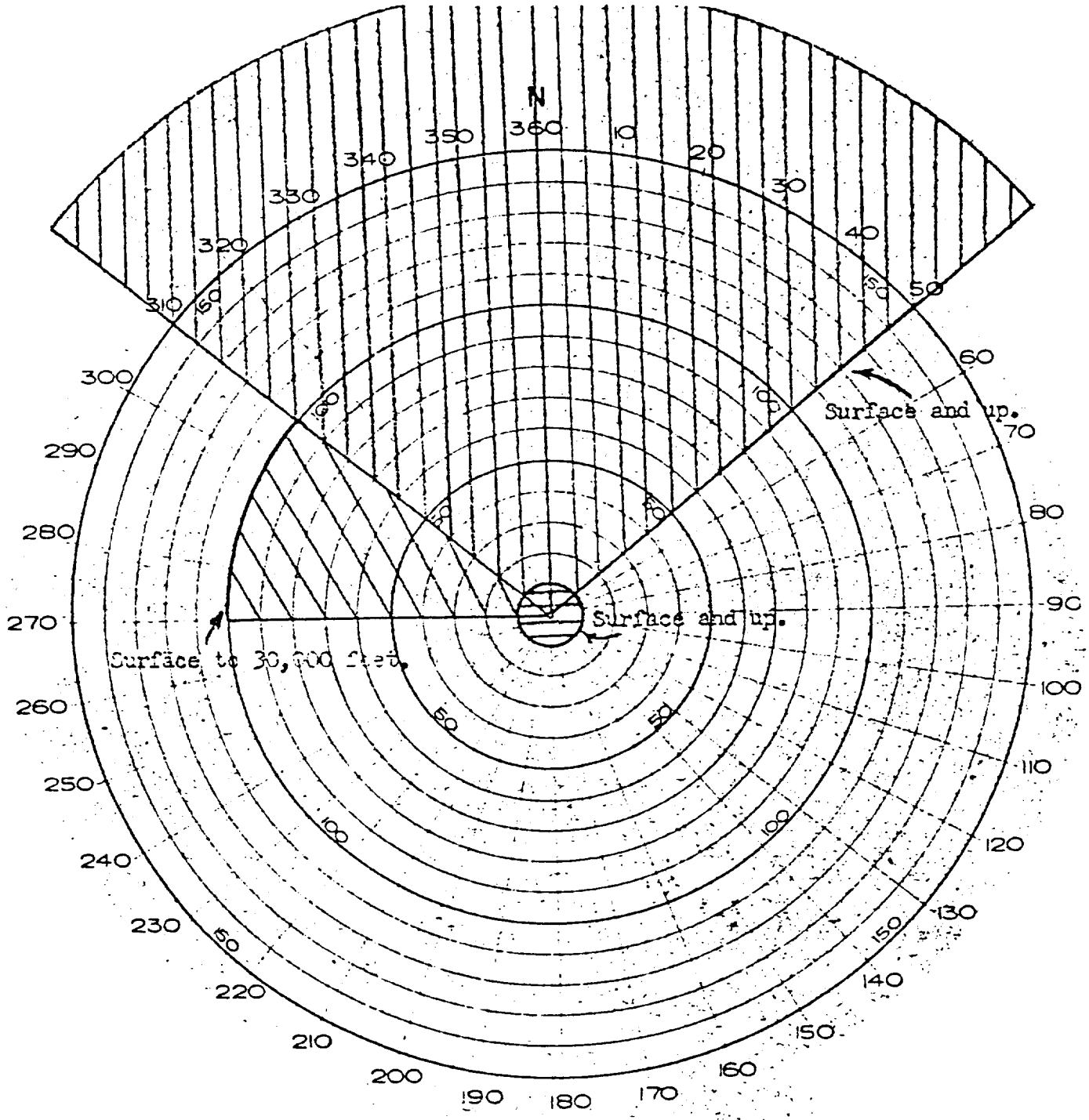
5. An hourly reporting schedule for the off-site monitoring stations was commenced at 0700M. All off-site stations continued to report normal background readings through D+2 days.

6. A reading of 80 mr/hr at H+6 hours at 10,000 feet was obtained by one cloud tracking aircraft 60 miles northeast of BIKINI. The same reading was recorded at H+12 hours by a weather reporting aircraft 300 miles northeast at 30,000 feet. The maximum recorded reading was 110 mr/hr at 10,000 feet, 80 miles northwest of BIKINI at H+11 hours.

7. A sharp rise to 3 mr/hr was noted at PARRY Island at 1745M, 26 June 1956, with an equally sharp decline to background. Two more peaks were recorded, one of 3.75 mr/hr at 1900M, 26 June, and another of 0.75 mr/hr at 2330M, 26 June. These peaks are attributed to "shine" from the passing overhead of a radioactive cloud since the decrease was far too rapid for decay.

Page Two Is Declassified

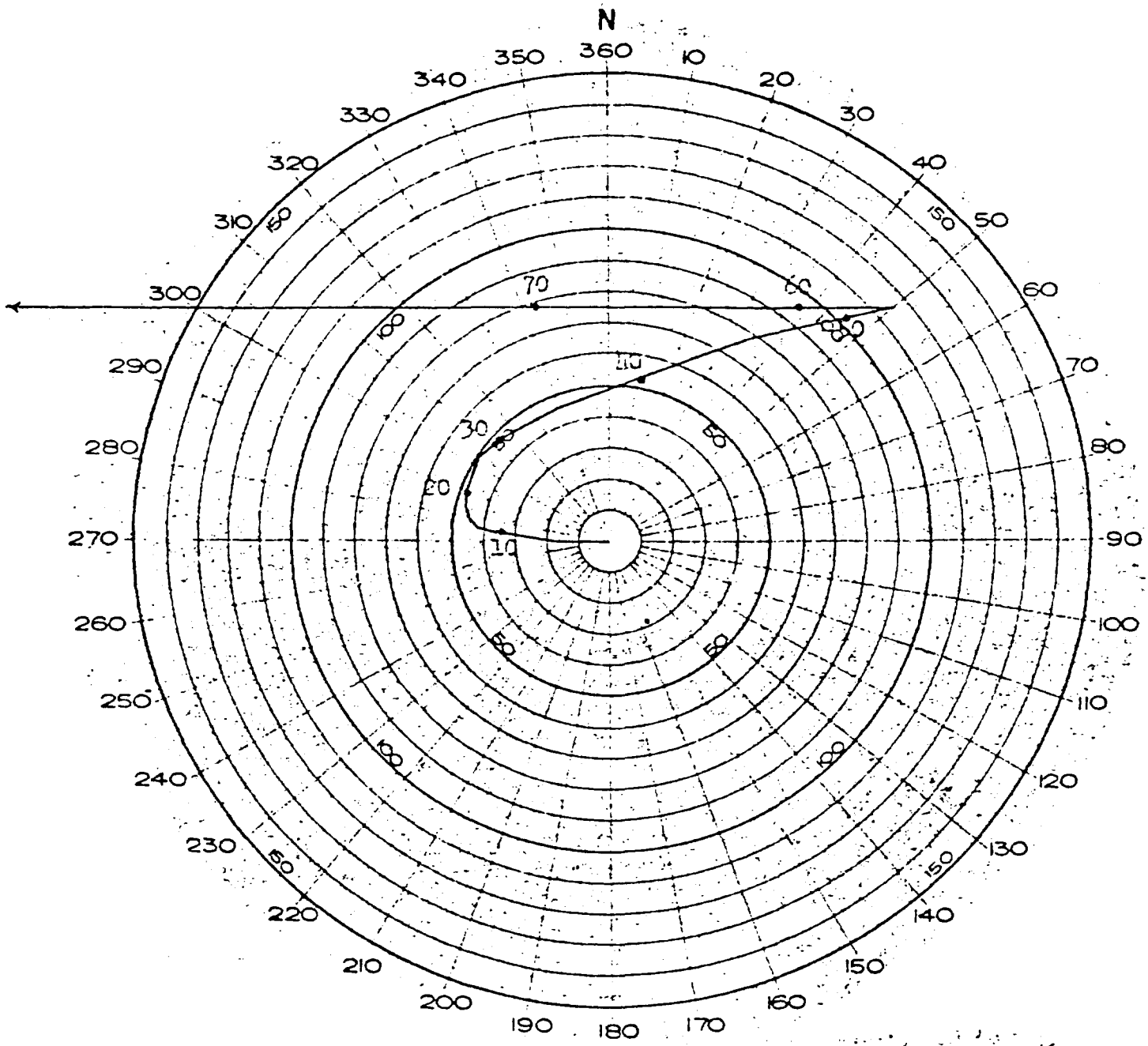

WAKE
DAKOTA CLOUD TRAJECTORY FORECAST
260600M JUNE 56
(First position for 260000I)
Positions at 6-hour intervals.
30,000
TAONGI
ENIWETOK
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
10,000
20,000
50,000
MAJURO
PONAPE
JALUIT
KUSAIE



AIR & SURFACE RADEX

- DAKOTA -

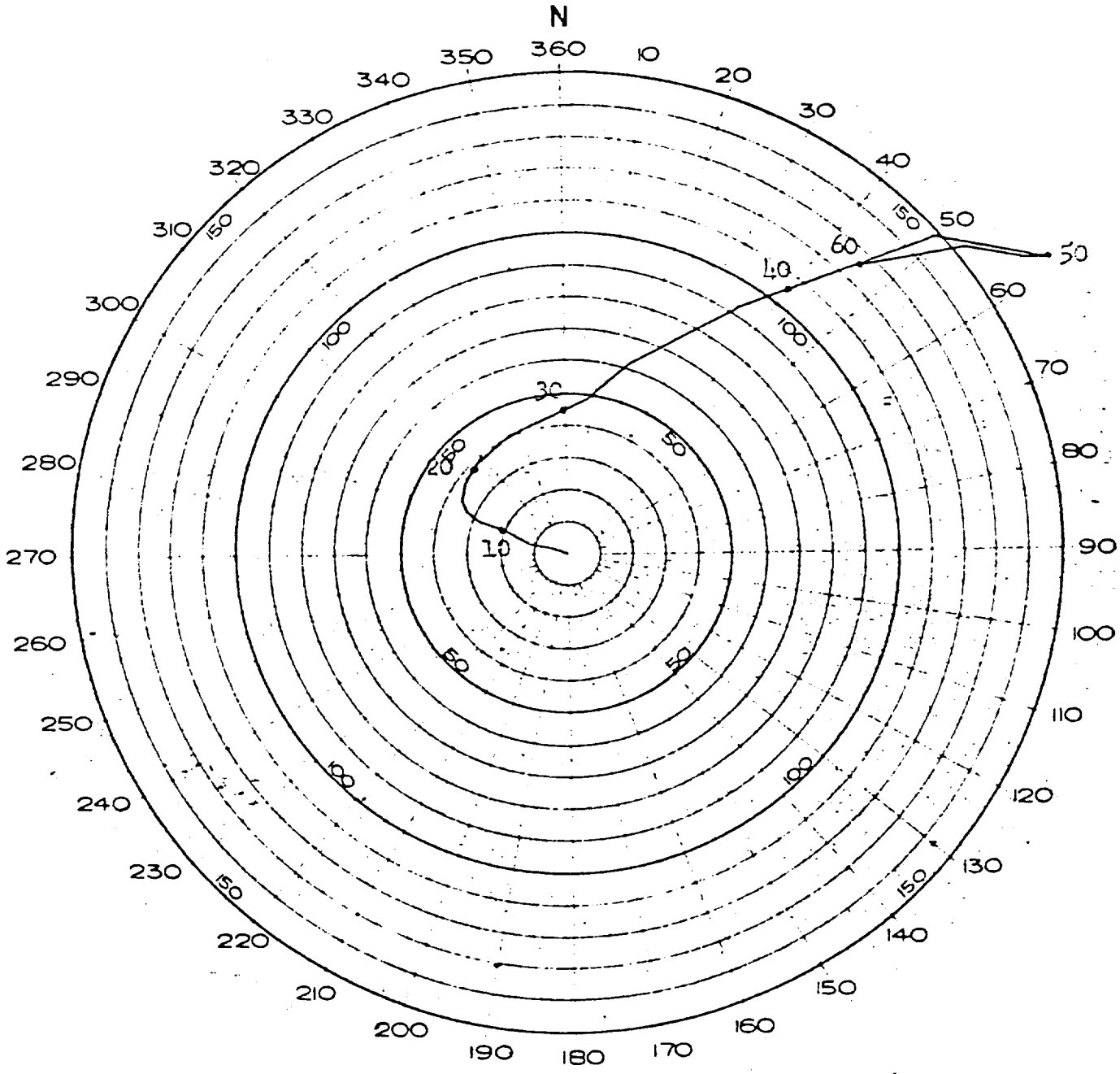
TAB D



BIKINI FORECAST 060000H JUNE 1956
VALID 260600H

- DAKOTA EVENT -

TAB E



BIKINI OBSERVED WINDS 260700Z
JUNE 1956

- DAKOTA EVENT -

TAB B

HEADQUARTERS
JOINT TASK FORCE SEVEN
APO 437
San Francisco, California

29 June 1956

DAKOTA

BIKINI OBSERVED WEATHER FOR 26 JUNE 1956
AT DETONATION TIME 0606M

Sea Level Pressure	1009.1 mbs
Free Air Surface Temperature	82.0°F
Dew Point Temperature	75.0°F
Relative Humidity	80.0%
Surface Wind	070° - 14 knots
Visibility	Over 10 Miles

CLOUDS:

3/10 altostratus, bases estimated at 12,000 feet.
7/10 cirrostratus, bases estimated at 35,000 feet. (5/10 opaque)

WEATHER:

No showers observed.

AREA WEATHER SUMMARY FROM AIRCRAFT:

The following weather was reported by Recon 60-80 NM NNE of NAN, 16,000 feet at 260530 Local: 3/8 cumulus, bases 2,000 feet, tops 6,000 feet. 8/8 cirrus, bases at 35,000 feet, tops at 36,000 feet (thin overcast). Visibility, 30-60 Nautical Miles. Photo aircraft reported ideal weather conditions over target and in all quadrants at shot time.

STATE OF SEA:

Ocean Side: Wave height 5 ft., period 8 seconds, direction 060 degrees.
Lagoon Side: Wave height less than 1 foot.

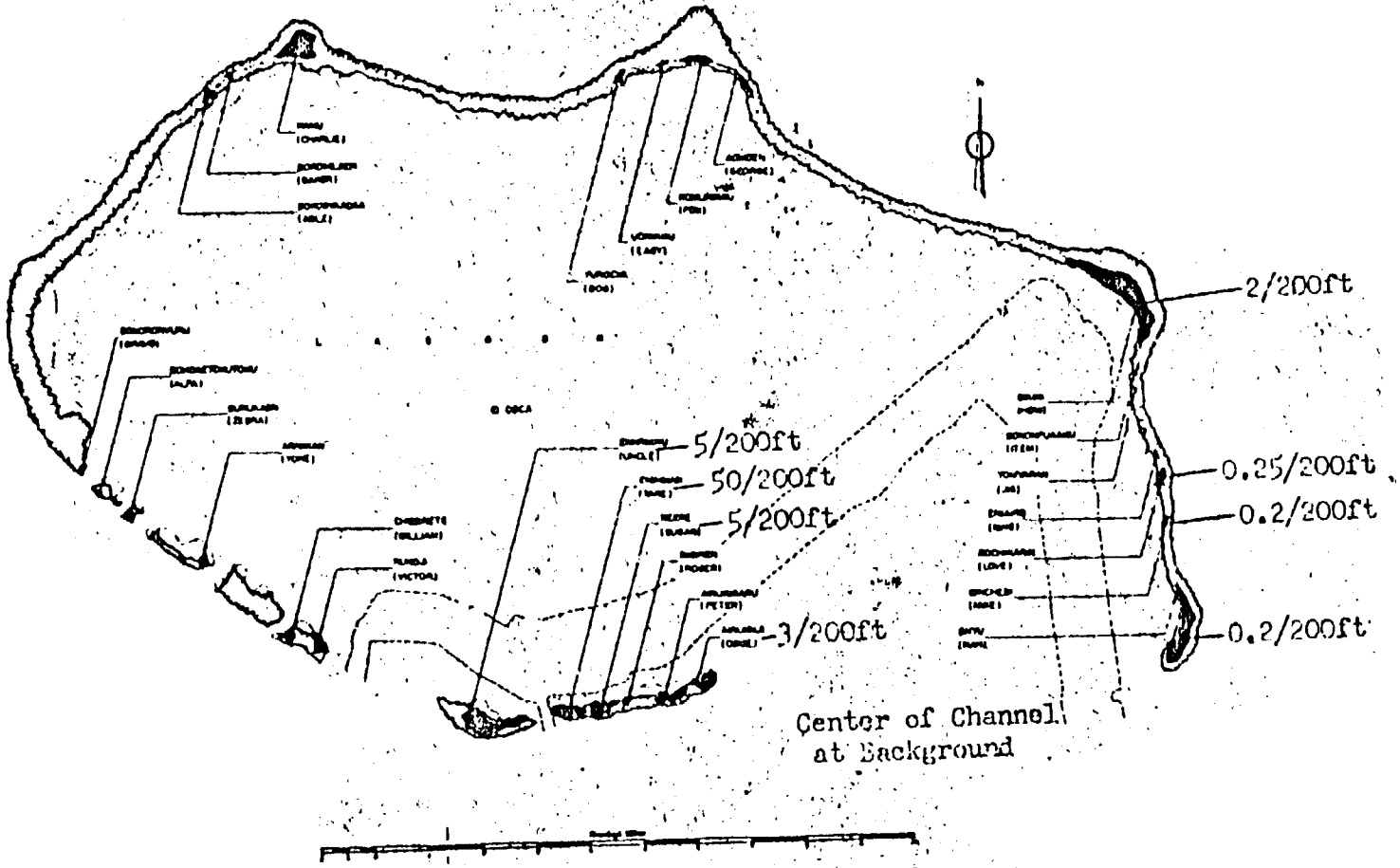
BIKINI UPPER AIR SOUNDING (Release time 0600M)

Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
1000	270	26.5	22.8
912	2,920	18.8	15.2
893	3,494	19.5	08.5
878	3,937	18.2	10.5
850	4,900	17.2	04.2
837	5,298	16.5	00.8
810	6,250	14.2	08.2
785	7,152	13.2	02.8
764	7,874	11.2	05.8
700	10,230	06.8	02.5
666	11,597	04.5	00.5
652	12,139	03.2	-04.2
571	15,617	-03.2	-09.8
522	17,995	-07.2	-13.5
507	18,859	-07.5	-22.2
500	19,040	-08.2	-22.5
400	24,600	-19.5	-31.5
350	27,875	-25.5	-34.8
300	31,410	-34.5	M
250	35,500	-44.2	M
200	40,270	-57.0	M
150	46,040	-70.8	M
140	47,452	-73.5	M

WINDS ALOFT (Release time 0600M)

Height (Feet)	Direction (Degrees)	Speed (Knots)	Height (Feet)	Direction (Degrees)	Speed (Knots)
3,000	110	18	28,000	240	23
4,000	110	15	30,000	240	22
5,000	100	13	32,000	240	26
6,000	100	14	34,000	230	39
7,000	100	12	36,000	240	46
8,000	120	14	38,000	240	45
9,000	120	14	40,000	250	44
10,000	120	14	45,000	250	49
12,000	110	13	50,000	280	30
14,000	130	13	55,000	090	07
16,000	160	08	60,000	100	14
18,000	190	08	65,000	080	34
20,000	210	12	70,000	080	34
22,000	220	10	75,000	080	54
24,000	240	11	80,000	100	64
26,000	230	20	84,000	090	74

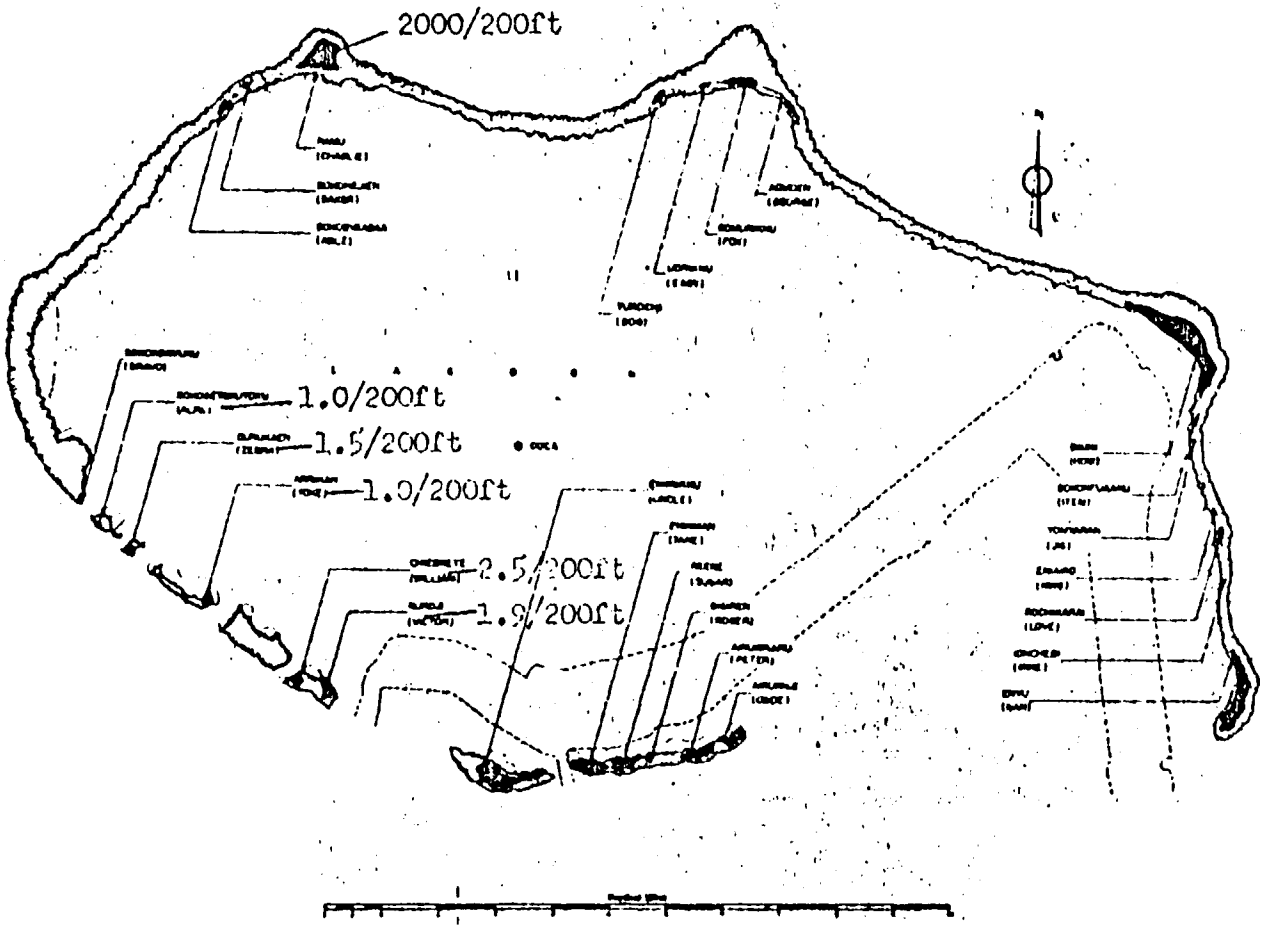
MAP OF BIKINI ATOLL



RADIOLOGICAL SURVEY MADE AT H+1½ HOURS
BY P2V RADIOLOGICAL RECON AIRCRAFT,
ZEBRA I FLIGHT

- DAKOTA EVENT -

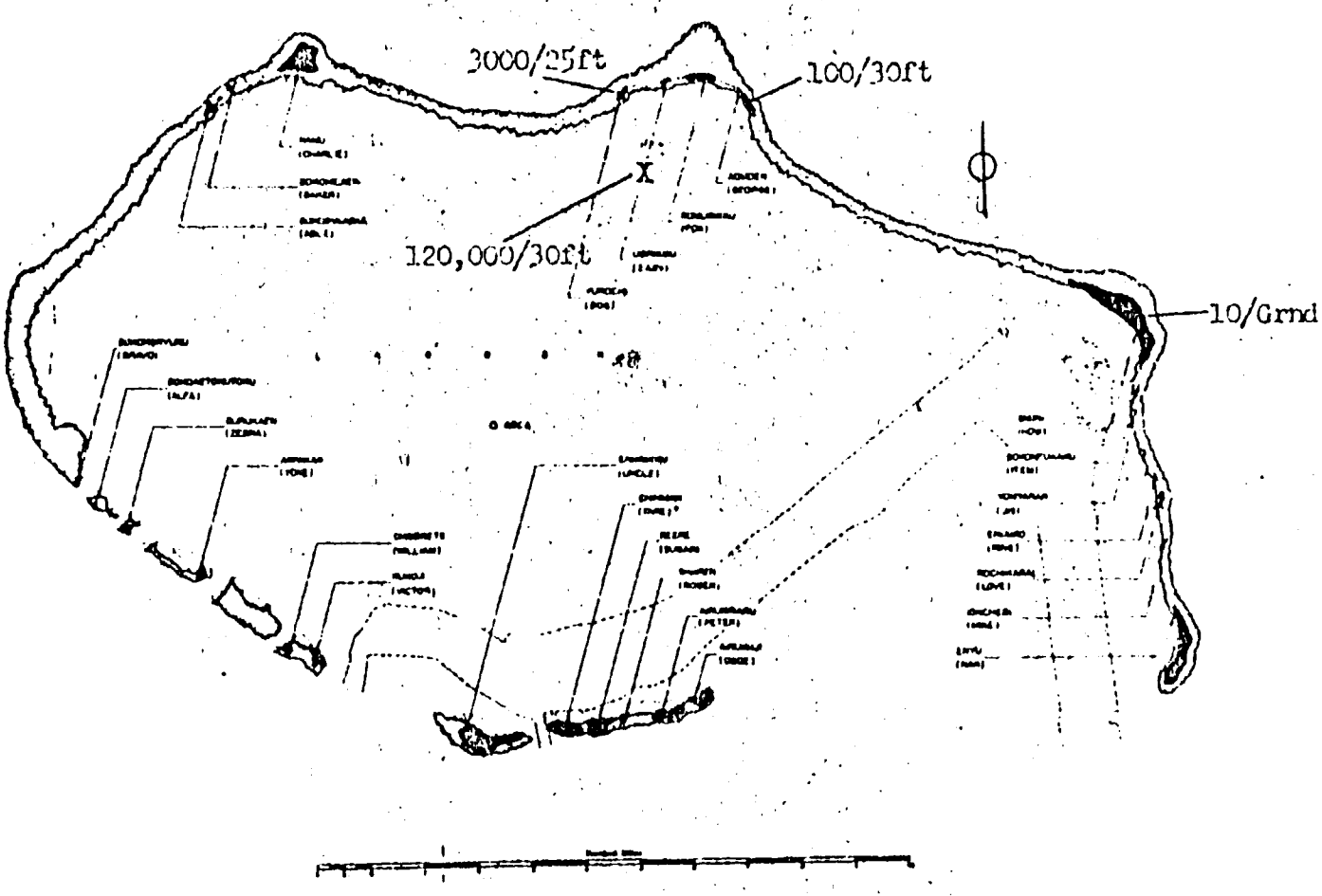
MAP OF BIKINI ATOLL



RADIOLOGICAL SURVEY MADE AT H+3 HOURS
BY P2V RADIOLOGICAL RECON AIRCRAFT,
ZEBRA I FLIGHT

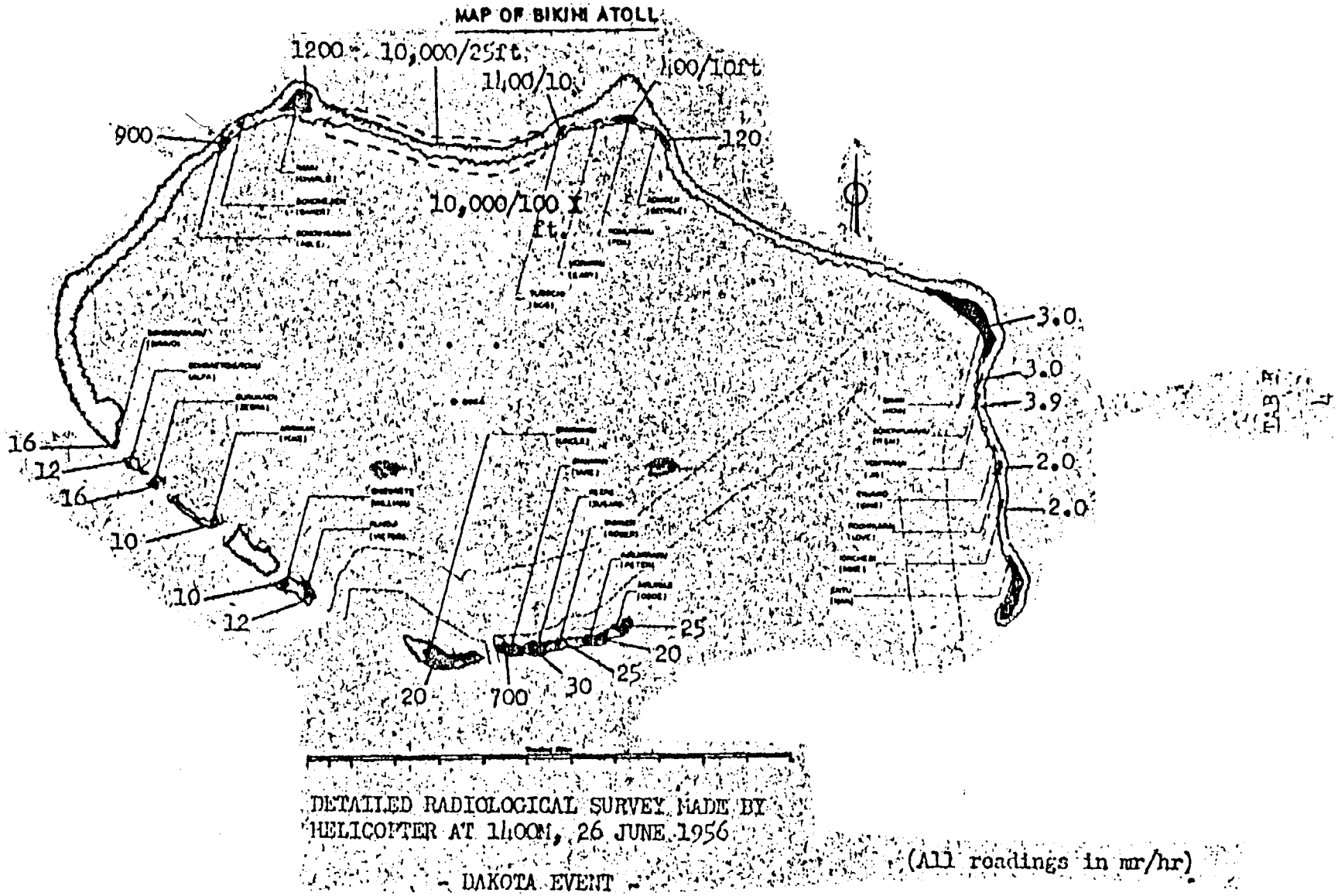
- DAKOTA EVENT -

MAP OF BIKINI ATOLL



RADIOLOGICAL SURVEY MADE AT H+3 HOURS
BY HELICOPTER

- DAKOTA EVENT -


MAP OF BIKINI ATOLL
1200
10,000/25ft.
1400/10
400/10ft
900
120
10,000/100 ft.
3.0
3.0
3.9
2.0
2.0
16
12
16
10
10
12
25
20
25
20
700
30
DETAILED RADIOLOGICAL SURVEY MADE BY HELICOPTER AT 1400M, 26 JUNE 1956
- DAKOTA EVENT -
(All readings in mr/hr)

RAD LOG
JGT JR
4-17-56

RADIATION LOG PARRY Island

INCLUSIVE DATES 26-27 June 1956 MONITOR O'Brien

Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS: (location, special or routine readings, aerial or continuous monitoring checks-message time group
6/26	0900		0.05	
"	1650		0.10	
"	1707		0.13	
"	1715		0.23	
"	1730		0.23	
"	1740		0.24	
"	1745		3.0	
"	1750		1.5	
"	1752		0.6	
"	1800		0.13	
"	1915		0.10	
"	1930		0.005	
"	1852		0.01	
"	1906		2.75	
"	1920		2.8	
"	1930		1.0	
"	1945		0.03	
"	2000		0.7	
"	2015		0.45	
"	2030		0.17	
"	2045		0.25	
"	2100		0.10	
"	2115		0.095	
"	2130		0.085	
"	2245		0.07	
"	2300		0.27	
"	2315		0.58	
"	2330		0.76	
"	2345		0.52	
6/27	0000		0.47	
"	0015		0.23	
"	0030		0.085	
"	0045		0.07	
"	0500		0.11	
"	0015		0.12	

TAB F

RAD LOG
JGT JR
4-17-56

Page 1 of 1 pages.

RADIATION LOG [illegible] Island

INCLUSIVE DATES 26-27 June 1956 MONITOR [illegible]

Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS: (location, special or routine readings, aerial or continuous monitoring checks-message time group
6/26	0700	Station #1	0.3	
"	0800	"	0.3	
"	0900	"	0.3	
"	1000	"	0.3	
"	1100	"	0.3	
"	1200	"	0.25	
"	1300	"	0.3	
"	1400	"	0.3	
"	1500	"	0.25	
"	1600	"	0.25	
"	1700	"	0.25	
"	1800	"	0.25	
"	1900	"	0.25	
"	2000	"	0.25	
"	2100	"	0.25	
"	2200	"	0.25	
"	2300	"	0.25	
6/27	0600	"	0.25	
"	1200	"	0.25	

TBF

RAD LOG
JGT JR
4-17-56

RADIATION LOG [illegible] Island

INCLUSIVE DATES [illegible] MONITOR [illegible]

Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS: (location, special or routine readings, aerial or continuous monitoring checks-message time group
6/25	[illegible]	Station #3	[illegible]	
"	[illegible]	"	[illegible]	
"	[illegible]	"	[illegible]	
"	[illegible]	"	[illegible]	
"	[illegible]	"	[illegible]	
	[illegible]	"	[illegible]	
	[illegible]	"	[illegible]	
	[illegible]	"	[illegible]	
"	[illegible]	"	[illegible]	
"	1600	"	0.05	
"	1700	"	[illegible]	
"	[illegible]	"	[illegible]	
"	[illegible]	"	[illegible]	
	2000	"	[illegible]	
"	[illegible]	"	[illegible]	
"	2200	"	0.06	
6/27	0800	"	[illegible]	
"	[illegible]	"	[illegible]	

[illegible] F

RAD LOG
JGT JR
4-17-56

RADIATION LOG [illegible] Island

INCLUSIVE DATES [illegible] MONITOR [illegible]

Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS: (location, special or routine readings, aerial or continuous monitoring checks message time group
6/26	0700	Station #2	0.02	
"	0800	"	0.02	
"	0900	"	0.02	
"	1000	"	0.02	
"	1100	"	0.02	
"	1200	"	0.02	
"	1300	"	0.02	
"	1400	"	0.03	
"	1500	"	0.02	
"	1600	"	0.02	
"	1700	"	0.02	
"	1800	"	0.03	
"	1900	"	0.03	
"	2000	"	0.03	
"	2100	"	0.02	
"	2200	"	0.02	
"	2400	"	0.02	
6/27	0600	"	0.02	
"	1200	"	0.02	

TAB F

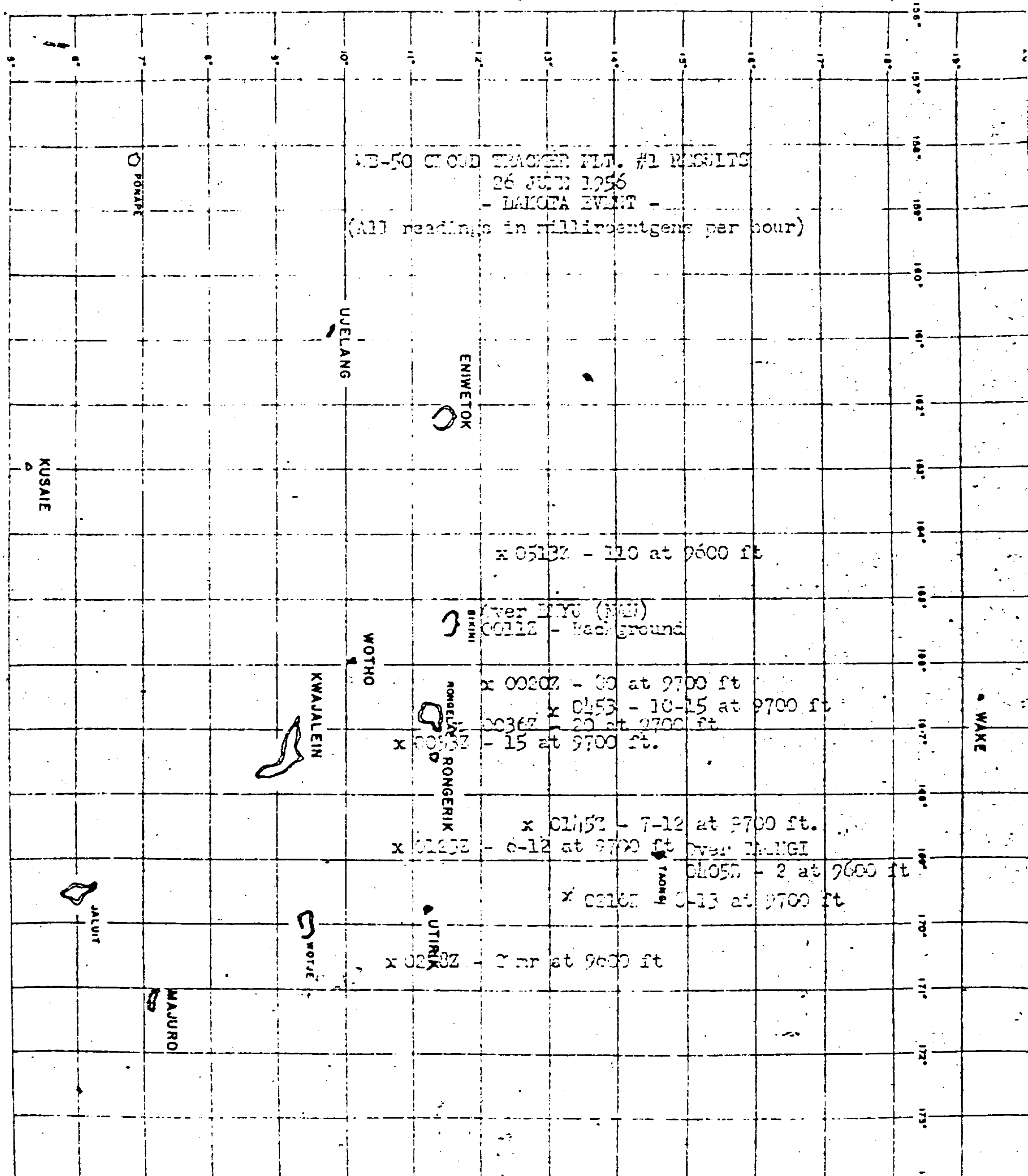
RAD LOG
JGT JR
4-17-56

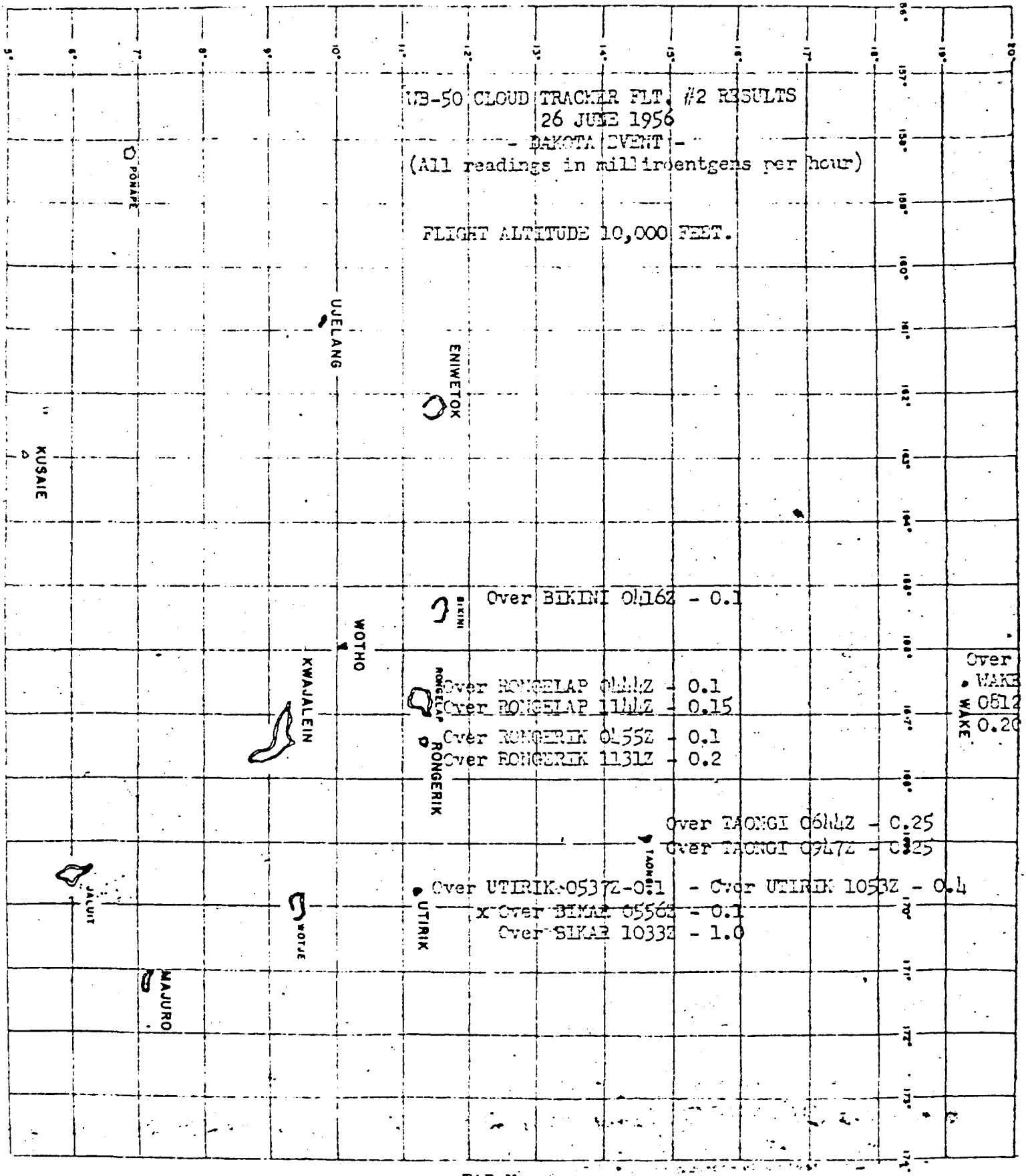
RADIATION LOG RONGERIK Island

INCLUSIVE DATES 26-27 June 1956 MONITOR [illegible]

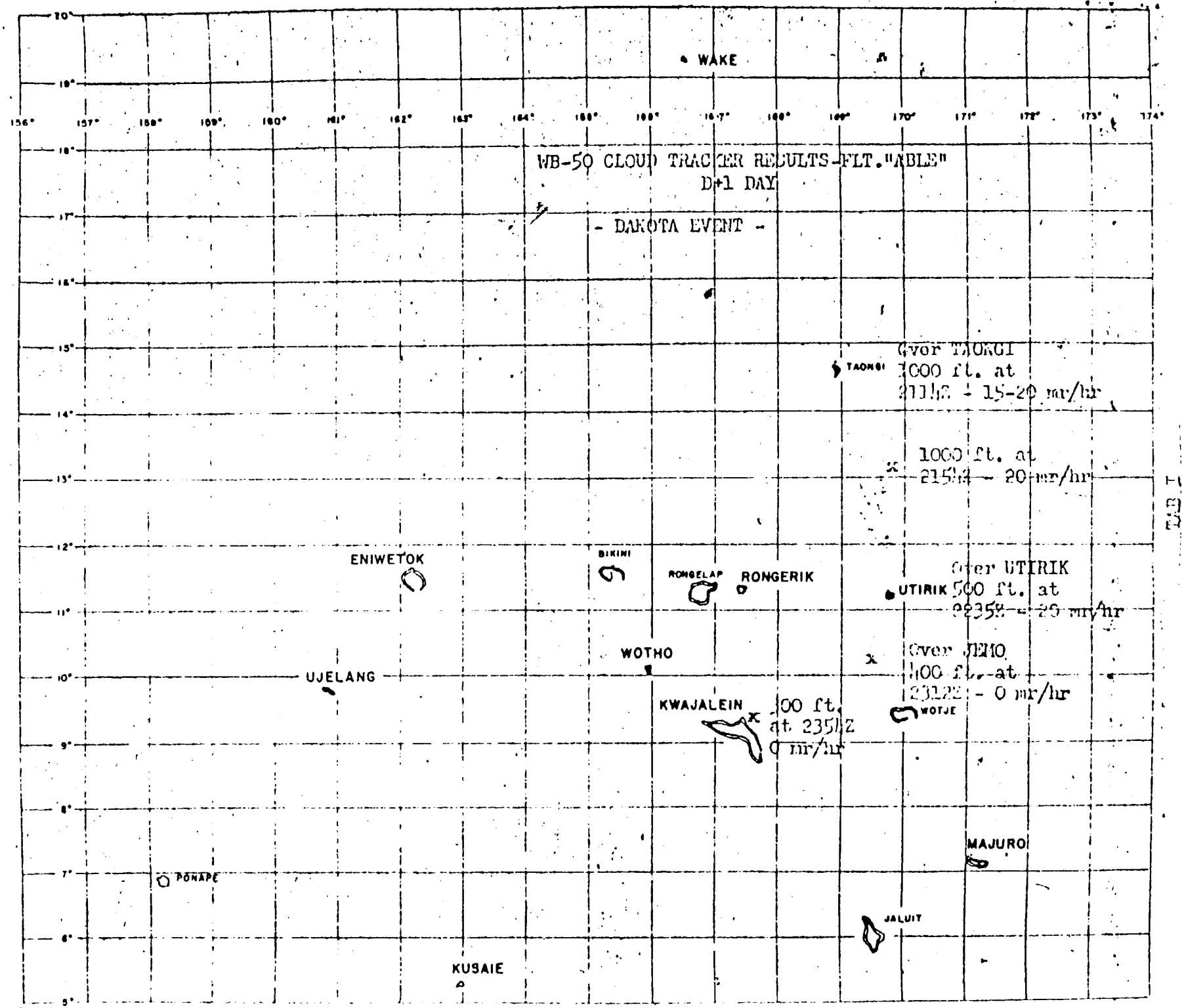
Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS: (location, special or routine readings, aerial or continuous monitoring checks-message time group
6/26	0800	274	0.5	
"	0900	"	0.5	
"	1000	"	0.5	
"	1100	"	0.5	
"	1200	"	0.5	
"	1300	"	0.5	
"	1400	"	0.5	
"	1500	"	0.5	
"	1600	"	0.5	
"	1700	"	0.5	
"	1800	"	0.5	
"	1900	"	0.5	
"	2000	"	0.5	
"	2100	"	0.5	
"	2200	"	0.5	
6/27	0800	"	0.5	
"	1200	"	0.0	

0.3 ?
10/9


WB-50 CLOUD TRACKER FLT. #1 RESULTS
26 JUNE 1956
- DAKOTA EVENT -
(All readings in milliroentgens per hour)
PONAPE
UJELANG
ENIWETOK
KUSAIE
x 0513Z - 110 at 9600 ft
BIKINI
0011Z - Background
WOTHO
KWAJALEIN
RONGELAP
x 0020Z - 30 at 9700 ft
x 0453 - 10-15 at 9700 ft
0036Z - 20 at 9700 ft
x 0053Z - 15 at 9700 ft.
RONGERIK
x 0145Z - 7-12 at 9700 ft.
x 0123Z - 6-12 at 9700 ft
TAONGI
- 2 at 9600 ft
x 0216Z - 0-13 at 9700 ft
JALUIT
WOTJE
UTIRIK
x 0218Z - 2 mr at 9600 ft
MAJURO
WAKE


WB-50 CLOUD TRACKER FLT. #2 RESULTS
26 JUNE 1956
- DAKOTA EVENT -
(All readings in millirocntgens per hour)
FLIGHT ALTITUDE 10,000 FEET.
PONAPE
UJELANG
ENIWETOK
KUSAIE
BIKINI
WOTHO
KWAJALEIN
RONGELAP
RONGERIK
TAONGI
UTIRIK
WOTJE
JALUIT
MAJURO
WAKE
Over BIKINI 0416Z - 0.1
Over RONGELAP 0444Z - 0.1
Over RONGELAP 1144Z - 0.15
Over RONGERIK 0455Z - 0.1
Over RONGERIK 1131Z - 0.2
Over TAONGI 0644Z - 0.25
Over TAONGI 0947Z - 0.25
Over UTIRIK 0537Z - 0.1
Over UTIRIK 1053Z - 0.4
Over BIKAR 0556Z - 0.1
Over BIKAR 1033Z - 1.0
Over WAKE 0812
WAKE 0.20

TAB N


WB-50 CLOUD TRACER RESULTS-FLT."ABLE"
D+1 DAY
- DAKOTA EVENT -
WAKE
TAONGI
Over TAONGI
1000 ft. at
2111Z - 15-20 mr/hr
1000 ft. at
2153Z - 20 mr/hr
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
Over UTIRIK
500 ft. at
2235Z - 20 mr/hr
WOTHO
Over JEMO
400 ft. at
2312Z - 0 mr/hr
UJELANG
KWAJALEIN
500 ft.
at 2352Z
0 mr/hr
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE

INDEX

TAB

TAB A

MOHAWK EVENT

OPERATION REDWING

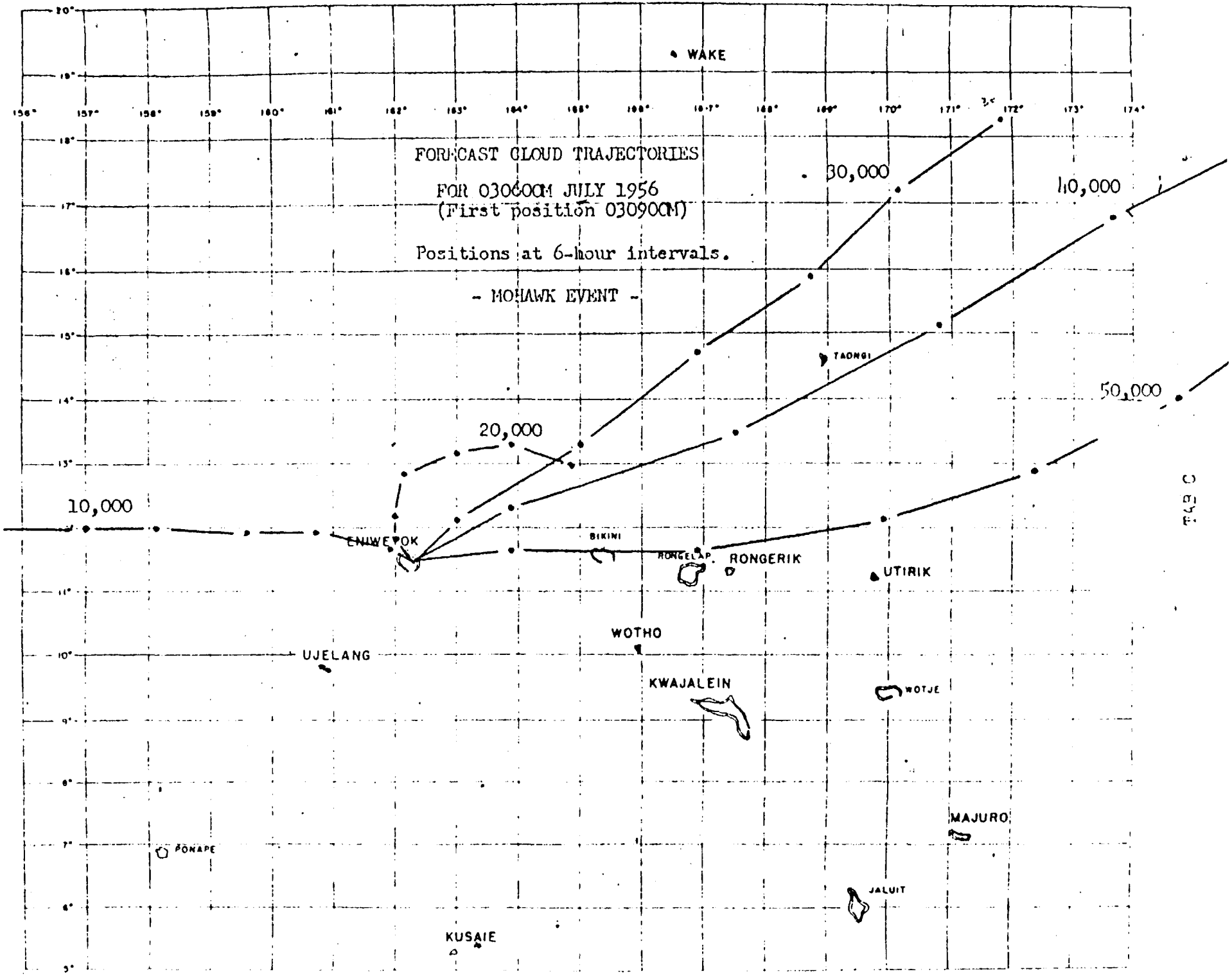
1. MOHAWK was detonated on EBERIRU Island (RUBY) of ENIWETOK Atoll at 0606M, 3 July 1956. The mushroom portion of the cloud disappeared through a 6,500-foot overcast. The stem portion remaining below the overcast moved to the west.

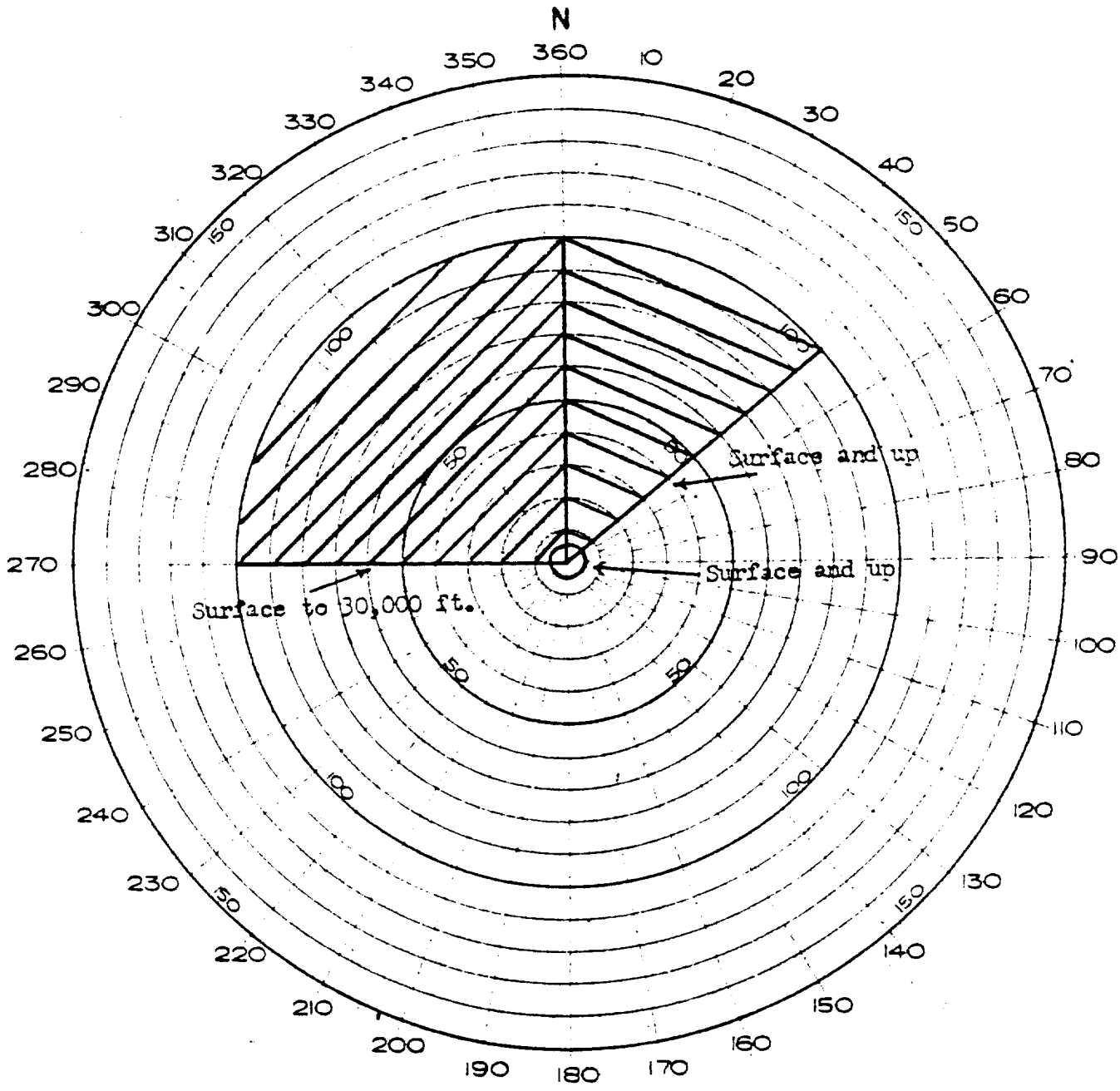
2. A broken cloud condition with bases at approximately 1,800 feet made it necessary to recover the participating aircraft by GCA, thus preventing an early lagoon and atoll survey by the P2V aircraft. The P2V arrived on station over JAPTAN Island at 0745M and set up a barrier monitoring pattern on 260° and 080°, 20 miles west and 5 miles east of JAPTAN. Nothing above background was reported and reentry hour was set at 0800M.

3. The observed winds at 0600M indicated a wind shift through the north at the 15,000 to 20,000 foot level. This feature was not forecast in the magnitude which it appeared. Intermittent showers throughout the morning brought a peak fallout of 16 mr/hr at 0900M on PARRY Island. This computed out to a total dose for the remainder of the operation of approximately 100 millircentgens.

4. The fallout forecast was based on a burst with a maximum yield of

5. Outlying stations reported no increase in background through H+3 days.

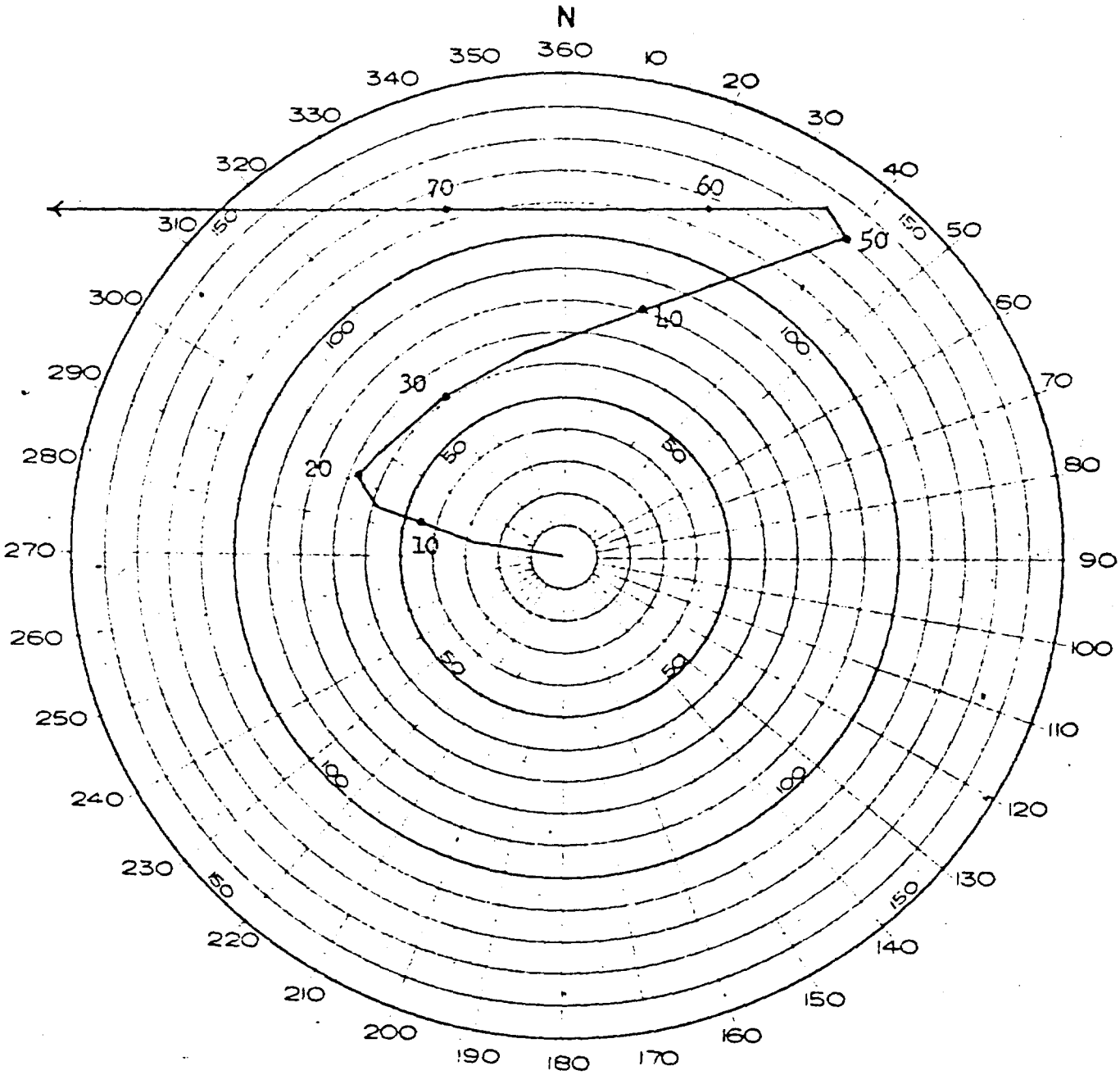

FORECAST CLOUD TRAJECTORIES
FOR 030600M JULY 1956
(First position 030900M)
Positions at 6-hour intervals.
- MOHAWK EVENT -
WAKE
30,000
10,000
50,000
20,000
10,000
TAONGI
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE



AIR & SURFACE RADEX - MOHAWK
H TO H+6 HOURS
3 JULY 1956

1015750

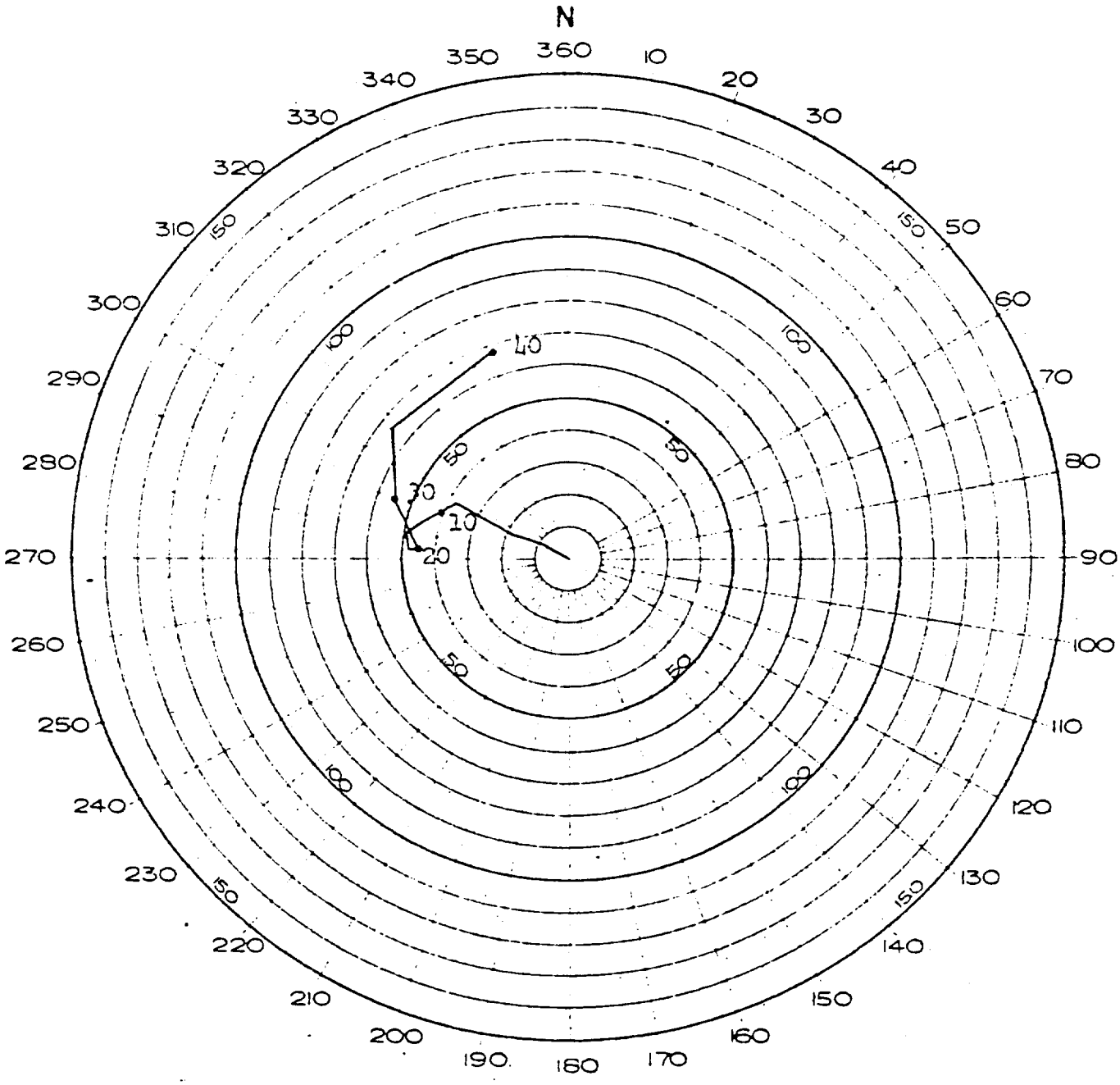
TAB D



FORECAST FOR 030600I JULY 1956

MOHAWK EVENT

TAB E



ENIWETOK
OBSERVED WINDS 030600Z JULY 1956

TAB E

HEADQUARTERS
JOINT TASK FORCE SEVEN
APO 437
San Francisco, California

4 July 1956

MOHAWK

ENIWETOK OBSERVED WEATHER FOR 3 JULY 1956
AT DETONATION TIME 0606M

Sea Level Pressure	1010.2 mbs
Free Air Surface Temperature	79.6°F
Wet Bulb Temperature	74.9°F
Dew Point Temperature	73.0°F
Relative Humidity	81 %
Surface Wind	100° 16 Knots
Visibility	10 miles

CLOUDS:

1/10 cumulus; based at 1,300 ft., tops estimated 3,000 ft.
1/10 stratocumulus; based at 4,800 ft., tops unknown
10/10 altostratus; measured bases at 6,500 ft. (all opaque), tops at 15,000 ft.

WEATHER:

Intermittent light rain and overcast skies.

AREA WEATHER SUMMARY FROM AIRCRAFT:

0555M; Entered clouds at 1,600 ft. Solid to 30,000 ft. 32 miles NNE of Eniwetok.

0644M: 40 to 50 miles to southwest of Eniwetok, reported moderate rime icing at 15,000 ft.

0700M: Scattered to broken cumulus based at 1,000-1,200 ft., tops 8,000 ft. Entered solid overcast at 9-10,000 ft. and "broke out" at 44,000 ft. Occasional rain in spots. Light to moderate icing 17-24,000 ft. going up and moderate to severe icing 25-18,000 ft coming down. "Broke out" at 14,000 ft to the east.

STATE OF SEA:

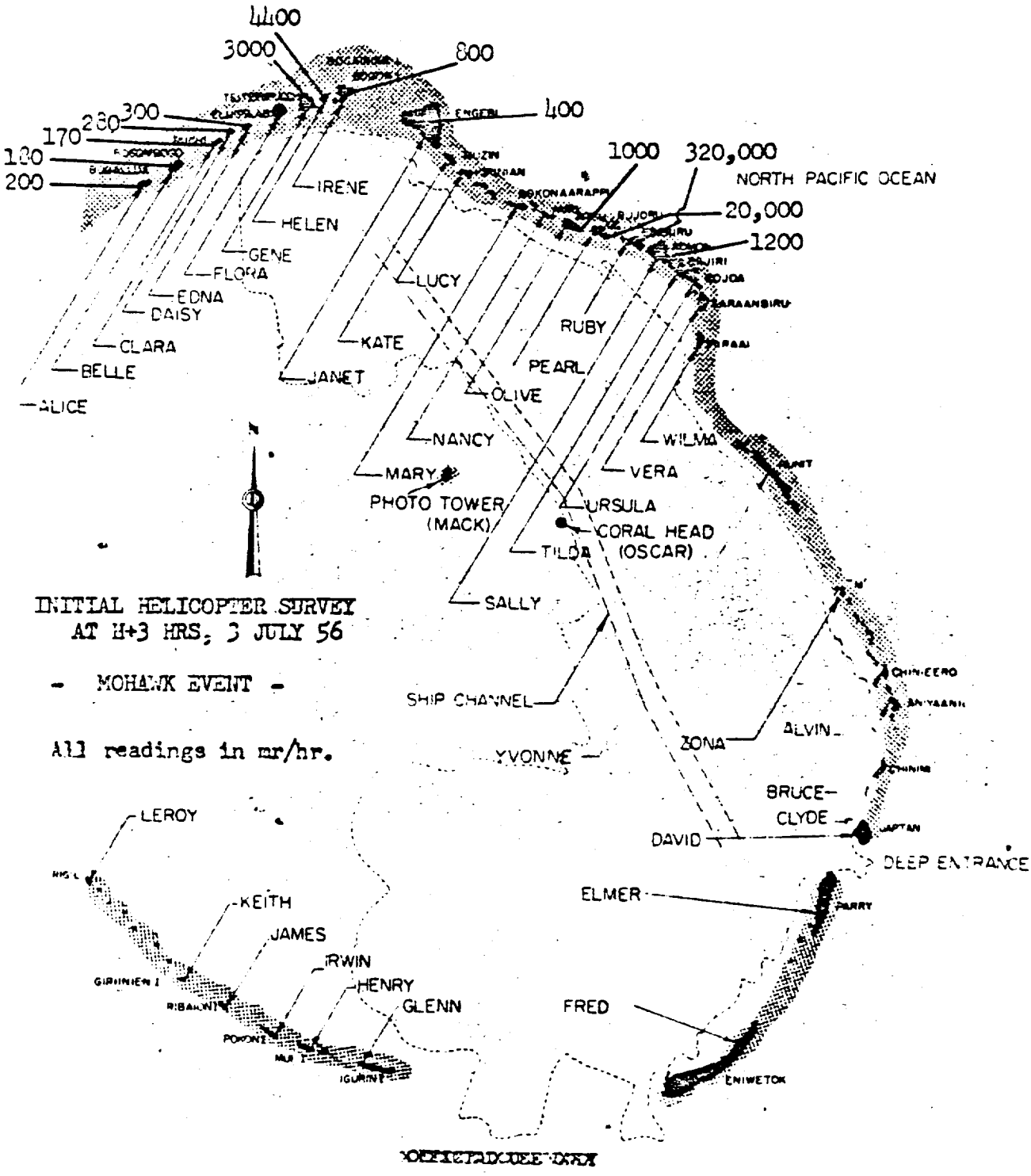
Ocean Side: Wave heights 6 feet, period 7 seconds, direction 110°.
Lagoon Side: Wave heights approximately 1½ feet.

ENIWETOK UPPER AIR SOUNDING (Release time 0557M)

Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
1000	310	26.2	24.2
850	4,950	18.2	13.5
700	10,370	09.2	01.2
600	14,500	01.2	-06.5
500	19,260	-06.2	-13.2
400	24,880	-16.5	-23.2
300	31,760	-32.8	-39.5
268	34,383	-38.8	-46.5
200	40,690	-56.2	M
188	41,995	-61.0	M
Balloon burst. 0840M sounding follows:			
150	46,460	-68.9	M
100	54,310	-73.9	M
088	56,758	-76.0	M
085	57,447	-72.0	M
058	64,895	-68.0	M
050	67,850	-62.9	M
020	82,290	-51.0	M
016	91,995	-44.0	M

WINDS ALOFT (Release Time 0557M)

Height (Feet)	Direction (Degrees)	Speed (Knots)	Height (Feet)	Direction (Degrees)	Speed (Knots)
1,000	110	16	35,000	180	21
2,000	120	20	36,000	190	22
3,000	110	13	38,000	230	30
4,000	110	26	40,000	230	38
5,000	110	32	42,500	220	40
6,000	120	30	Balloon burst. 0840M sounding follows:		
7,000	120	25	45,000	230	35
8,000	120	19	47,500	260	38
9,000	100	14	50,000	260	28
10,000	060	13	52,500	230	8
12,000	070	16	55,000	150	6
14,000	050	16	57,500	110	20
16,000	350	12	60,000	110	25
18,000	280	8	65,000	090	30
20,000	210	3	70,000	100	42
22,000	200	6	75,000	100	47
24,000	170	4	80,000	100	57
25,000	160	5	85,000	100	53
26,000	150	6	90,000	090	64
28,000	140	8	95,000	090	69
30,000	150	12	100,000	090	76
32,000	160	18	102,000	090	77
34,000	170	20			


4400
3000
800
400
300
230
170
130
200
1000
320,000
NORTH PACIFIC OCEAN
20,000
1200
IRENE
HELEN
GENE
FLORA
EDNA
DAISY
CLARA
BELLE
ALICE
JANET
KATE
LUCY
RUBY
PEARL
OLIVE
NANCY
MARY
PHOTO TOWER
(MACK)
VERA
WILMA
URSULA
CORAL HEAD
(OSCAR)
TILDA
SALLY
SHIP CHANNEL
YVONNE
ZONA
ALVIN
BRUCE
CLYDE
DAVID
DEEP ENTRANCE
ELMER
FRED
LEROY
KEITH
JAMES
IRWIN
HENRY
GLENN
ENIWETOK
INITIAL HELICOPTER SURVEY
AT H+3 HRS, 3 JULY 56
- MOHAWK EVENT -
All readings in mr/hr.

TAB F

RADIATION LOG PARRY ISLAND

INCLUSIVE DATES 7-3/7-4-56 MONITOR O'BRIEN

Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS
7-3-56	0745	HQ JTF-7	.035	
	0800		.13	
	0815		1.6	
	0830		5.2	
	0845		8.4	
	0900		12.0	
	0915		10.0	
	0930		9.2	
	0945		7.5	
	1000		8.5	
	1015		7.5	
	1030		7.0	
	1045		6.2	
	1100		6.2	
	1115		5.7	
	1145		5.2	
	1200		5.2	
	1215		5.2	
	1230		4.7	
	1330		3.9	
	1505		4.1	
	1600		3.9	
	1700		3.9	
	1800		3.5	
7-4-56	0800		1.9	

INDEX

TAB

TAB A

APACHE EVENT

OPERATION REDWING

1. APACHE was detonated on a barge in the MIKE crater on the site of ELUGELAB Island (FLORA) in the ENIWETOK Atoll at 0600M, 9 July 1956. The cloud attained an estimated altitude of 70,000 feet.

2. All winds were of lower velocity than on previous shots with the result that the cloud retained a symetrical shape for about an hour until the section of the stem below 15,000 feet began to drift to the west-northwest. The portion of the cloud between 20,000 feet and 35,000 feet, which contained the greater concentration of radioactivity, was observed on radar on a course of about 030°, the center reaching a distance of 65 miles from ground zero in four hours.

3. The P2V aircraft was placed at 10,000 feet on an east-west pattern over JAPTAN Island in an effort to ascertain at an early time whether any fallout might be expected on the lower islands of the ENIWETOK Atoll, and the lagoon, since the mushroom extended well beyond the most distant islands of the atoll, and appeared for a long time to be stationary.

4. No fallout was encountered in this pattern and reentry hour was established at 1000M.

5. While conducting the lagoon and atoll survey the P2V encountered a field of 1100 mr/hr in the vicinity of shot site at 1020M at 1000 feet.

After this encounter the aircraft remained at a background reading of 1 r/hr until the pilot was able to fly through a shower and reduce his background reading to 150 mr/hr. This aircraft was immediately returned to base.

6. Fallout prediction was based on a yield of with an 60,000-feet cloud height.

7. No fallout occurred at any of the off-site monitoring stations. A rise in radioactivity was noted at PARRY Island beginning at 2300Z (H+17) reaching a maximum of 1.1 mr/hr at 0100Z (H+20 hours); after which time it began declining a normal decay rate.

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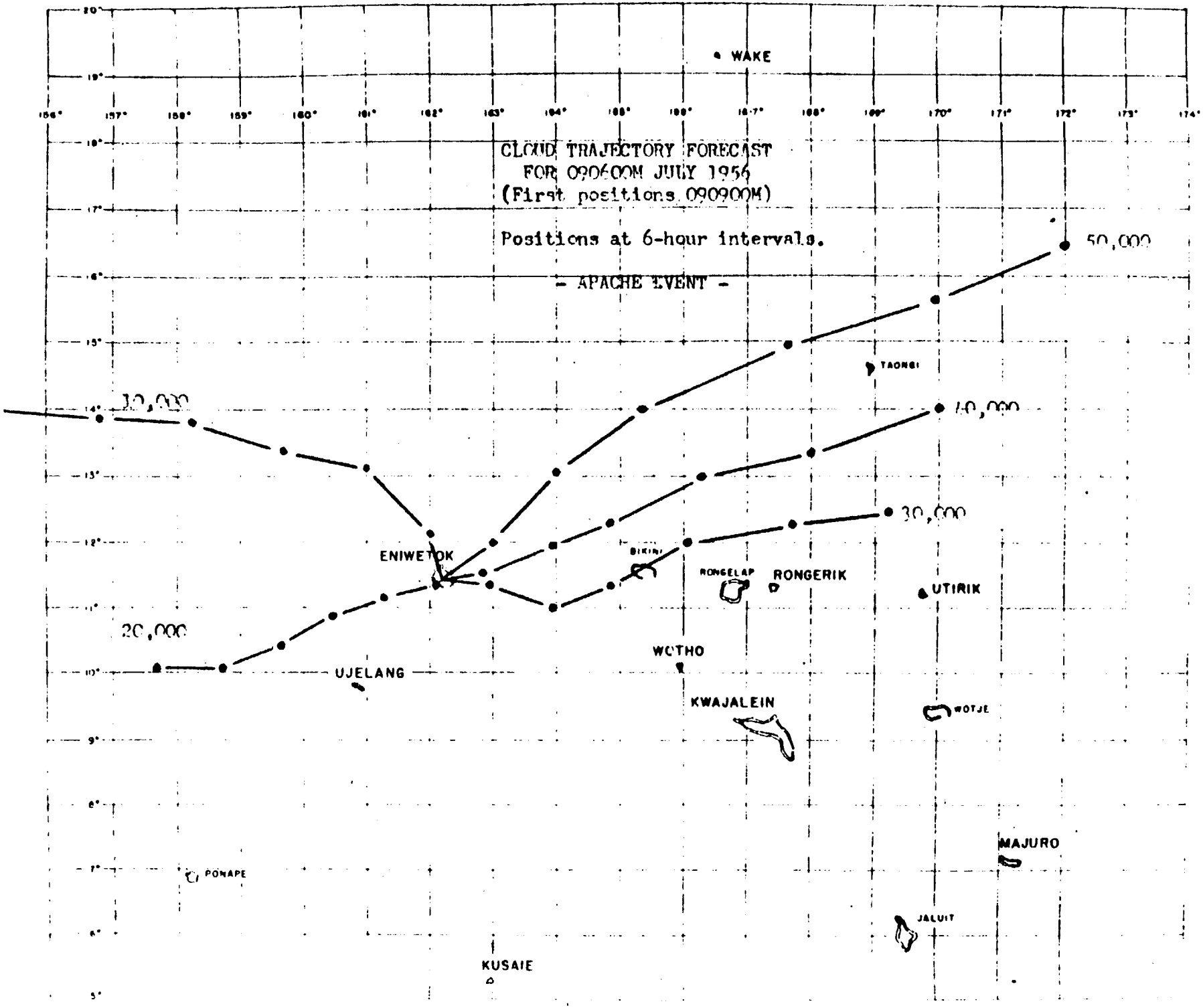
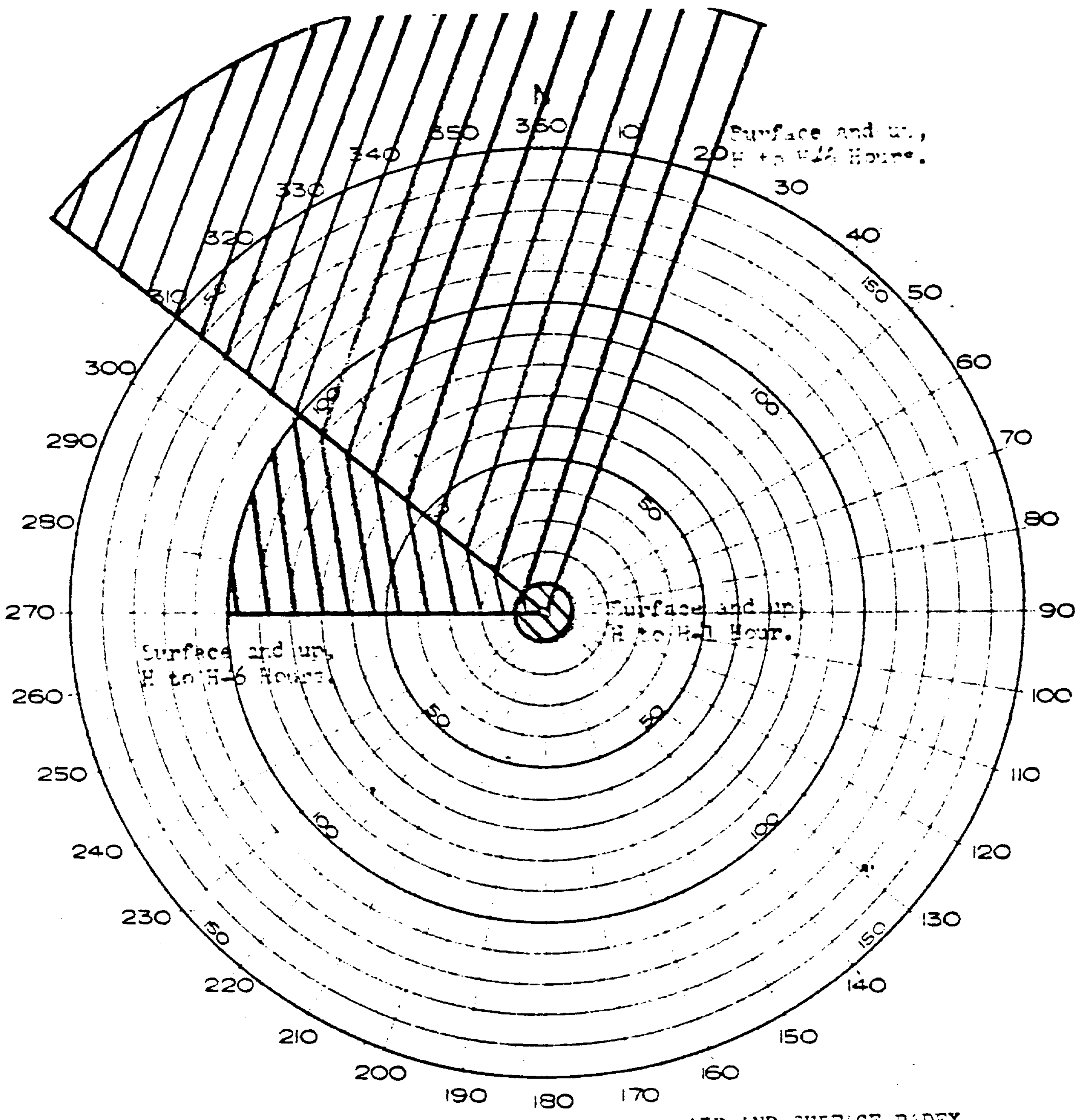
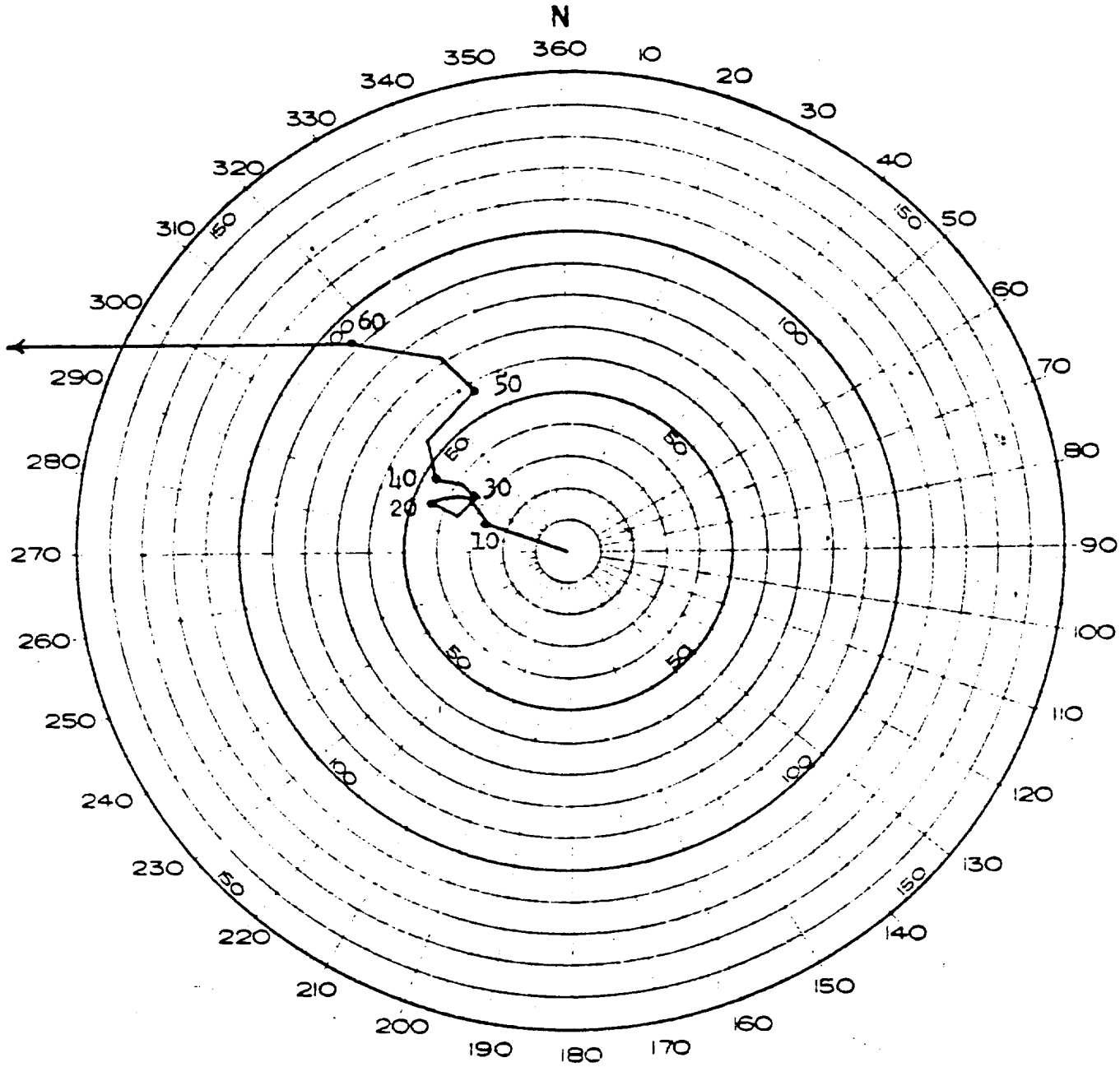

WAKE
CLOUD TRAJECTORY FORECAST
FOR 090600M JULY 1956
(First positions 090900M)
Positions at 6-hour intervals.
- APACHE EVENT -
50,000
40,000
30,000
20,000
10,000
TAONGI
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE

TAB C



AIR AND SURFACE RADEX
JULY 1956

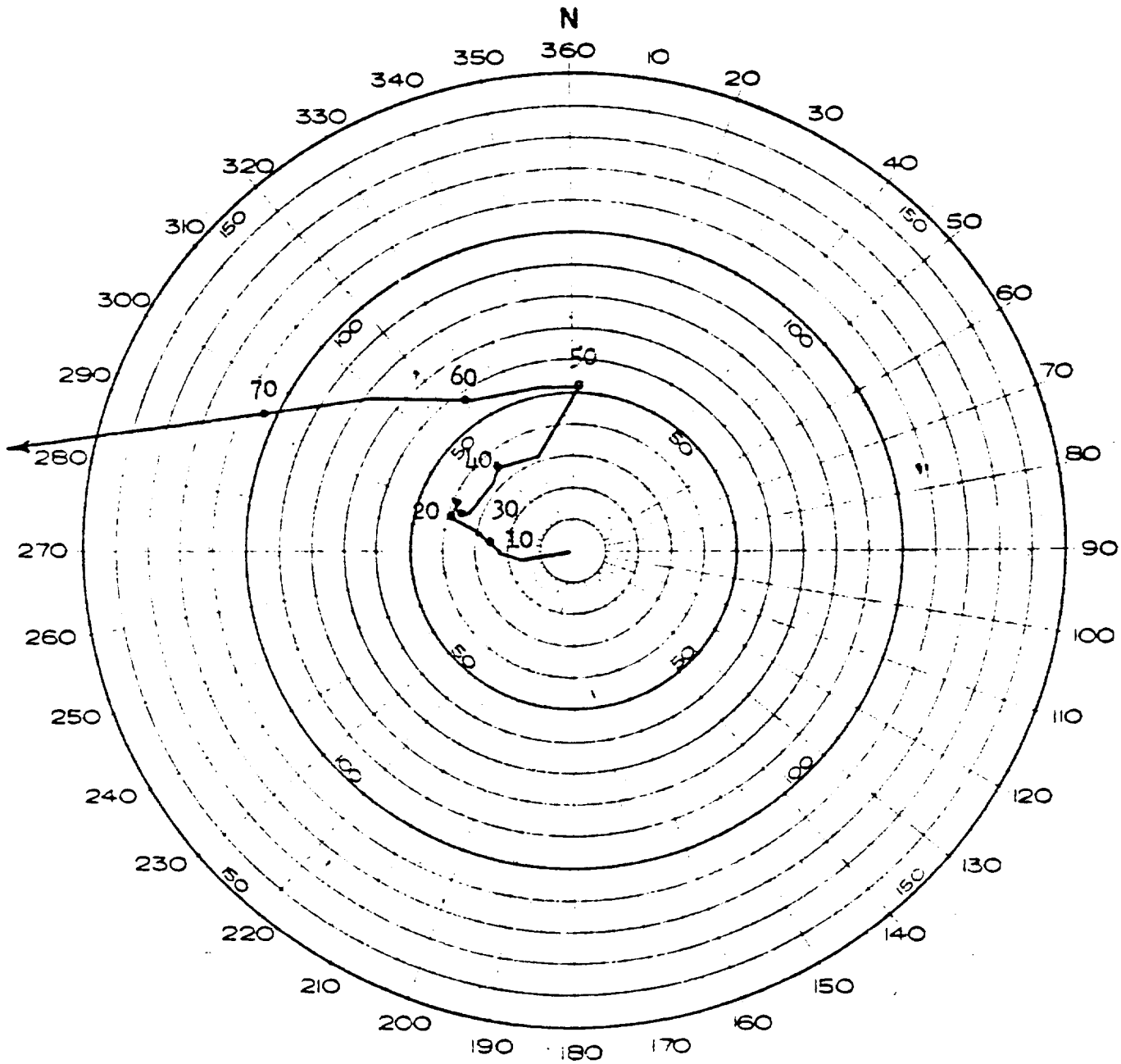
\- PACHE EVENT -



FORECAST FOR 090600M JULY 1956

APACHE EVENT

TAB E
1



OBSERVED WINDS 090600M JULY 1956

APACHE EVENT

TAB E

HEADQUARTERS
JOINT TASK FORCE SEVEN
APO 437
San Francisco, California

10 July 1956

APACHE

ENIWETOK OBSERVED WEATHER FOR 9 JULY 1956
AT DETONATION TIME 0606M

Sea Level Pressure	1010.5 mbs
Free Air Surface Temperature	80.3°F
Wet Bulb Temperature	76.4°F
Dew Point Temperature	74.9°F
Relative Humidity	84 %
Surface Wind	030° - 15 knots
Visibility	Over 10 miles

CLOUDS:

2/10 cumulus; bases estimated 1500 ft., tops estimated 25,000 feet to south and west.

2/10 stratocumulus; bases at 2,000 ft., tops estimated 4,000 feet. Few altocumulus less than 1/10.

3/10 cirrostratus; estimated at 30,000 ft. (very thin and transparent). Numerous contrails at 30,000 to 35,000 feet.

AREA WEATHER SUMMARY FROM AIRCRAFT:

0610M: Scattered cumulus buildups approximately 50 miles to east topped at 20,000 to 25,000 ft. Scattered stratocumulus tops estimated at 8,000-10,000 ft. Very light rain shower at Eniwetok. GZ clear.

0615M: 10 miles north and west of ground zero. Stratus overcast based at 27,000 ft., tops unknown.

0620M: To east and southeast of ground zero. 6/8 cumulus and stratocumulus with tops below 15,000 ft., occasional cumulus buildup to 25,000-30,000 ft.

STATE OF SEA:

Ocean Side: Wave height 4 feet, period 7 seconds, direction 070 degrees.
Lagoon Side: Wave height 1 foot.

WINDS ALOFT (Release time 051_

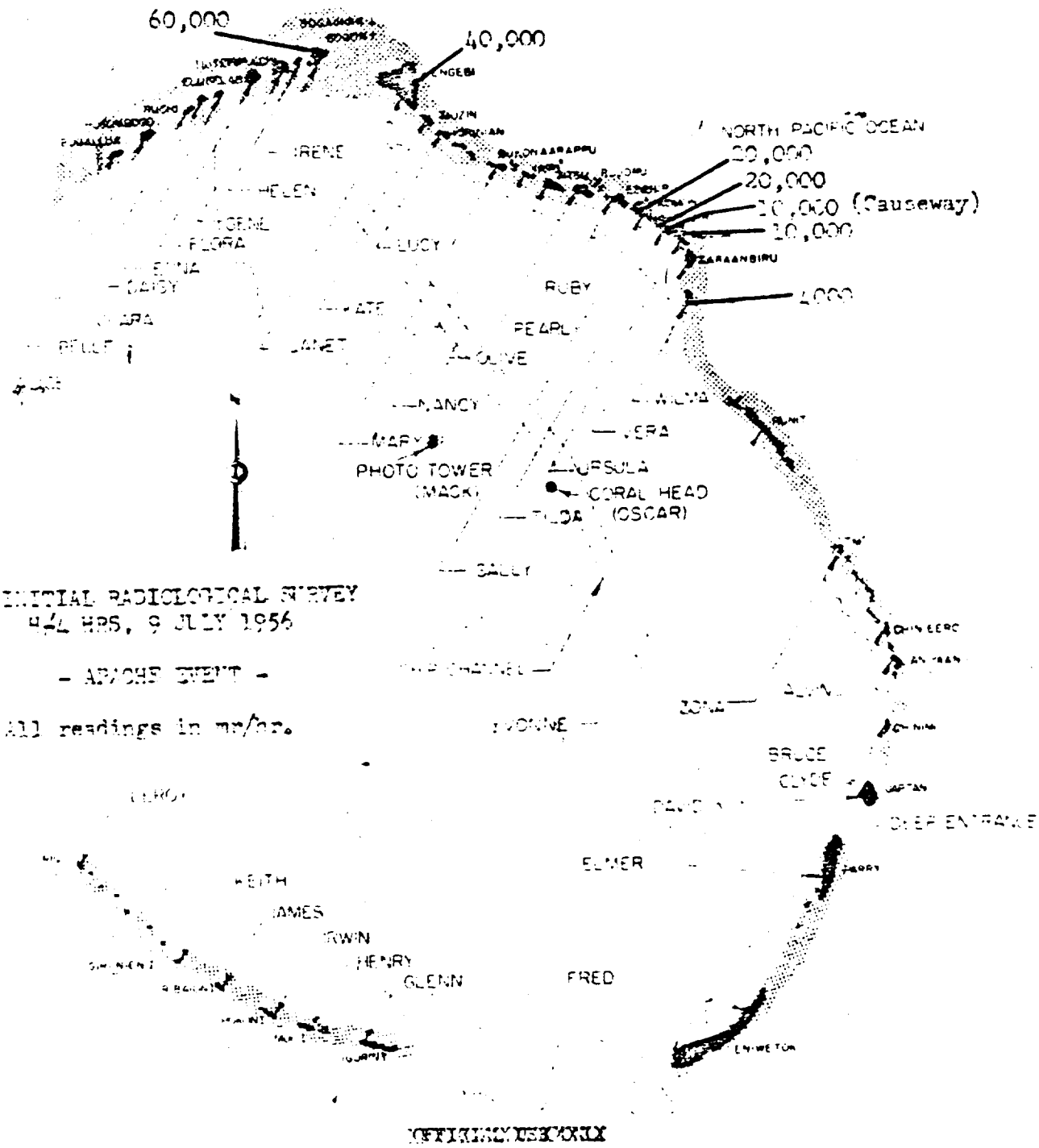
Height (Feet)	Direction (Degrees)	Speed (Knots)	Height (Feet)	Direction (Degrees)	Speed (Knots)
1,000	070	12	28,000	300	06
2,000	070	12	30,000	300	09
3,000	080	10	32,000	180	12
4,000	100	13	34,000	210	14
5,000	100	13	35,000	190	11
6,000	110	13	36,000	200	12
7,000	110	15	38,000	250	13
8,000	130	14	40,000	310	09
9,000	130	16	42,500	240	14
10,000	140	16	45,000	280	14
12,000	160	08	47,500	220	14
14,000	120	02	50,000	220	15
16,000	060	06	52,500	220	21
18,000	040	04	55,000	180	24
20,000	050	02	57,500	120	29
22,000	110	04	60,000	100	26
24,000	180	04	65,000	080	34
25,000	230	06	68,000	070	30
26,000	230	08			

WINDS ALOFT (Release time 0720M)

Height (Feet)	Direction (Degrees)	Speed (Knots)	Height (Feet)	Direction (Degrees)	Speed (Knots)
1,000	060	17	24,000	140	06
2,000	070	20	25,000	160	08
3,000	070	21	26,000	170	07
4,000	080	22	28,000	240	07
5,000	100	21	30,000	250	08
6,000	110	19	32,000	220	14
7,000	120	18	34,000	200	15
8,000	120	19	35,000	210	13
9,000	130	20	36,000	220	12
10,000	140	20	38,000	290	10
12,000	140	11	40,000	280	06
14,000	110	05	42,500	270	09
16,000	060	04	45,000	260	15
18,000	350	04	47,500	240	21
20,000	020	06	50,000	230	32
22,000	100	05			

UPPER AIR SOUNDING (Release [illegible])

Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
1000	310	25.5	24.2
850	4,960	18.2	14.8
740	8,858	12.2	07.2
727	9,318	08.2	03.8
700	10,340	08.5	03.2
691	10,696	08.5	03.2
682	11,122	05.5	00.5
600	14,440	01.2	-03.2
500	19,230	-07.2	-09.5
400	24,840	-18.2	-20.5
300	31,650	-34.2	-34.5
274	33,760	-38.8	-38.8
200	40,550	-55.0	M
150	46,390	-68.5	M


60,000
40,000
NORTH PACIFIC OCEAN
20,000
20,000
10,000 (Causeway)
10,000
4,000
IRENE
HELEN
FLORA
LUCY
RUBY
PEARL
OLIVE
NANCY
MARY
PHOTO TOWER
(MACK)
URSULA
CORAL HEAD
(OSCAR)
SALLY
YVONNE
BRUCE
CLYDE
ELMER
KEITH
JAMES
IRWIN
HENRY
GLENN
FRED
INITIAL RADIOLOGICAL SURVEY
H+L HRS, 9 JULY 1956
- ARCHE EVENT -
All readings in mr/hr.

TAB F

RADIATION LOG PARRY ISLAND

INCLUSIVE DATES 7-9/7-10-56 MONITOR O'BRIEN

Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS
7-9-56	0130	HQ JIP-7	0.37	
	1000		0.36	
	2300		0.36	
	2345		0.05	
7-10-56	0000	HQ JIP-7	1.0	
	0015		1.0	
	0030		1.1	
	0045		1.1	
	0200		1.2	
	0300		1.1	
	0400		1.0	
	0500		0.92	

RADIATION LOG UJELANG ISLAND

INCLUSIVE DATES 7-9/7-10-56 MONITOR COLEMAN

Date	Time	Station or Personnel	Readings in mr/hr	Comments
7-9-56	0000	"L"	0.04	
	0400		0.05	
	1000		0.04	
	1100		0.05	
	1200		0.04	
	1300		0.04	
	1400		0.05	
	1500		0.05	
	1600		0.05	
	1845		0.03	
	2000		0.05	
	2200		0.04	
	2400		0.04	
7-10-56	0000		0.04	

RADIATION LOG RONGERIK ISLAND

INCLUSIVE DATES 7-9-/7-10-56 MONITOR [illegible]

Date	Time	Station or Personnel	Readings in [illegible]	COMMENTS
7-9-56	[illegible]	[illegible]	0	
	1000		0	
	1200		0	
	1400		0	
	1500		0	
	1600		0	
	1800		0	
	2200		0	
	2400		0	
7-10-56	0600		0	

RADIATION LOG MOTHO ISLAND

INCLUSIVE DATES 7-9/7-10-56 MONITOR HARLESS

Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS
7-9-56	0400	#1	0.14	
	1200		0.16	
	1300		0.15	
	1400		0.15	
	1500		0.15	
	1600		0.15	
	1800		0.12	
	2000		0.12	
	2200		0.12	
	2400		0.12	
7-10-56	0630		0.12	

RADIATION LOG UTIRIK ISLAND

INCLUSIVE DATES 7-9/7-10-56 MONITOR CLEVELAND

Date	Time	Station or Personnel	Readings in mr/hr	REMARKS
7-9-56	0600	#1	0.06	
	1200		0.07	
	1300		0.07	
	1400		0.07	
	1500		0.07	
	1600		0.06	
	1800		0.06	
	2000		0.07	
	2200		0.07	
	2400		0.07	
7-10-56	0600		0.06	

INDEX

TAB

TAB A

NAVAJO EVENT

OPERATION REDWING

1. NAVAJO was detonated at 0556M, 11 July 1956 on a barge south of YURUCHI Island (DOG) in the BIKINI Atoll.

2. Fallout prediction was based on total yield including and a cloud height of 90,000 feet.

3. Early lagoon reconnaissance by the P2V aircraft at 300 feet at 0715M showed 0.2 mr/hr on and in the vicinity of ENIU Island (NAN). The northwest tip of BIKINI Island (HOW) gave a reading of 25 mr/hr. The wave action caused by NAVAJO had washed over NAN depositing debris on the runway and damaging some of the minor installations.

4. At 1430M a rise in radioactivity was noted at ENIWETOK, this peaked at 2 mr/hr at 1520 and began a normal decay.

5. No fallout was noted on any of the off-site monitoring stations through D+2 days.

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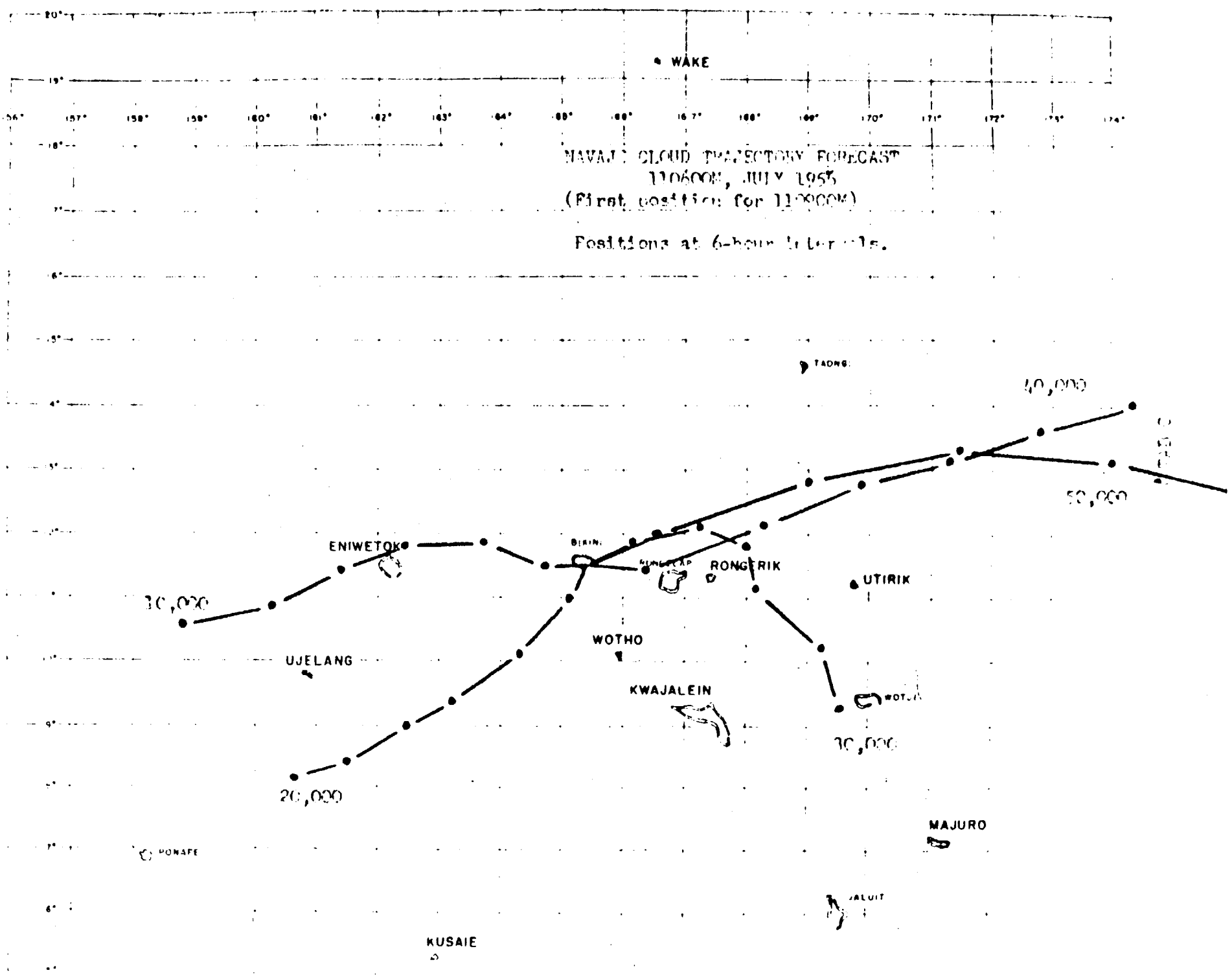
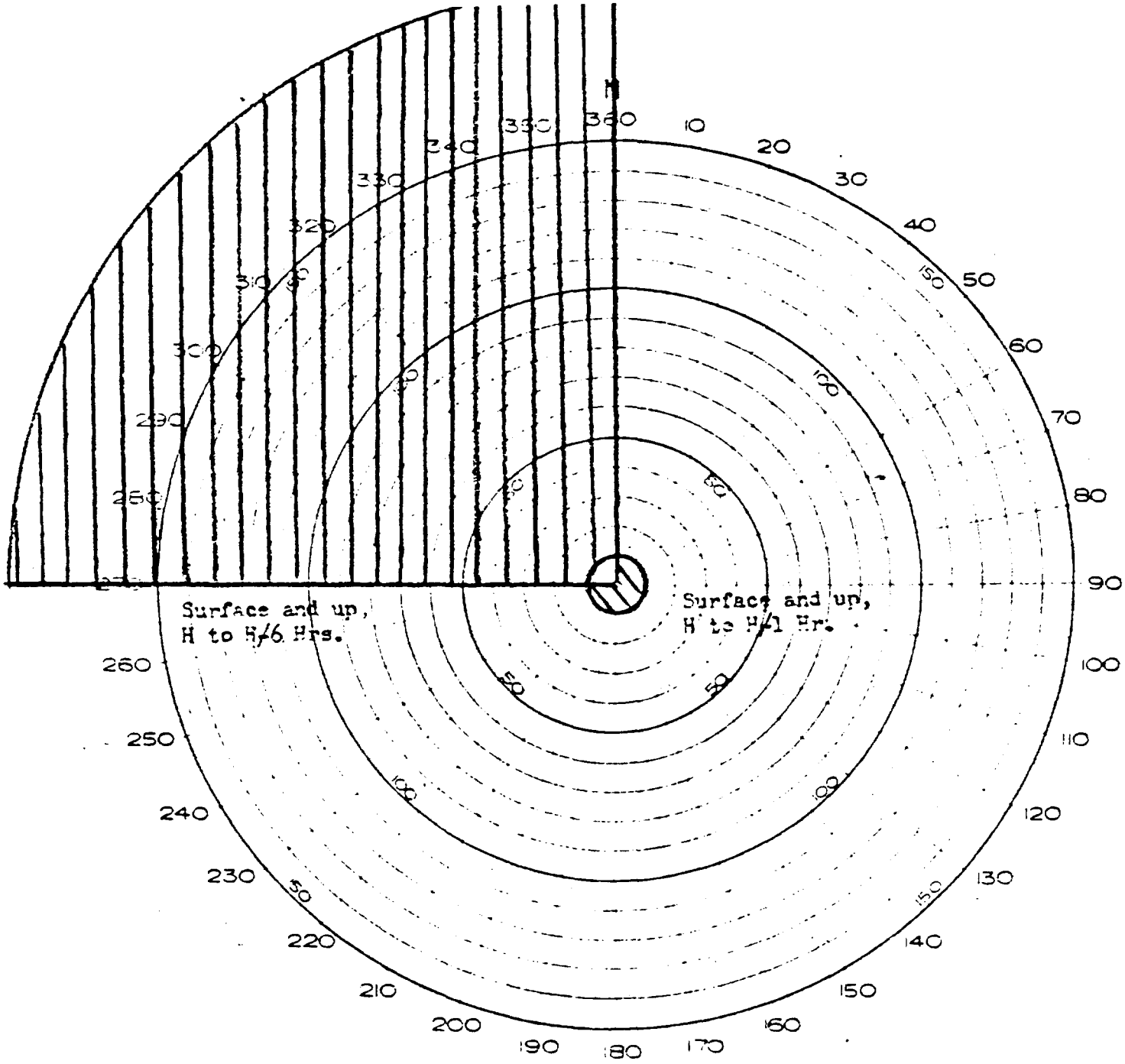
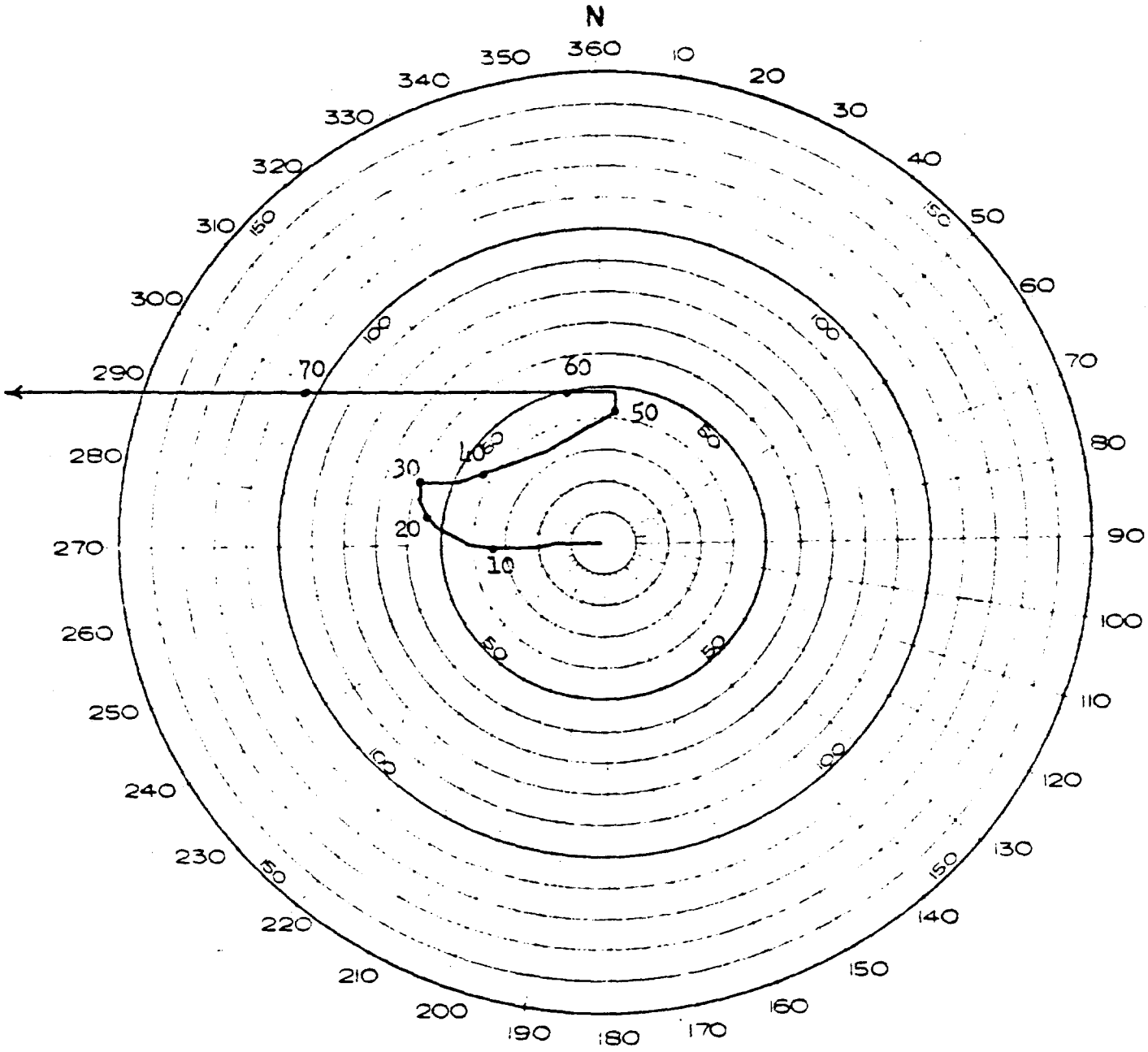

WAKE
NAVAJO CLOUD TRAJECTORY FORECAST
110600Z, JULY 1958
(First position for 110900Z)
Positions at 6-hour intervals.
TADNG
40,000
50,000
ENIWETOK
BIKINI
RONGERIK
UTIRIK
30,000
UJELANG
WOTHO
KWAJALEIN
20,000
MAJURO
PONAPE
KUSAIE



AIR AND SURFACE RADEX

- NAVAJO EVENT -

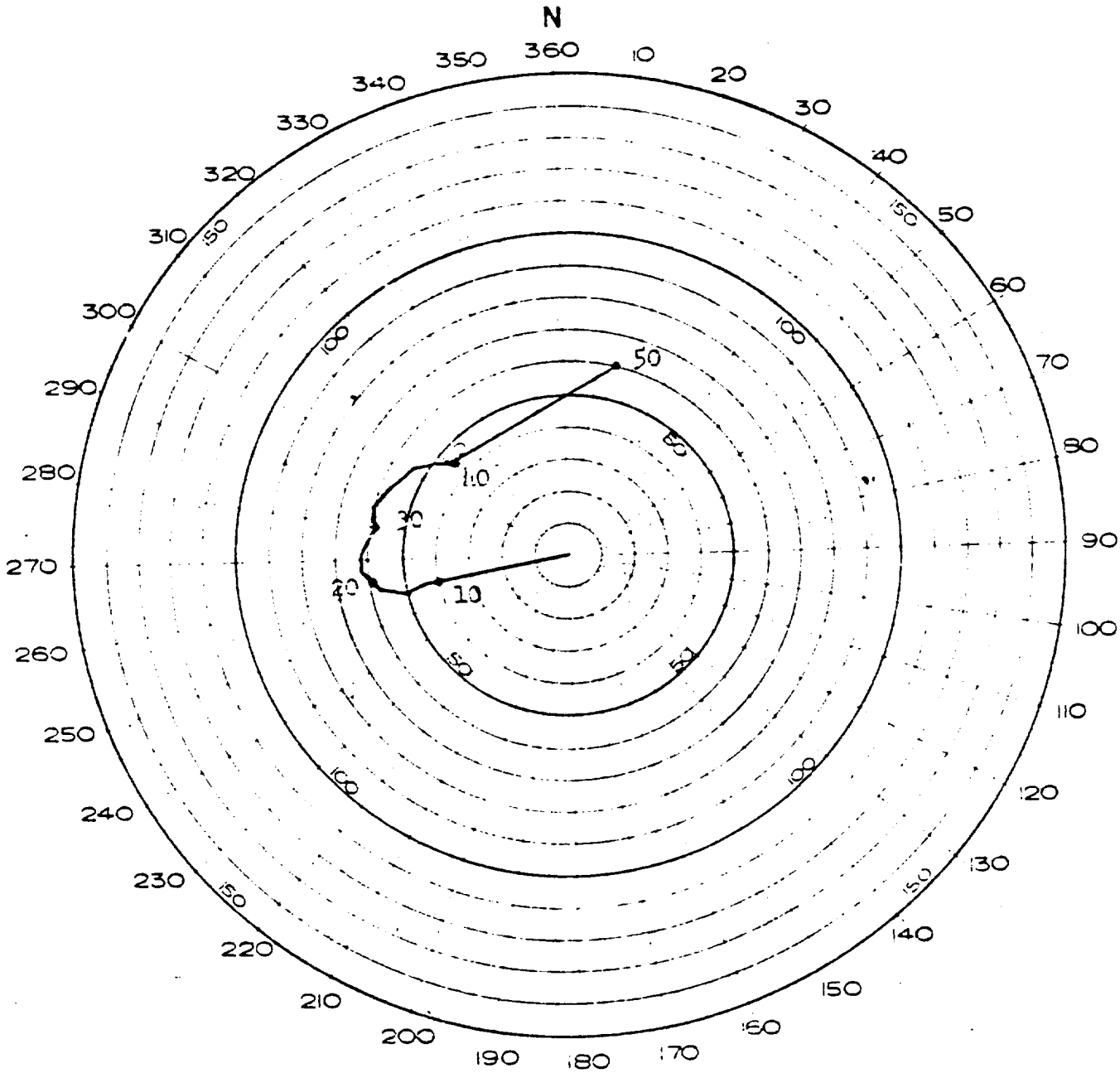
TAB D



FORECAST FOR 110600Z JULY 1956
(MADE 110100Z)

NAVAJO EVENT

TAB E



OBSERVED WINDS FOR 110600M JULY 1956

NAVAJO EVENT

T12 E

HEADQUARTERS
JOINT TASK FORCE SEVEN
APO 437
San Francisco, California

13 July 1956

NAVAJO

BIKINI OBSERVED WEATHER FOR 11 JULY 1956
AT DETONATION TIME 0556M

Sea Level Pressure	1010.2 mbs
Free Air Surface Temperature	81.2°F
Wet Bulb Temperature	76.2°F
Dew Point Temperature	74.0°F
Relative Humidity	80.0%
Surface Wind	090° - 8 knots
Visibility	10 miles

CLOUDS:

2/10 cumulus, bases estimated at 1800 feet
6/10 cumulus, bases estimated at 2000 feet
7/10 cirrostratus, bases estimated at 30,000 feet (transparent)

AREA WEATHER SUMMARY FROM AIRCRAFT:

0600M - (Aircraft at 45,000 feet) Scattered to broken cloud layer based at 30,000 feet, tops at 35,000 feet. Few cumulus (widely scattered) with tops to 35,000 feet. Could not see surface or Bikini Atoll.

0615M - (Aircraft at 44,000 feet just above broken to overcast cirrus cloud layer to the west of Bikini) Scattered cirrus clouds 50 miles south of Bikini. Few scattered cirrus to north and east of Bikini with approximately 2/10 small cumulus at low levels. Few cumulus tops to 25,000 feet.

STATE OF SEA:

Ocean Side: Wave height 5 ft., period 5 seconds, direction 080 degrees. Sea water temperature - 83.0°F.
Lagoon Side: Wave height less than 1 foot.

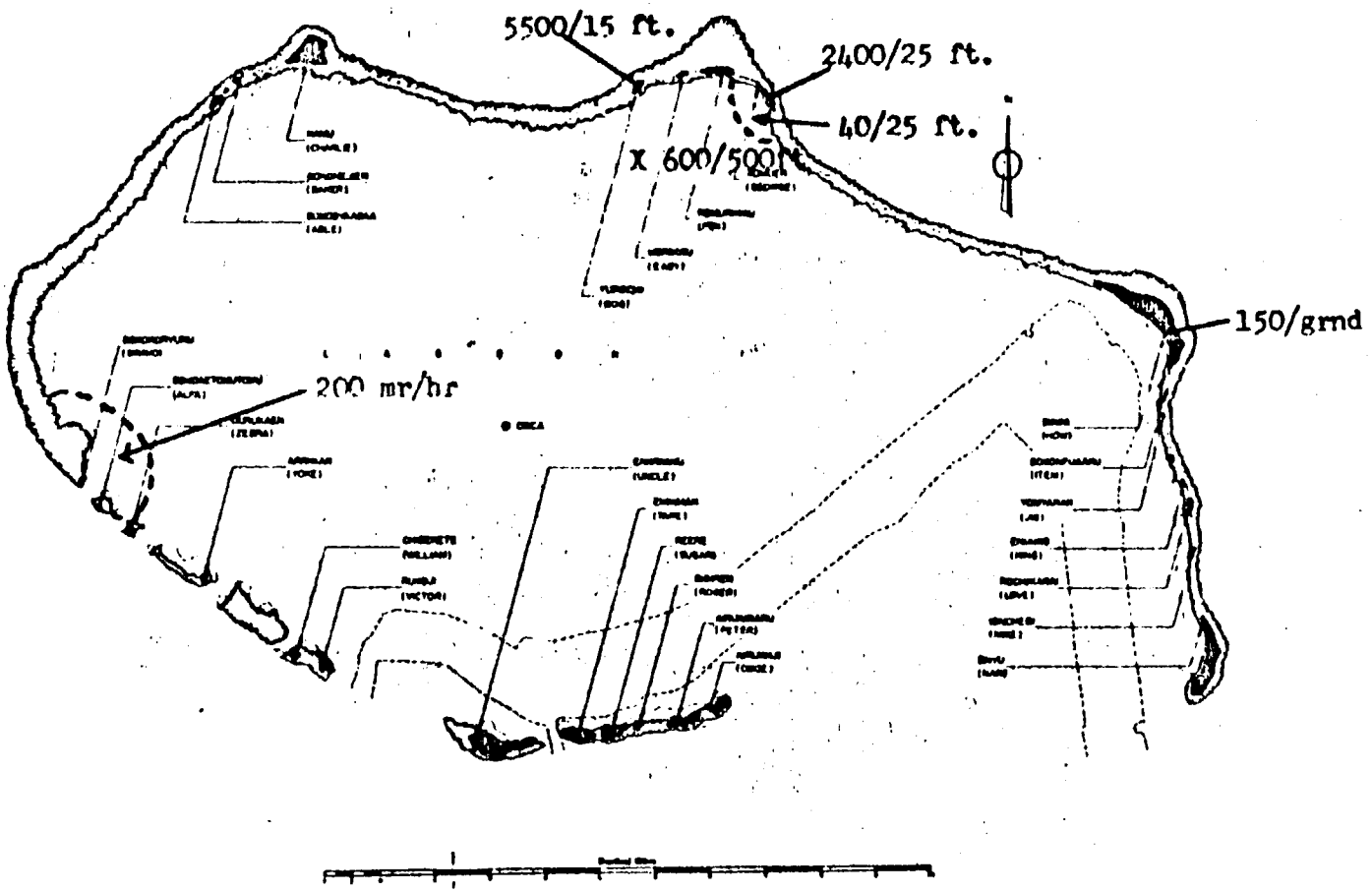
WINDS ALOFT (Release time 0630M)

Height (Feet)	Direction (Degrees)	Speed (Knots)	Height (Feet)	Direction (Degrees)	Speed (Knots)
1,000	080	21	24,000	170	4
2,000	080	23	26,000	180	10
3,000	080	22	28,000	200	14
4,000	080	22	30,000	210	15
5,000	080	20	32,000	180	14
6,000	080	18	34,000	210	19
7,000	080	19	36,000	230	22
8,000	080	20	38,000	260	15
9,000	080	19	40,000	270	16
10,000	080	18	45,000	240	30
12,000	070	13	50,000	240	29
14,000	060	12	52,000	230	32
16,000	100	9	55,000	120	12
18,000	100	9	60,000	080	23
20,000	130	8	65,000	090	35
22,000	130	8	70,000	080	45

UPPER AIR SOUNDING (Release time 0630M)

Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
1000	210	27.2	23.5
850	4,940	15.5	12.2
700	10,290	8.8	1.2
624	13,353	Missing	Missing
500	19,160	-7.5	-14.8
400	24,730	-18.5	-26.5
300	31,570	-34.2	-46.8
270	33,957	-40.3	Missing
250	35,660	-44.1	Missing
200	40,430	-56.2	Missing
150	46,220	-70.5	Missing
120	50,492	-79.0	Missing
100	52,900	-77.6	Missing
94	55,151	-79.0	Missing
81	57,844	-76.0	Missing

MAP OF BIKINI ATOLL



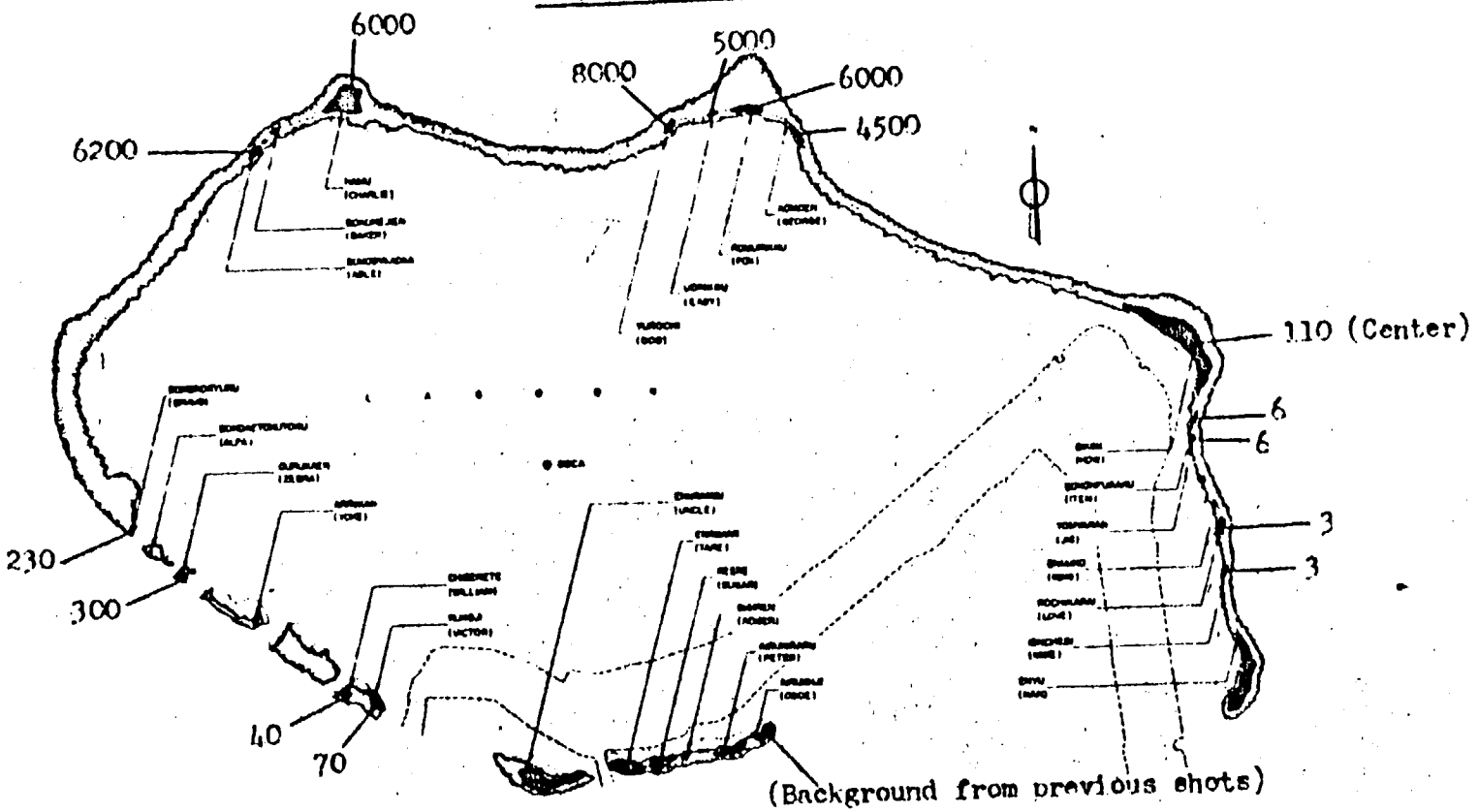
INITIAL HELICOPTER SURVEY
H/3 THRU H/5 HOURS.

NAVAJO EVENT

TAB F
1

TAB F
2

MAP OF BIKINI ATOLL



DETAILED RADIOLOGICAL SURVEY MADE
1114OOM, JULY 56

- NAVAJO EVENT -

NOTE: All readings at ground level.

RADIATION LOG PARRY Island

INCLUSIVE DATES 7-11-56/7-12-56 MONITOR RADSAFE

Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS
7-11	0652	HQ JTF SEVEN	0.52	
	1435		0.52	
	1450		0.94	
	1500		1.5	
	1520		2.0	
	1545		1.8	
	1600		1.8	
	1615		1.5	
	1630		1.0	
	1645		0.58	
	1700		0.52	
	1715		0.52	
	1800		0.52	
7-12	0800		0.43	

RADIATION LOG RONGERIK ISLAND

INCLUSIVE DATES 7-11/7-12-56 MONITOR RADSAFE

Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS
7-11	0600	#254	0	
	1000		0	
	1100		0	
	1200		0	
	1300		0	
	1400		0	
	1500		0	
	1600		0	
	1700		0	
	1800		0	
	1900		0	
	2000		0	
	2400		0	
7-12	0600		0	

RADIATION LOG UTIRIK ISLAND

INCLUSIVE DATES 7-11/7-12-56 MONITOR CLEVELAND

Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS
7-11	0600	#1	0.06	
	1200		0.06	
	1300		0.05	
	1400		0.06	
	1500		0.05	
	1600		0.06	
	1700		0.05	
	1800		0.06	
	1900		0.05	
	2000		0.06	
	2400		0.06	
7-12	0600		0.05	

RADIATION LOG WOTHO ISLAND

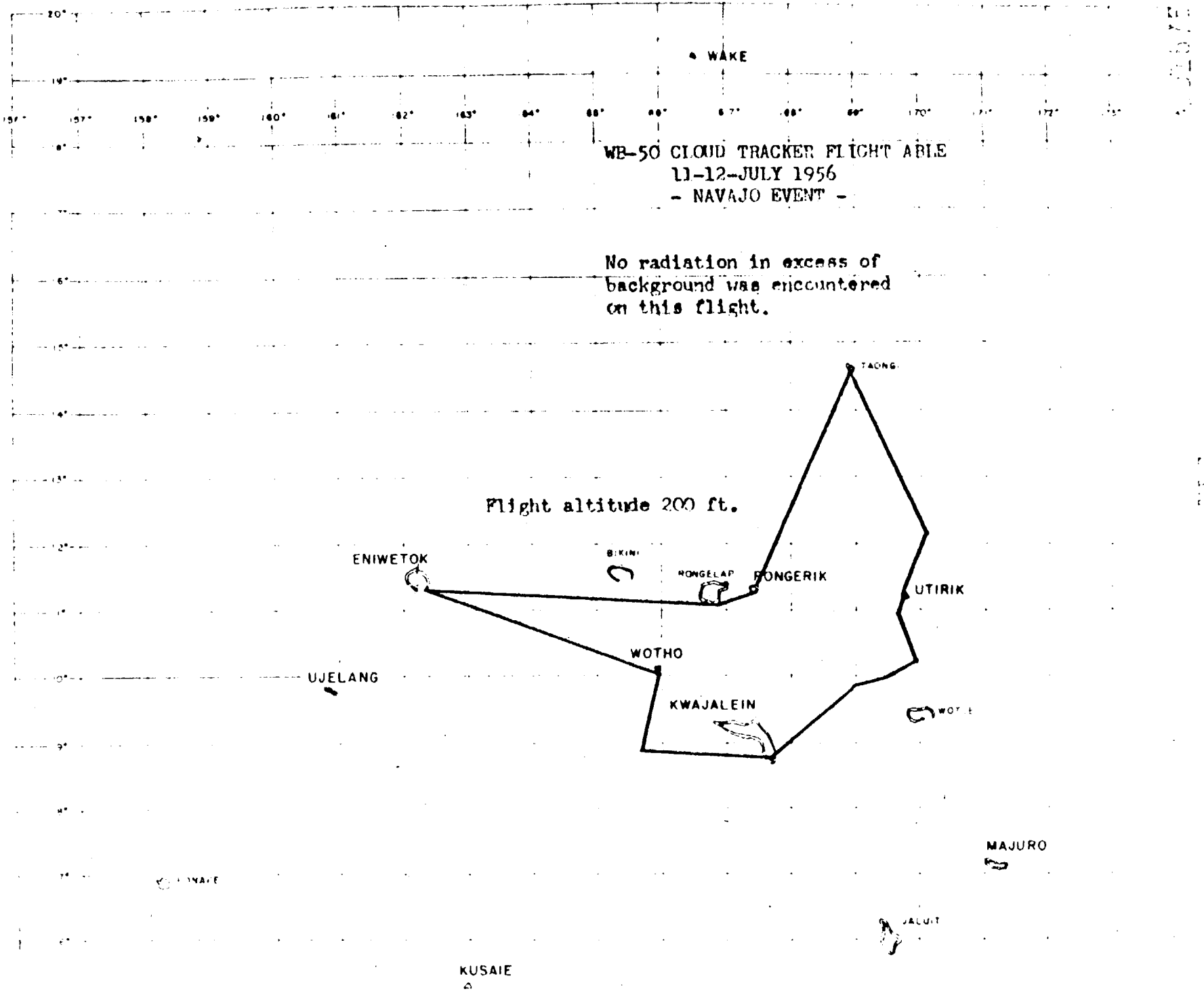
INCLUSIVE DATES 7-11-56/7-12-56 MONITOR HARLESS

Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS
7-11	0600	#1	0.1	
	1200		0.1	
	1300		0.1	
	1400		0.1	
	1500		0.1	
	1600		0.12	
	1700		0.12	
	1800		0.12	
	1900		0.12	
	2000		0.12	
	2400		0.12	
7-12	0600		0.12	

RADIATION LOG UJELANG ISLAND

INCLUSIVE DATES 7-11/7-12-56 MONITOR COLEMAN

Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS
7-11	0800	#1	0.04	
	1200		0.04	
	1400		0.04	
	1500		0.05	
	1600		0.05	
	1700		0.05	
	1800		0.06	
	1900		0.05	
	2000		0.04	
	2200		0.04	
7-12	0800		0.05	



WB-50 CLOUD TRACKER FLIGHT ABLE
11-12-JULY 1956
- NAVAJO EVENT -

No radiation in excess of background was encountered on this flight.

Flight altitude 200 ft.

INDEX

TAB

TAB A

TEWA EVENT

OPERATION REDWING

1. TEWA was detonated on a barge near YUROCHI Island (DOG), ENIWETOK Atoll, at 0546Z, 21 July 1956.

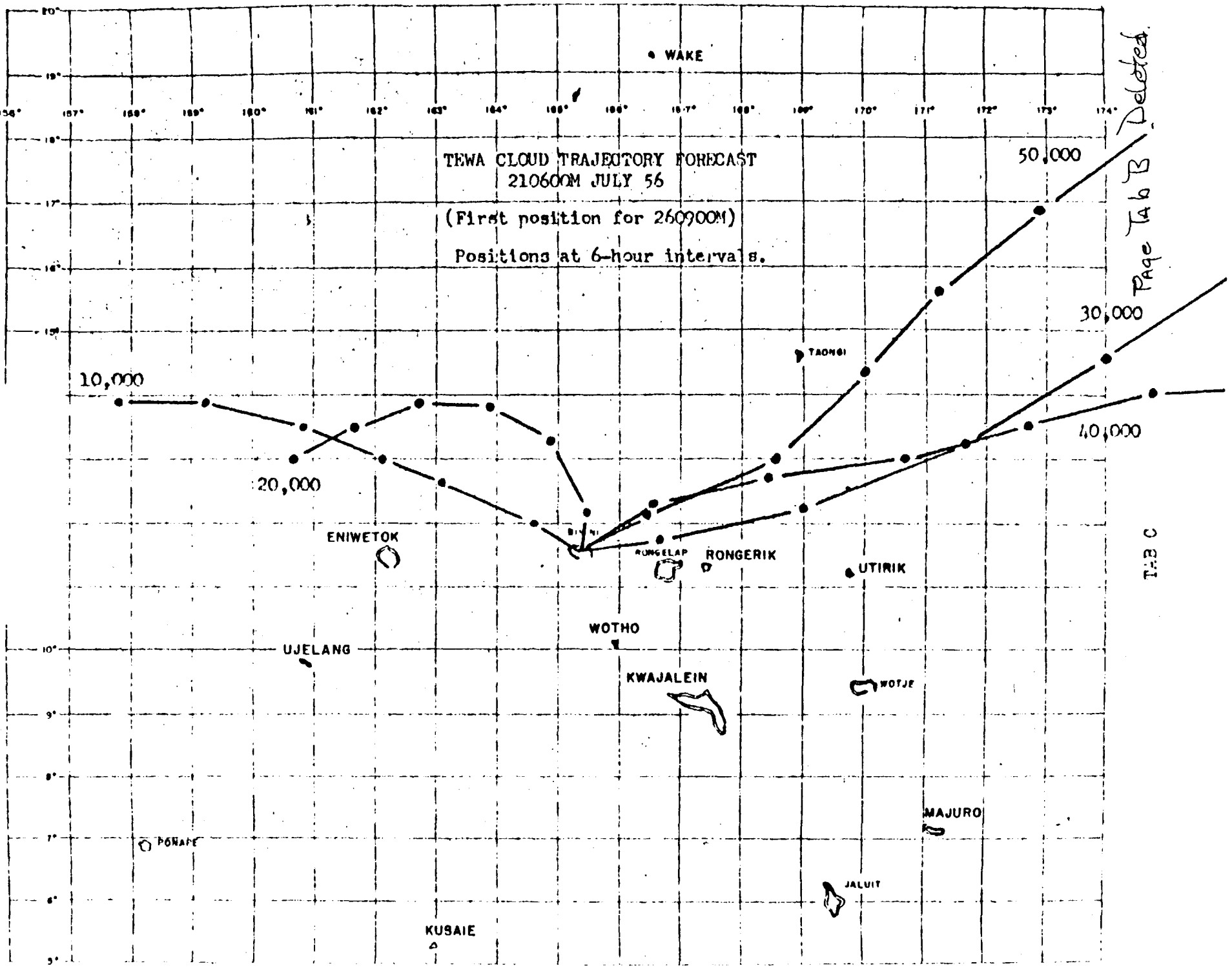
2. Fallout prediction was based on a yield of and a 100,000-foot cloud height.

3. A small vortex which had not been forecast appeared over ENIWETOK at that time in the 30,000-40,000-foot level reducing appreciably the southerly component of the winds. This development had the effect of bringing the hot line counter-clockwise to about 290° and placing ENIWETOK in the fringe of the fallout pattern. The cloud track and fallout plot were carefully monitored throughout the day with as many as four aircraft at once. The first rise in background at PARRY Island was noted at 1500Z, and a maximum of 120 milliroentgens per hour was reached at 2400Z.

Rainfall at ENIWETOK is sufficient to further reduce this dose to a probable maximum of 2.5 roentgens.

4. Initial PBY and helicopter surveys at ENIWETOK disclosed that no damage had been done on ENIU (IVAN) and that both ENIU and the anchorage were clear. In view of this, reentry hour was established as 0400Z.

5. No fallout occurred on any of the off-site monitoring stations.



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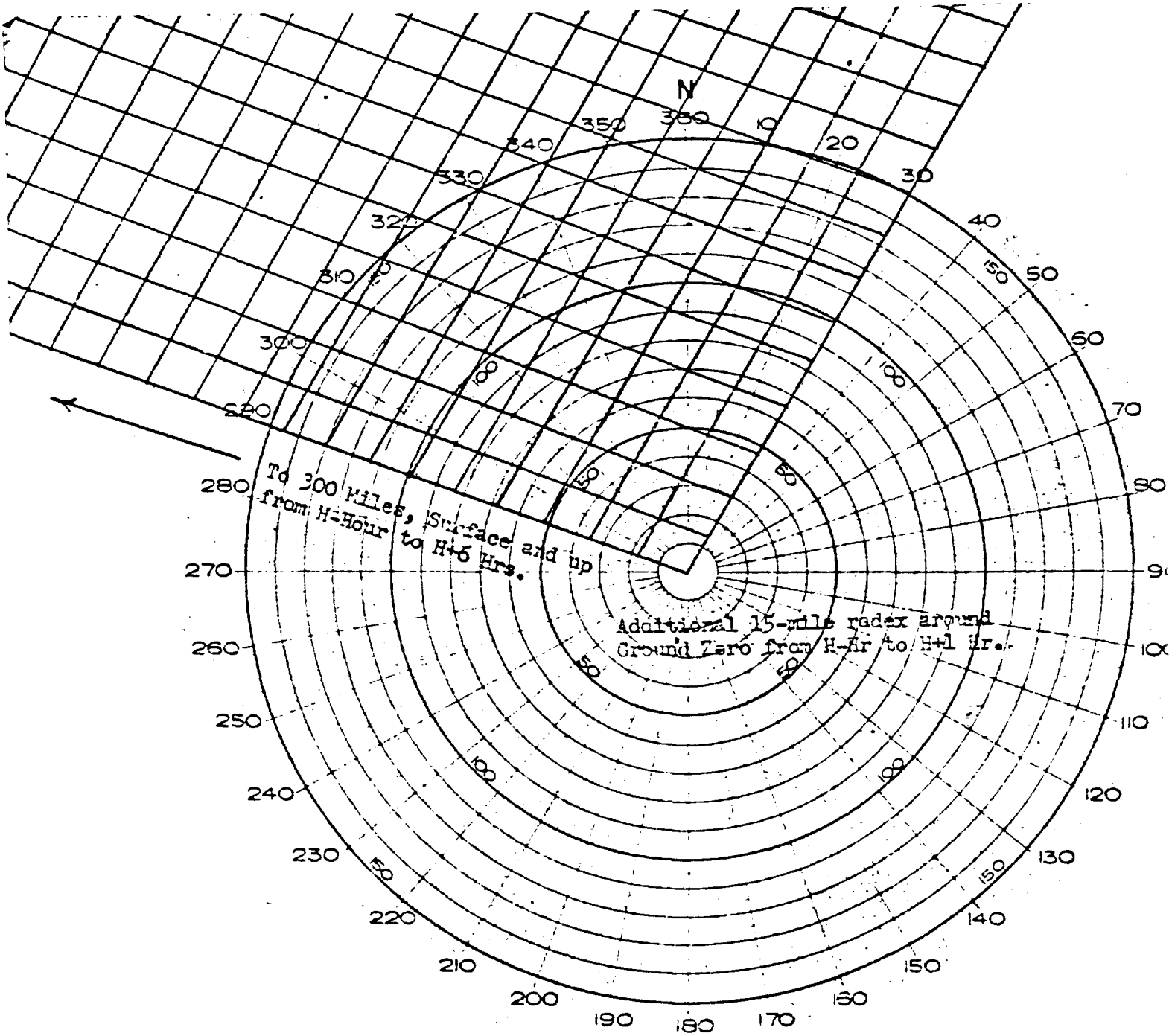
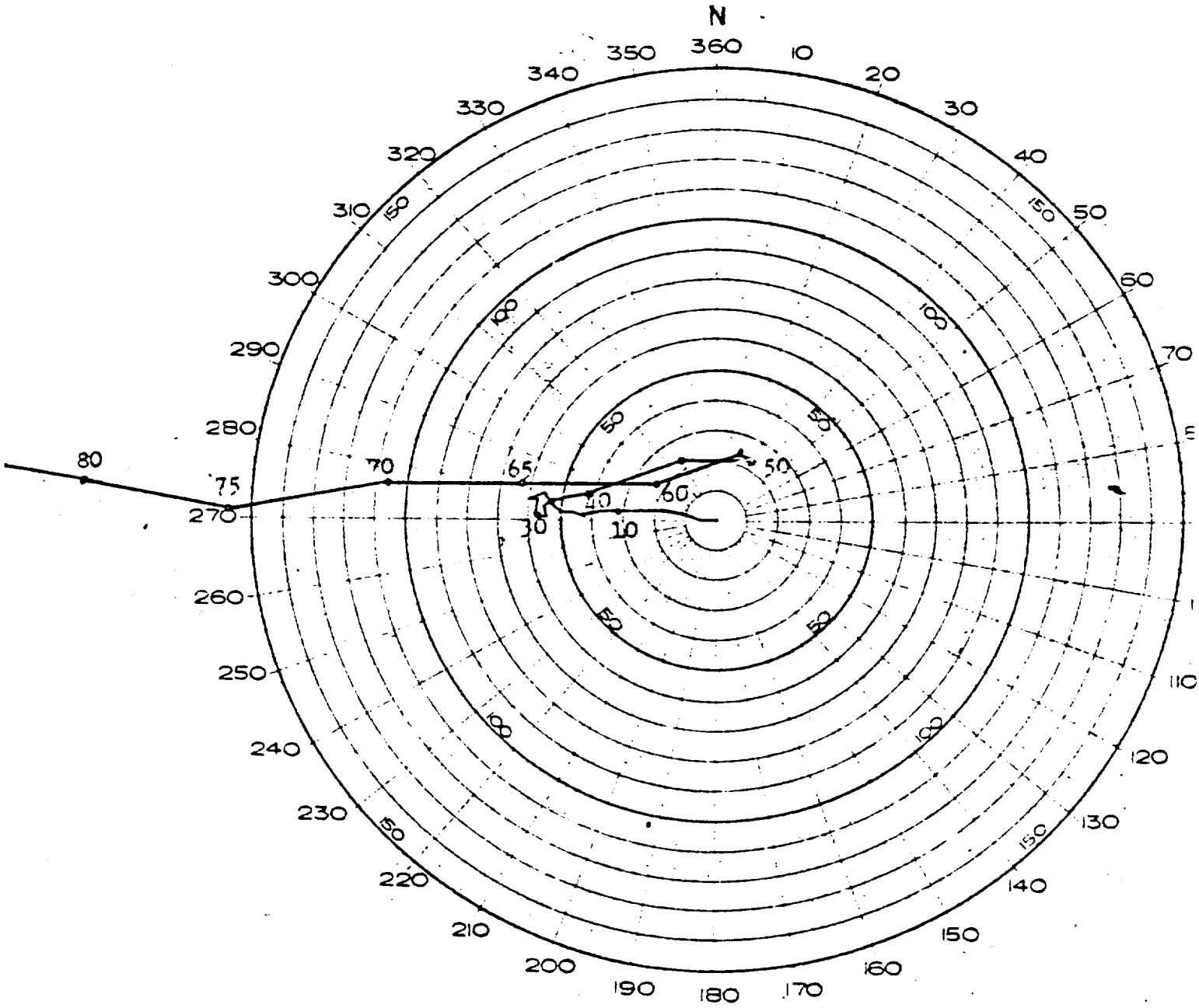
TAB C



TEXA AIR & SURFACE RADEX
27 JULY 1956

TAB D



OBSERVED WINDS FOR 0600M, 21 J

- TENA EVENT -

TAB E

HEADQUARTERS
JOINT TASK FORCE SEVEN
APO 437
San Francisco, California

21 July 1956

TEWA

BIKINI OBSERVED WEATHER FOR 21 JULY 1956
AT DETONATION TIME 0546M

Sea Level Pressure	1009.3 mbs
Free Air Surface Temperature	82° F
Wet Bulb Temperature	78° F
Dew Point Temperature	77° F
Relative Humidity	85 %
Sea Water Temperature	84° F
Surface Wind	ESE 8 knots
Visibility	Over 10 miles
Weather	No showers reported

CLOUDS:

2/10 cumulus, bases at 2,000 ft.
1/10 cirrostratus, based at 30,000 ft.

STATE OF SEA:

Open Sea: Wave heights 3 ft., period 6 seconds, direction 090°.

AREA WEATHER SUMMARY FROM AIRCRAFT:

Scattered cumulus clouds bases at 2,000 ft. 4-5/8 cirros based at 35,000 ft., tops at 36,000 ft.

BIKINI UPPER AIR SOUNDING:

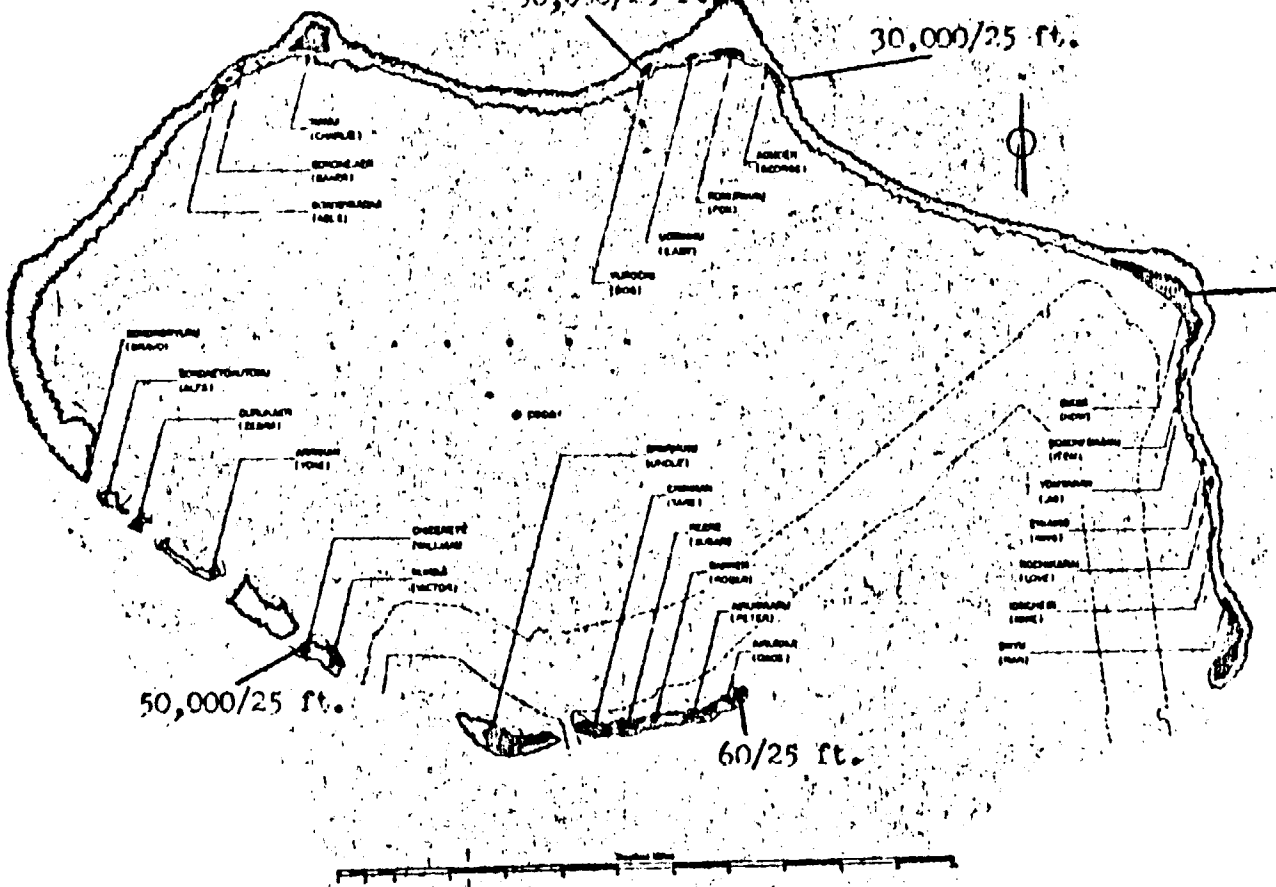
Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
1000	310	26.5	22.5
850	4950	17.8	11.5
700	10310	7.5	0.8
645	12500	3.5	-2.5
616	13747	2.2	-10.5
596	14600	0.5	- 7.2
582	15223	- 0.8	-16.5
500	19140	- 8.5	-15.2

Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
400	24710	-18.5	-32.8
318	30052	-31.2	-43.2
300	31540	-34.5	M
250	35640	-44.9	M
200	40240	-57.0	M
150	46010	-70.8	M
110	51929	-78.0	M

BIKINI WINDS ALOFT:

Height (Feet)	Direction (Degrees)	Velocity (Knots)	Height (Feet)	Direction (Degrees)	Velocity (Knots)
1000	080	15	26000	270	5
2000	090	15	28000	010	9
3000	110	16	30000	320	5
4000	110	16	32000	270	3
5000	110	16	34000	170	8
6000	100	17	36000	220	8
7000	100	19	38000	260	10
8000	090	20	40000	260	20
9000	090	18	45000	250	32
10000	090	17	50000	270	22
12000	090	15	55000	110	5
14000	080	14	60000	070	29
16000	120	06	65000	090	45
18000	090	11	70000	090	42
20000	130	11	75000	080	53
22000	150	8	80000	100	48
24000	070	14	85000	100	49

MAP OF BIKINI ATOLL



RADIOLOGICAL SURVEY MADE AT 1/4 HRS.
21 JULY 56

(All readings in mr/hr at altitude indicated)

- TEWA EVENT -

RADIATION LOG PARRY Island

INCLUSIVE DATES 7-21-56 MONITOR RADSAFE

Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS
7-21-56	0700	HQ JTF 7	0.13	
	1200		0.15	
	1330		0.15	
	1400		0.15	
	1430		0.20	
	1500		0.80	
	1515		1.05	
	1530		1.45	
	1600		4.0	
	1630		5.5	
	1700		11.5	
	1730		24.0	
	1800		32.0	
	1900		45.0	
	2000		80.0	
	2030		80.0	
	2100		100.0	
	2130		110.0	
	2150		100.0	Showers
	2200		100.0	
	2220		100.0	
	2300		100.0	
	2330		110.0	Rain
	2400		120.0	Rain
7-22-56	0030	HQ JTF 7	100.0	
	0100		90.0	
	0200		120.0	
	0300		120.0	
	0400		120.0	
	0500		120.0	
	0530		120.0	
	0700		120.0	
	0900		100.0	
	1000		105.0	
	1100		100.0	

TAB 9

RADIATION LOG RONGERIK Island

INCLUSIVE DATES 7-21-56 MONITOR RADSAFE

Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS
7-21-56	1300	254	0	
	1400		0	
	1500		0	
	1600		0	
	1700		0	
	1800		0	
	1900		0	
	2000		0	
	2100		0	
	2200		0	
	2300		0	
	2400		0	

RADIATION LOG UTIRIK Island

INCLUSIVE DATES 7-21-56 MONITOR HOYLE

Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS
7-21-56	0000	#1	0.05	
	1200		0.04	
	1600		0.04	
	1700		0.04	
	1800		0.04	
	1900		0.04	
	2000		0.04	
	2100		0.04	
	2200		0.04	
	2300		0.04	
	2400		0.04	

RADIATION LOG: UJELANG Island

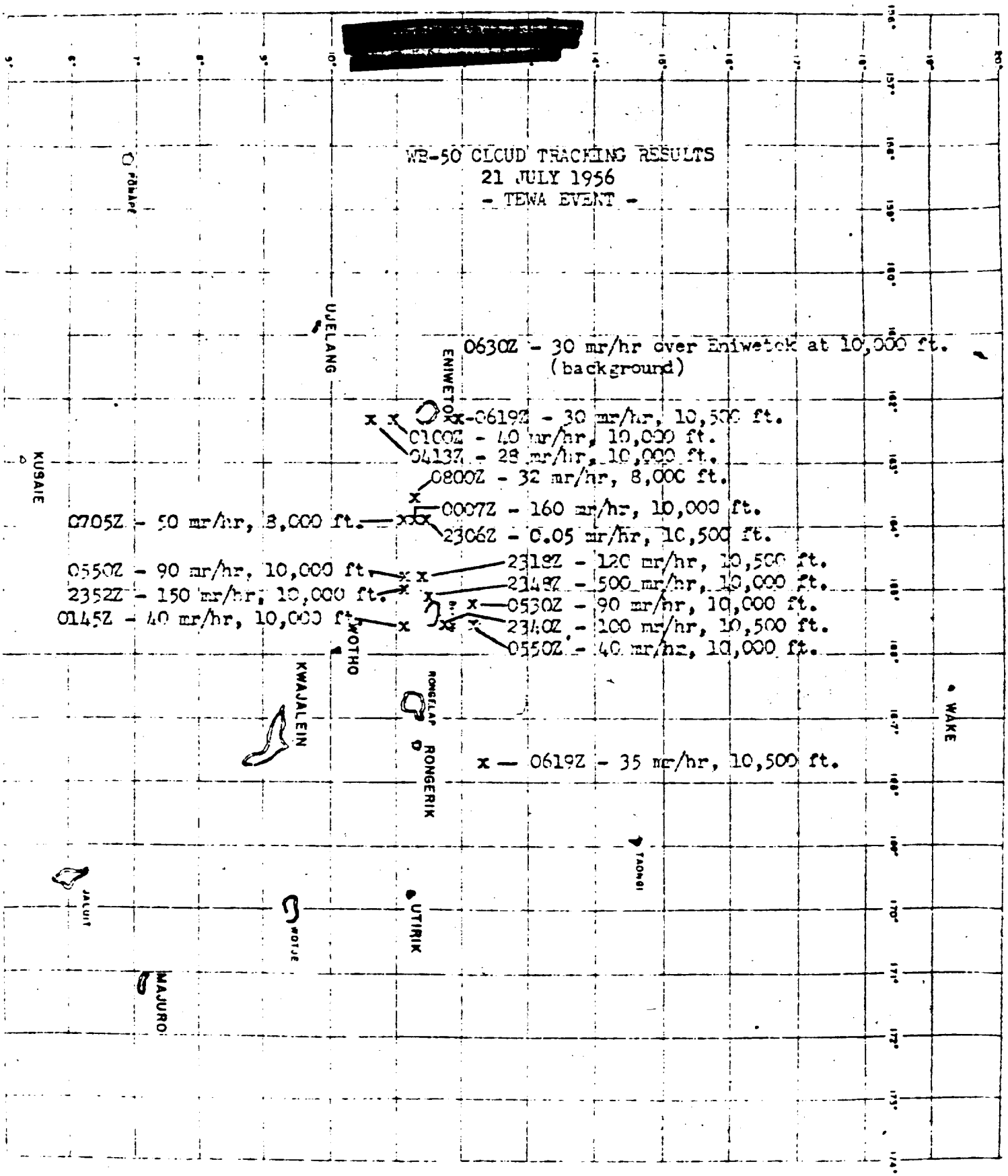
INCLUSIVE DATES 7-21-56 MONITOR SCHOENFELD

Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS
7-21-56	0700	A1	0.04	
	1200		0.04	
	1600		0.04	
	1700		0.04	
	1800		0.04	
	1900		0.04	
	2000		0.04	
	2100		0.04	
	2300		0.04	
	2500		0.04	

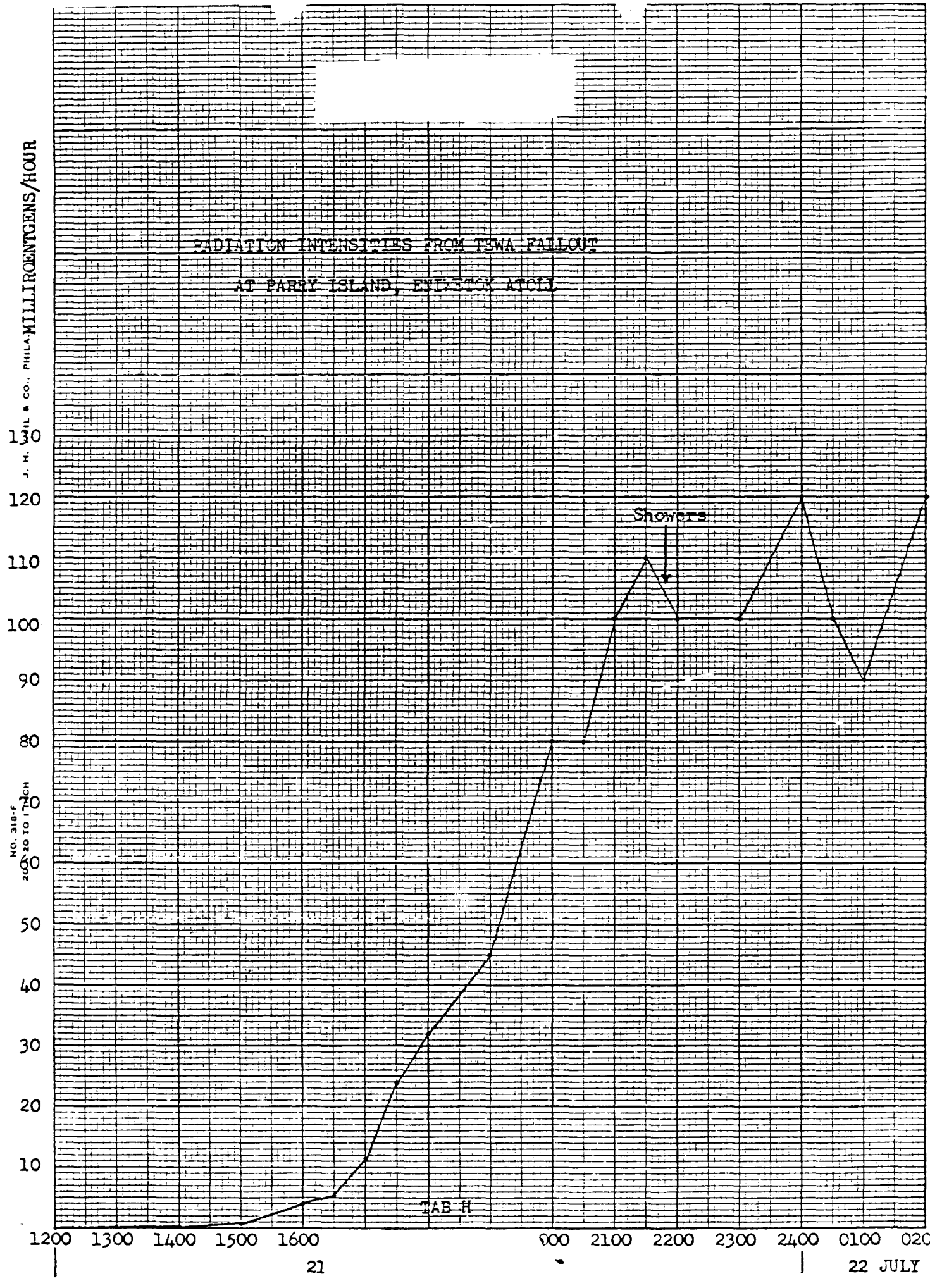
RADIATION LOG NOTHO Island

INCLUSIVE DATES 7-21-56 MONITOR HARLESS

Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS
7-21-56	0900	#1	0.03	
	1200		0.03	
	1600		0.03	
	1700		0.03	
	1800		0.03	
	1900		0.03	
	2000		0.03	
	2100		0.03	
	2200		0.03	
	2400		0.03	


WB-50 CLOUD TRACKING RESULTS
21 JULY 1956
- TEWA EVENT -
0630Z - 30 mr/hr over Eniwetok at 10,000 ft. (background)
0619Z - 30 mr/hr, 10,500 ft.
0100Z - 40 mr/hr, 10,000 ft.
0413Z - 28 mr/hr, 10,000 ft.
0800Z - 32 mr/hr, 8,000 ft.
0007Z - 160 mr/hr, 10,000 ft.
2306Z - 0.05 mr/hr, 10,500 ft.
0705Z - 50 mr/hr, 8,000 ft.
2319Z - 120 mr/hr, 10,500 ft.
2348Z - 500 mr/hr, 10,000 ft.
0530Z - 90 mr/hr, 10,000 ft.
2340Z - 100 mr/hr, 10,500 ft.
0550Z - 40 mr/hr, 10,000 ft.
0550Z - 90 mr/hr, 10,000 ft.
2352Z - 150 mr/hr, 10,000 ft.
0145Z - 40 mr/hr, 10,000 ft.
x — 0619Z - 35 mr/hr, 10,500 ft.
ENIWETOK
UJELANG
KUSAIE
WOTHO
KWAJALEIN
RONGELAP
RONGERIK
WAKE
UTIRIK
TAONGI
JALUIT
MOTJE
MAJURO

TAB G


RADIATION INTENSITIES FROM TSWA FALLOUT
AT PARRY ISLAND, ENIWETOK ATOLL
MILLIROENTGENS/HOUR
J. H. HILL & CO., PHILA.
NO. 310-F
200 TO 1 INCH
130
120
110
100
90
80
70
60
50
40
30
20
10
Showers
1200
1300
1400
1500
1600
000
2100
2200
2300
2400
0100
0200
21
22 JULY 19

TAB H

INDEX

TAB

TAB A

HURON EVENT

OPERATION REDWING

1. HURON was detonated on a barge in the MIKE crater at ENIWETOK Atoll at 0616M, 22 July 1956.

2. The fallout prediction was based on

and a cloud height of 50,000 feet. Actually, the cloud attained a height of 62,000 feet as determined by radar.

3. The wind pattern for this shot was very favorable and persisted throughout the critical period of fallout.

4. The background intensity at PARRY Island was 120 milliroentgens per hour at shot time due to the TEWA fallout. No additional fallout occurred at PARRY and none was recorded at any of the off-site stations.

5. The ships remained in the lagoon for this shot and declaration of reentry hour was unnecessary.

6. Cloud tracking by radar revealed that the major portion of the cloud at H+2 hours was centered on a bearing of 275° with the tip at a distance of 45 miles. The southern edge was on a bearing of 255° with a bulge to the north at 315°, 35 miles.

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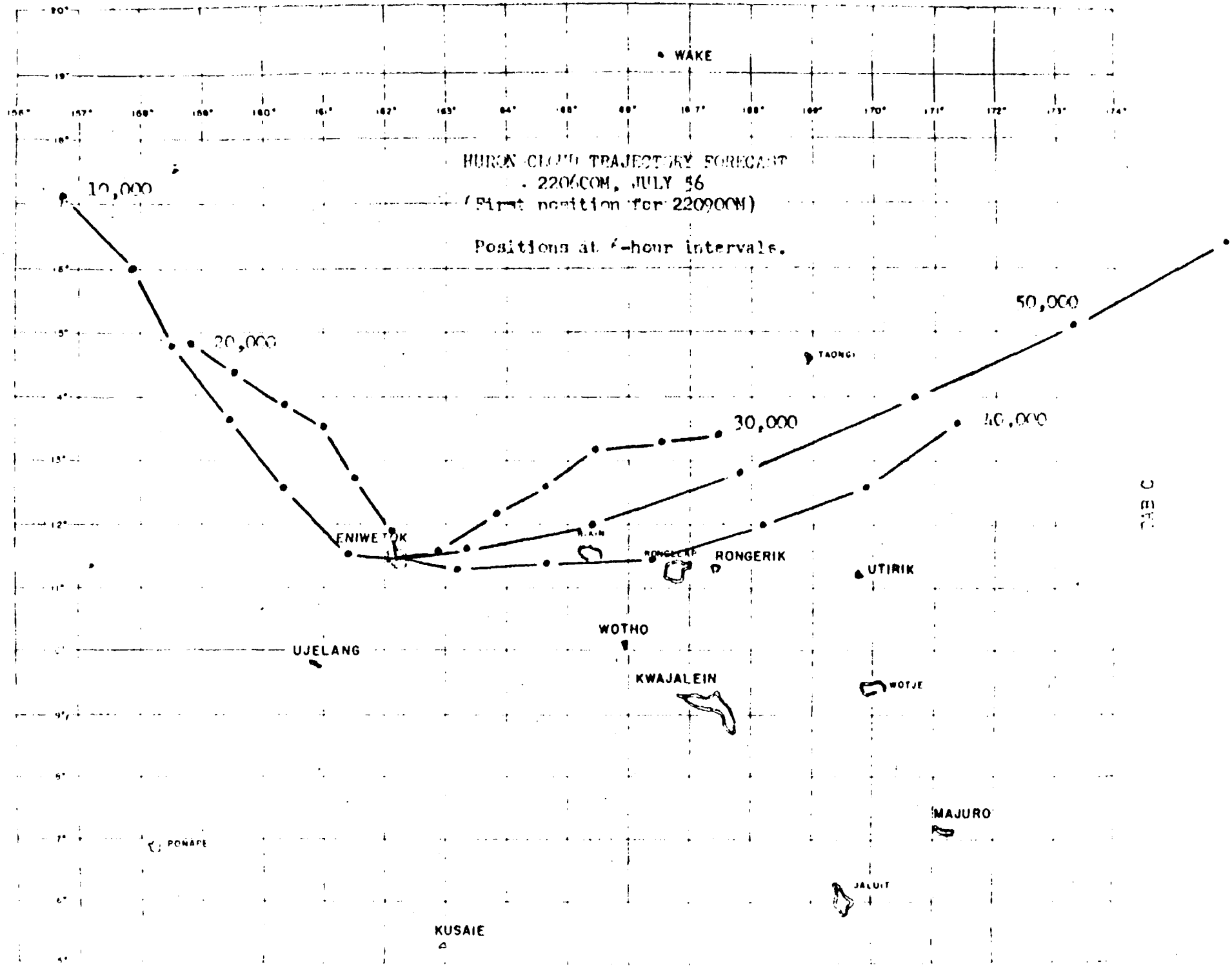
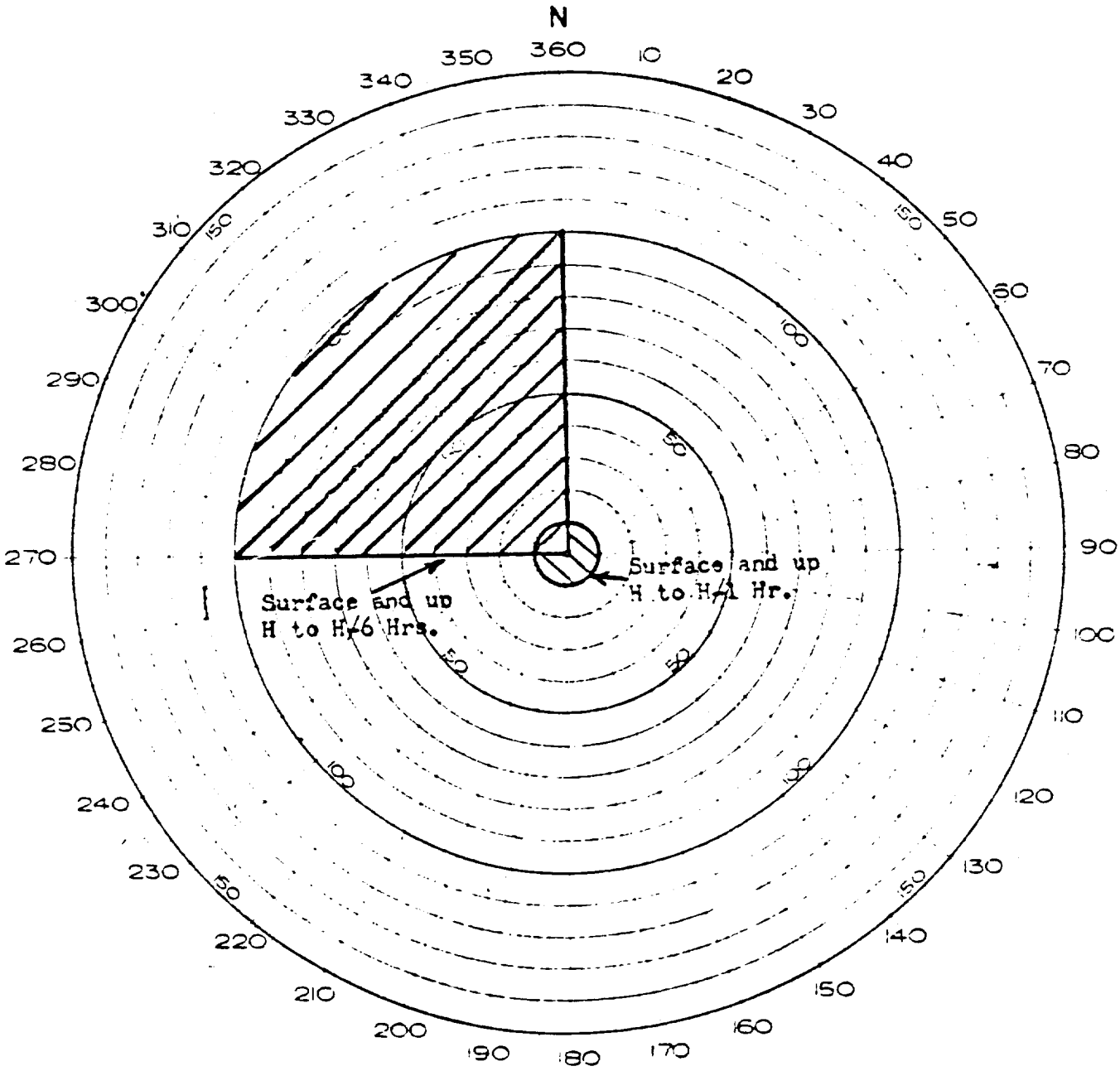

HURON CLOUD TRAJECTORY FORECAST
. 220600M, JULY 56
(First position for 220900M)
Positions at 6-hour intervals.
10,000
20,000
30,000
40,000
50,000
WAKE
TAONGI
ENIWETOK
MAIN
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE

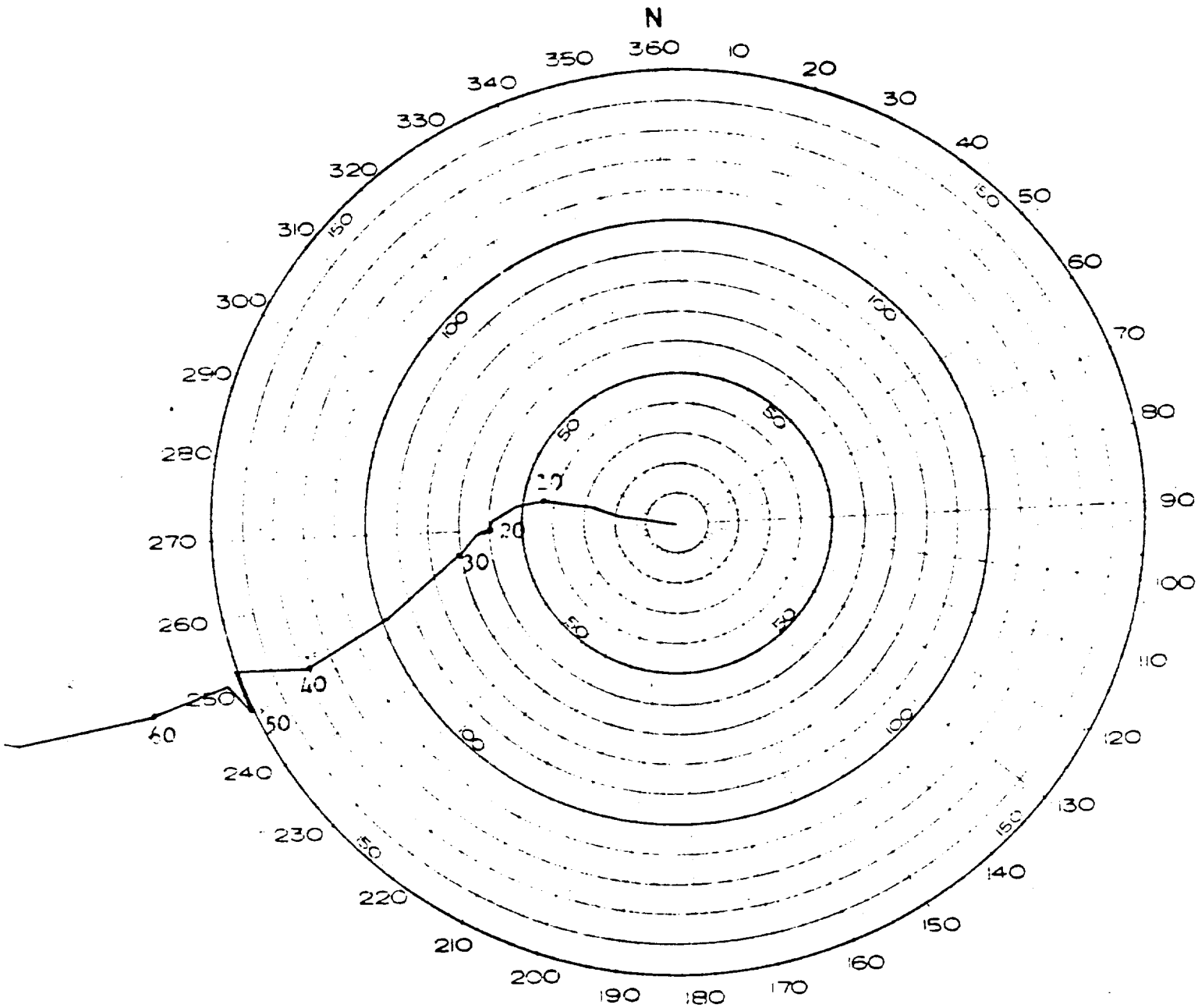


SURFACE AND AIR RADEX

- HURON EVENT -

TAB D

HODOGRAPH



ENIWETOK OBSERVED WINDS FOR

0600M, 22 JULY 1956

- HUDSON EVENT -

TAB E

1

HEADQUARTERS
JOINT TASK FORCE SEVEN
APO 437
[illegible]fornia

22 July 1956

HURON

ENIWETOK OBSERVED WEATHER FOR 22 JULY 1956
AT DETONATION TIME 0616M

Sea Level Pressure	1007.8 mbs
Free Air Surface Temperature	81.4°F
Wet Bulb Temperature	77.6°F
Dew Point Temperature	76.2°F
Relative Humidity	84 %
Surface Wind	090° 17 knots
Visibility	10 miles
Weather	Widely scattered rain showers.

CLOUDS:

3/10 cumulus, based at 1800 ft., tops estimated 10-15,000 ft. with isolated tops to 30,000 ft.
10/10 cirrostratus, bases estimated 30,000 ft. (4/10 transparent).

AREA WEATHER SUMMARY FROM AIRCRAFT:

Scattered cumulus clouds with tops averaging less than 12,000 ft. Occasional cumulus top to 18,000 ft. Hazy conditions below 10,000 ft. Could see GZ at 0615M from 16,000 ft.

Scattered cumulus tops to 16,000 - 18,000 ft., 50 miles northeast of Eniwetok.

STATE OF SEA:

Ocean Side: Wave heights 4 ft., period 5 seconds, direction 100°.

Lagoon Side: Less than one foot.

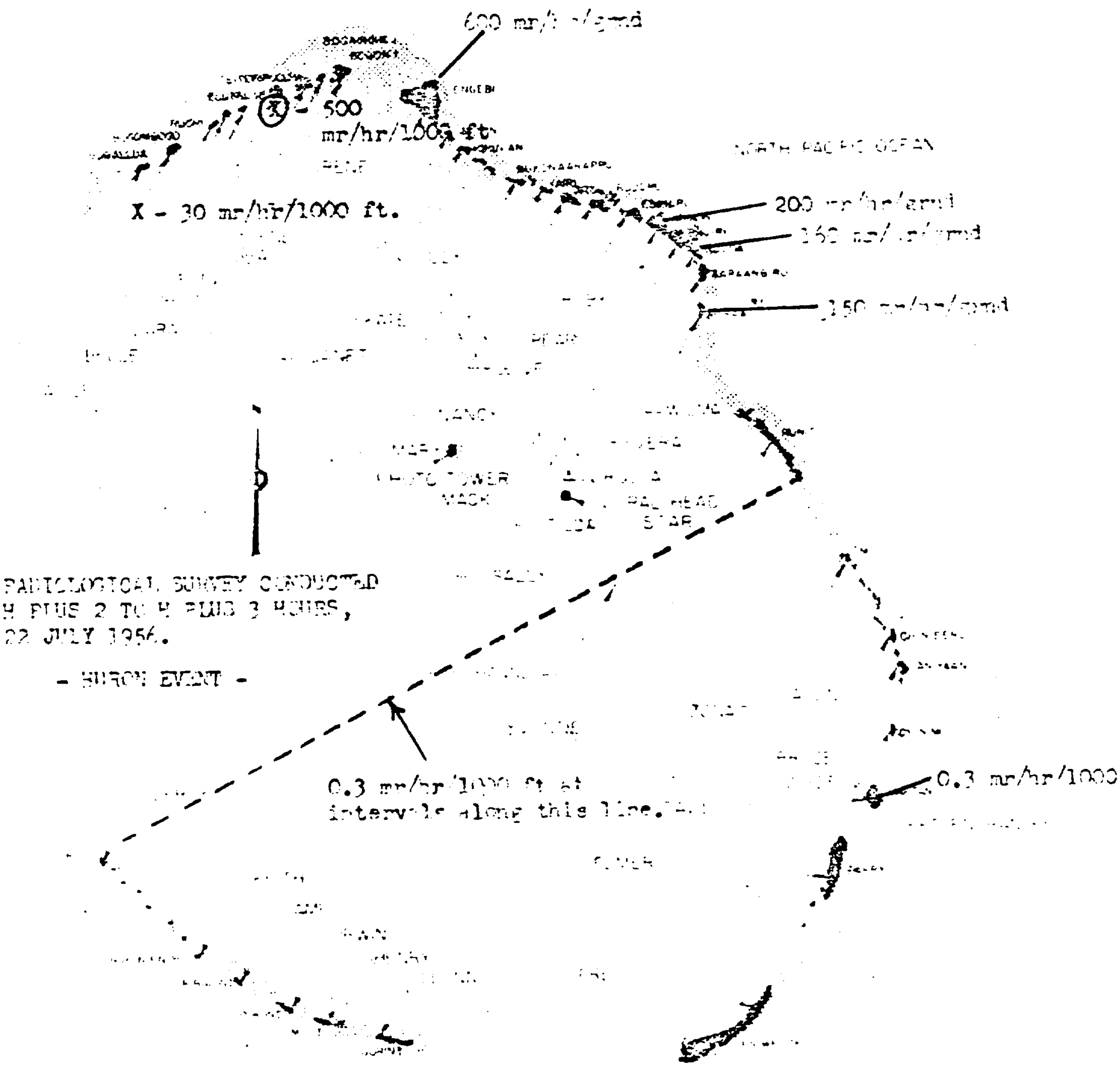
ENIWETOK UPPER AIR SOUNDING: (Release time 0600M)

Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
1000	250	26.8	24.2
938	2133	22.5	18.8
850	4980	18.2	13.5
700	10290	9.8	2.8
600	14440	2.5	- 5.8
500	19200	- 6.2	-16.2

Pressure (Millibars)		Temperature (°C)	Dew Point (°C)
400	24840	-25.8	-27.8
300	31700	-32.2	-44.5
276	33629	-36.3	-48.2
200	40640	-55.6	M
150	46460	-69.8	M
116	51411	-79.0	M
100	54150	-75.8	M
50	67740	-62.8	M
25	82080	-53.3	M
20	86831	-50.6	M

ENIWETOK WINDS ALOFT: (Release Time 0600M)

Height (Feet)	Direction (Degrees)	Velocity (Knots)	Height (Feet)	Direction (Degrees)	Velocity (Knots)
1000	110	17	32000	040	17
2000	100	23	34000	040	25
3000	100	25	35000	050	32
4000	100	24	36000	060	36
5000	120	24	38000	060	19
6000	110	24	40000	060	30
7000	100	27	42500	090	18
8000	100	29	45000	090	25
9000	100	21	47500	240	12
10000	100	10	50000	340	14
12000	090	8	52500	030	10
14000	080	16	55000	040	10
16000	060	13	57500	070	15
18000	060	10	60000	070	26
20000	020	6	65000	080	46
22000	050	5	70000	100	54
24000	050	4	75000	100	60
25000	070	4	80000	100	74
26000	120	4	85000	100	73
28000	100	4	86000	100	73
30000	040	9			


500
mr/hr/1000 ft
NORTH PACIFIC OCEAN
X - 30 mr/hr/1000 ft.
ENGEBI
NANCY
PHOTO TOWER
MACK
RADIOLOGICAL SURVEY CONDUCTED
H PLUS 2 TO H PLUS 3 HOURS,
22 JULY 1956.
- HURON EVENT -
0.3 mr/hr/1000 ft at
intervals along this line.
0.3 mr/hr/1000

RADIATION LOG PARTY Island

INCLUSIVE DATES 7-22/7-26-56 MONITOR RADSAFE

Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS
7-22	0530	HQ JTF-7	120	
	0700		120	
	0900		100	
	1000		105	
	1100		100	
	1200		100	
	1230		90	
	1300		90	
	1400		95	
	1500		90	
	1600		90	
	1700		80	
	1800		90	
	1900		85	
	2000		80	
	2100		70	
7-23	0730	HQ JTF-7	45	
	0800		45	
	0900		45	
	1100		41	
	1300		45	
7-24	0730	HQ JTF-7	35	
	1000		34	
	1200		28	
	1500		30	
7-25	0730	HQ JTF-7	23	
	1330		25	
7-26	0630	HQ JTF-7	20	

RADIATION LOG RONGERIK Island

INCLUSIVE DATES 7-22-56 MONITOR RADSAFE

Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS
7-22	0600	#254	0	
	1200		0	
	1500		0	
	1600		0	
	1700		0	
	1800		0	
	1900		0	

J1577

RADIATION LOG UTIRIK Island

INCLUSIVE DATES 7-22-56 MONITOR HOLE

Date	Time	Station or Personnel	Readings in mr/hr	CONTENTS
7-22	0600	#1	0.05	
	1200		0.04	
	1500		0.04	
	1600		0.04	
	1700		0.04	
	1800		0.04	

TIE F

RADIATION LOG UJELANG Island

INCLUSIVE DATES 7-22-/7-23-56 MONITOR SCHOENFELD

Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS
7-22	0800	#1	0.04	
	1000		0.04	
	1100		0.18	
	1200		0.37	
	1300		0.35	
	1400		1.00	
	1500		1.2	
	1600		1.5	
	1800		1.5	
	1900		1.2	
	2000		1.2	
	2100		1.2	
	2200		1.2	
	2300		1.2	
7-23	0700		1.5	
	1200		1.5	

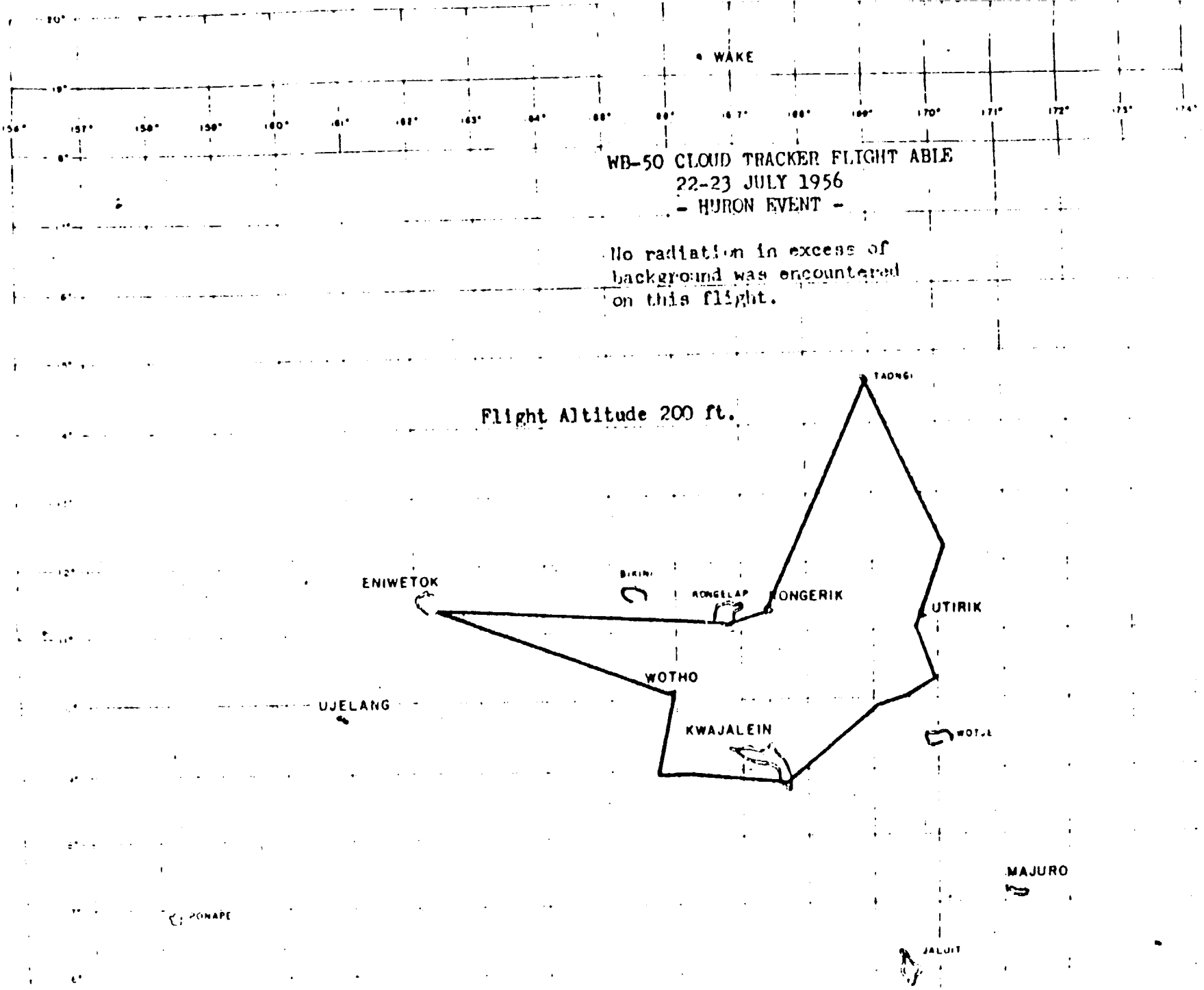
TAB F

RADIATION LOG WOTHO Island

INCLUSIVE DATES 7-22-56 MONITOR HARLESS

Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS
7-22	0600	#1	0.03	
	1200		0.03	
	1500		0.02	
	1600		0.03	
	1800		0.03	

TAB F


WAKE
WB-50 CLOUD TRACKER FLIGHT ABLE
22-23 JULY 1956
- HURON EVENT -
No radiation in excess of background was encountered on this flight.
Flight Altitude 200 ft.
TADNGI
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE