(5.)

410876

[redacted]T

RADIOLOGICAL SAFETY

OPERATION REDWING

PART	EVENT
1	LACROSSE
2	CHEROKEE
3	ZUNI
4	YUMA
5	ERIE
6	SEMINOLE
7	BLACKFOOT
8	FLATHEAD
9	MICHAPOO
10	OSAGE
11	
12	
13	
14	
15	
16	
17	

[illegible] DIF SEVEN LOG NR:

SRD-289-56E

[redacted]

[redacted]
Atomic Energy Act [illegible]

[redacted]

[redacted]

INDEX

[redacted]

[redacted]

TAB A

LACROSSE EVENT

OPERATION REDWING

1. The atomic device, LACROSSE, was detonated at 0075Z, 5 May 1956 at the surface on the island of RUNIT in the ENIWETOK Atoll. The LACROSSE cloud reached an altitude of approximately 10,000 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 0745Z, 5 May 1956. All RADIEX notices were withdrawn at 1910Z, 5 May 1956 and the ENIWETOK area was open to aircraft.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.

HQ JTF SEVEN LOG NO:

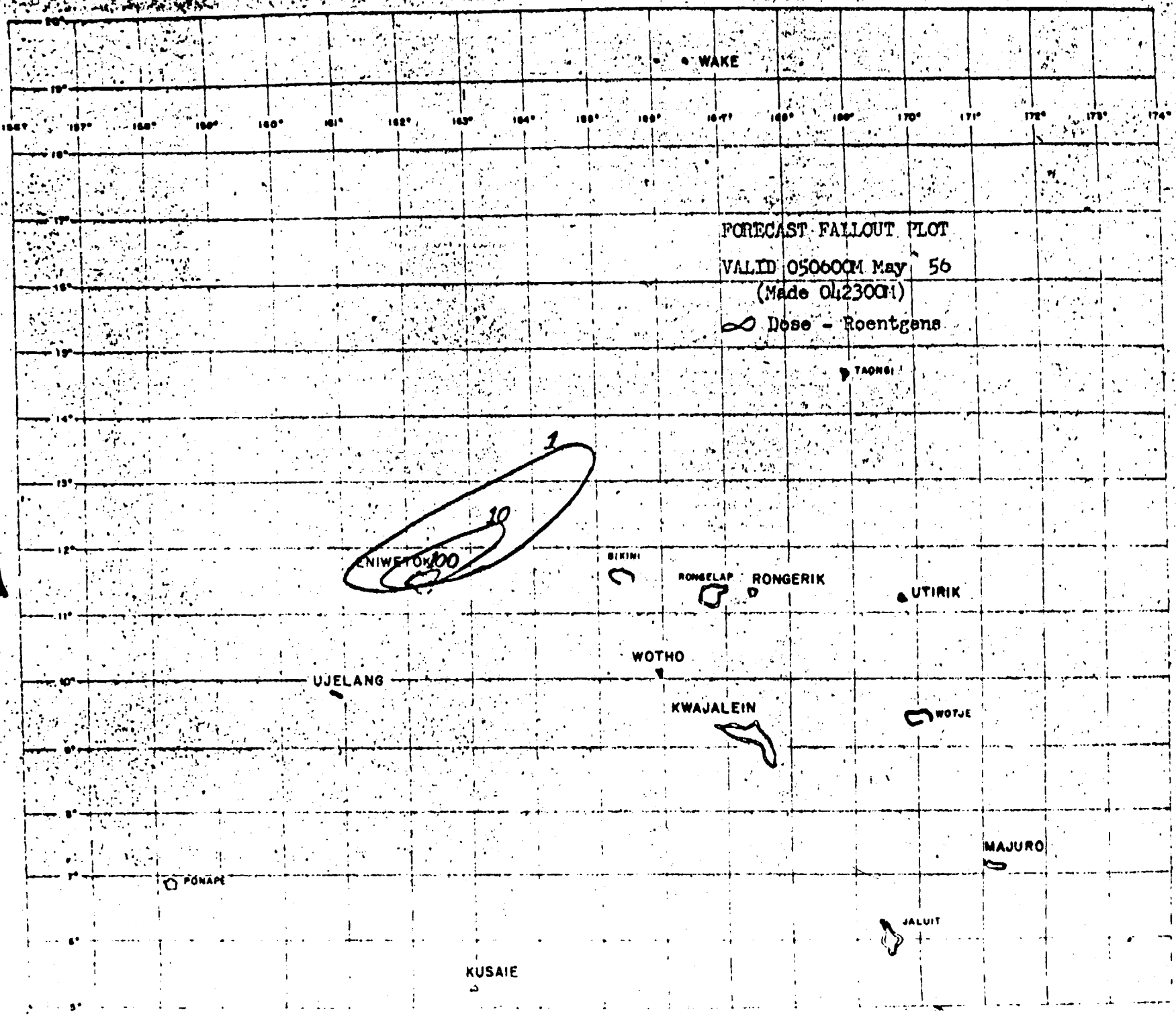
SRD-289-56E-1

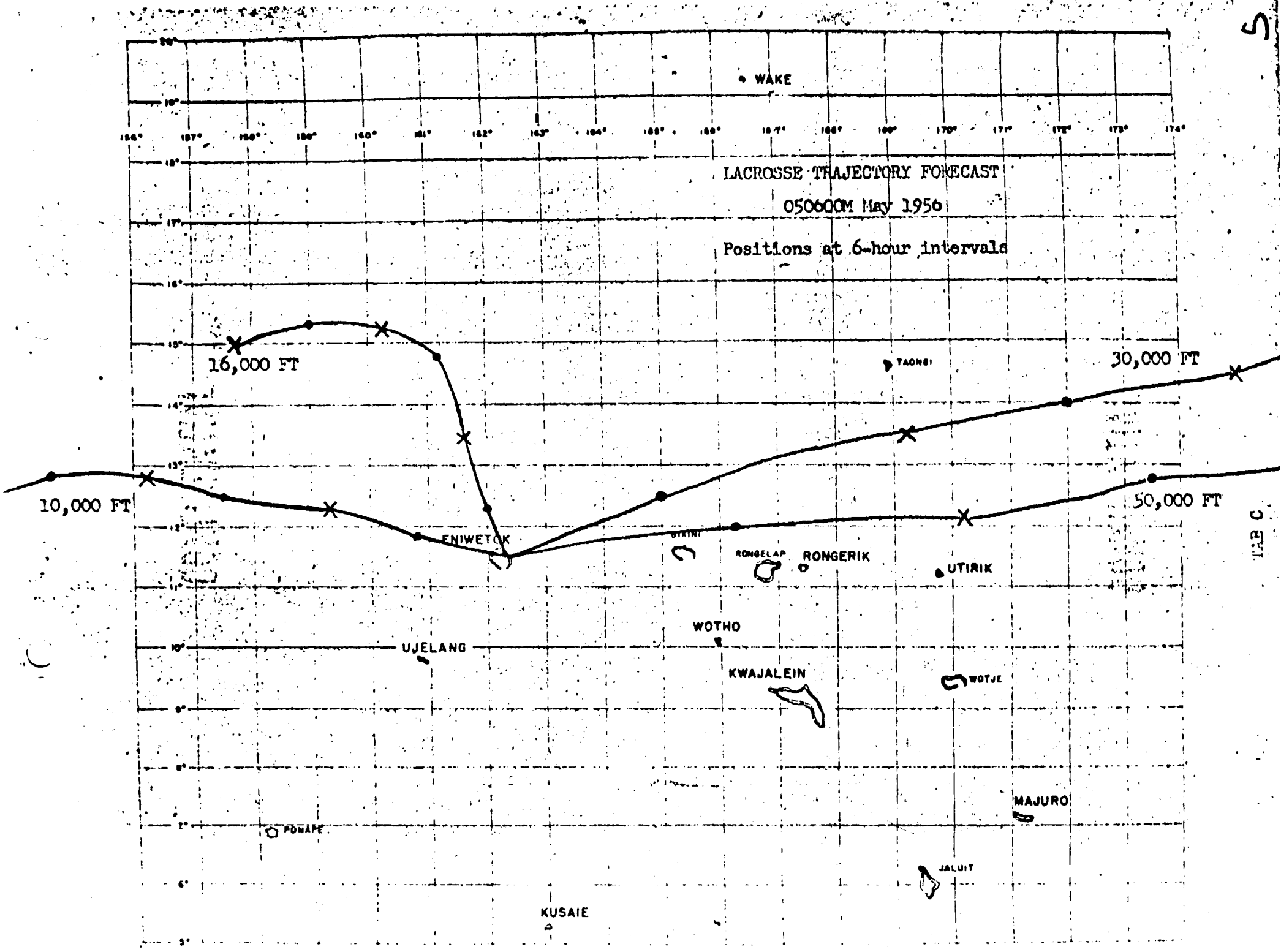
THIS DOCUMENT CONSISTS OF 1 PAGE

NO. [redacted]

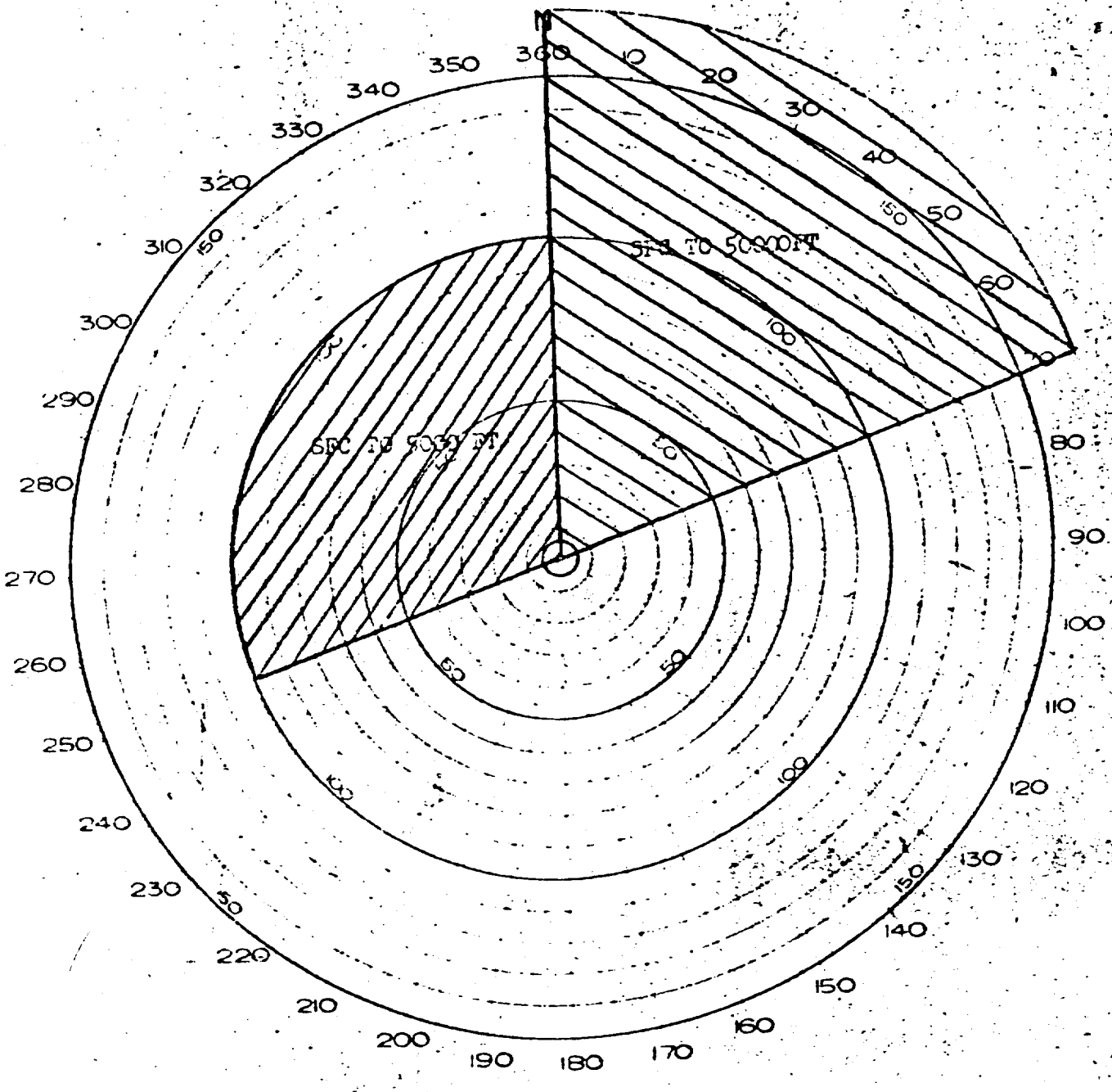
[redacted]

[redacted]


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


WAKE
LACROSSE TRAJECTORY FORECAST
050600M May 1956
Positions at 6-hour intervals
16,000 FT
10,000 FT
30,000 FT
50,000 FT
TAONGI
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE

[redacted]

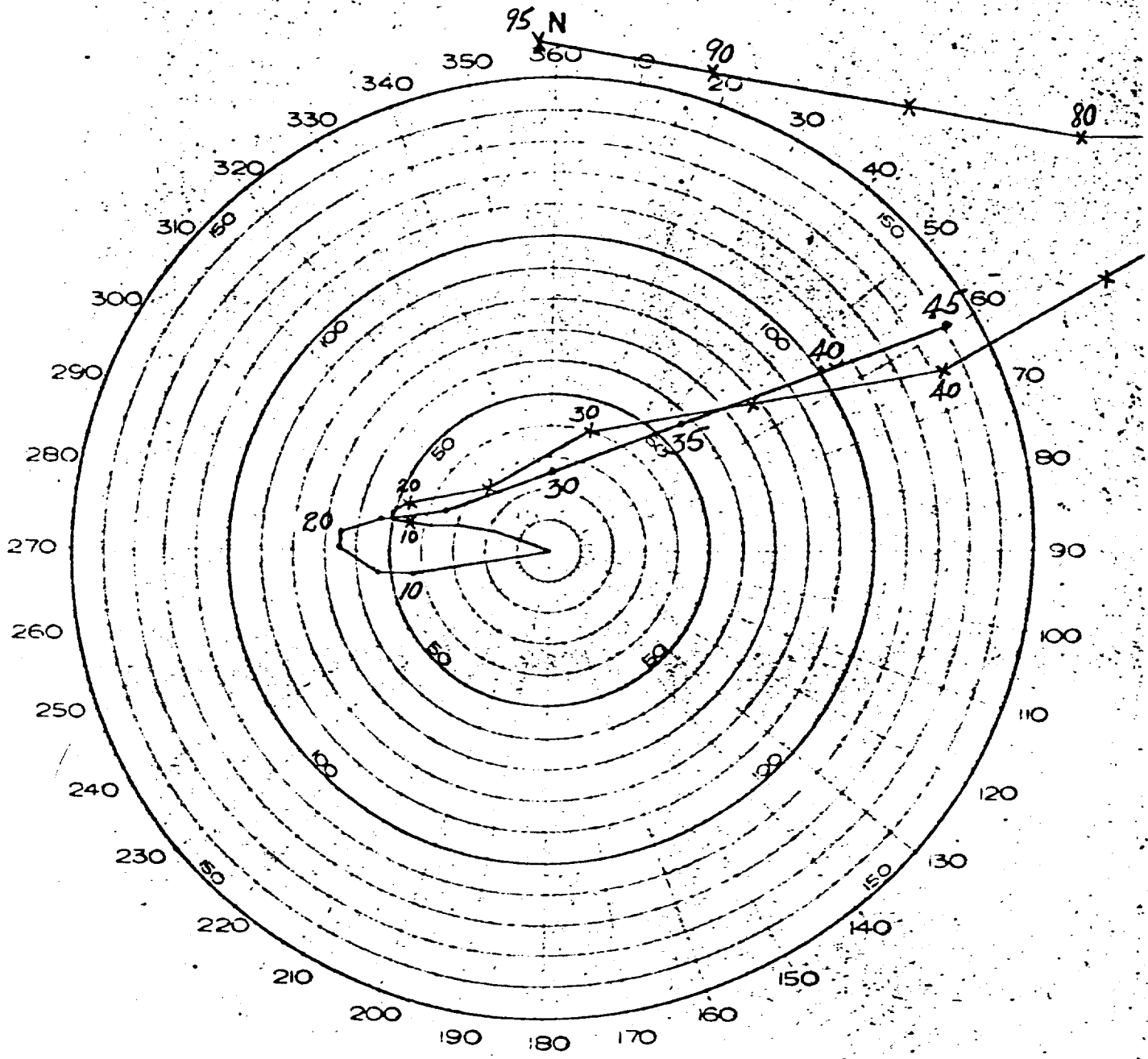


AIR & SURFACE RADEX - LACROSSE
(H TO H+6 HRS)

[redacted]

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°.

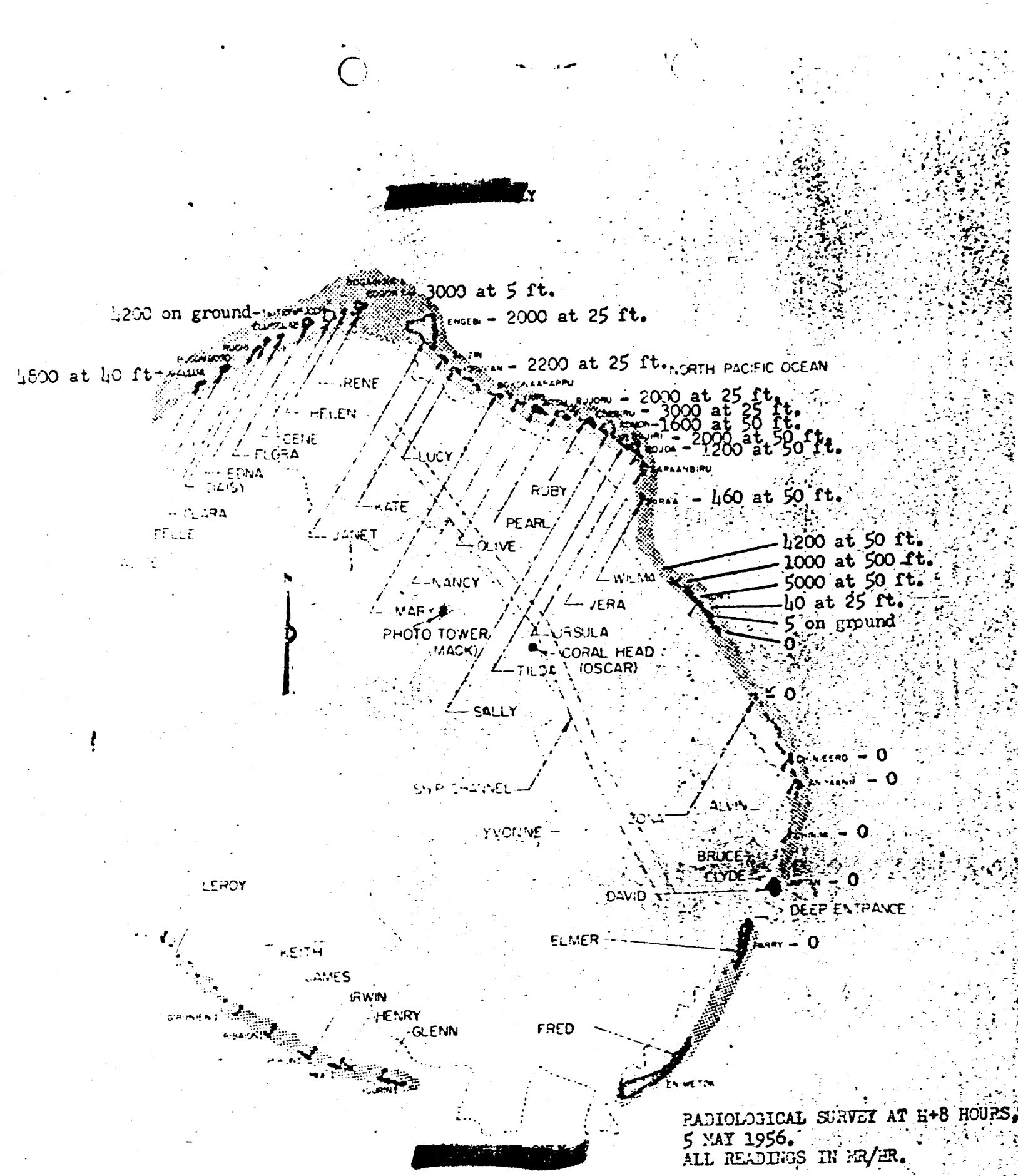
ENIWETOK SOUNDING

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-
3000 at 5 ft.
- 2000 at 25 ft.
4600 at 40 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
= 0
- 0
- 0
- 0
- 0
- 0
IRENE
HELEN
FLORA
EDNA
CLARA
LUCY
KATE
JANET
RUBY
PEARL
OLIVE
NANCY
MARY
PHOTO TOWER
(MACK)
VERA
URSULA
CORAL HEAD
(OSCAR)
TILDA
SALLY
YVONNE
ALVIN
BRUCE
CLYDE
DAVID
DEEP ENTRANCE
ELMER
LEROY
KEITH
JAMES
IRWIN
HENRY
GLENN
FRED
RADIOLOGICAL SURVEY AT H+8 HOURS,
5 MAY 1956.
ALL READINGS IN MR/HR.

TAB F

[redacted]

INDEX

TAB

A - Summary - CHEROKEE Event, Operation REDWING

B - Forecast Fallout Plot

C - Cloud Trajectory Forecast

D - Air and Surface RADEX

E - 1. Hodograph

2. Forecast and Observed Winds for CHEROKEE

F - Initial Radiological Survey

G - Cloud Tracking and Off-Atoll Monitoring Results

H - Aerial Monitoring Flight

I - ZEBRA and ZEBRA I Aerial Radiological Reconnaissance Flight Patterns

[redacted]

[redacted]

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.

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THIS DOCUMENT CONSISTS OF 2 PAGE(S)
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[redacted]

HQ JTF SEVEN LOG NR:
SRD-289-562-2

[redacted]

[redacted]

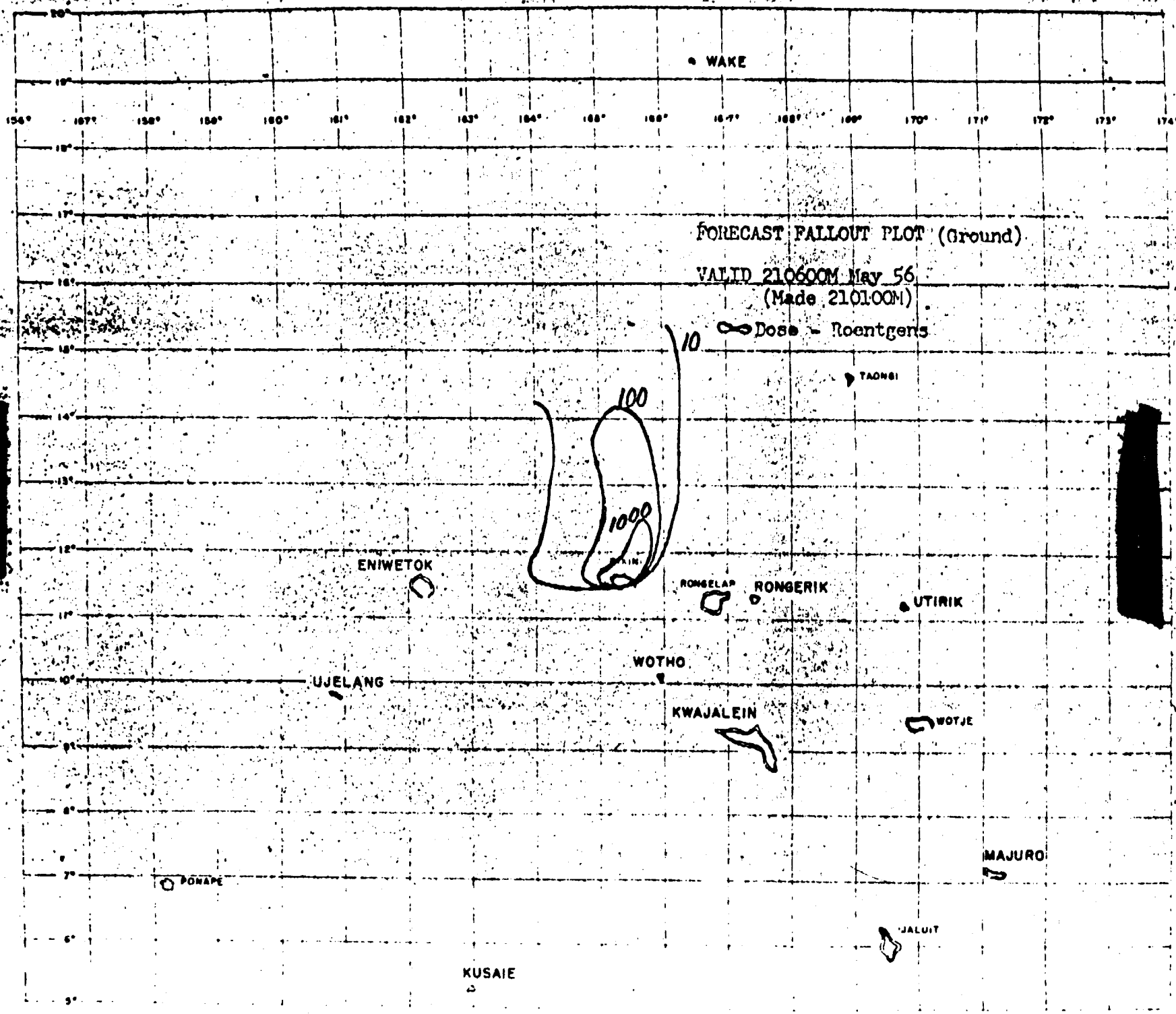
4. The initial helicopter radiation survey showed radiation readings on the islands of BIKINI Atoll to be negligible. Based on the initial surveys, reentry hour was estimated as 1000M, 21 May (H+4 hours). All RADEX notices were withdrawn by H+12 hours.

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

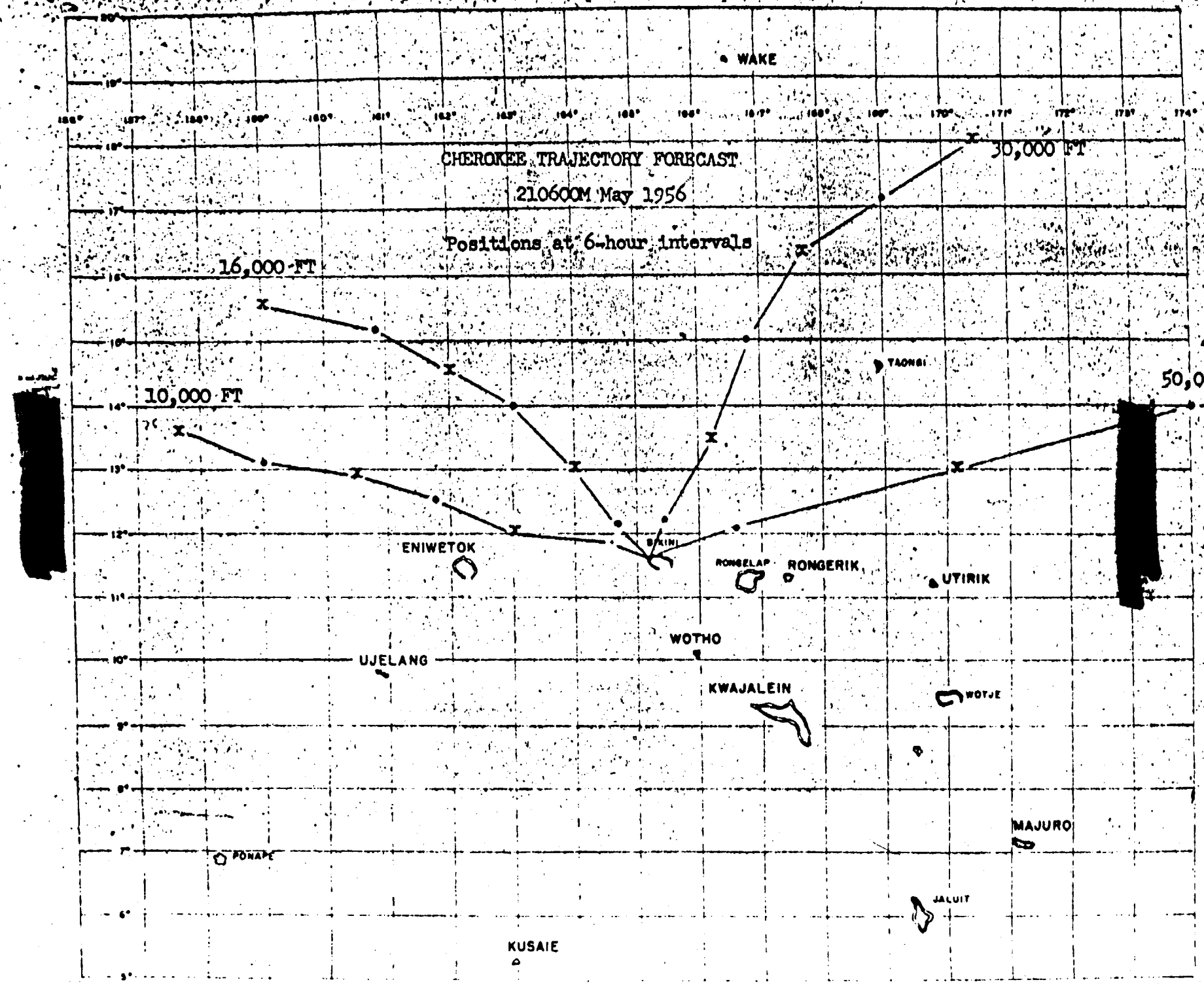
6. The fallout forecast for CHEROKEE (TAB B) was based on the assumption [redacted] that fuse malfunction would result in a surface burst of the weapon. Safety considerations dictated the use of these [redacted] assumptions. Actually, the most probable pattern was expected to be less than 1/1000 of the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

[redacted]

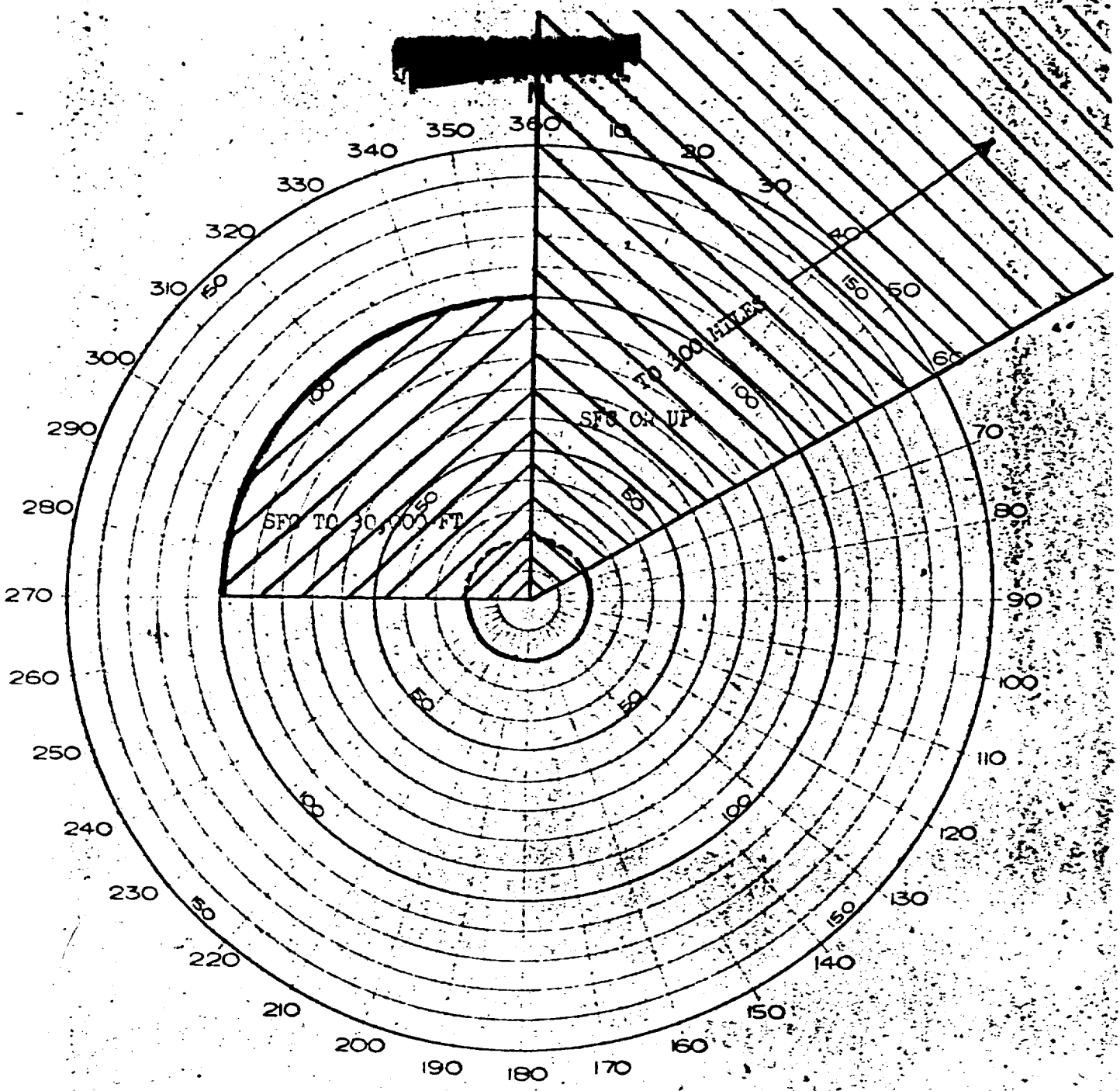
[redacted] 1954


WAKE
156°
157°
158°
159°
160°
161°
162°
163°
164°
165°
166°
167°
168°
169°
170°
171°
172°
173°
174°
FORECAST FALLOUT PLOT (Ground)
VALID 210600M May 56
(Made 210100M)
Dose - Roentgens
10
100
1000
TAONGI
ENIWETOK
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE

TAB B

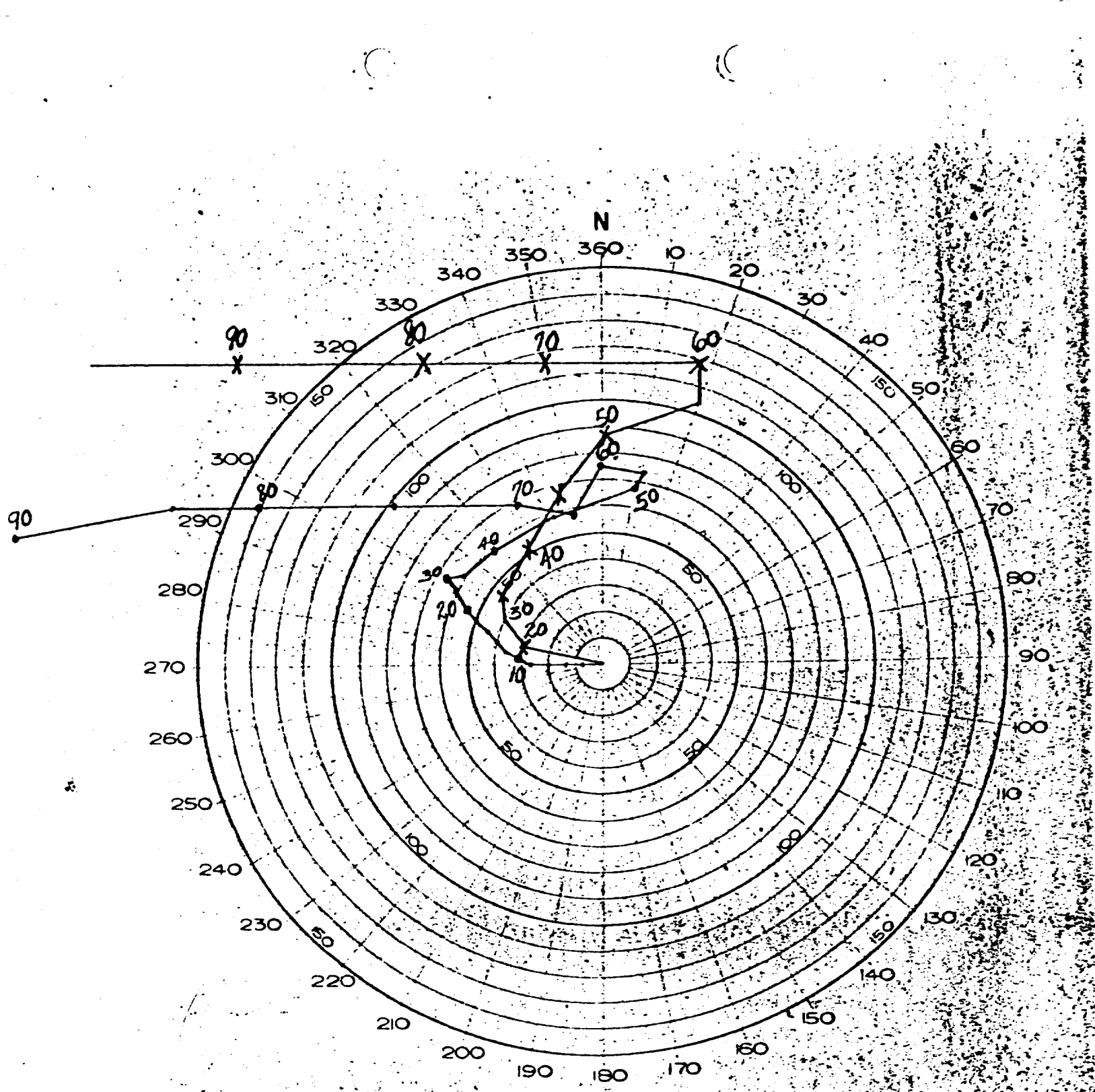

CHEROKEE TRAJECTORY FORECAST
210600M May 1956
Positions at 6-hour intervals
16,000 FT
10,000 FT
30,000 FT
50,000 FT
WAKE
TAONGI
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE

TAB C



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

TAB D


N
360
10
20
30
40
50
60
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 210600Z May 56
FORECAST FOR 210600Z May 56
(Made 210100Z)

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

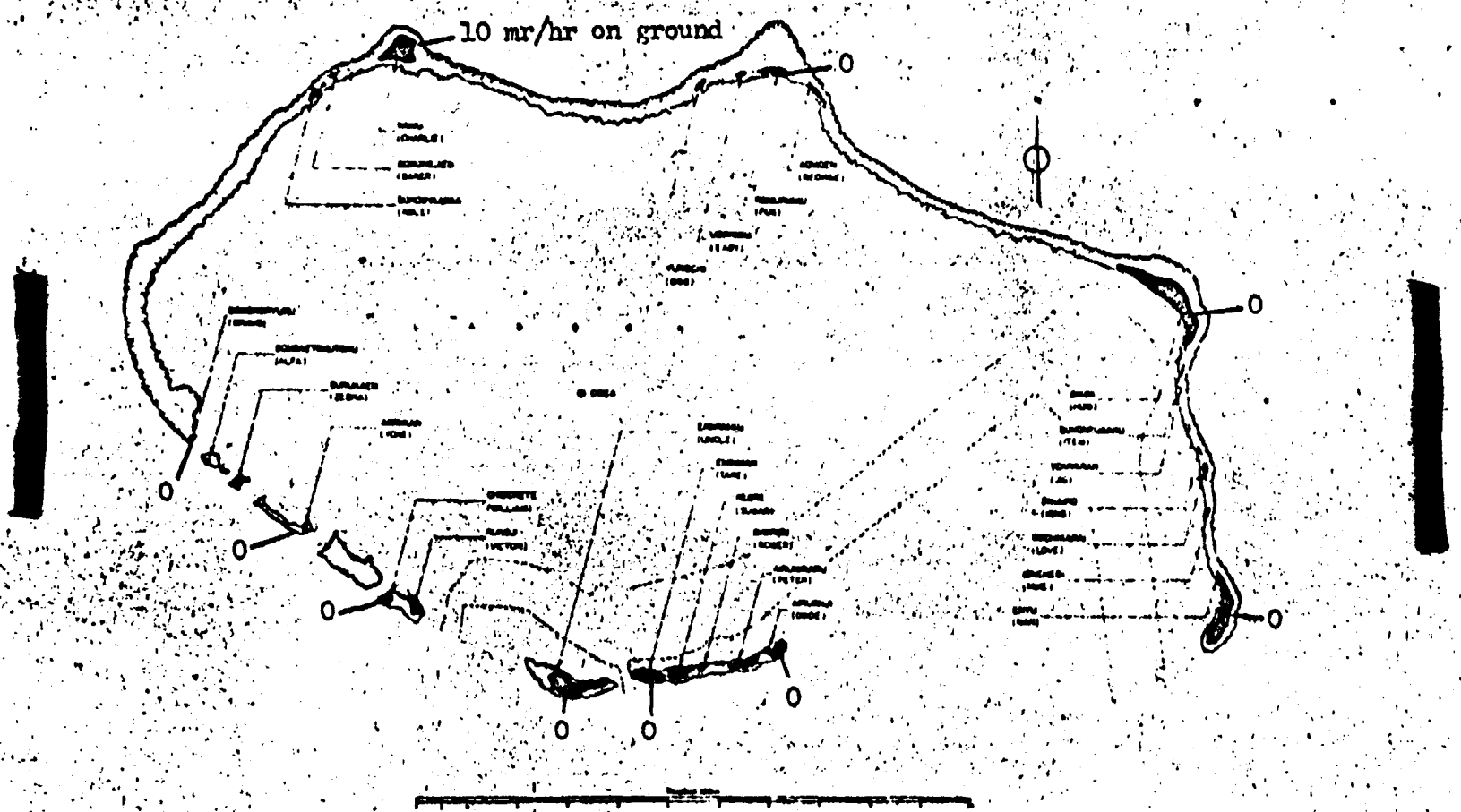
ENIWETOK SOUNDING (continued)

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

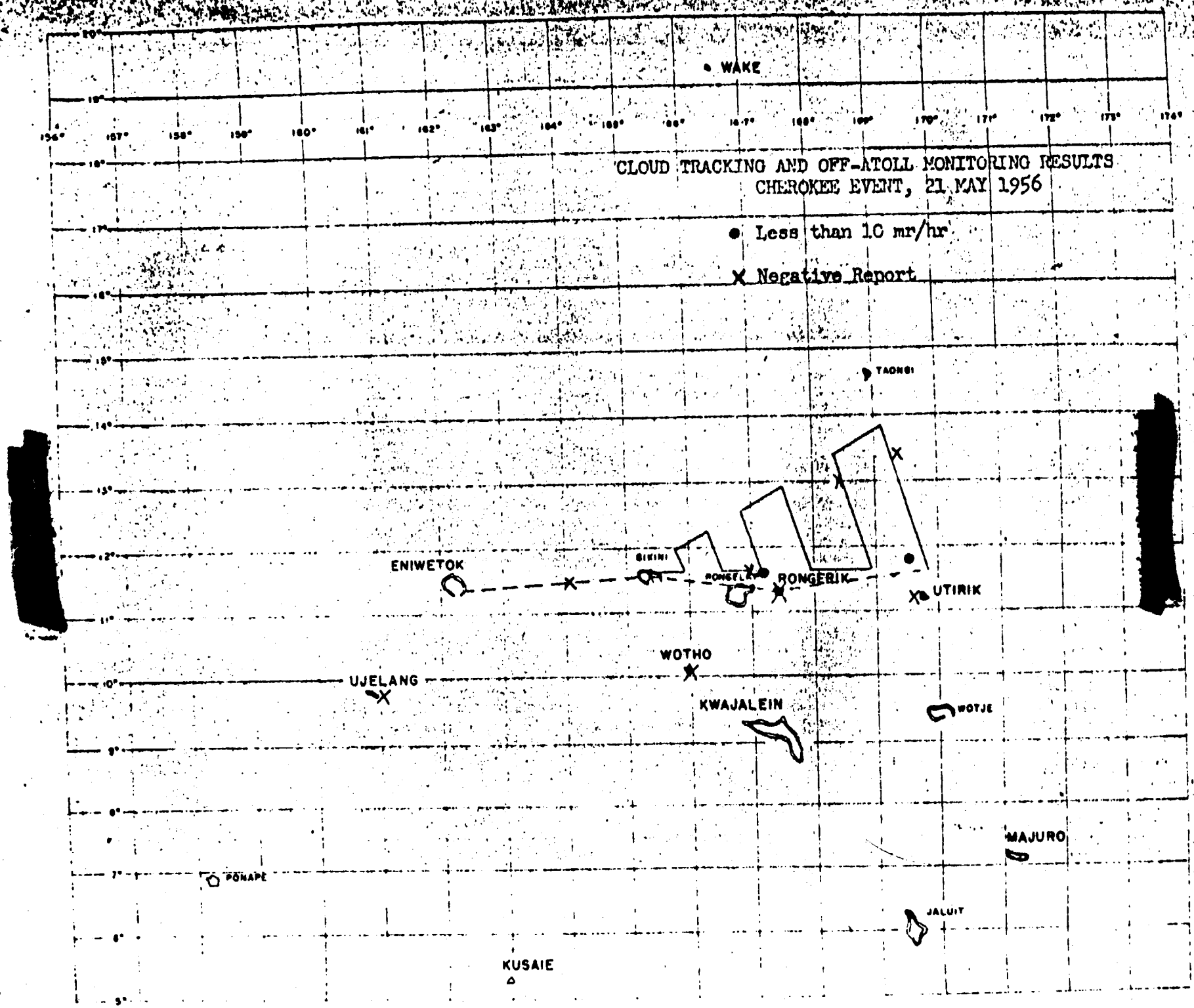
Height Feet	Direction Degrees	Speed Knots	Height Feet	Direction Degrees	Speed Knots
Surface	140	10	25,000	150	09
1,000	100	17	30,000	140	06
2,000	090	20	35,000	260	06
3,000	090	20	40,000	230	15
4,000	090	21	45,000	240	26
5,000	090	18	50,000	250	32
6,000	090	14	55,000	210	07
7,000	090	14	60,000	100	17
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

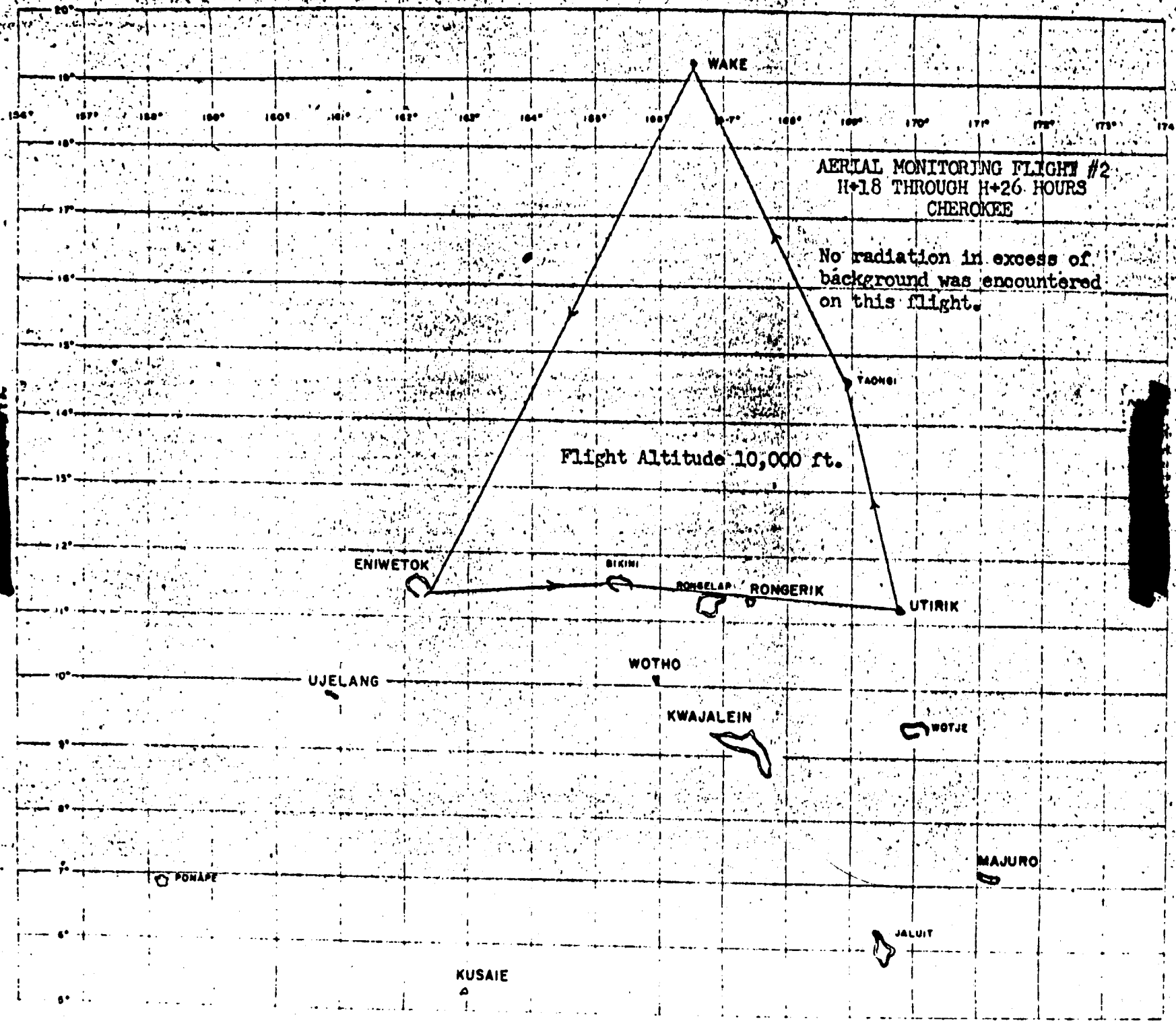


INITIAL RADIOLOGICAL SURVEY
MADE AT H+3 HRS, 21 MAY 1956

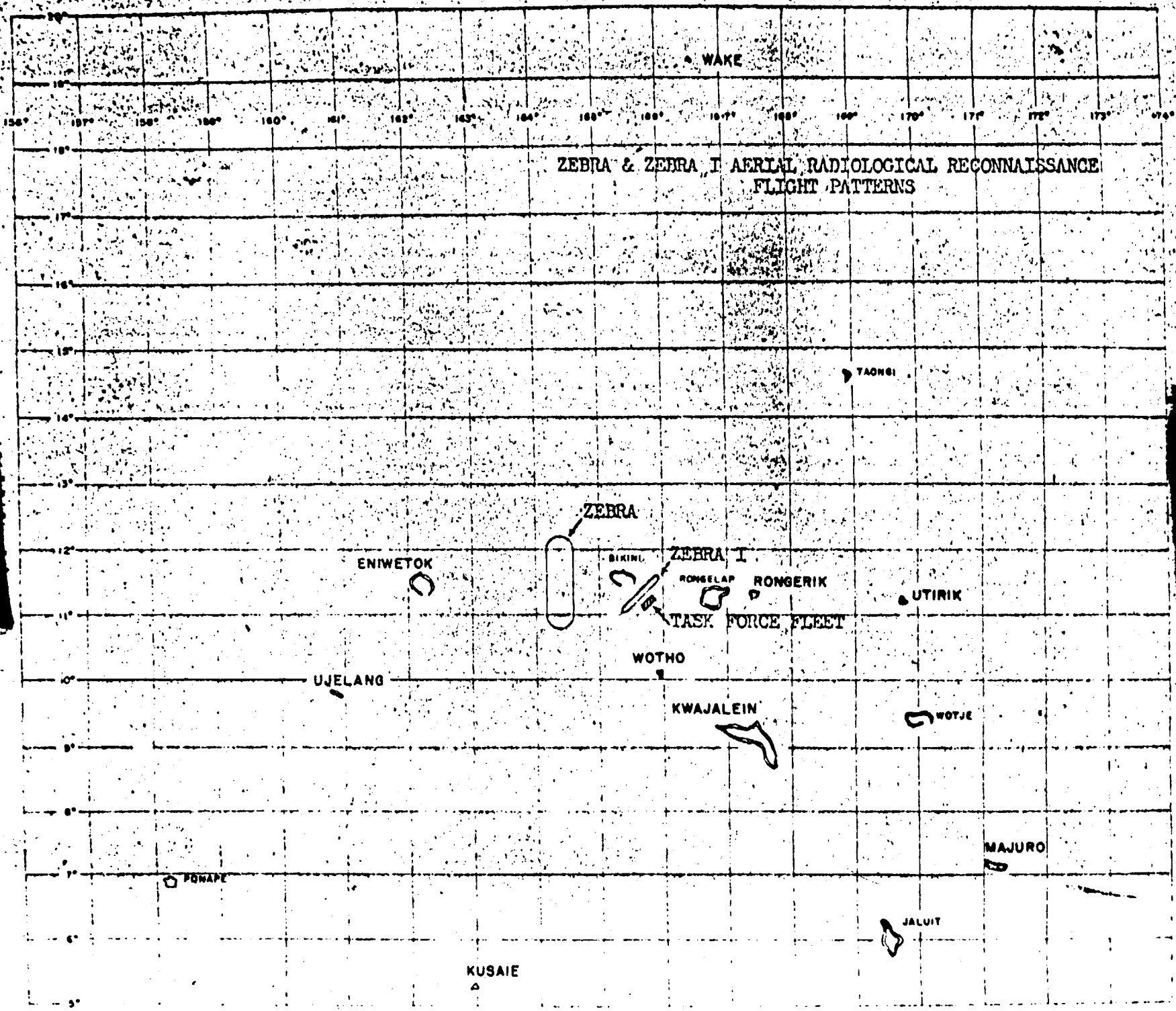
TAB F


WAKE
CLOUD TRACKING AND OFF-ATOLL MONITORING RESULTS
CHEROKEE EVENT, 21 MAY 1956
Less than 1.0 mr/hr
Negative Report
TAONGI
ENIWETOK
BIKINI
RONGELAP
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.
Flight Altitude 10,000 ft.
TAONGI
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
ENIWETOK
BIKINI
ZEBRA I
RONGELAP
RONGERIK
UTIRIK
TASK FORCE FLEET
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE

TAB I

[redacted]

INDEX

TAB

[redacted]

[redacted]

TAB A

ZUNI EVENT

OPERATION REDWING

1. The atomic device, ZUNI, was fired at 0655Z, 28 May 1956. The ground location was at the surface on the western tip of ENIRMAN Island [illegible] of BIKINI Atoll. The cloud reached an estimated 60,000 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 0 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. [redacted]

3. ZEBRA I reported background intensities at H+1 hour at a position [illegible] 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

HQ JTF SEVEN LOG NR: [redacted]

SRD-289-56E-3

THIS DOCUMENT CONSISTS OF 2 PAGE(S)

[redacted] OF 70 COPIES, SERIES A

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[illegible] 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, 28 May.

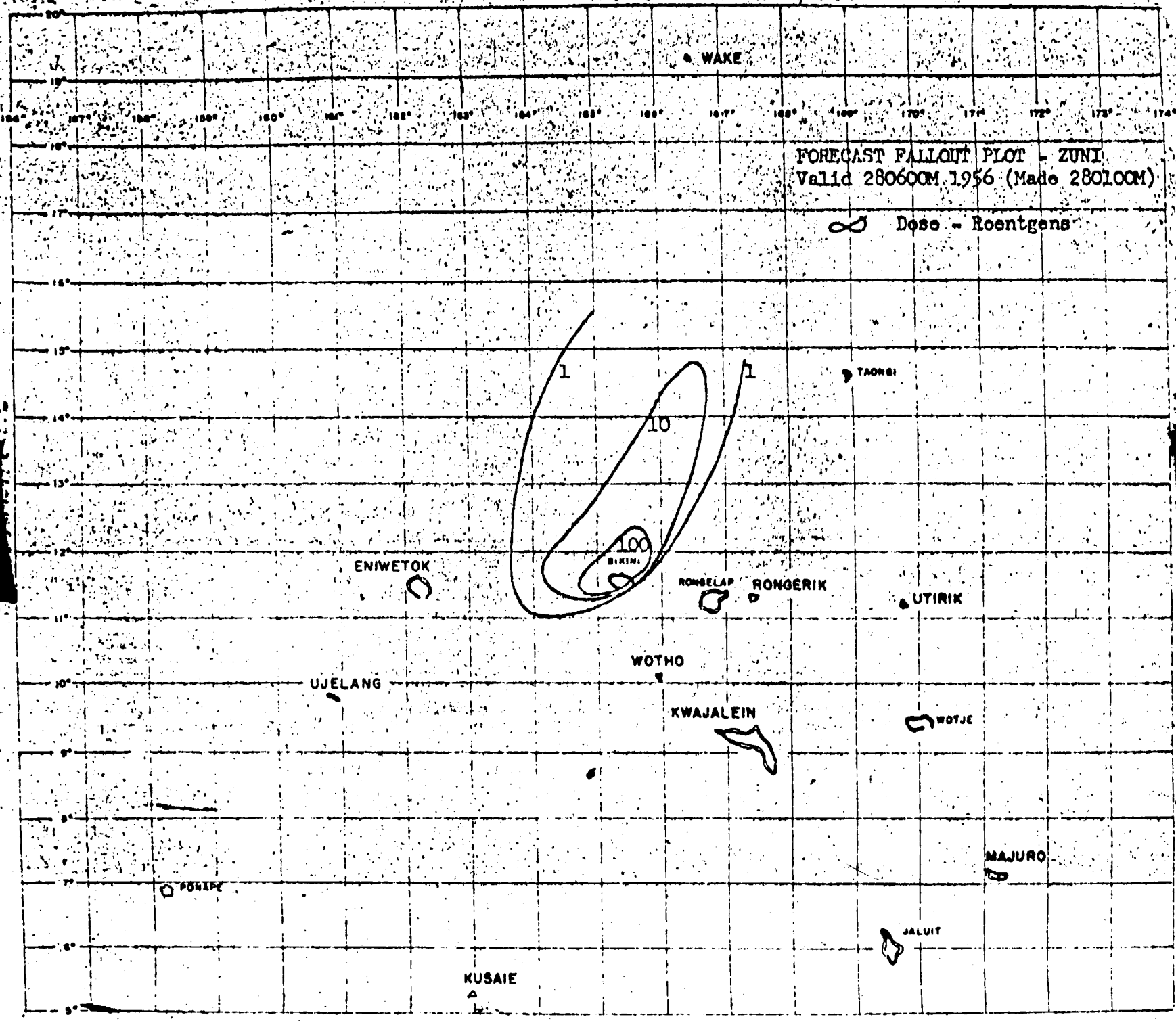
4. WILSON I conducted a search beginning at H+6 hours in a 20° sector, [illegible] bearing 075° through 090° with apex on RONGERIK, and extending 300 miles to the East (LAB G). Flight Plan ABLE was flown on D+1 day.

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. [illegible] I 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 1800M on D+2. The RONGERIK station continued to report increasing intensities through 1800M, D+1 when a peak of 43 mr/hr was reached.

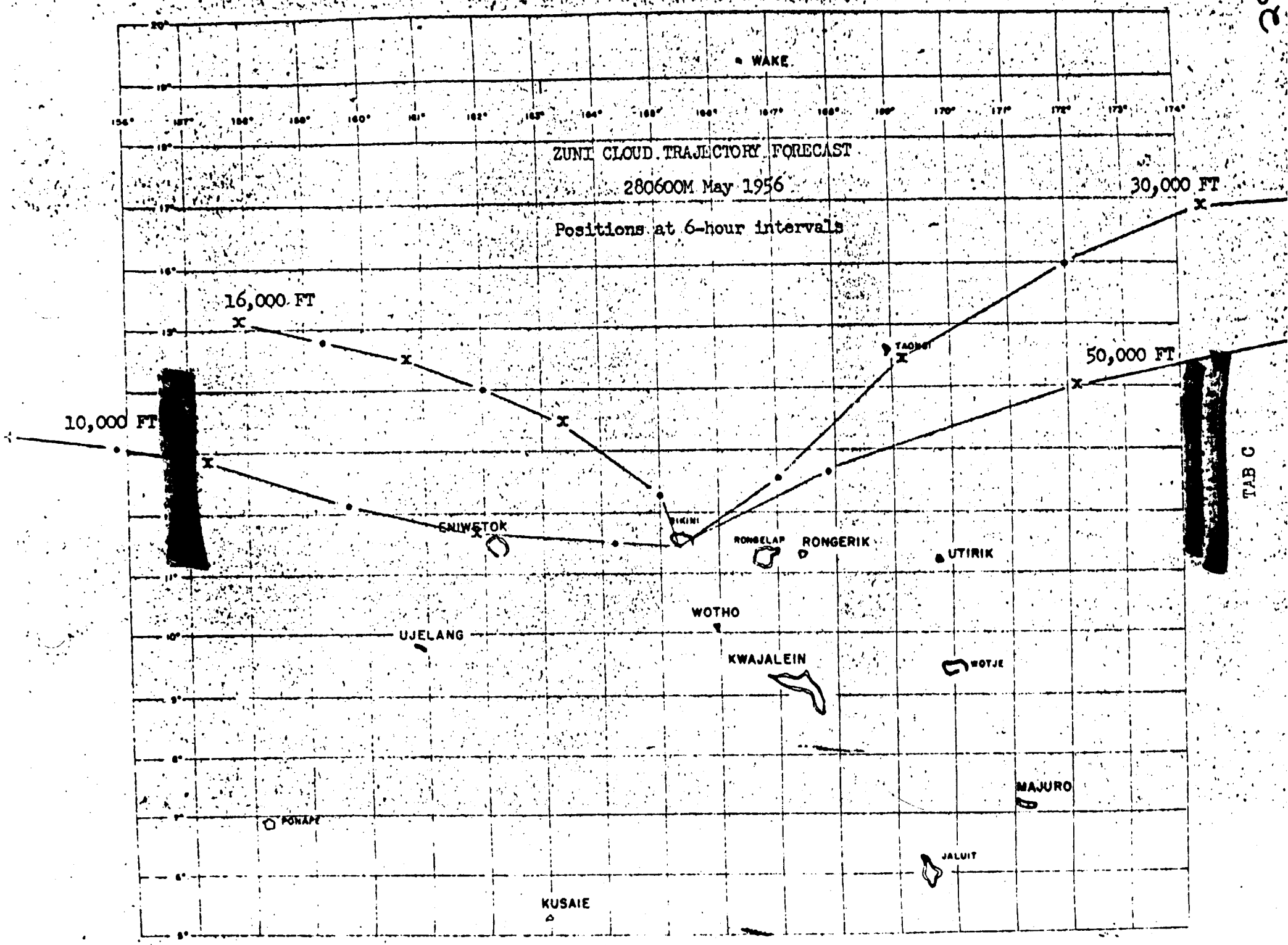
[redacted]

[redacted]

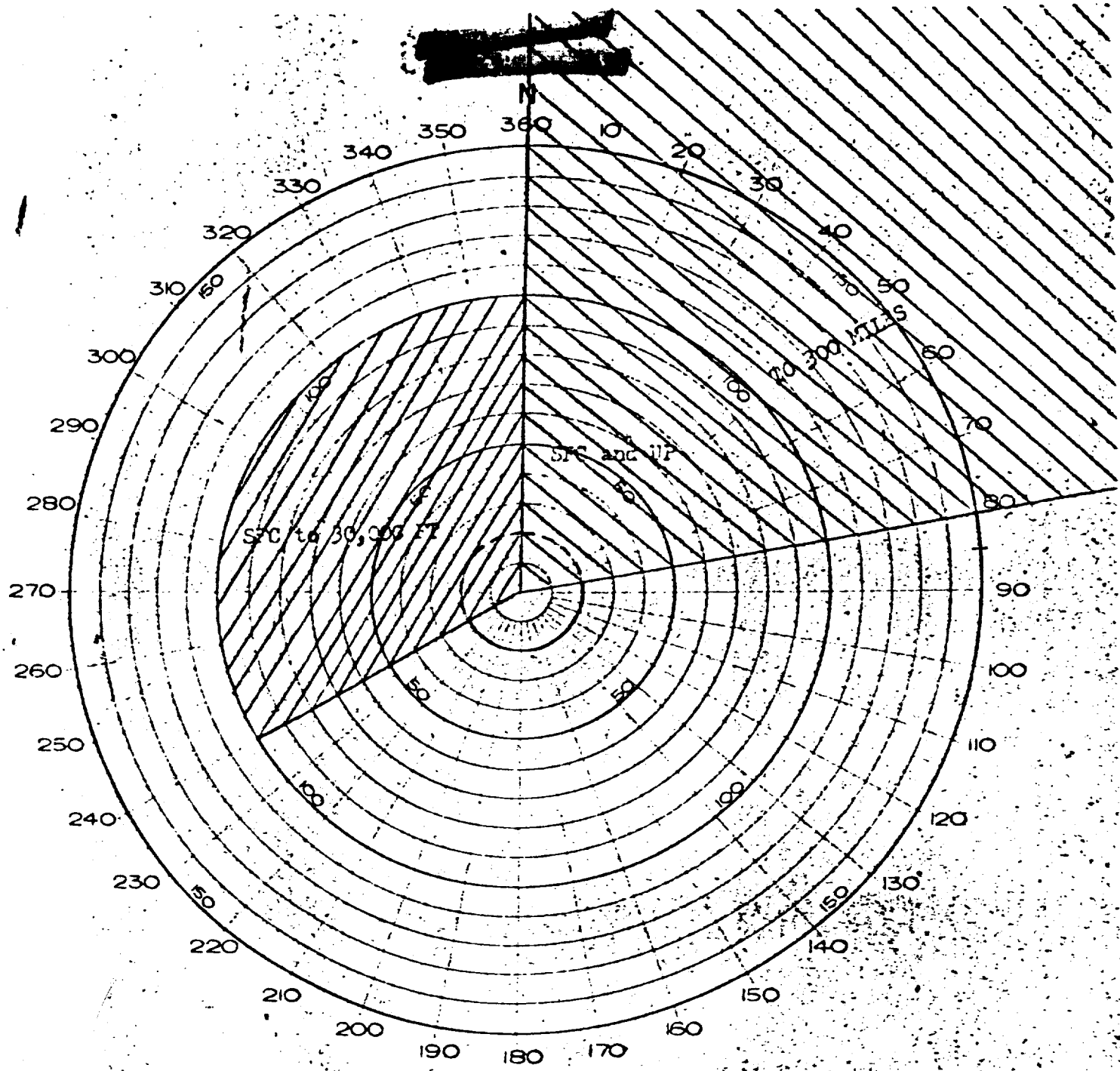

WAKE
FORECAST FALLOUT PLOT - ZUNI
Valid 280600M 1956 (Made 280100M)
Dose - Roentgens
1
1
10
100
BIKINI
TAONGI
ENIWETOK
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE

TAB B

27


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
TAOSHI
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE

TAB C



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

[redacted]

TAB D

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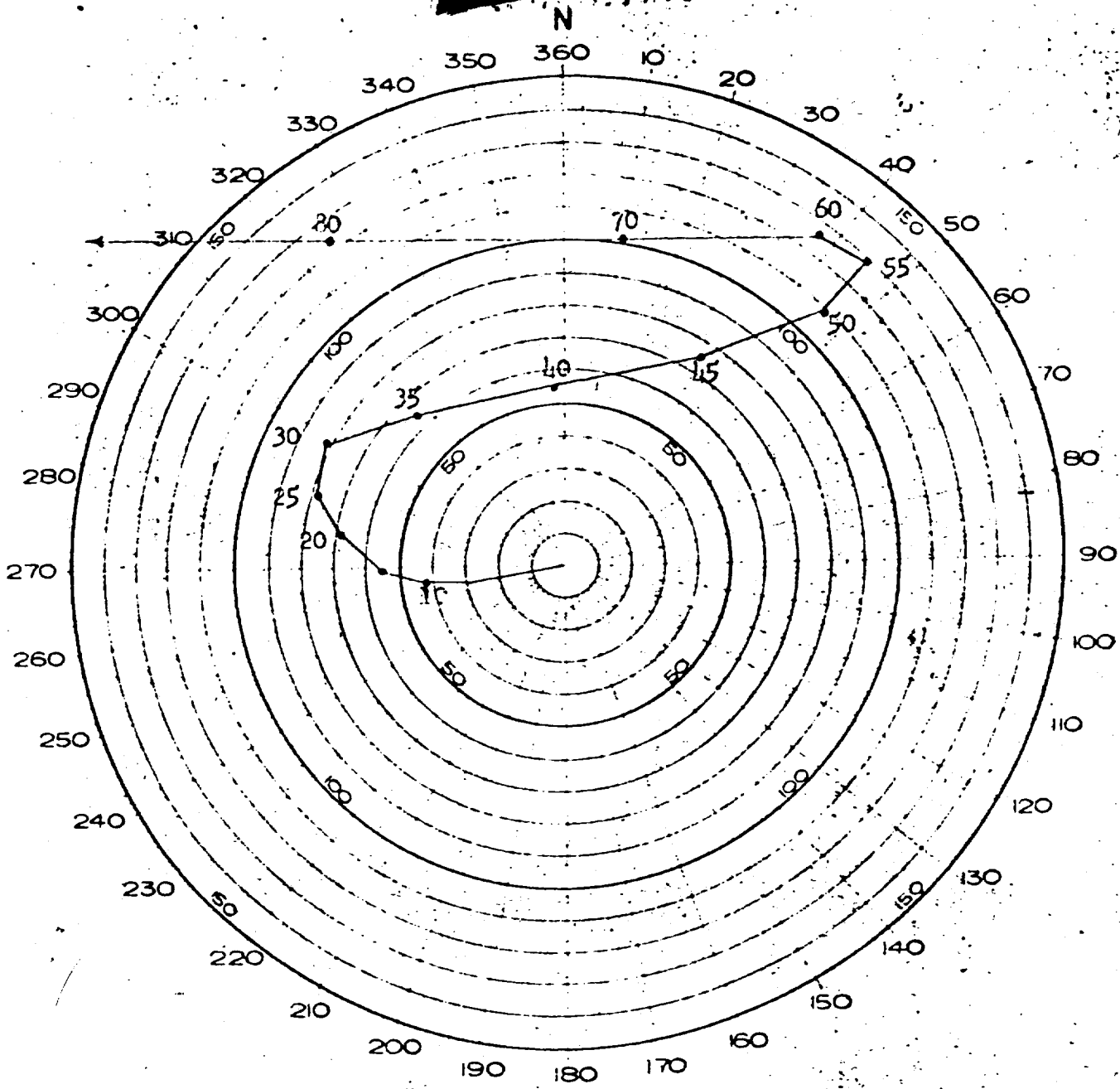
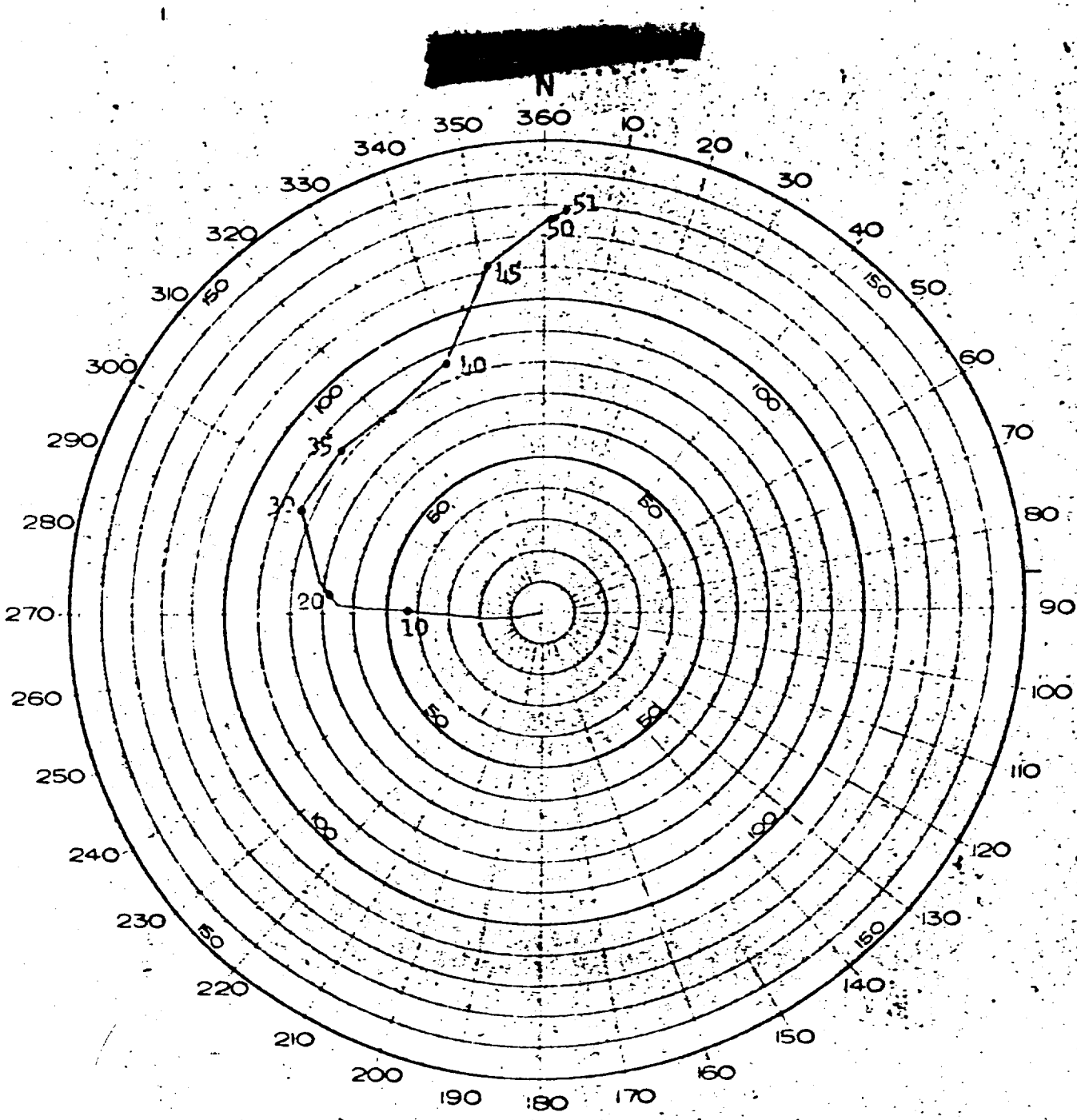


FORECAST FOR 280600M May 1956 (ZUNI)
(Made 280100M)

[redacted]

TAB E

1



OBSERVED WINDS FOR 280600H May 1956
(ZUNI)

TAB E

2

[redacted]

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 Documents

THIS DOCUMENT CONSISTS OF 2 PAGES
[redacted] COPIES, SERIES A

[redacted] CONFIDENTIAL

[redacted] Act 1954

HQ JTF SEVEN Log
CRD-292-56E

[redacted]

BIKINI SOUNDING

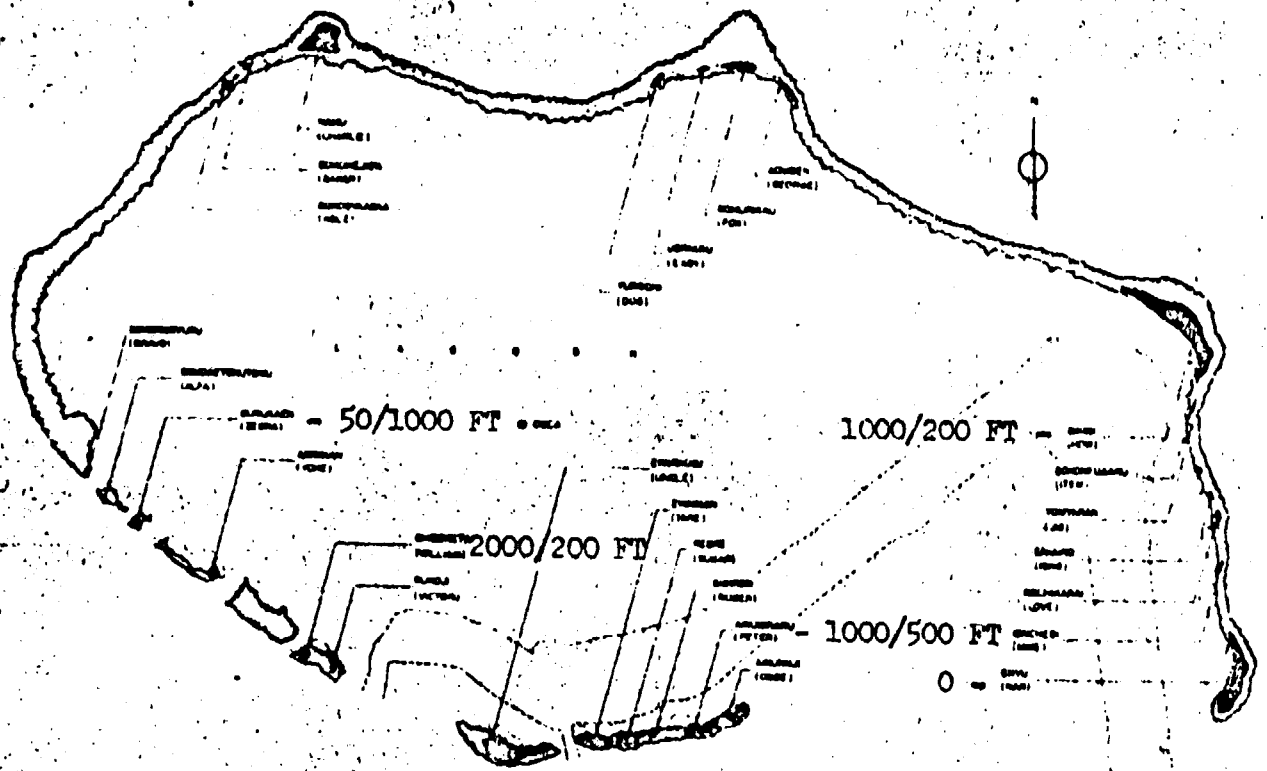
Pressure Millibars	Height Feet	Temperature °C	Dew Point °C
1000	310	27.2	22.8
894	3,543	19.5	15.2
850	4,950	17.8	08.8
784	7,251	15.2	-04.5
773	7,644	14.2	00.2
738	8,924	12.5	-09.5
716	9,711	09.5	02.2
704	10,171	10.2	-14.5
700	10,340	09.8	M
618	13,747	05.5	-17.5
538	17,356	-04.2	-13.5
526	17,946	-04.8	-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

[redacted]

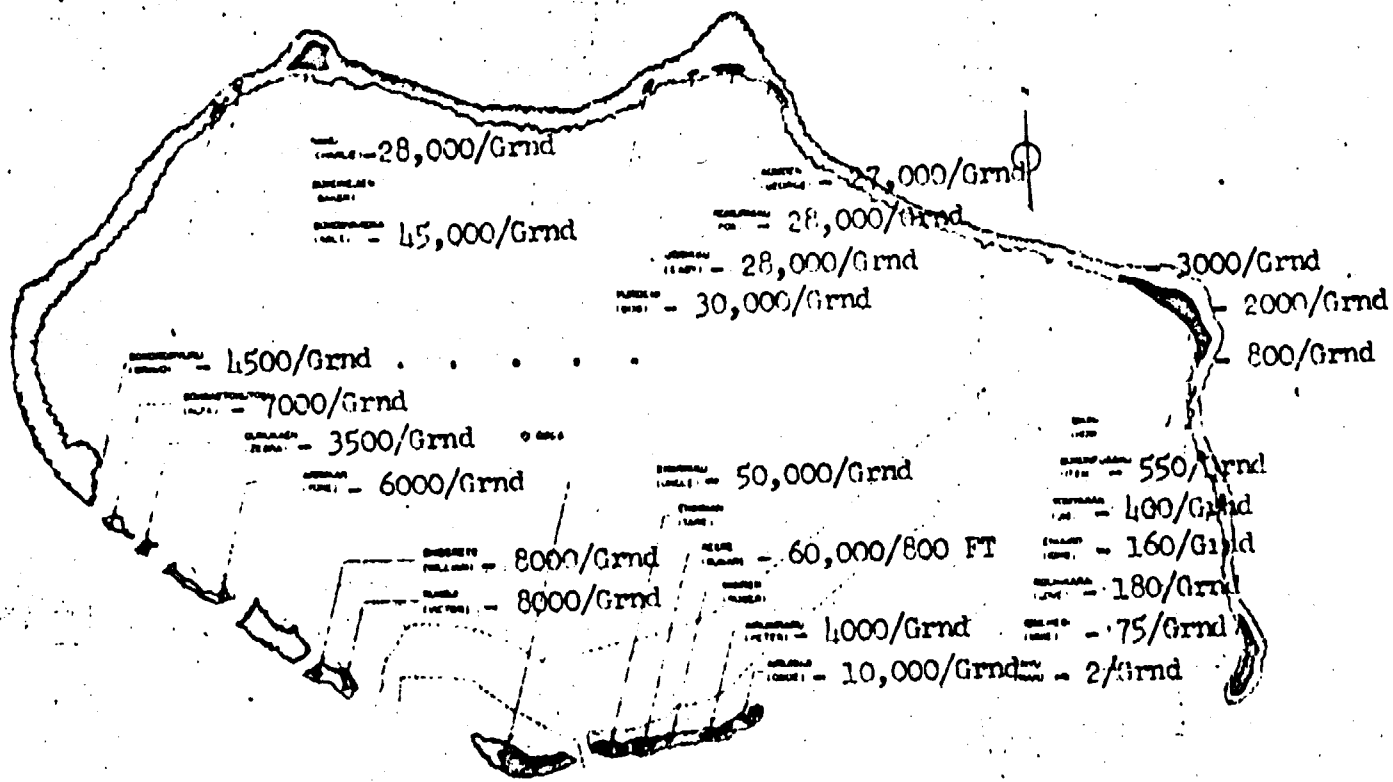
MAP OF BIKINI ATOLL



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

(Readings in mr/hr)

MAP OF BIKINI ATOLL



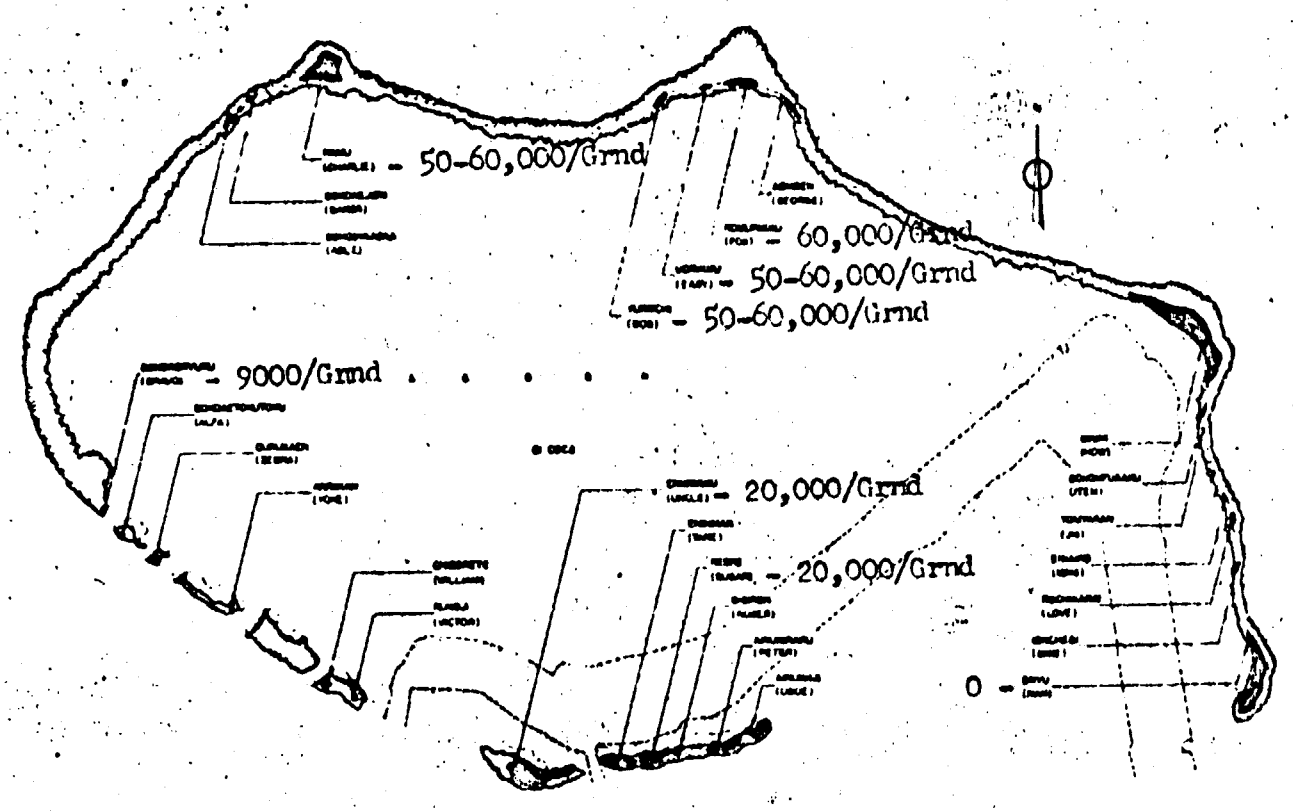
RADIOLOGICAL SURVEY MADE AT
H+6 HRS, 28 MAY 56

(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

3

RAD LOG
JGT JR
4-17-56

Page 1 of 1 pages.

RADIATION LOG ROMEJIK 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)
"	1900	"	13.0	
"	2100	"	13.0	
"	2200	"	14.0	
"	2300	"	11.0	
"	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	"	9.0	0.28 on HASL (12 mr/hr)

T.S.F

4

RAD LOG
JGI JR
4-17-56

RADIATION LOG BIKINI 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	A1	0.01	
"	1800	"	0.10	
"	2045	"	0.12	
"	2145	"	0.10	
"	2240	"	0.12	
"	2300	"	0.12	
5/30	0745	"	0.25	
"	1100	"	0.21	

TOP F

5

RAD LOG
:GT JR
4-17-56

Page 1 of 1 pages.

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	0.02	
"	1800	"	0.03	
"	2200	"	0.03	
"	2300	"	0.03	
"	2400	"	0.03	
5/30	0600	"	0.03	
"	1200	"	0.03	
"	1800	"	0.03	
"	2400	"	0.02	

PAGE 1
6

RAD LOG
JGT JR
4-17-56

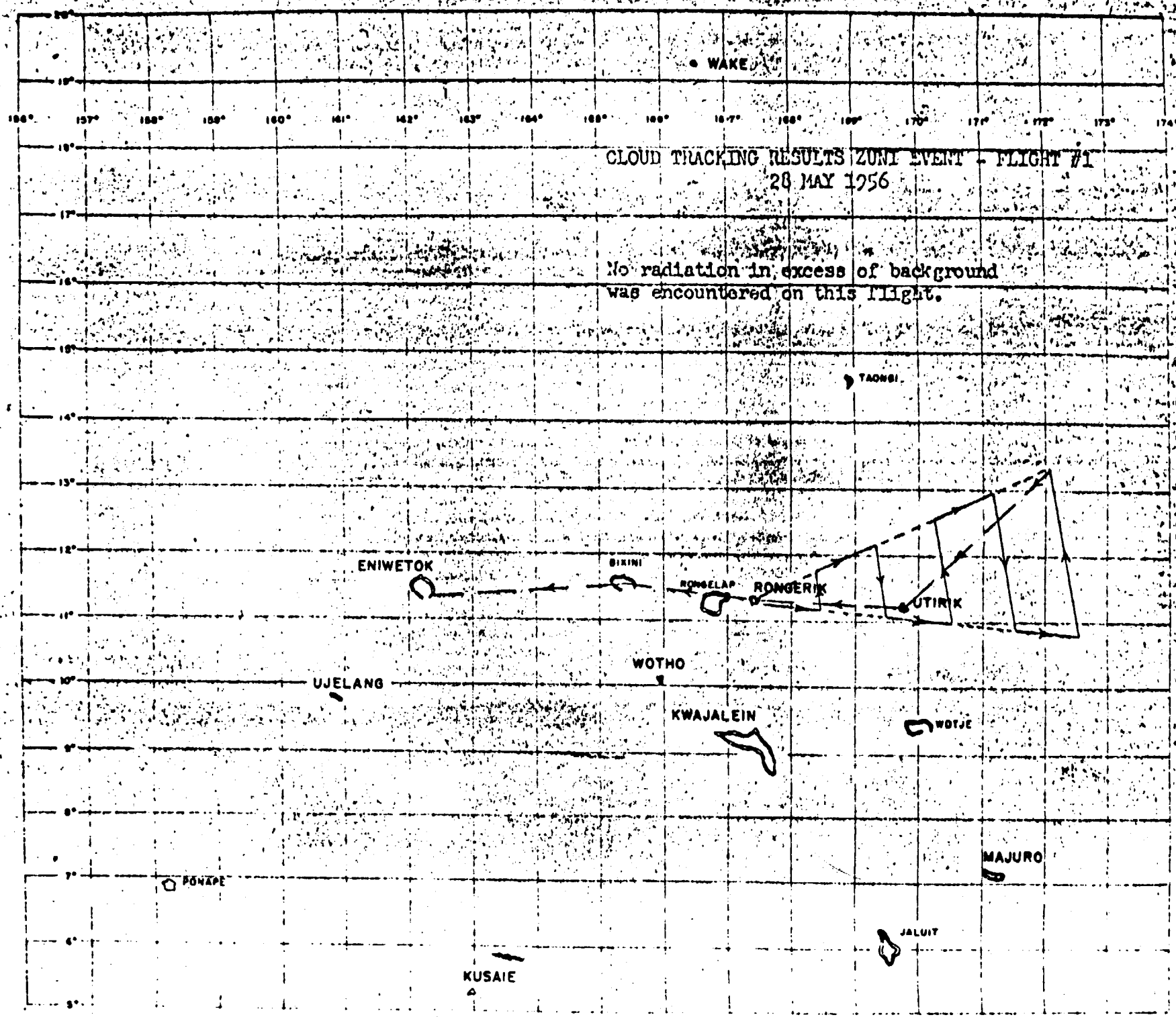
RADIATION LOG MOTHO Island

INCLUSIVE DATES 5/29-30/56 MONITOR ANDERSON

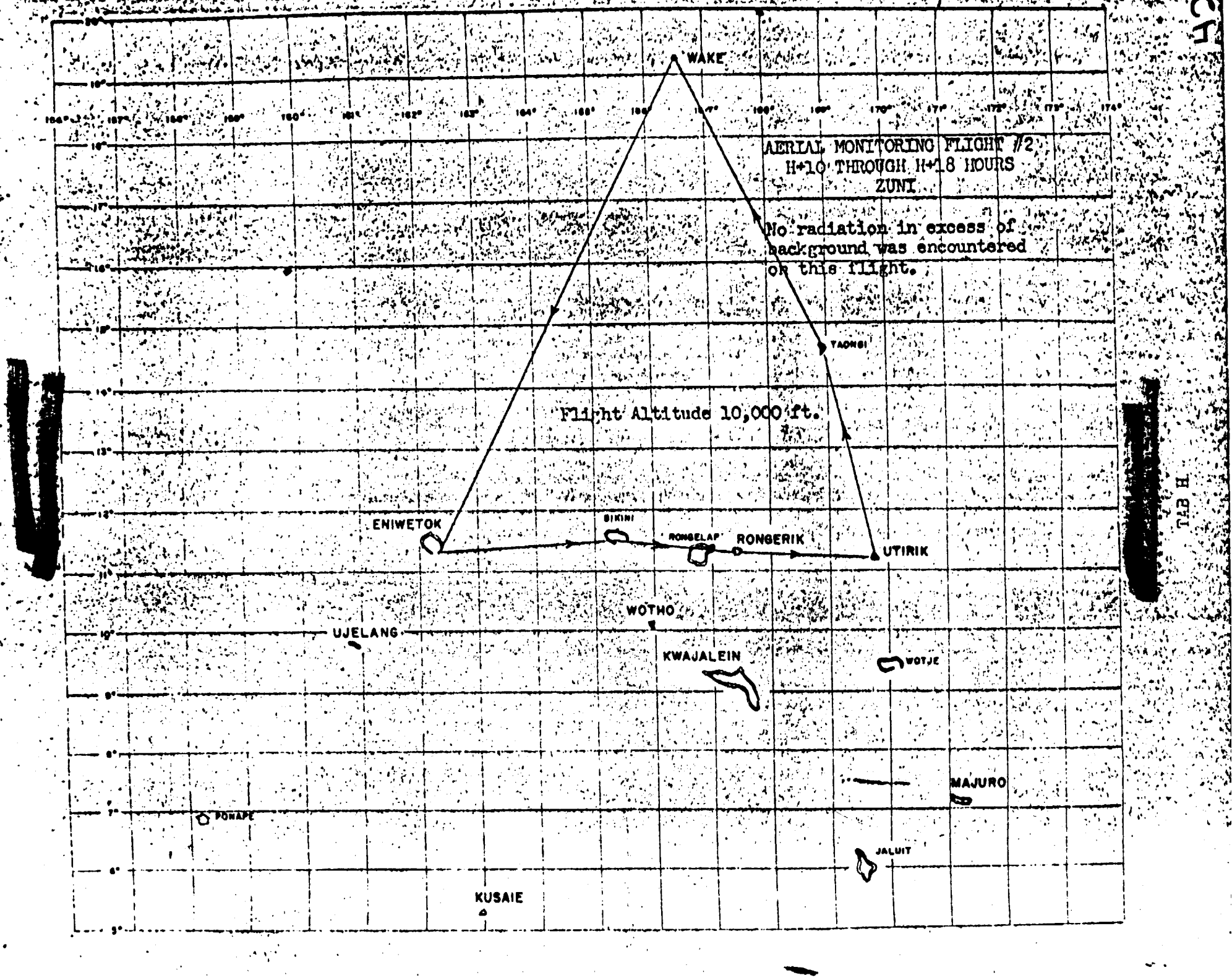
Date	Time	Station or Personnel	Readings in mr/hr	COMMENTS: (location, special or routine readings, aerial or continuous monitoring checks-message time group
5/29	1500	#1	0.1	
"	1815	"	0.3	
"	2100	"	0.7	
"	2205	"	1.2	
"	2300	"	1.7	
"	2400	"	2.1	
5/30	0130	"	2.8	
"	0300	"	5.0	
"	0400	"	6.0	
"	0500	"	5.0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

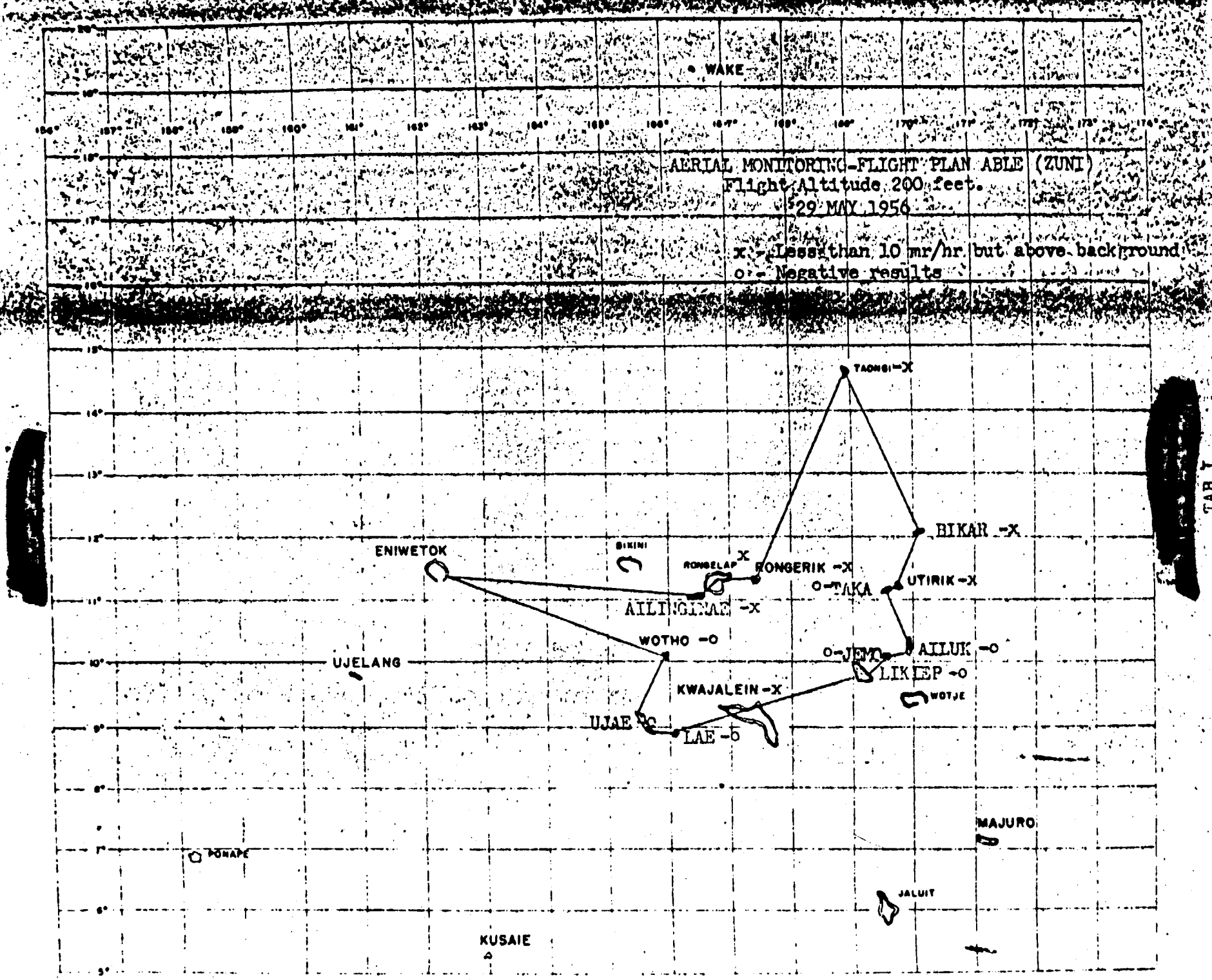
T.B F

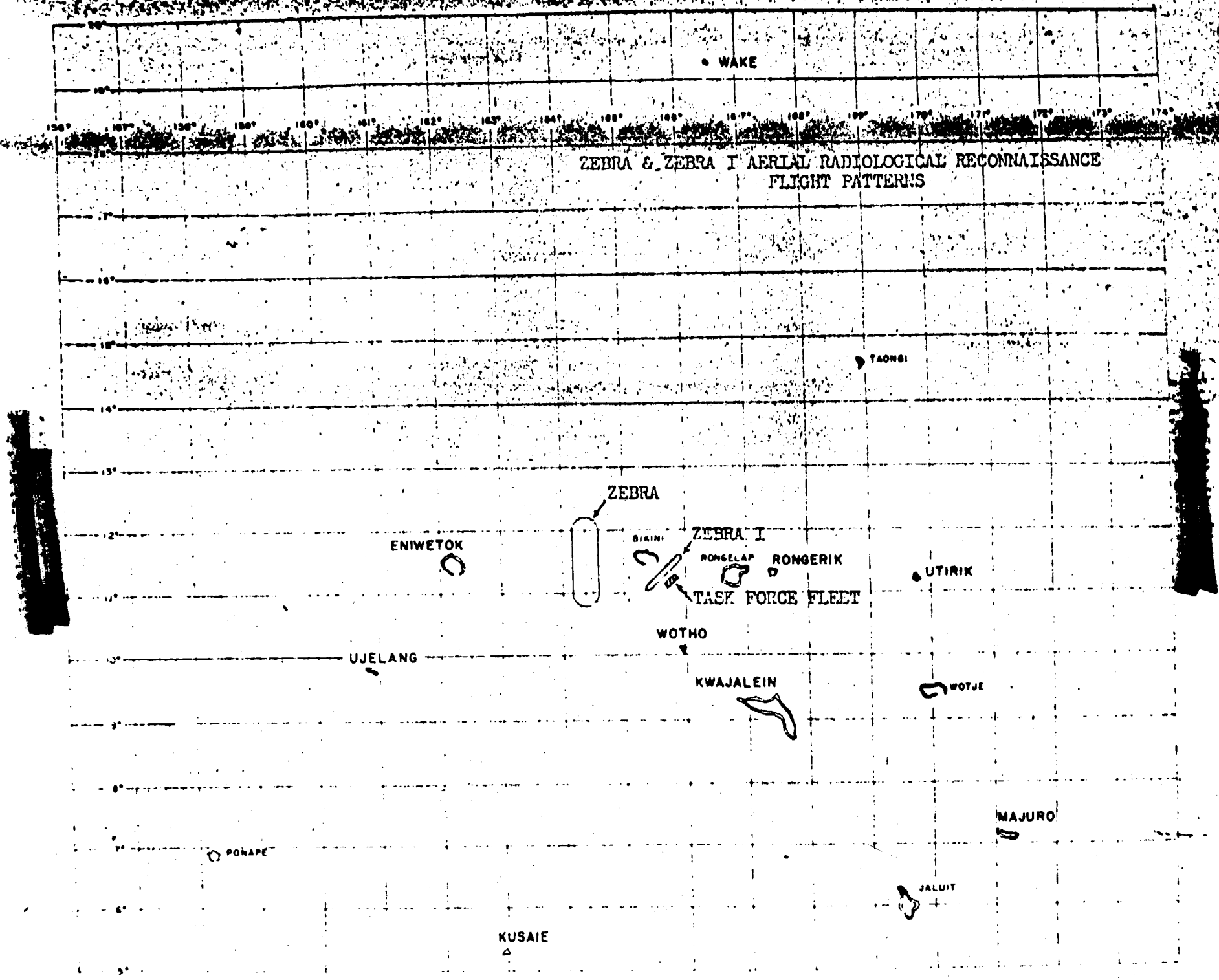
7


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

TAB O


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


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
WAKE
TAONGI -X
BIKAR -X
UTIRIK -X
TAKA -O
RONGERIK -X
RONGELAP -X
BIKINI
ENIWETOK
AILINGINAE -X
WOTHO -O
UJELANG
JEMO -O
AILUK -O
LIKIEP -O
WOTJE
KWAJALEIN -X
UJAE -O
LAE -O
MAJURO
PONAPE
JALUIT
KUSAIE
TAB I


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

[redacted]

INDEX

TAB

[redacted]

[redacted]

TAB A

YUMA EVENT

OPERATION REDWING

1. The YUMA device was fired at 0756M, 28 May 1956. The shot was fired from a 200-foot tower on AOMOEN 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.

DELETED

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 radsafe monitoring stations located South of the Proving Ground.

HQ JTF SEVEN LOG NR:

SRD-289-56E-4

[redacted]

RESTRICTED DATA

[redacted]

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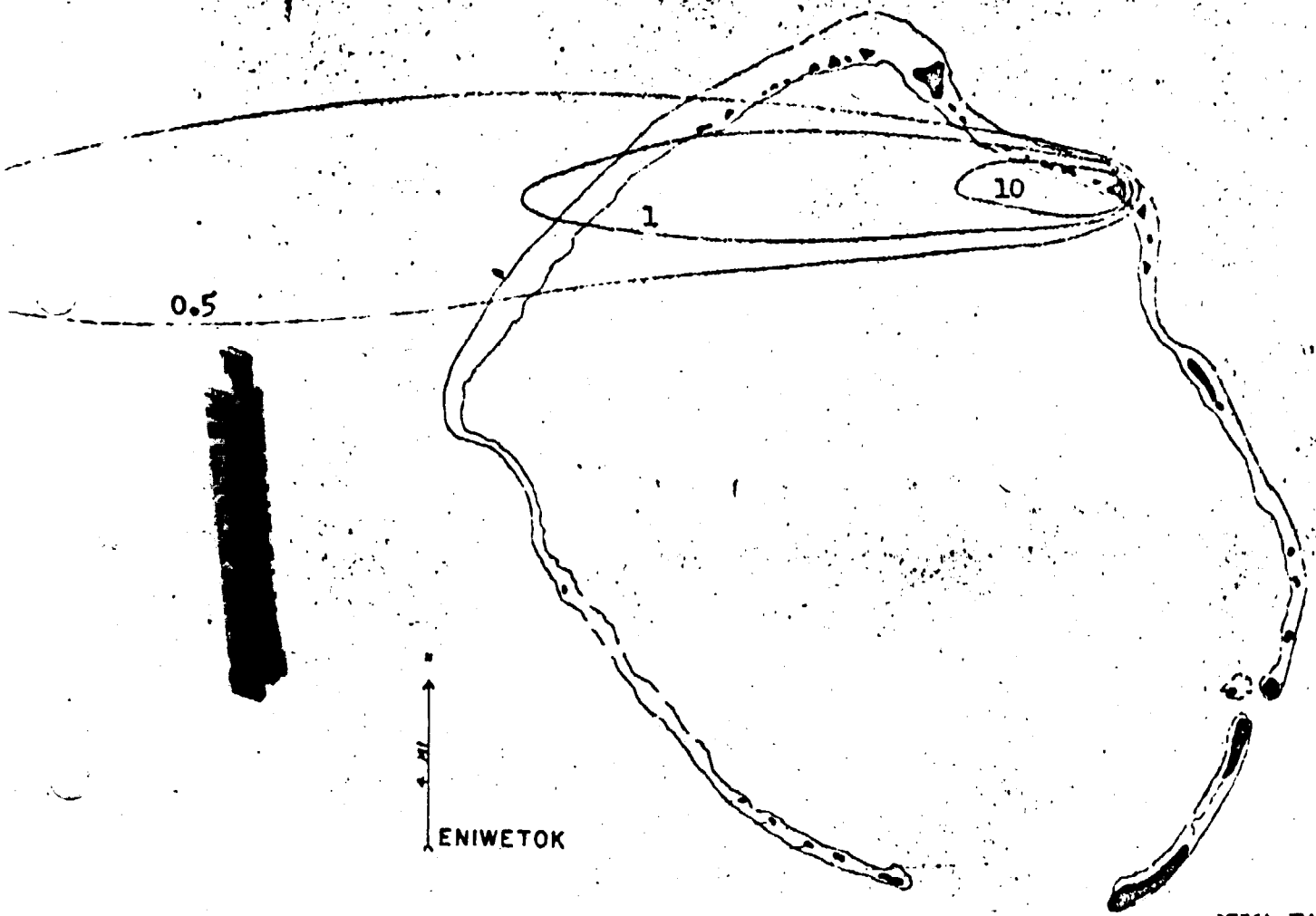
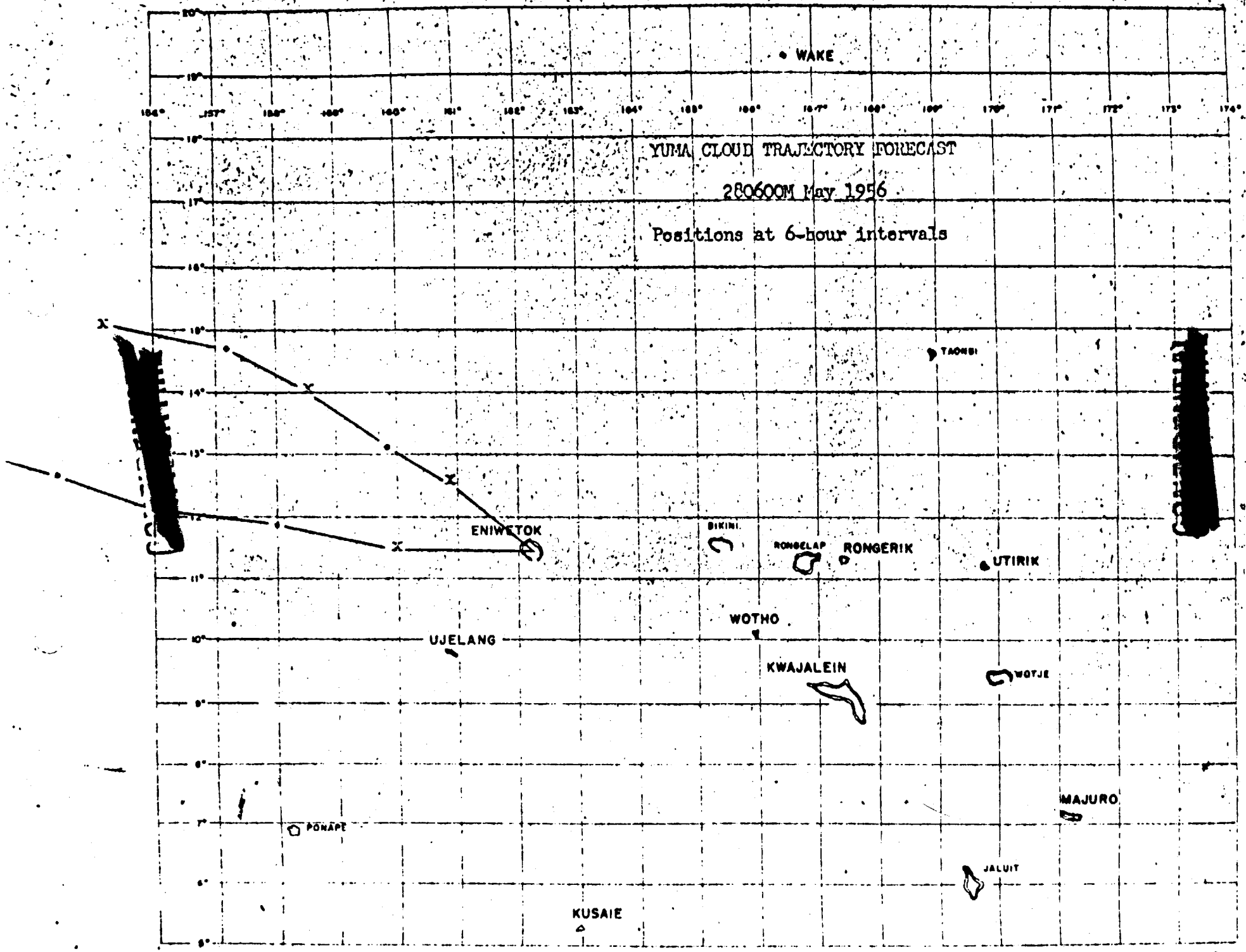
[redacted] OF 10 COPIES, SERIES A



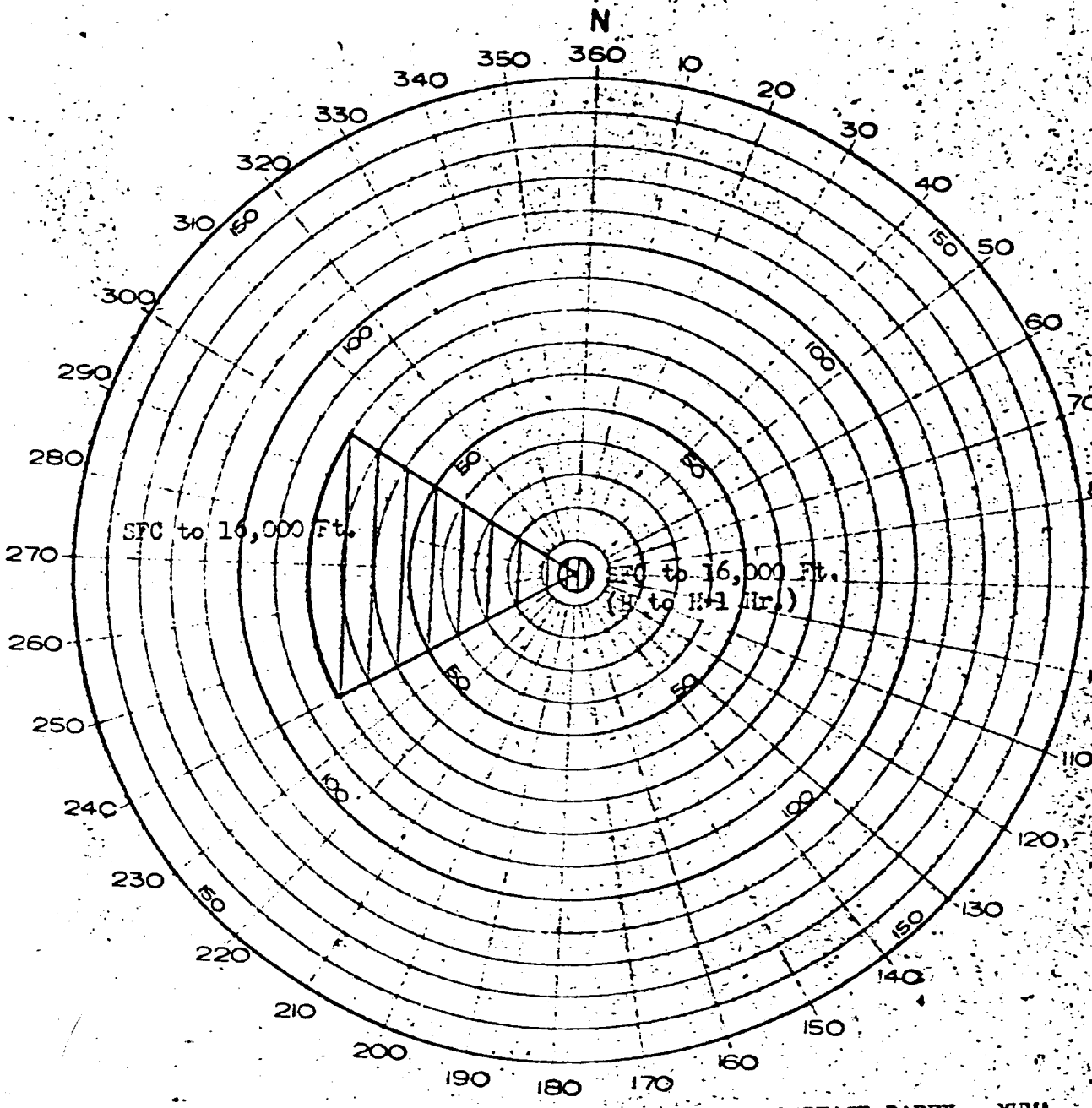
YUMA FALLOUT FORECAST
VALID 280600M MAY 1956

∞ Dose - Roentgens


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

TAB C

[redacted]



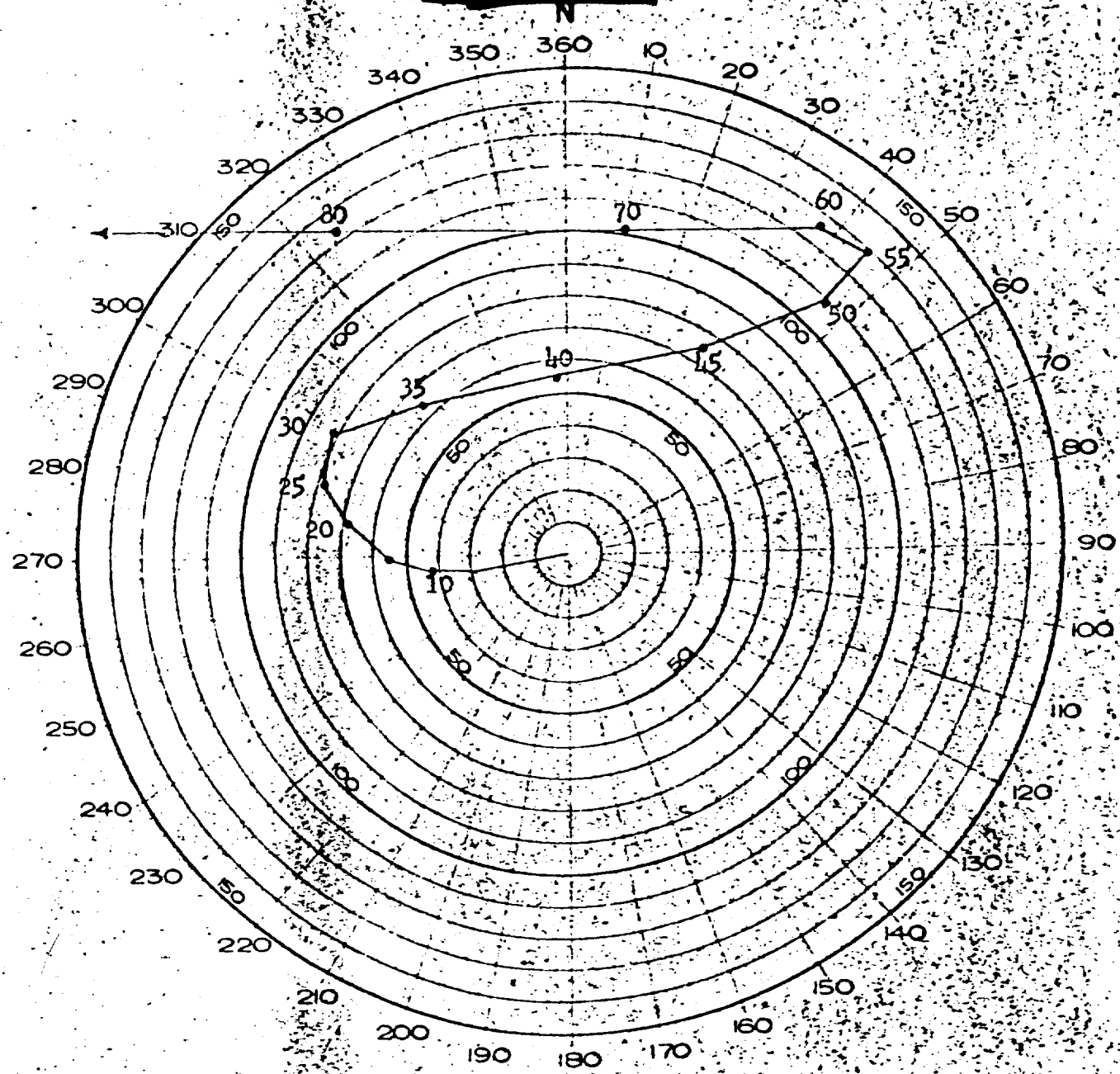
AIR & SURFACE RADEX - YUMA
(H TO H+6 HRS)

T/B D

[redacted]

[redacted]

[redacted]



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

[redacted]

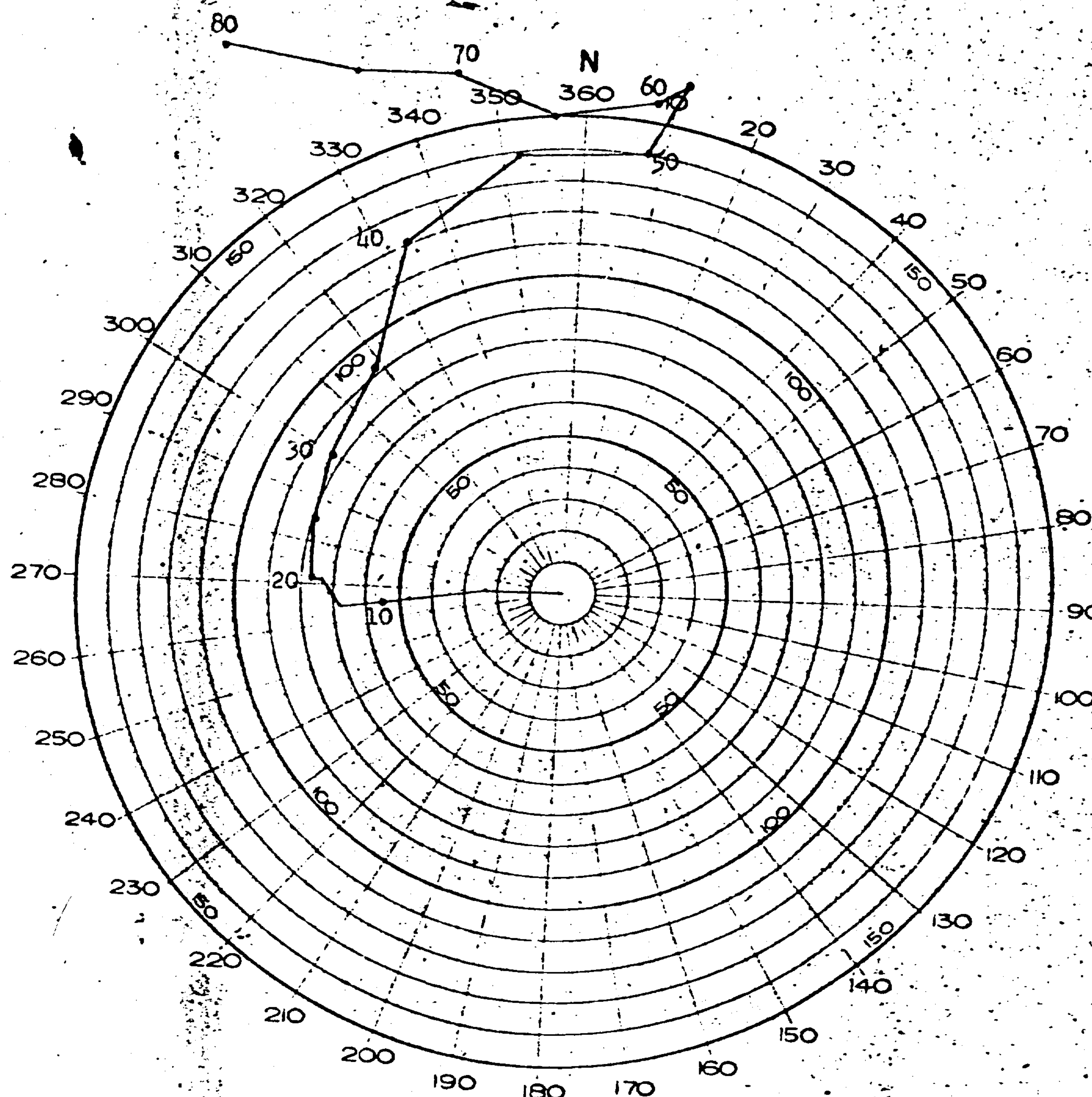
TAB E

1

[redacted]

SO

[redacted]



OBSERVED WINDS FOR 280800M May 1956
(YUMA)

TAB E

2

[redacted]

[redacted]

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

[redacted]

S2

[redacted]

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

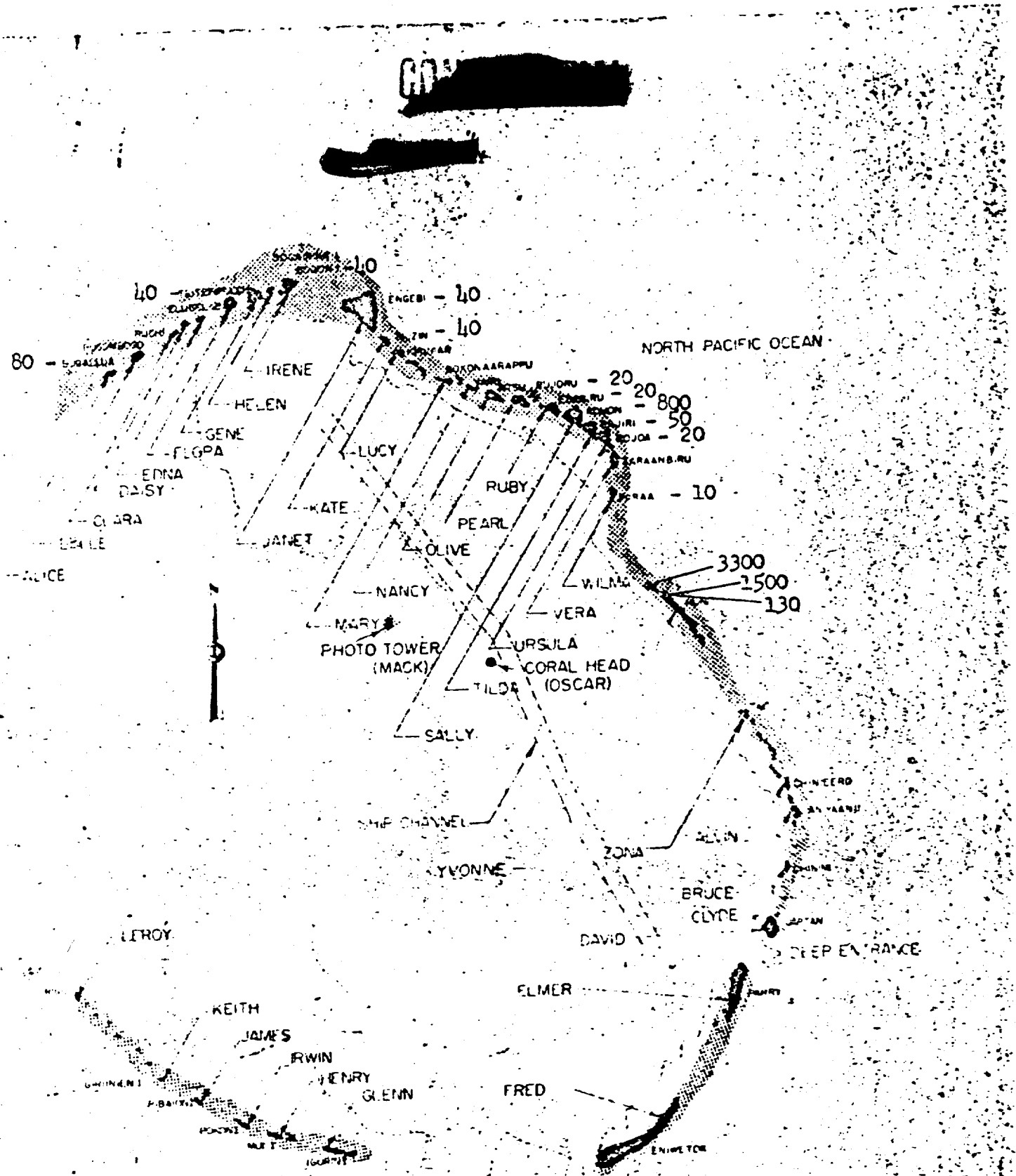
Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
814	6,135	16.0	11.8
755	8,432	12.4	09.8
700	10,300	09.8	02.5
680	11,122	08.5	-05.3
642	12,631	05.2	-02.8
635	12,959	04.8	-06.5
600	14,450	02.1	-03.1
569	15,814	-00.7	-06.7
547	16,929	-01.0	-10.6
500	19,200	-05.8	-15.2
441	22,441	-12.2	-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 (27200Z)

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

[redacted]

S3



[redacted]

(YUMA)

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

[redacted]

TAB F

[redacted]

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TAB

[redacted]

SS

[redacted]

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.

DELETED

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.

HQ JTF SEVEN LOG NR:

SRD-289-56E-5

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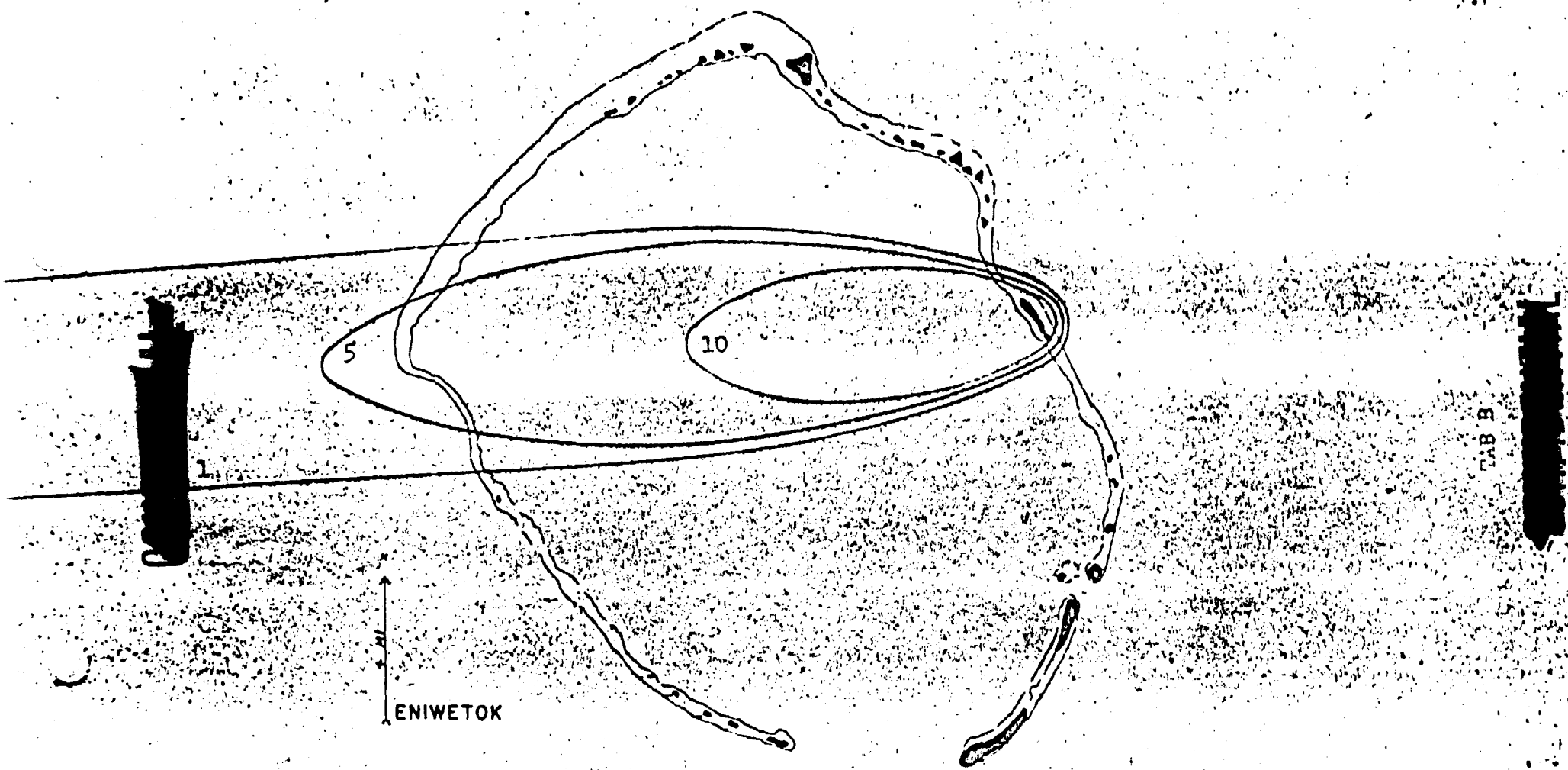
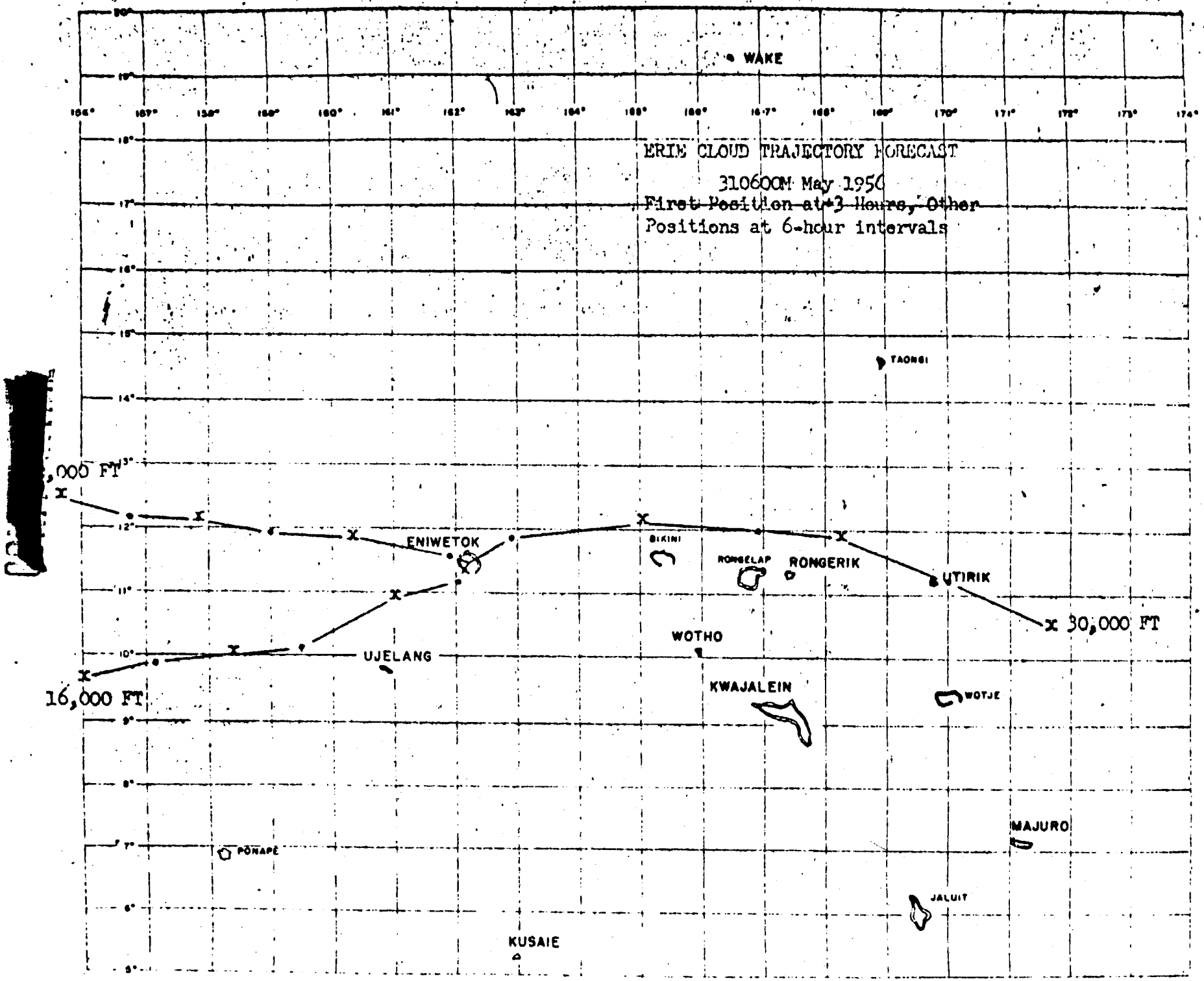


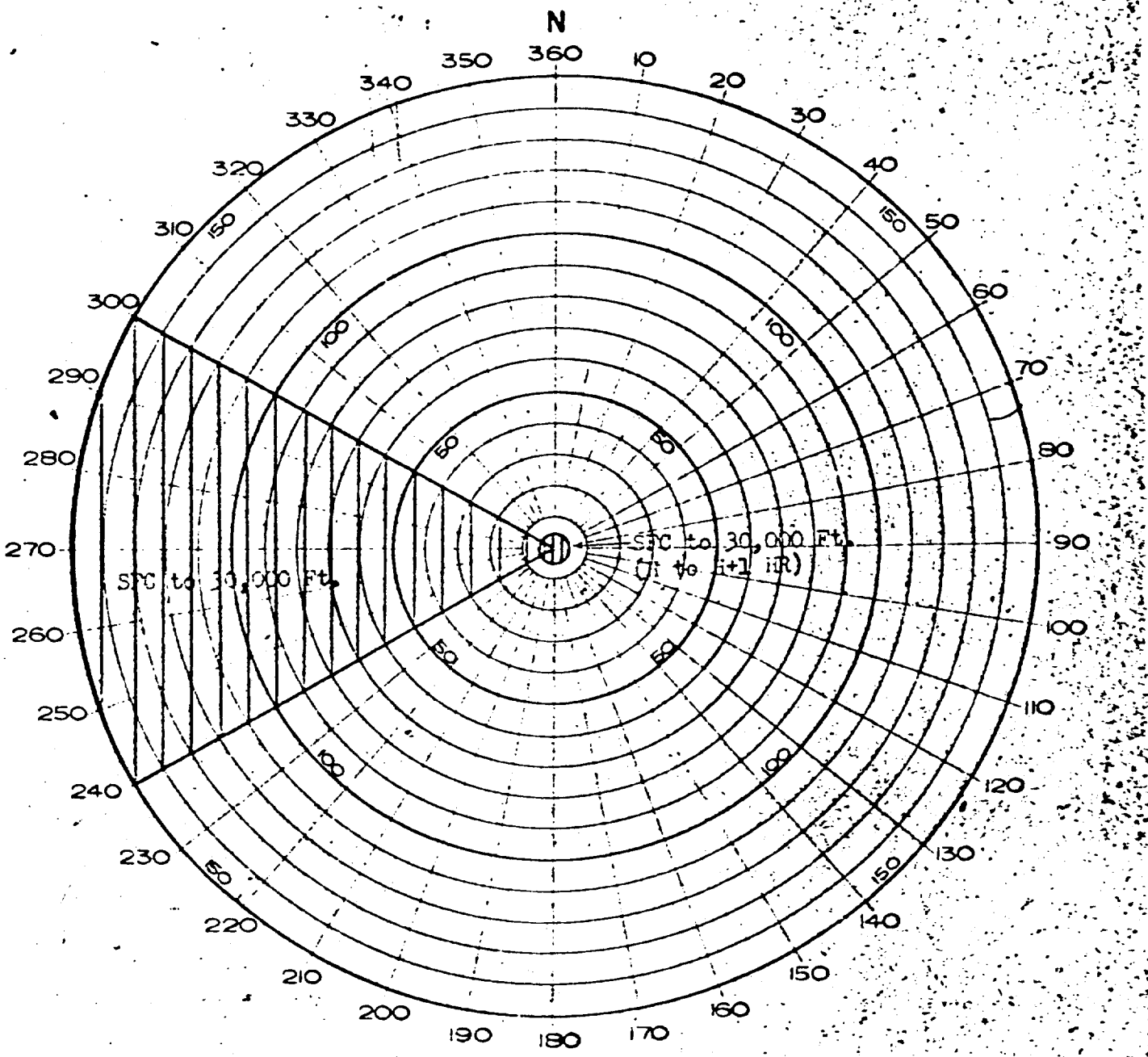
ERIE FORECAST FALLOUT PLOT

VALID 310600M May 56

∞ Dose - Roentgens


WAKE
ERIE CLOUD TRAJECTORY FORECAST
310600M May 1950
First Position at 3 Hours, Other
Positions at 6-hour intervals
TAONGI
,000 FT
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
30,000 FT
WOTHO
UJELANG
16,000 FT
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE

[redacted]



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

TAB D

[redacted]

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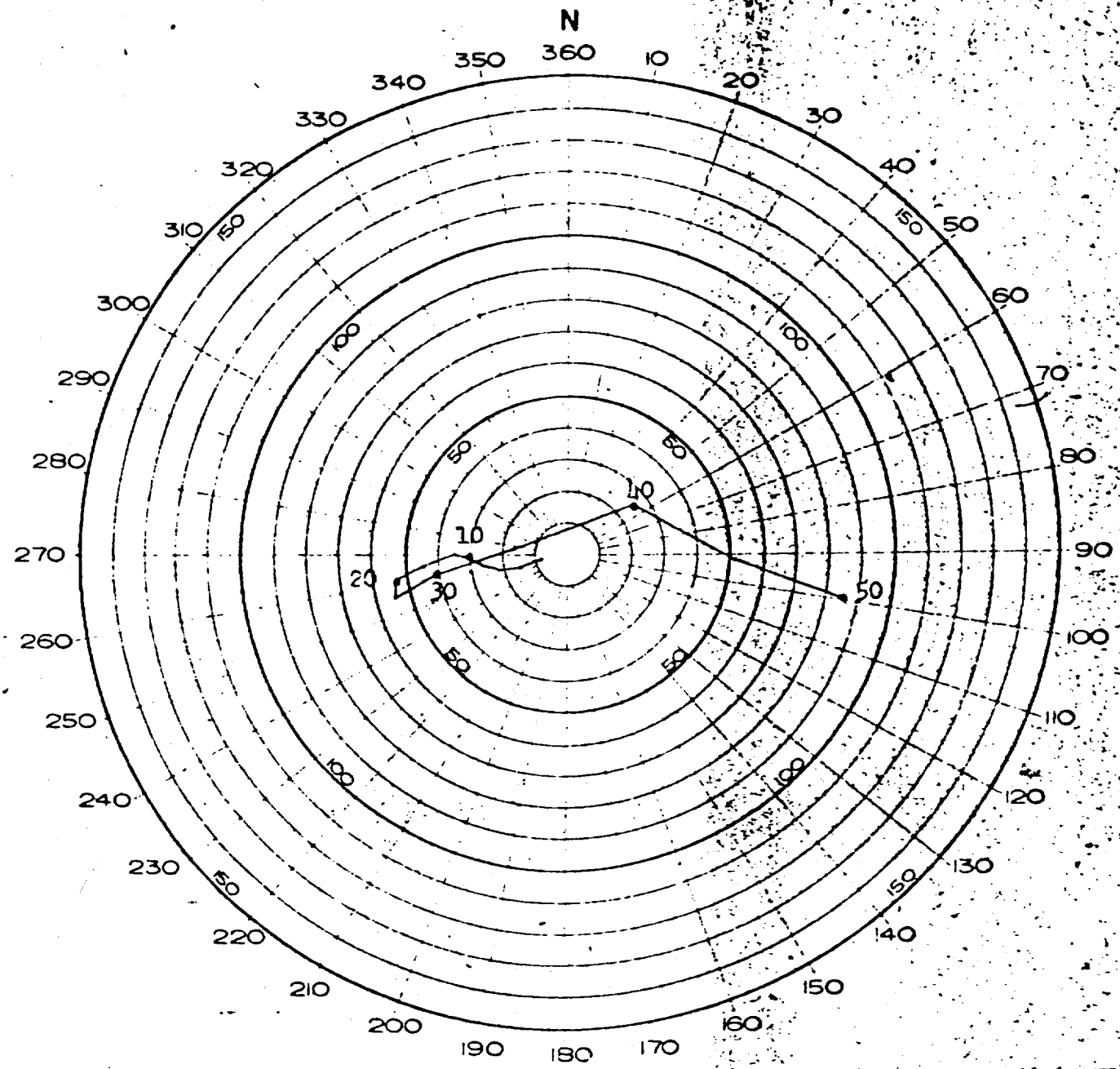


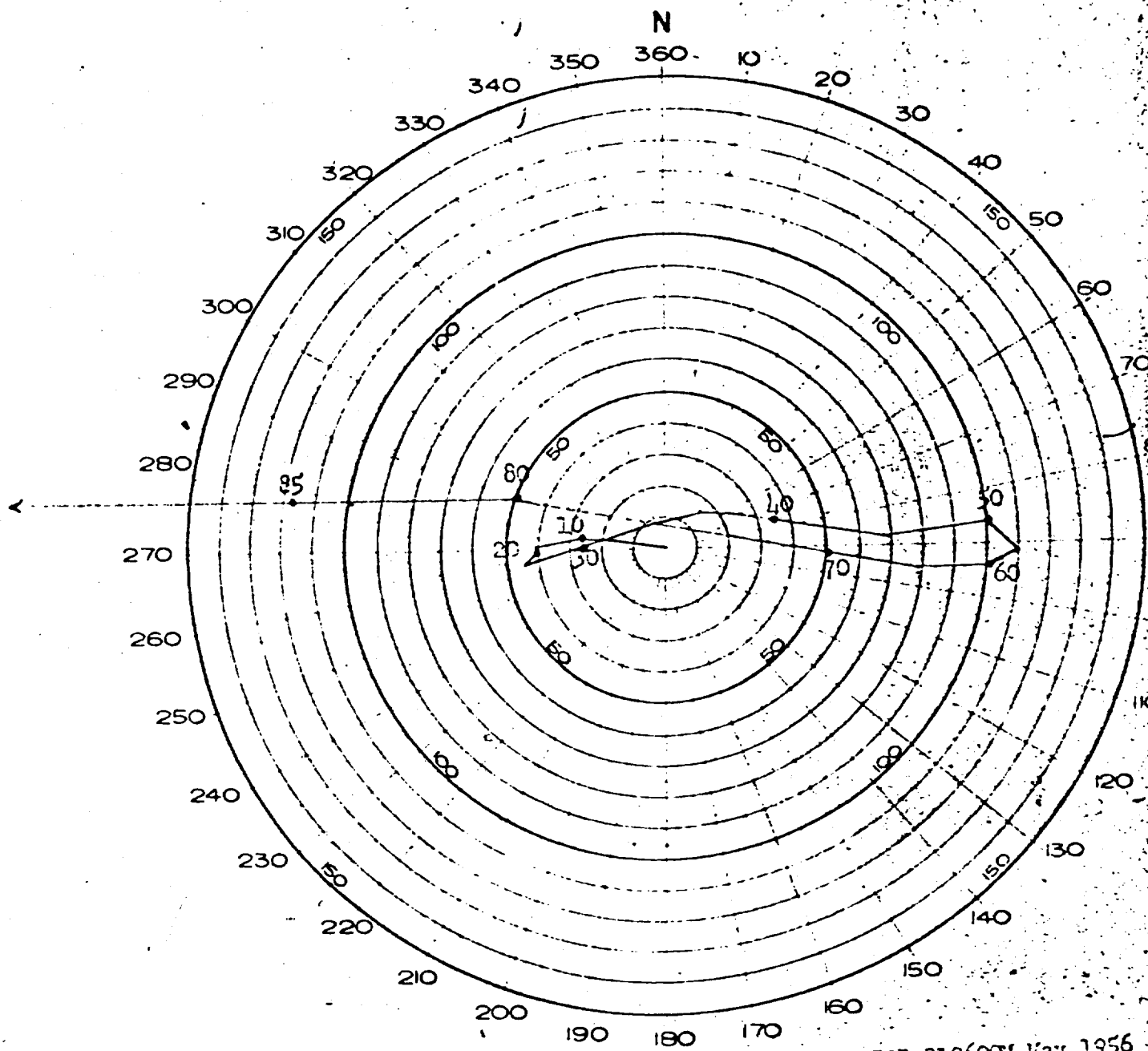
FORECAST FOR 310600M May 1956 (ERE)
(Made 310300M)

TAB E

1

[redacted]

60



OBSERVED WINDS FOR 310600Z May 1956
(ERIE)

TAB E

[redacted]

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

[redacted]

[redacted]

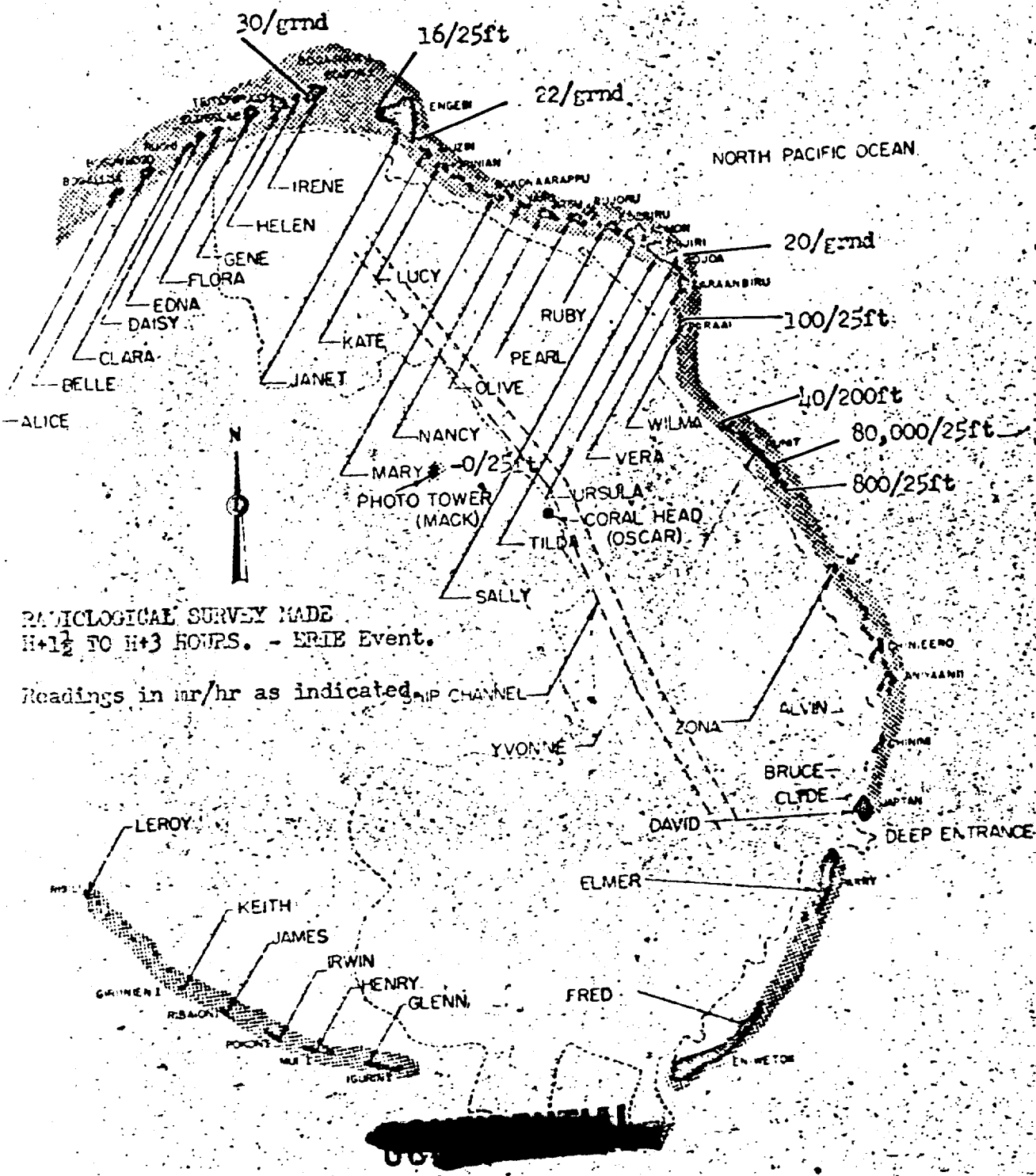
Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
300	31,590	-33.2	-45.6
296	31,824	-34.1	-46.4
200	40,480	-56.3	M
150	46,300	-68.2	M
100	54,070	-78.7	M
98	54,462	-78.7	M
83	57,611	-76.0	M
76	59,383	-68.8	M
73	60,072	-71.5	M
64	62,664	-71.1	M
55	65,617	-62.7	M
50	67,580	-61.6	M
25	81,896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

[redacted]

[redacted]



RADIOLOGICAL SURVEY MADE
H+1½ TO H+3 HOURS. - ERIE Event.

Readings in mr/hr as indicated.

[redacted]

TAB F

[redacted]

INDEX

TAB

[redacted]

[redacted]

SEMINOLE SHOT

OPERATION REDWING

1. SEMINOLE was detonated on the ground at DIDON Island (IRENE) in the ENIWETOK Atoll at 1255M, 6 June 1956. The device was encased in a 50-foot diameter, 10-foot high tank of sea water.

2. Fallout prediction was based on a maximum yield of 15 kilotons 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 BOKAIRIKI (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 1630M, 6 June.

HQ JTF SEVEN LOG NR:

SRD-289-56E-6

[redacted]

[redacted]

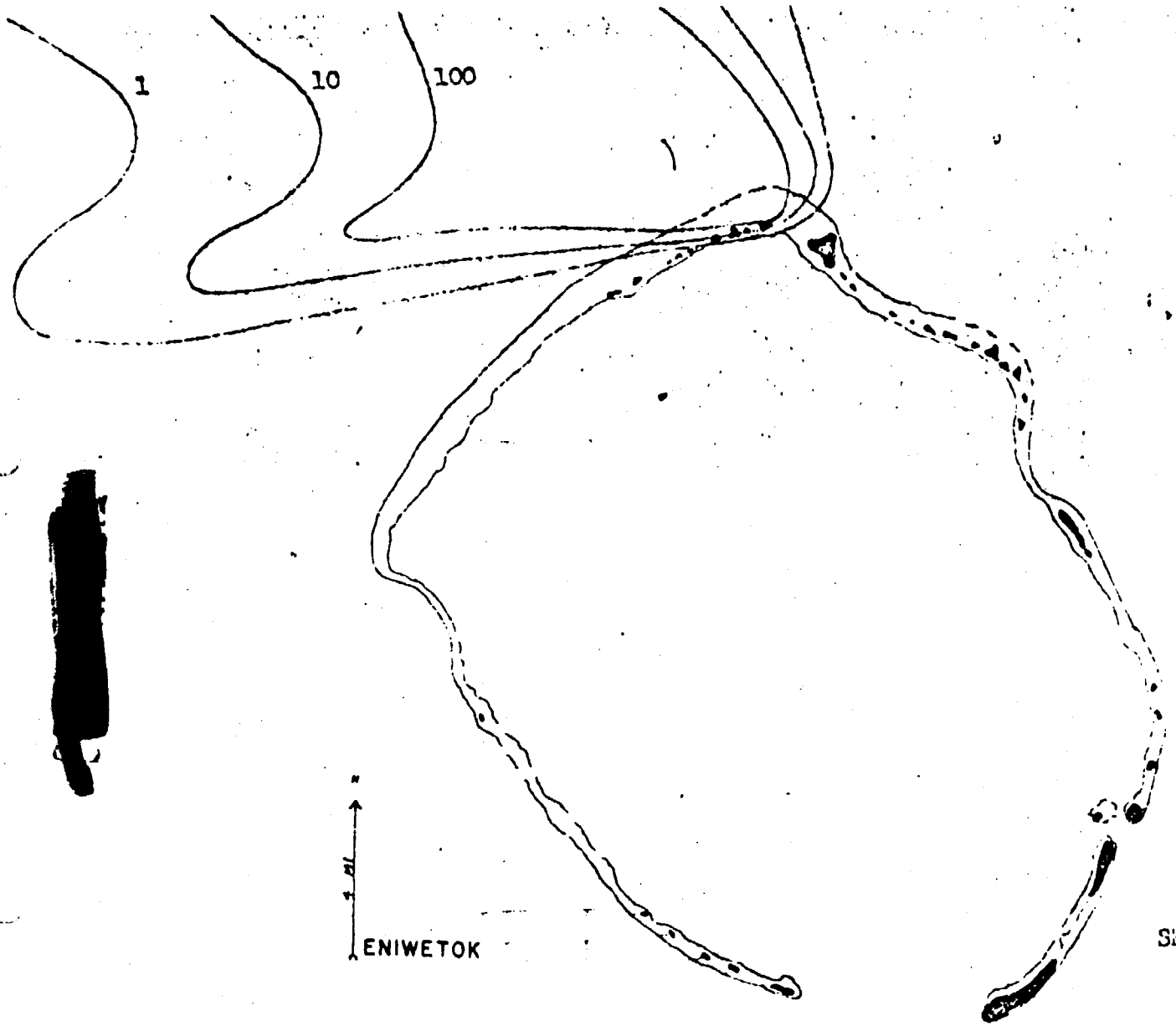
4. No increase in background was noted on any of the off-atoll radsafe stations. In view of this, no cloud tracking missions were flown.

5. Reentry hour was announced as 1530Z.

[redacted]

Atom[redacted]1954

[redacted]

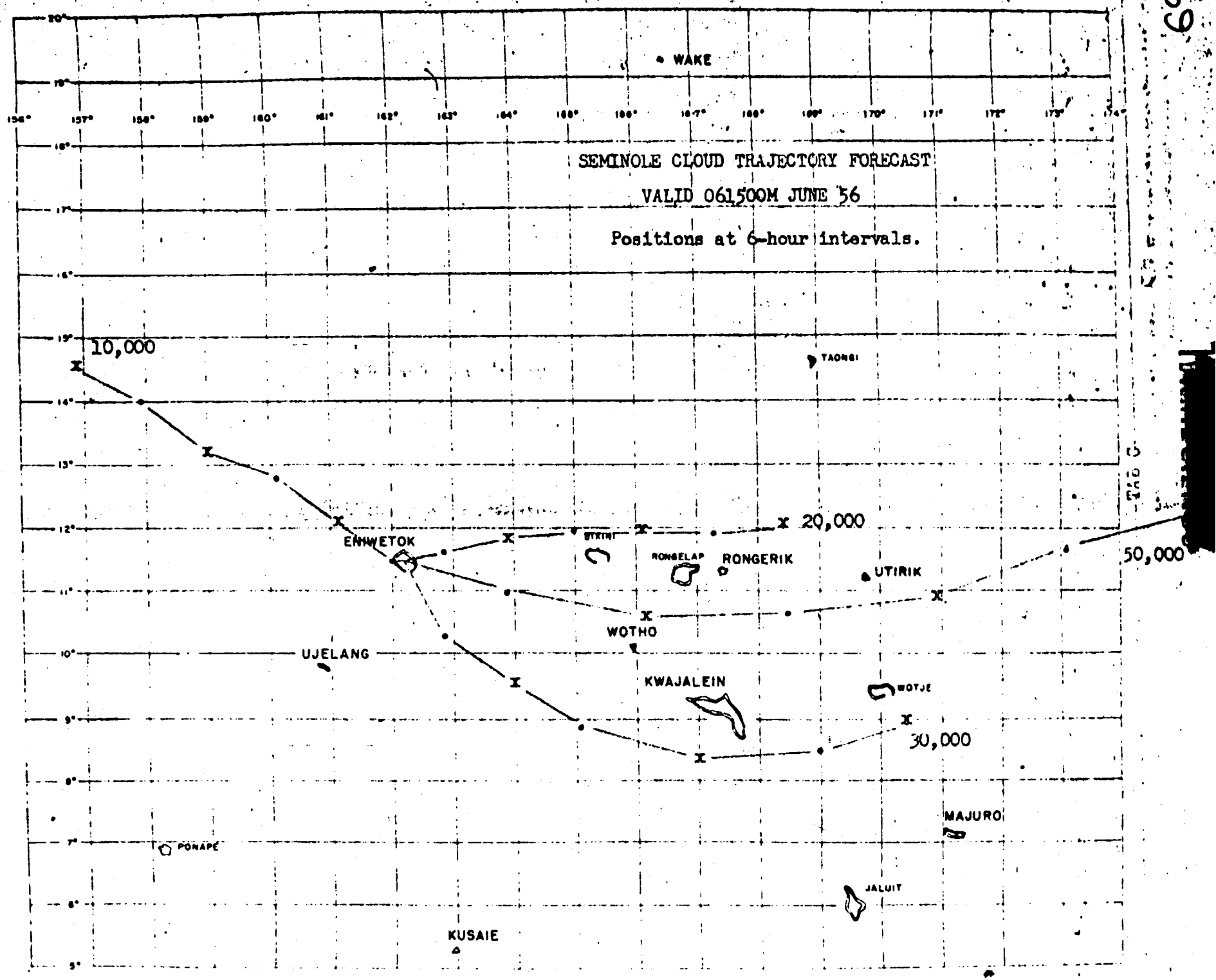


SEMINOLE FORECAST FALLOUT PLOT
VALID 061200Z JUNE 1956

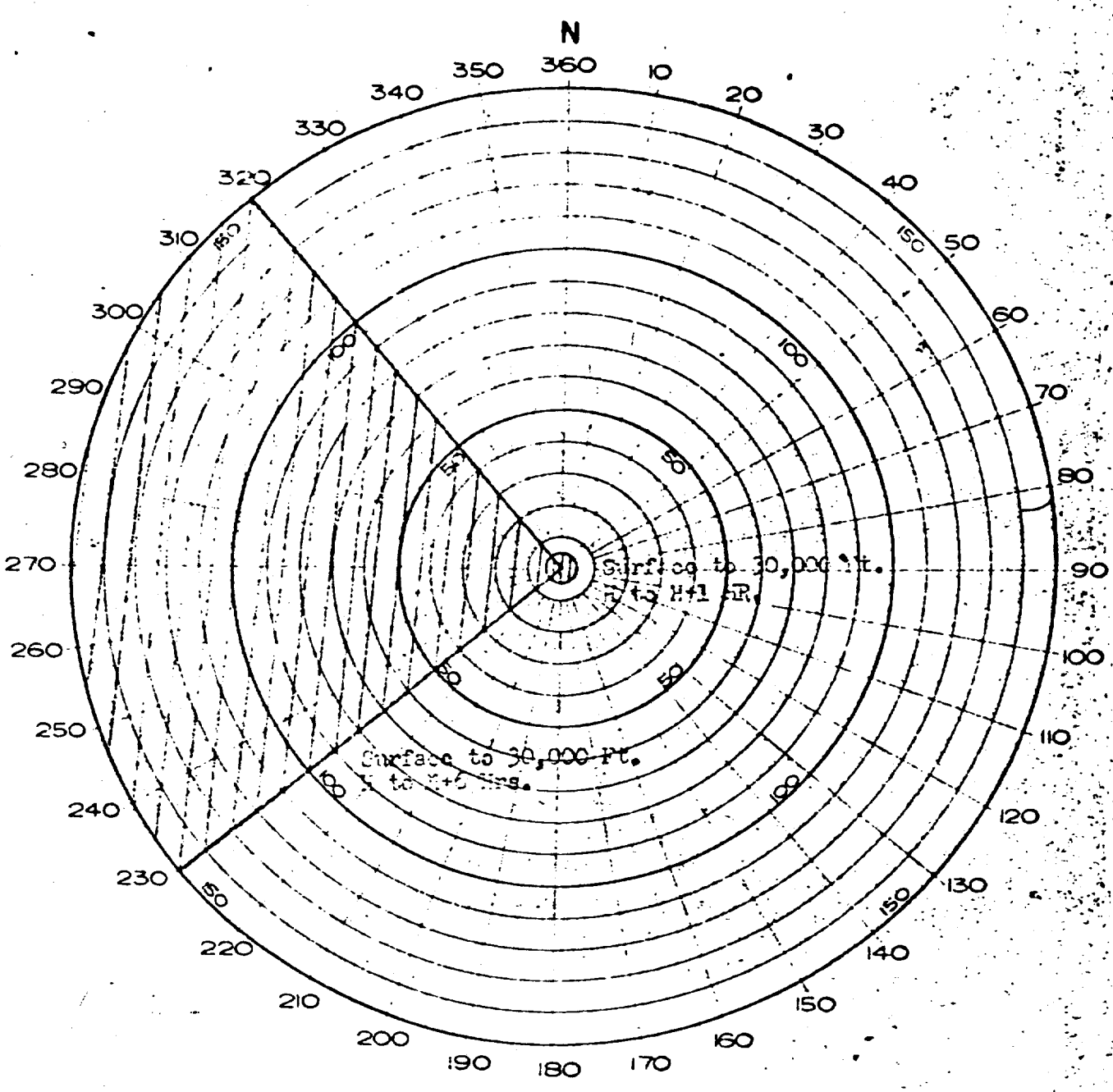
Dose - Roentgens

TAB B

68


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

[redacted]

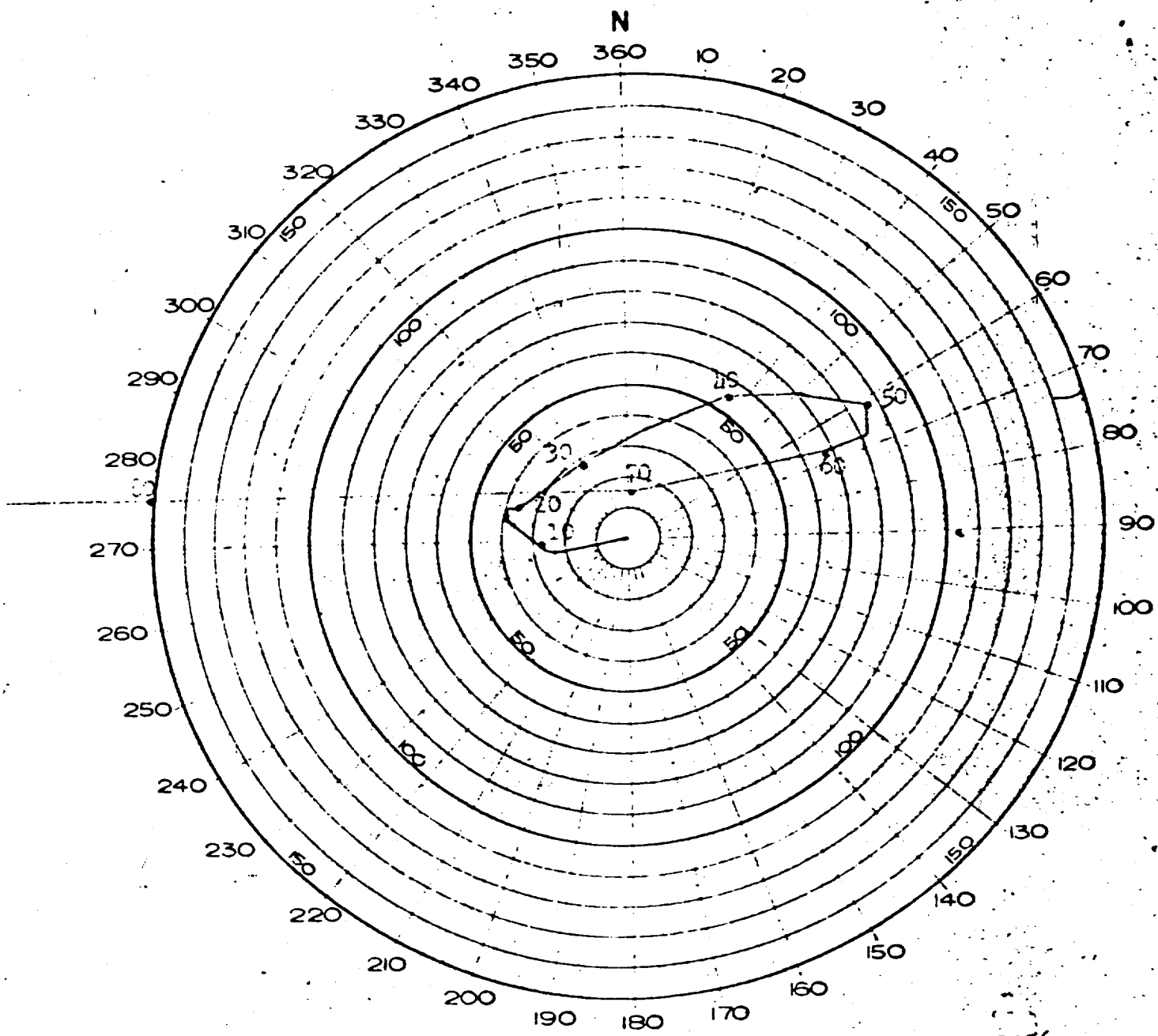


SECTIONIZED AIR & SURFACE RADAR

TAB D

[redacted]

[redacted]



FORECAST MADE 052000Z JUNE 1956

VALID 061200Z

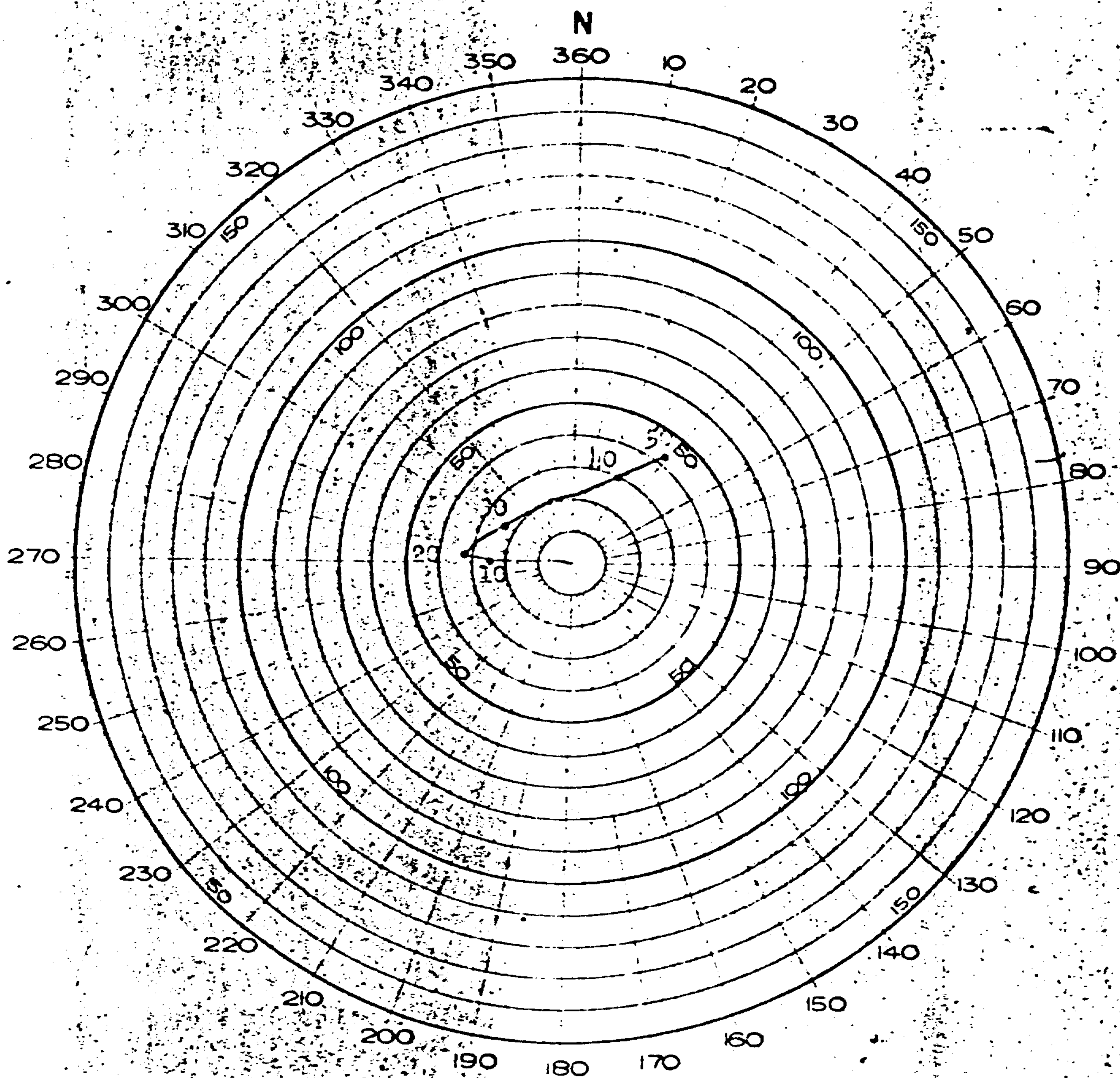
- SEPTEMBER EVENT -

TAB D

1

[redacted]

[redacted]



OBSERVED, WINDS FOR

061020M JUNE 1956

- SEMINOLE EVENT -

[illegible]

2

[redacted]

[redacted]

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

[redacted]

[redacted]

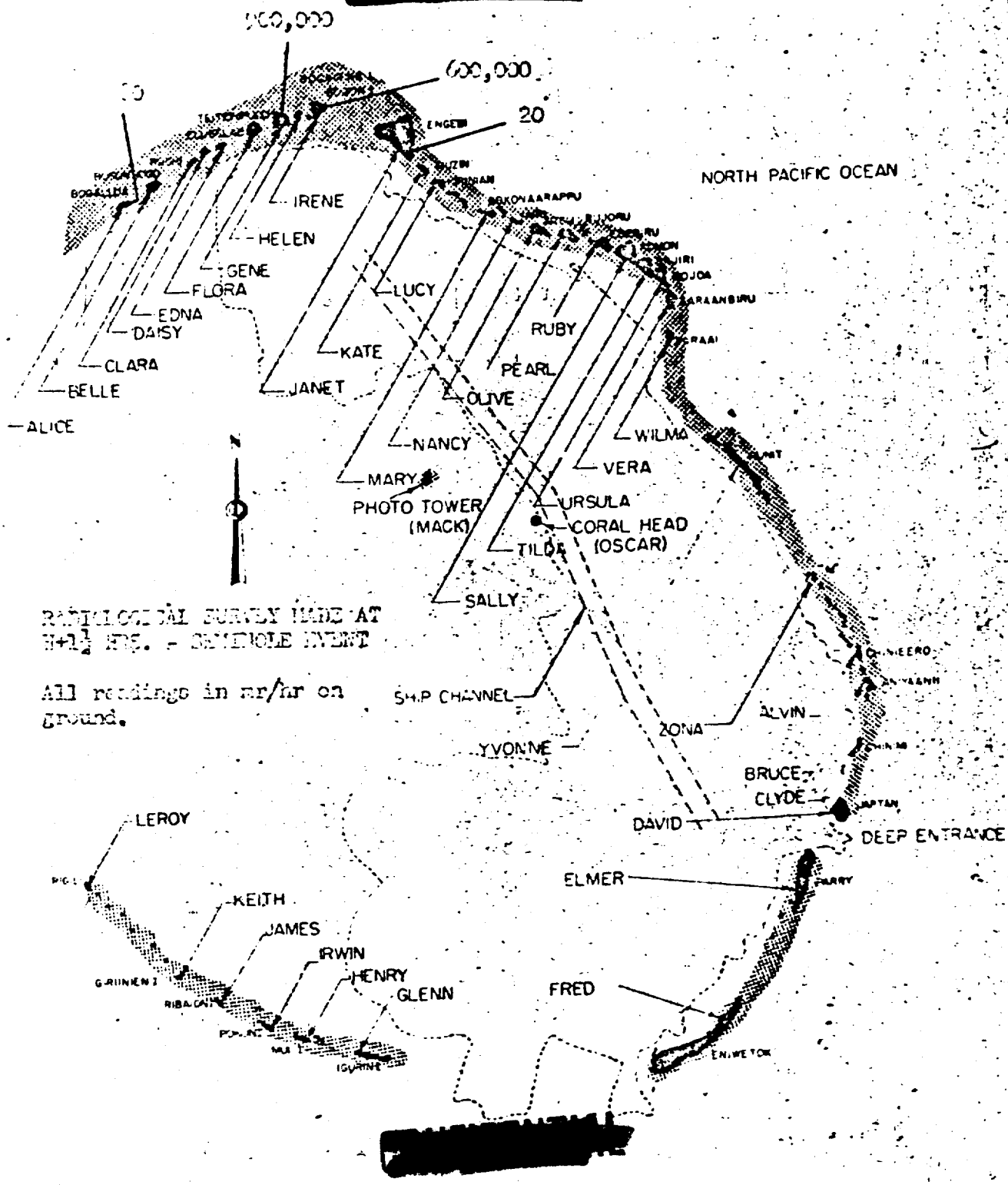
Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
300	31,740	-33.2	M
200	40,660	-54.8	M
150	46,510	-68.5	M
112	52,165	-76.0	M
100	54,310	-74.0	M
63	63,320	-69.0	M
50	67,900	-60.5	M
25	82,244	-53.1	M
20	87,106	-45.2	M
10	102,546	-39.2	M

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			

[redacted]

[redacted]



RADIOLOGICAL SURVEY MADE AT H+12 HRS. - SIMPLIFIED EVENT

All readings in mr/hr on ground.

[redacted]

[redacted]

INDEX

TAB

[redacted]

[redacted]

TAB A

BLACKFOOT EVENT

OPERATION REDWING

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

DELETED

DELETED

The forecast indicated a light fallout pattern [illegible] trending 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 [illegible] 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.

HQ JTF SEVEN LOG NR:

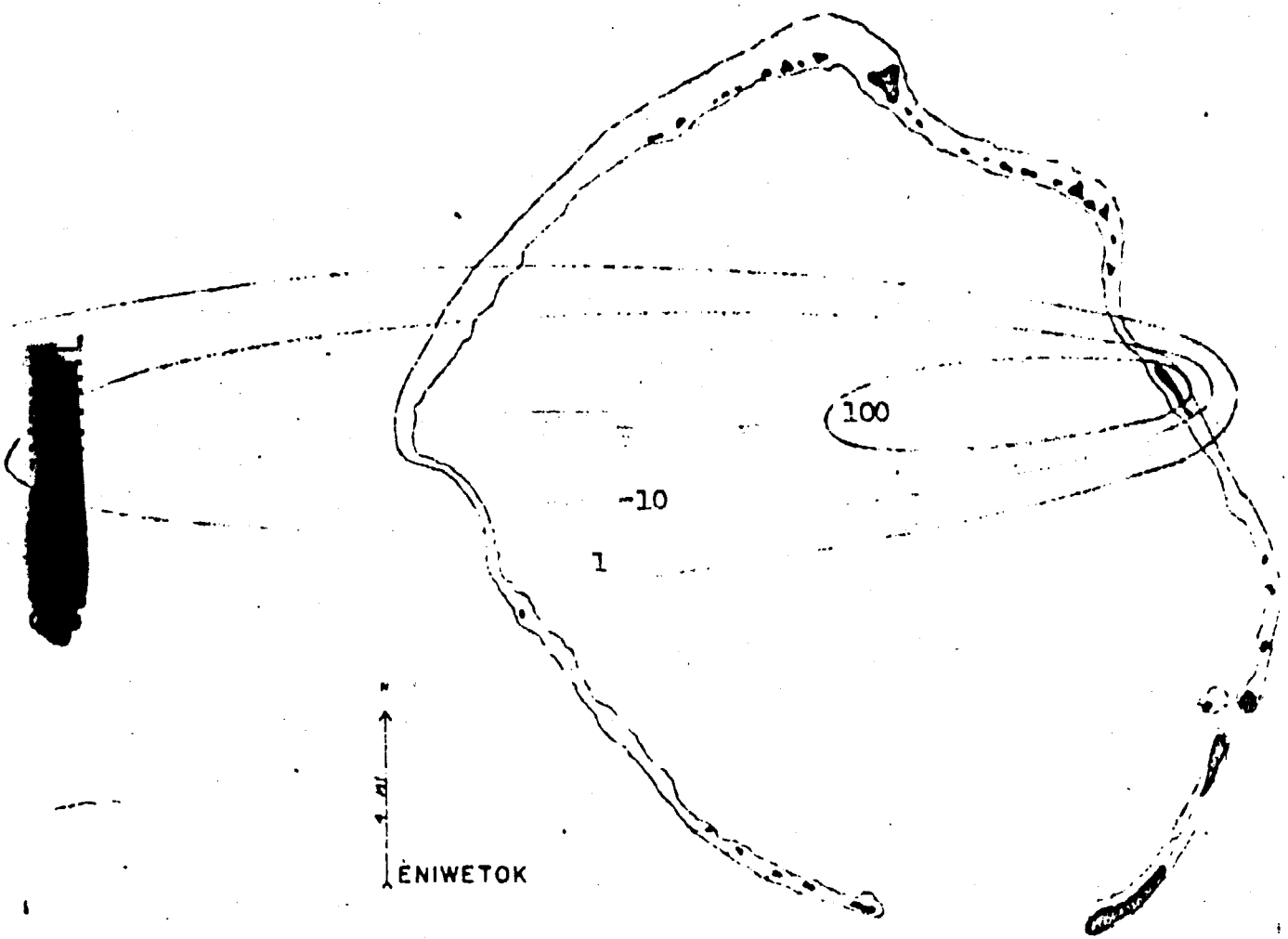
SRD-289-56E-7

[redacted]

THIS DOCUMENT CONSISTS OF [redacted] PAGE(S)
NO. 10 OF [redacted] COPIES, SERIES [redacted]

[redacted]

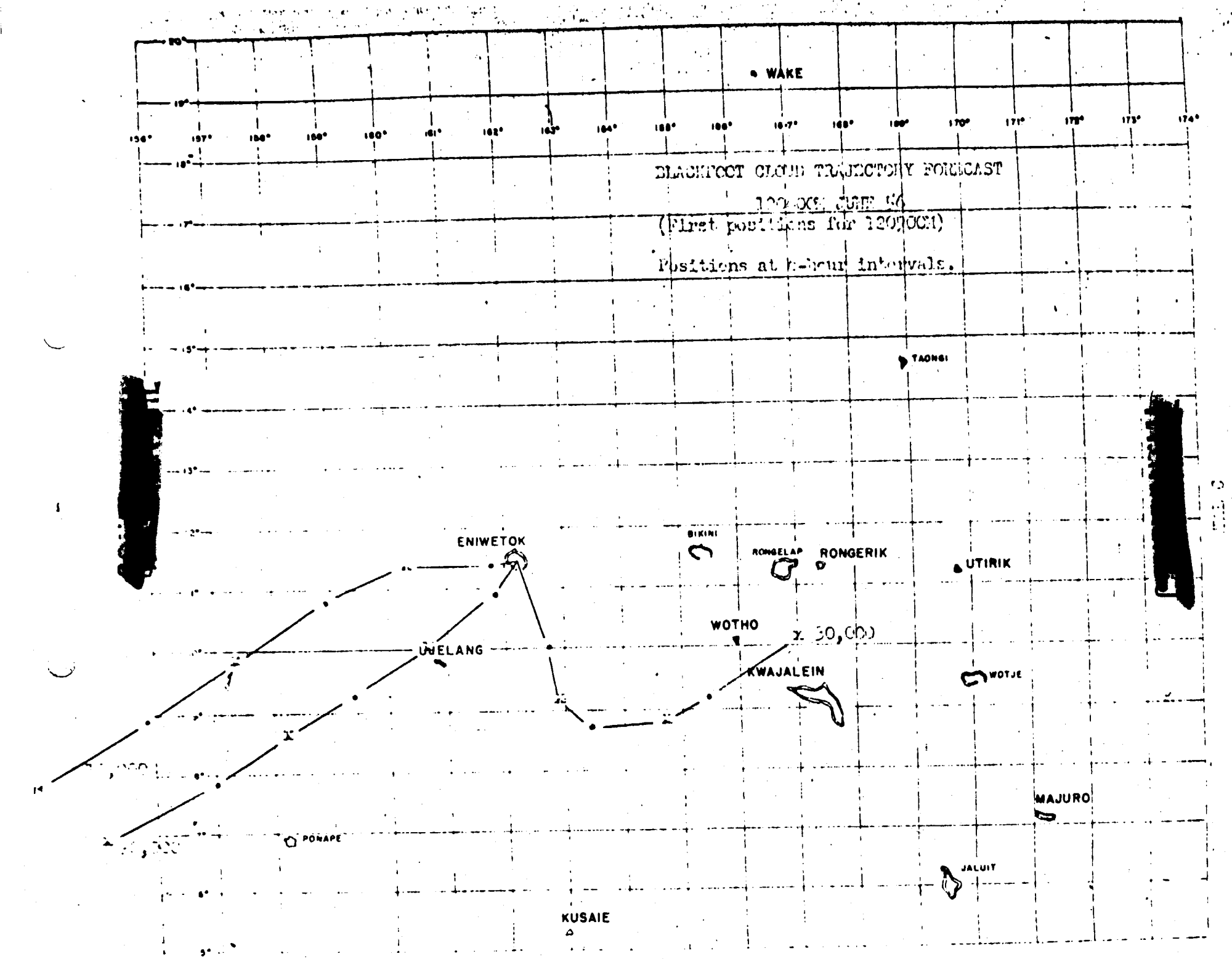
Atop [redacted]



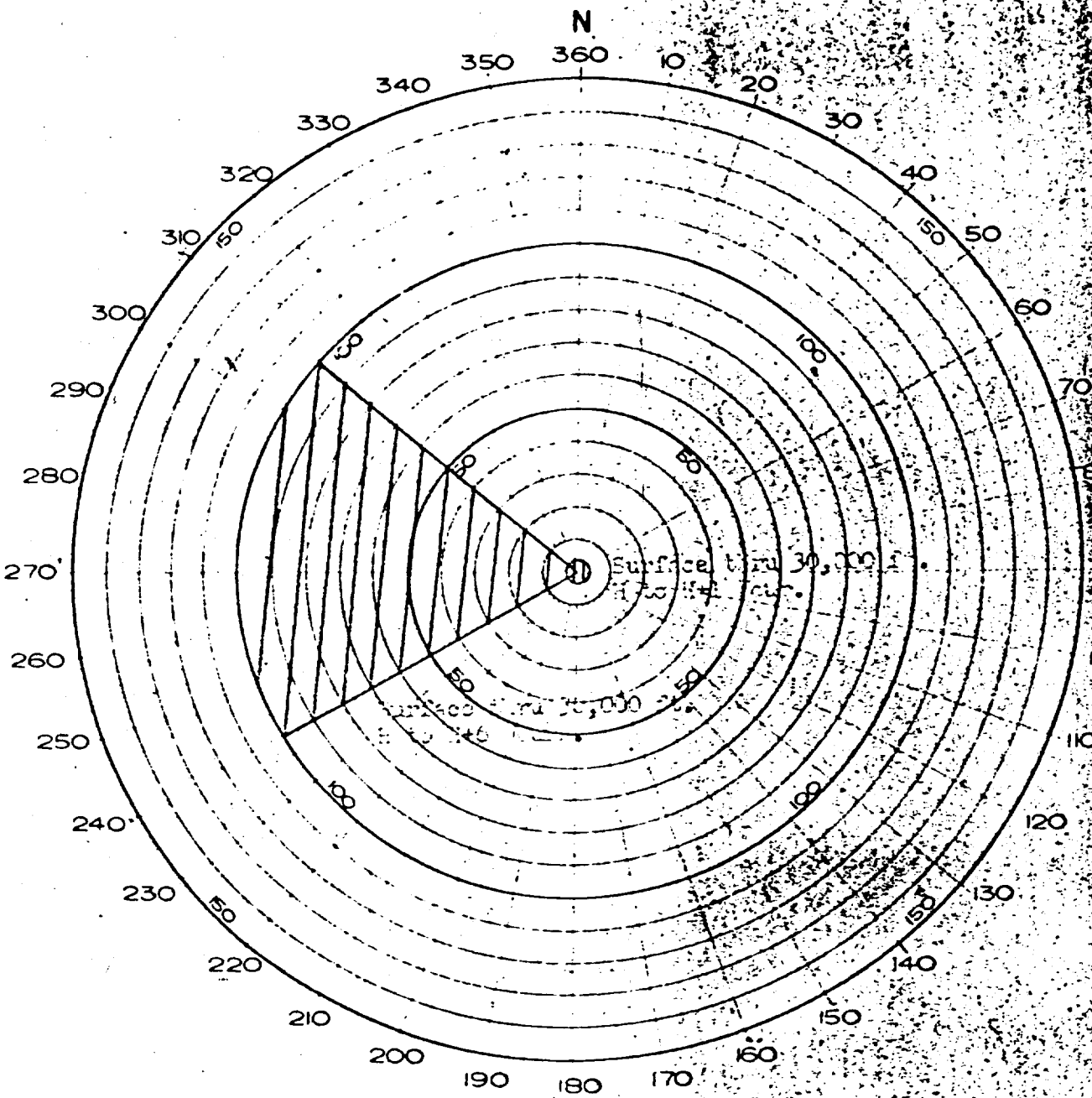
BLACKFOOT FALLOUT FORECAST
VALID 1206GCT JUNE 56

Dose - Roentgens

TAB B


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

[redacted]



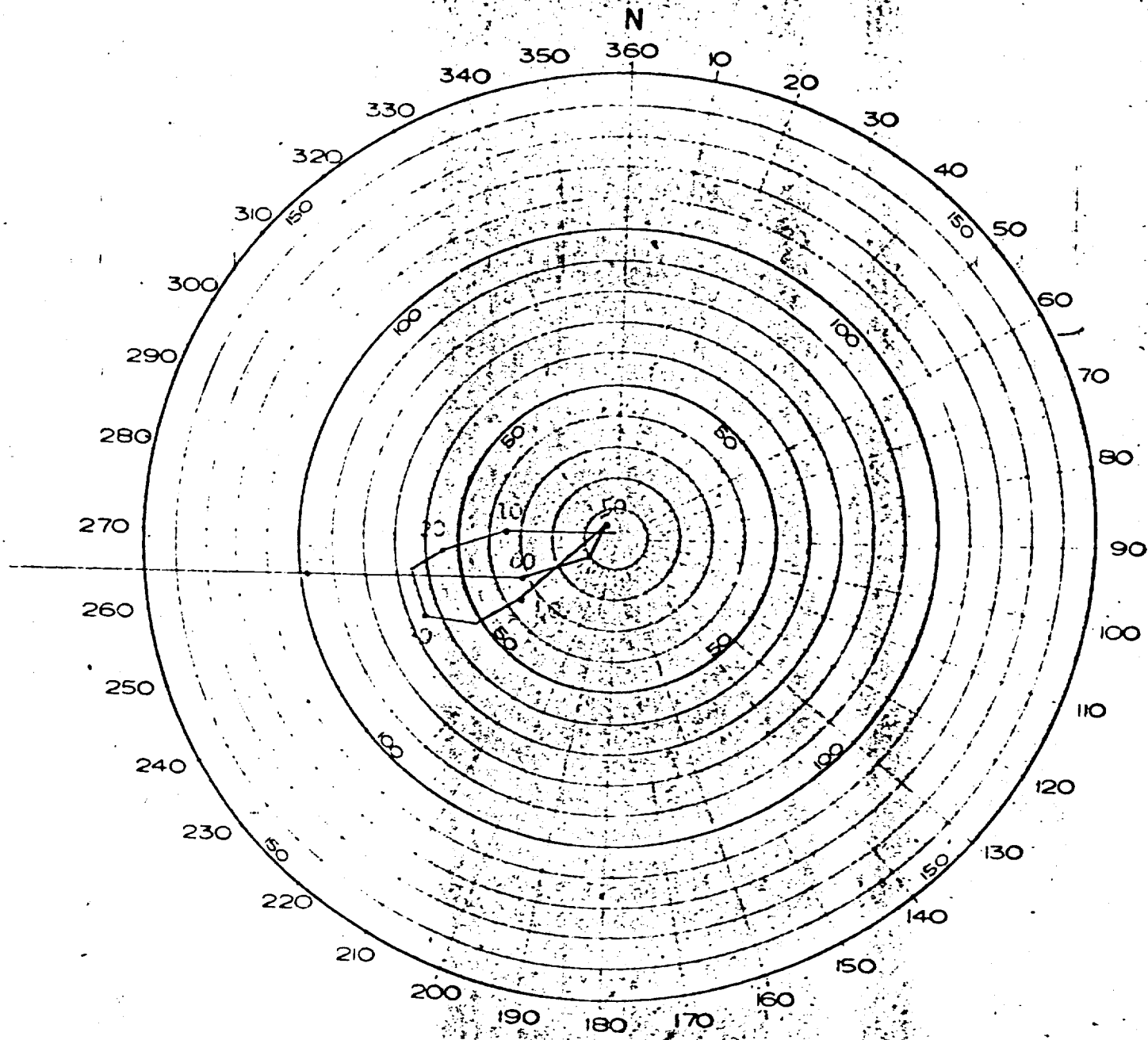
AIR & SURFACE RADEX

- BLACKFOOT EVENT -

TAB D

[redacted]

[redacted]



FORECAST FOR 12[redacted] JUL 1956
(Made at 12[redacted])

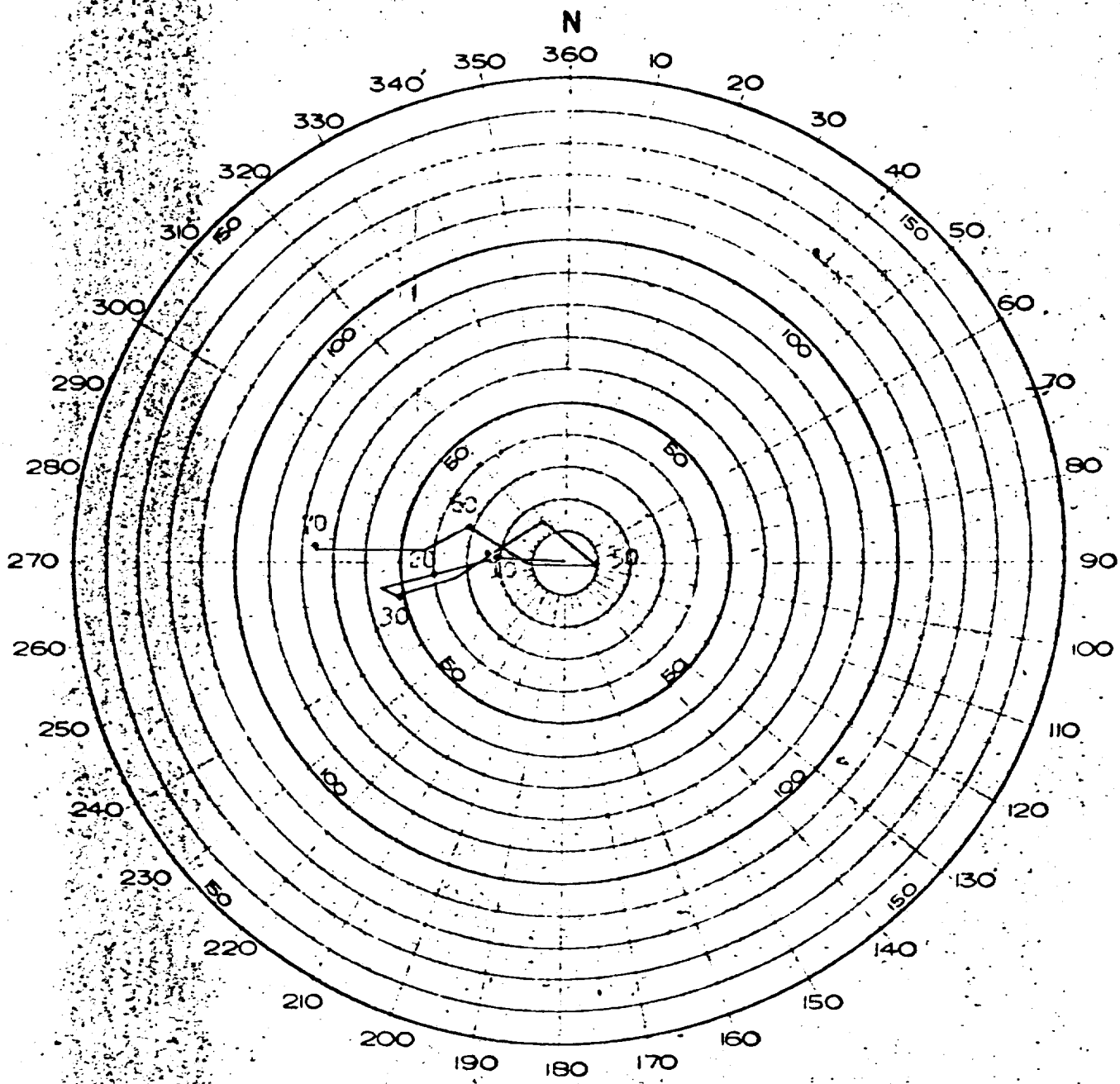
- BLACK OUT EVENT -

TAB B

1

[redacted]

[redacted]



OBSERVED WINDS FOR 130600H JUNE 1956

- MACHTOOT EVENT -

TAB E

2

[redacted]

82

JOINT TASK FORCE SEVEN

[redacted]

San Francisco, California

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

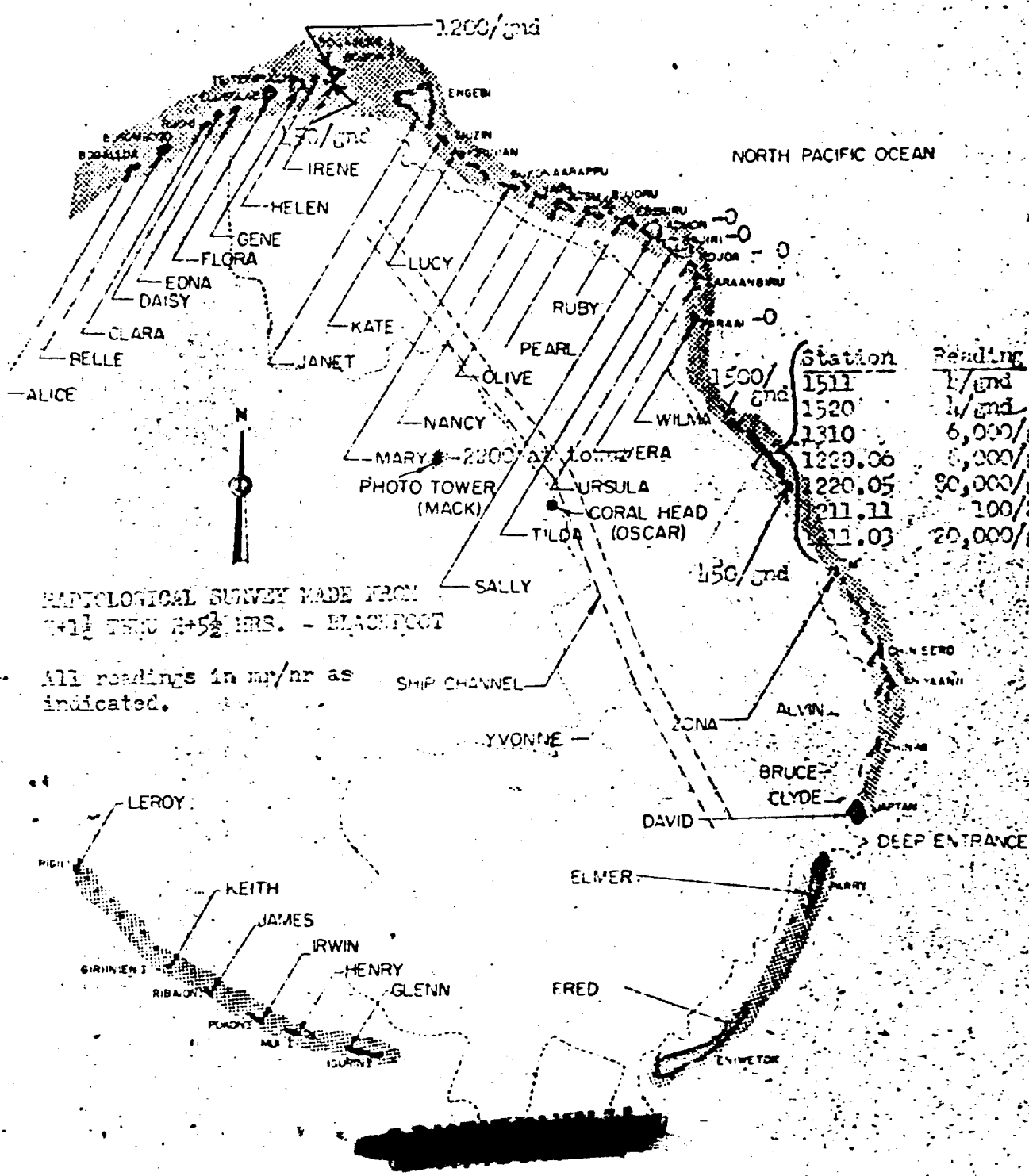
[redacted]

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	11	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

[redacted]



RADIOLOGICAL SURVEY MADE FROM H+1½ TO H+5½ HRS. - BLACKFOOT

All readings in mr/hr as indicated.

[redacted]

C.O. F

[redacted]

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TAB

A - Summary - FLATHEAD Event, Operation REDWING

B - Forecast Fallout Plot

C - FLATHEAD Cloud Trajectory Forecast

D - Air and Surface RADEX - FLATHEAD

E - 1. Forecast for 120600M June 1956

2. Observed Winds for 120800M June 1956

3. BIKINI Observed Weather for 12 June 1956

F - 1. Initial Radiological Survey H+3 Hours

2. Radiological Survey H+7 to H+8 Hours

G - WB-50 Cloud Tracking Results (Flt #1)

H - WB-50 Aerial Monitoring Flight H+10 through H+18 Hours (Flt #2)

I - ZEBRA & ZEBRA I Aerial Radiological Reconnaissance Flight Patterns

[redacted]

PLATHEAD EVENT

OPERATION REDWING

1. The PLATHEAD 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.

DELETED

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 the 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

HQ JTF SEVEN LOG NR:

SRD-289-56E-8

[redacted]

[redacted]

[redacted]

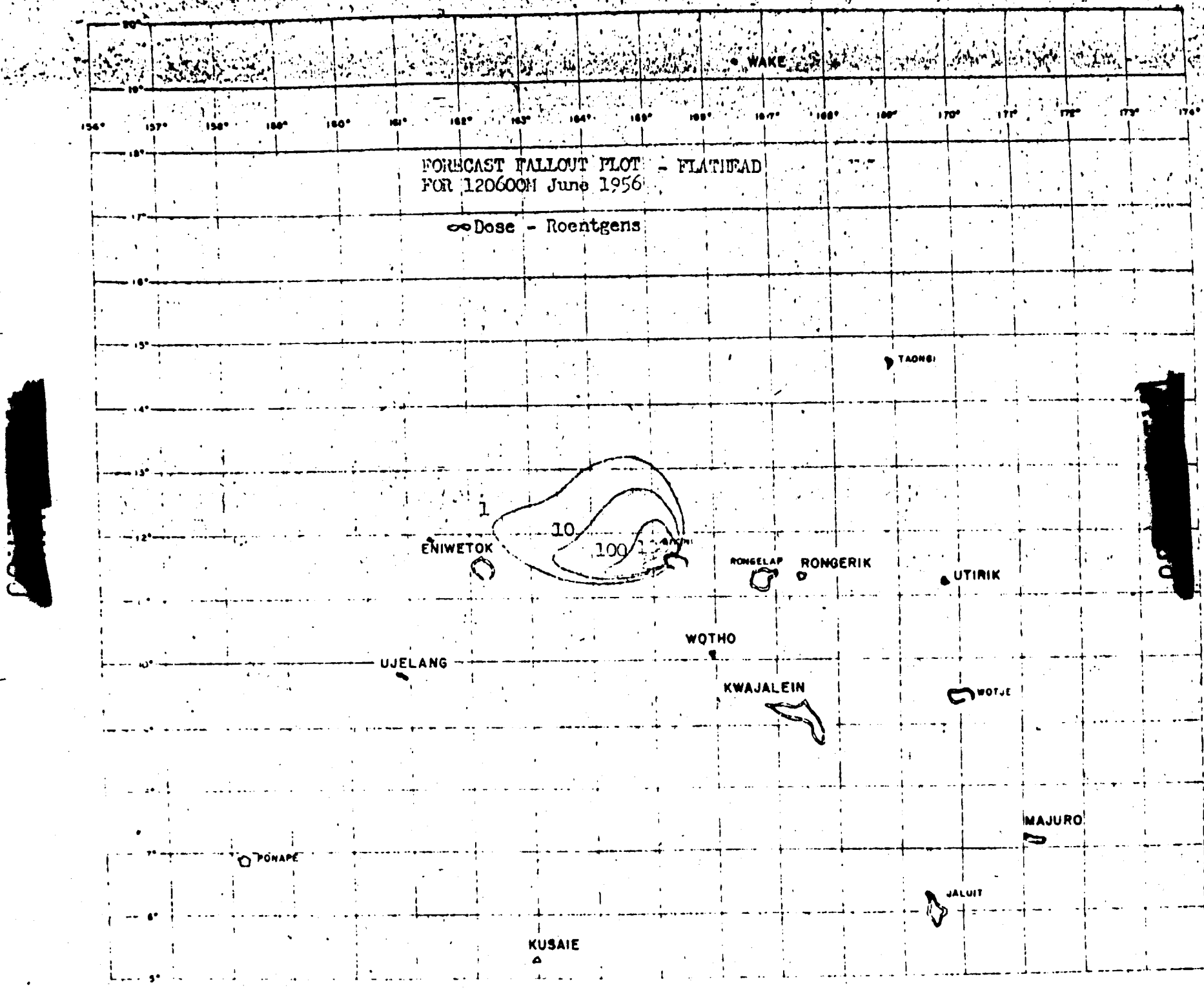
[redacted] survey found radiation levels to be much lower than anticipated. The complete helicopter survey [redacted] confirmed the low contamination levels encountered by the initial survey. Several plausible reasons have been advanced for the absence of heavy contamination. The most reasonable being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

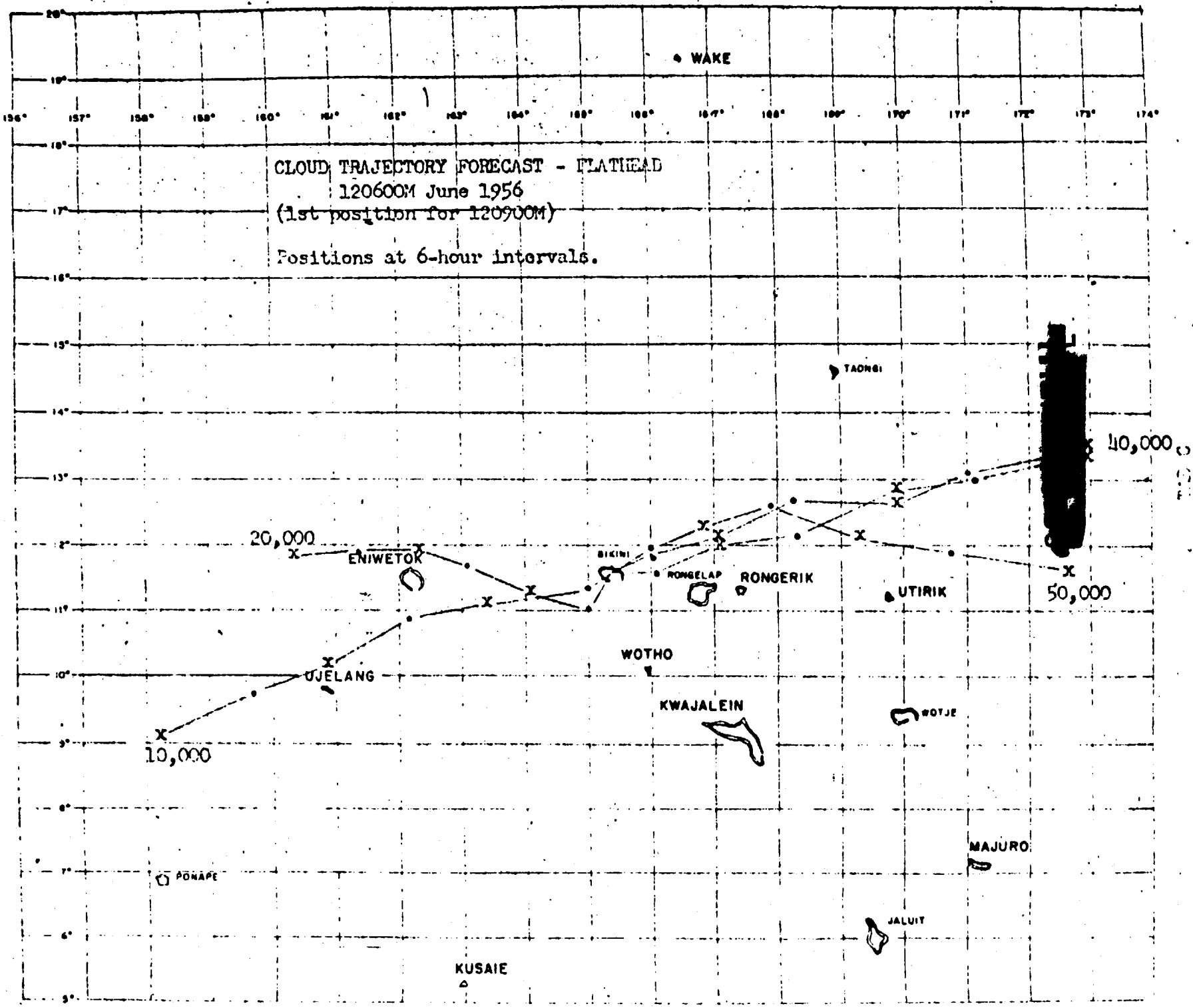
6. WILSON I cloud tracker was directed to make a standard E-type search beginning at H+6 hours in a sector, true bearing 030° through 060°, with apex on BIKINI. WILSON I was instructed to return via UTIRIK and RONGERIK. WILSON I reported no intensity greater than 50 mr/hr. WILSON II flew the pattern 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.

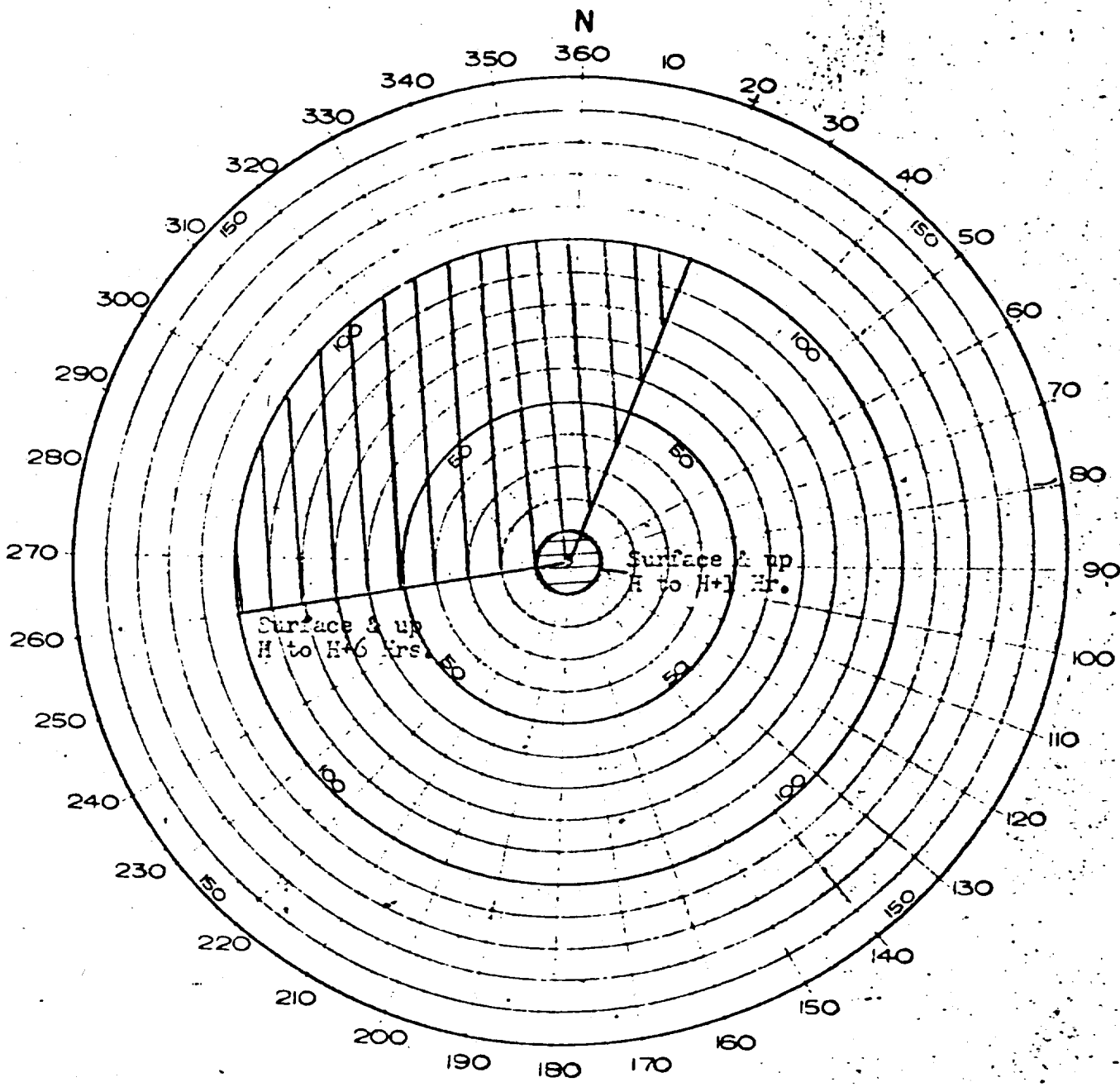
7. The off-atoll monitoring stations submitted radiation reports on an hourly schedule beginning at 0800M, 12 June, and continued on this schedule through 2000M, 12 June. No significant increase in background radiation readings were observed at any of the off-site locations through H+3 days.

[redacted]

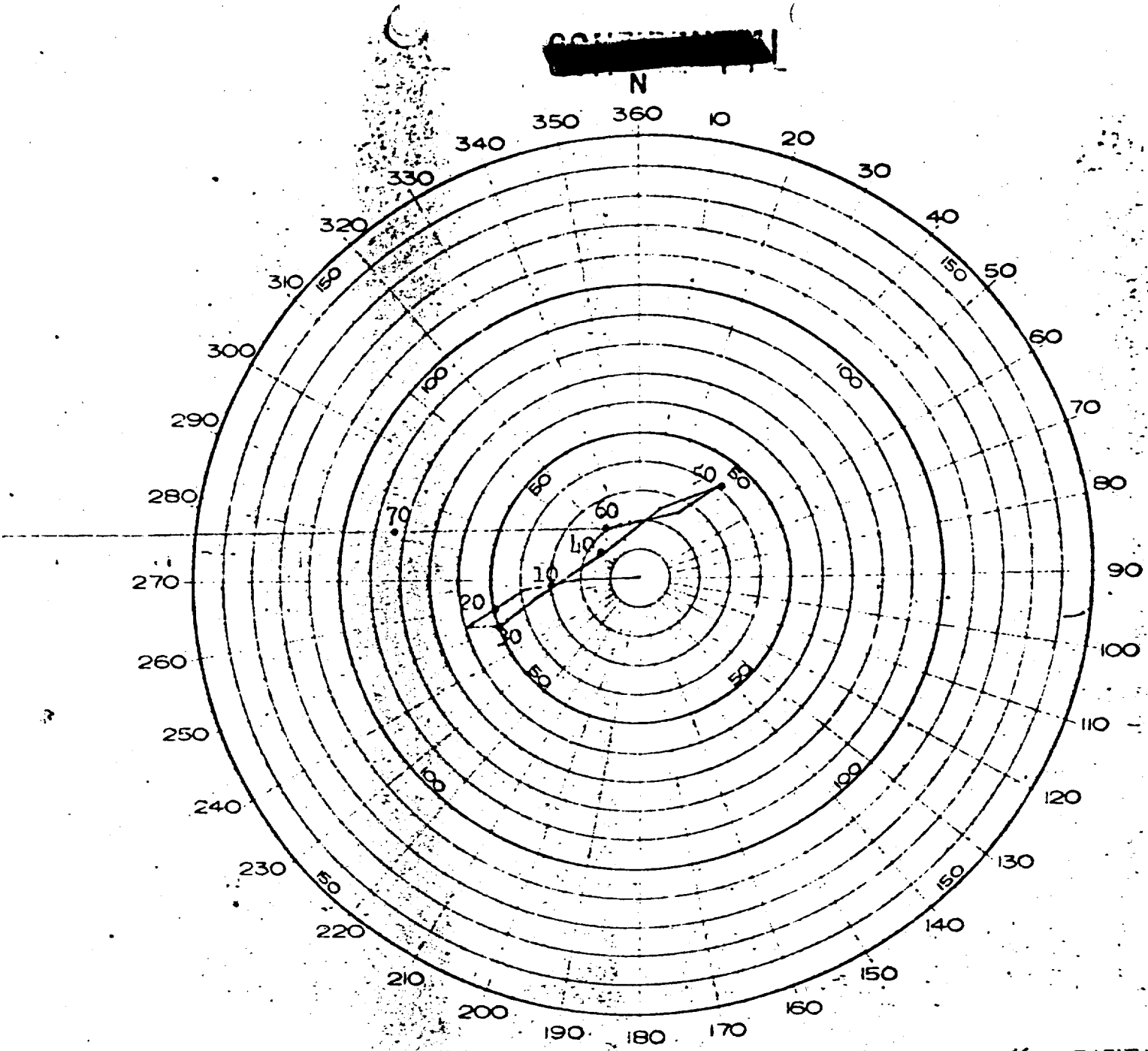
[redacted]


WAKE
FORECAST FALLOUT PLOT - FLATHEAD
FOR 120600H June 1956
Dose - Roentgens
TAONGI
1
10
100
ENIWETOK
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE


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

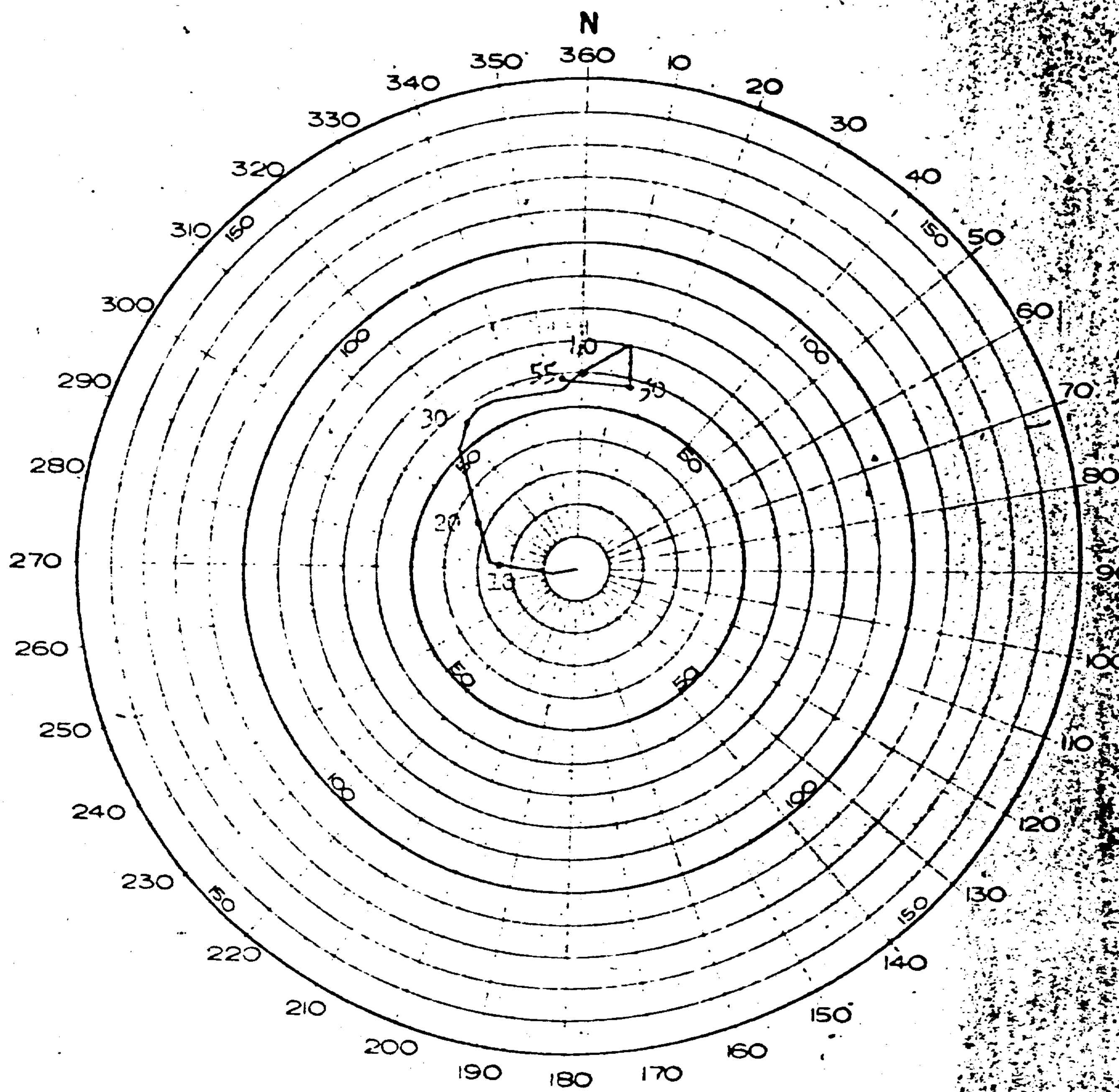


FORECAST FOR 1206001 June 1956 - FLATHEAD
(Made 120100Z)

TABLE

1

[redacted]



OBSERVED WINDS FOR 120800M June 1956
FLATHEAD Event

TABLE

2

[redacted]

[redacted]

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

[redacted]

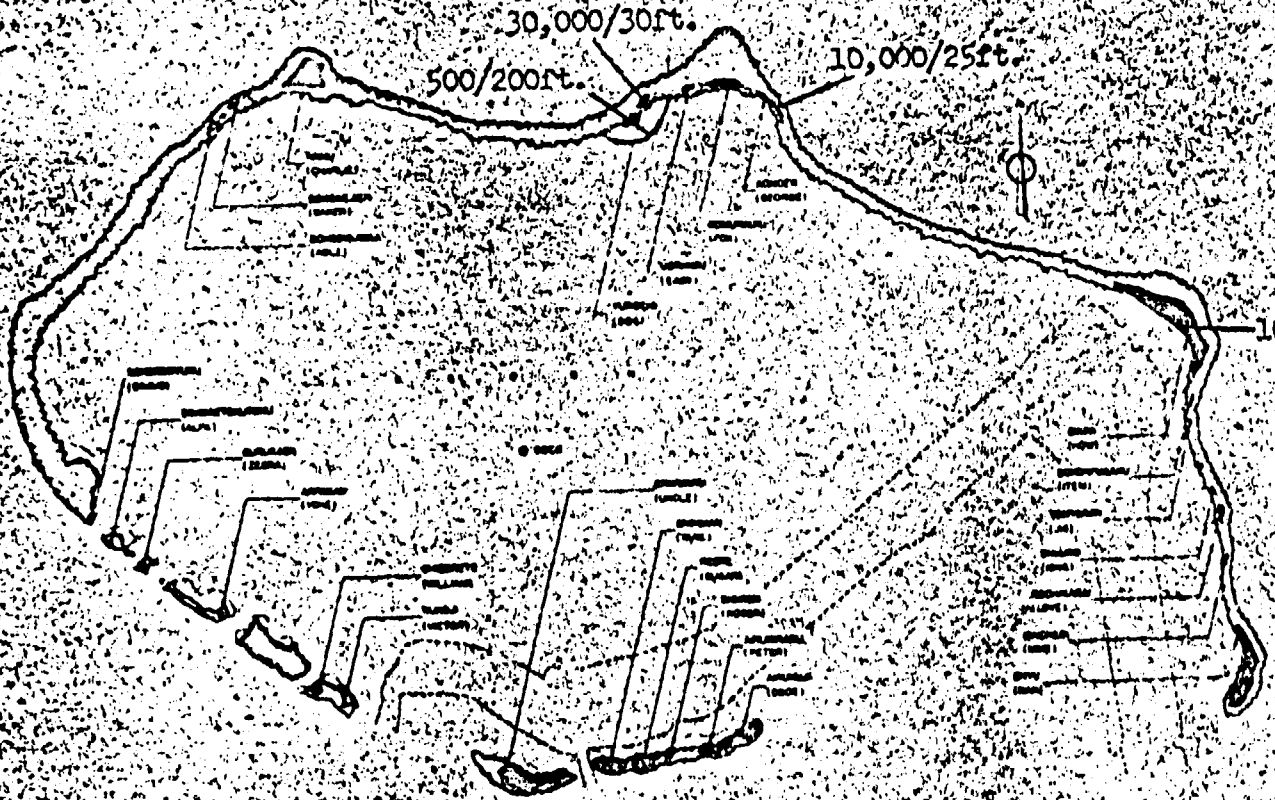
Pressure (Millibars)	Height (Feet)	Temperature (°C)	Dew Point (°C)
250	35,800	-42.3	M
200	40,630	-54.4	M
150	46,450	-69.9	M
122	50,393	-80.0	M
116	51,345	-79.0	M
112	52,001	-81.0	M
100	54,090	-78.0	M
88	56,430	-76.0	M
68	61,548	-65.0	M
58	64,711	-61.0	M

WINDS ALOFT (1119402)

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	38
16,000	160	09	45,000	240	37
			50,000	360	13
			55,000	100	17

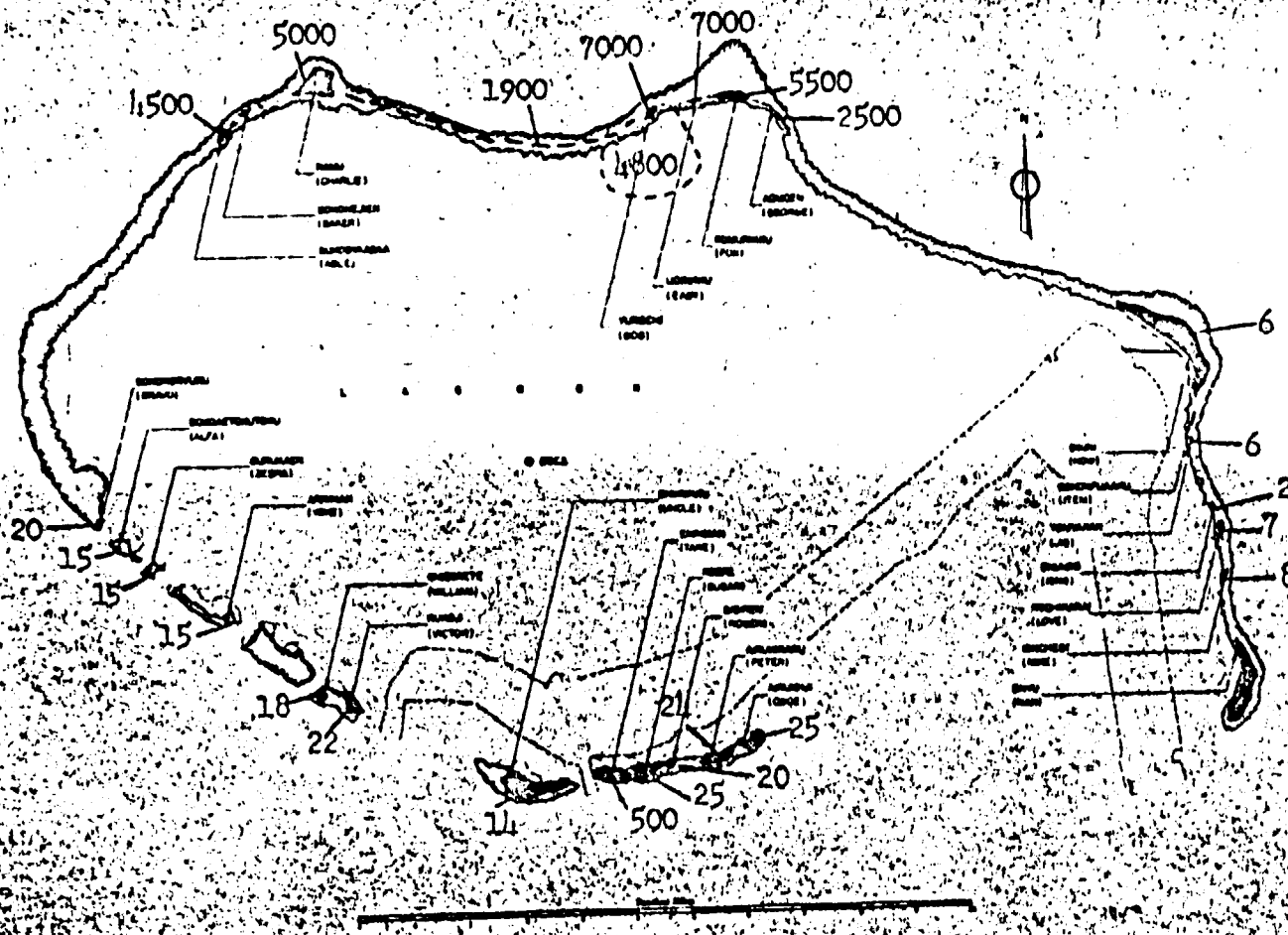
[redacted]

MAP OF BIKINI ATOLL

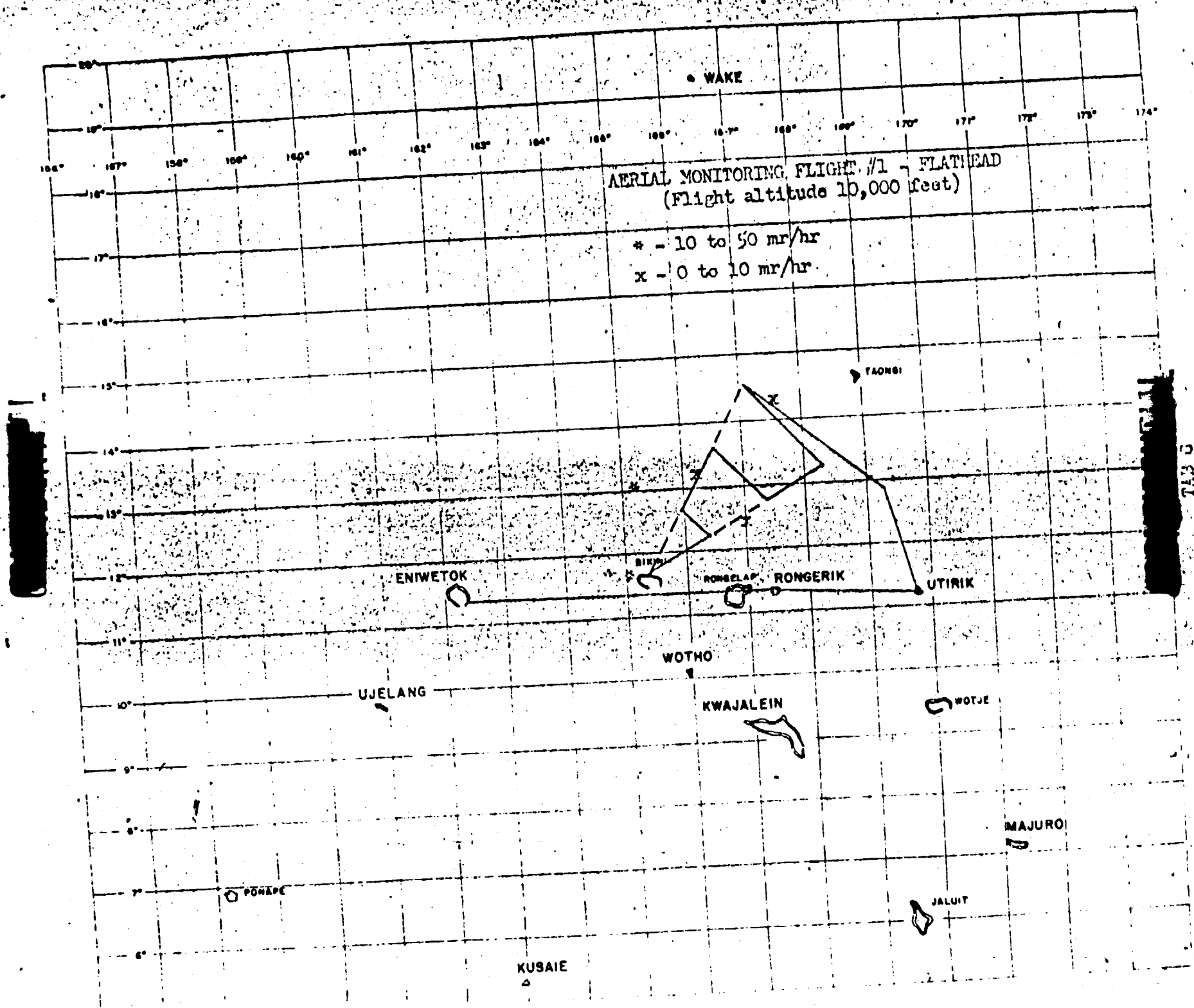


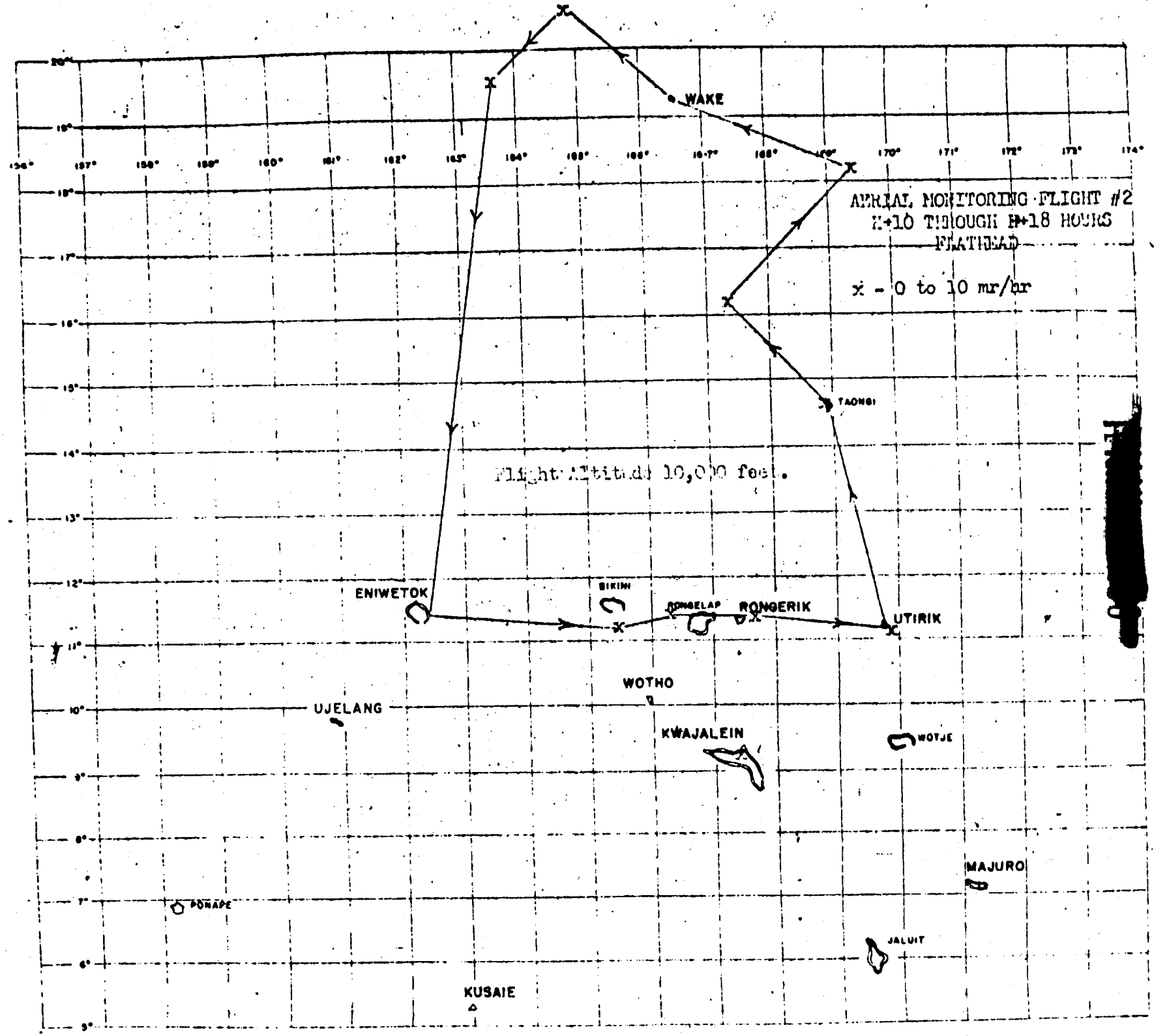
INITIAL RADIOLOGICAL SURVEY
MADE AT H+3 HRS. (FLATHEAD)

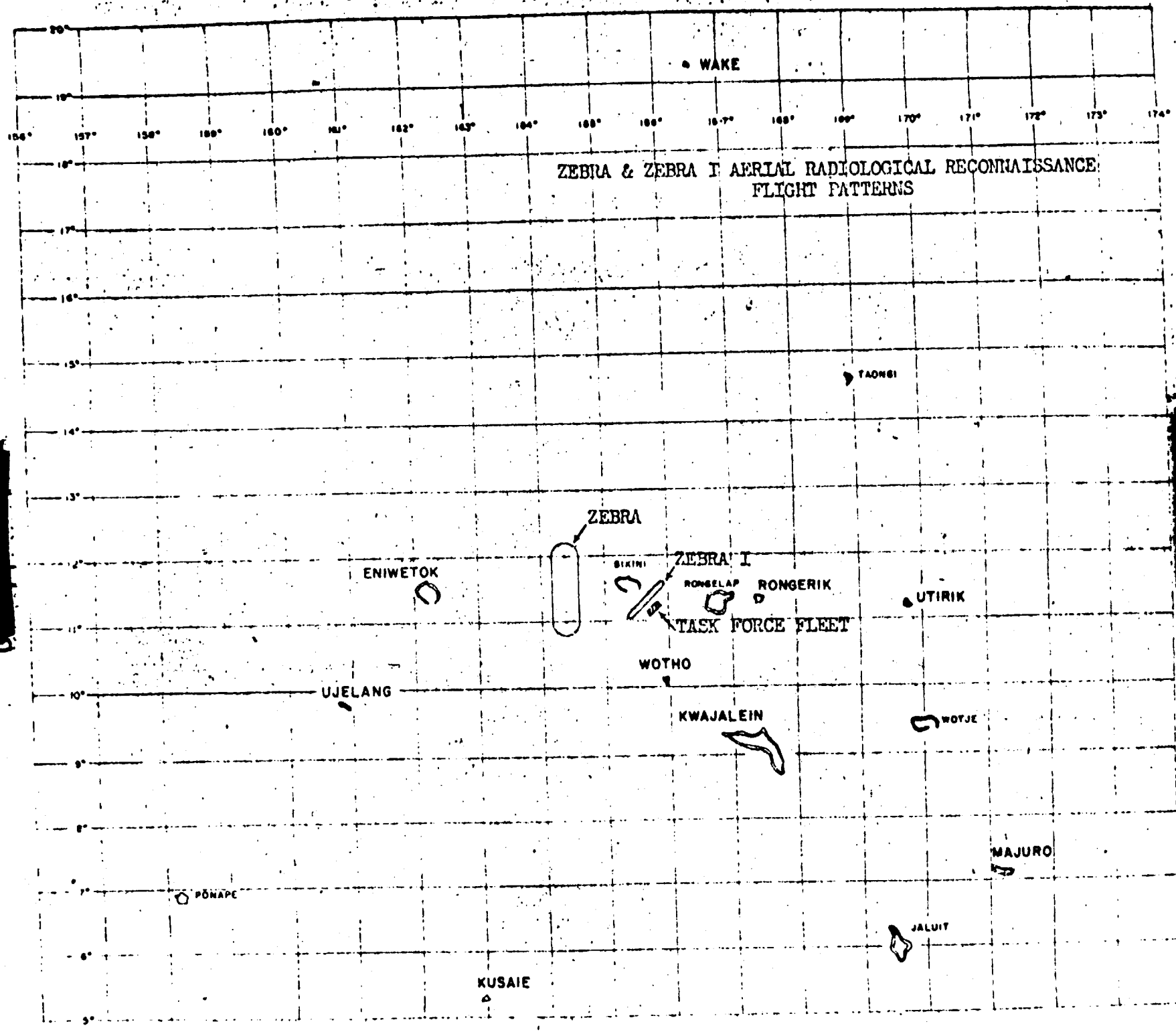
MAP OF BIKINI ATOLL



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
TAONGI
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE


WAKE
AERIAL MONITORING FLIGHT #2
H+10 THROUGH H+18 HOURS
PLAINHEAD
x - 0 to 10 mr/hr
Flight Altitude 10,000 feet.
TAONGI
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

[redacted]

INDEX

TAB

[redacted]

[redacted]

T B A

KICKAPOO EVENT

OPERATION REDWING

1. The KICKAPOO device was detonated at 1126M, 14 June 1956 on a [illegible]0-foot tower located on ACHOEN 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.

DELETED

DELETED 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 1100M, the aircraft were released. No unexpected deviation of the cloud was detected. Cloud tracking WB-50 aircraft were not employed for LaSafe 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.

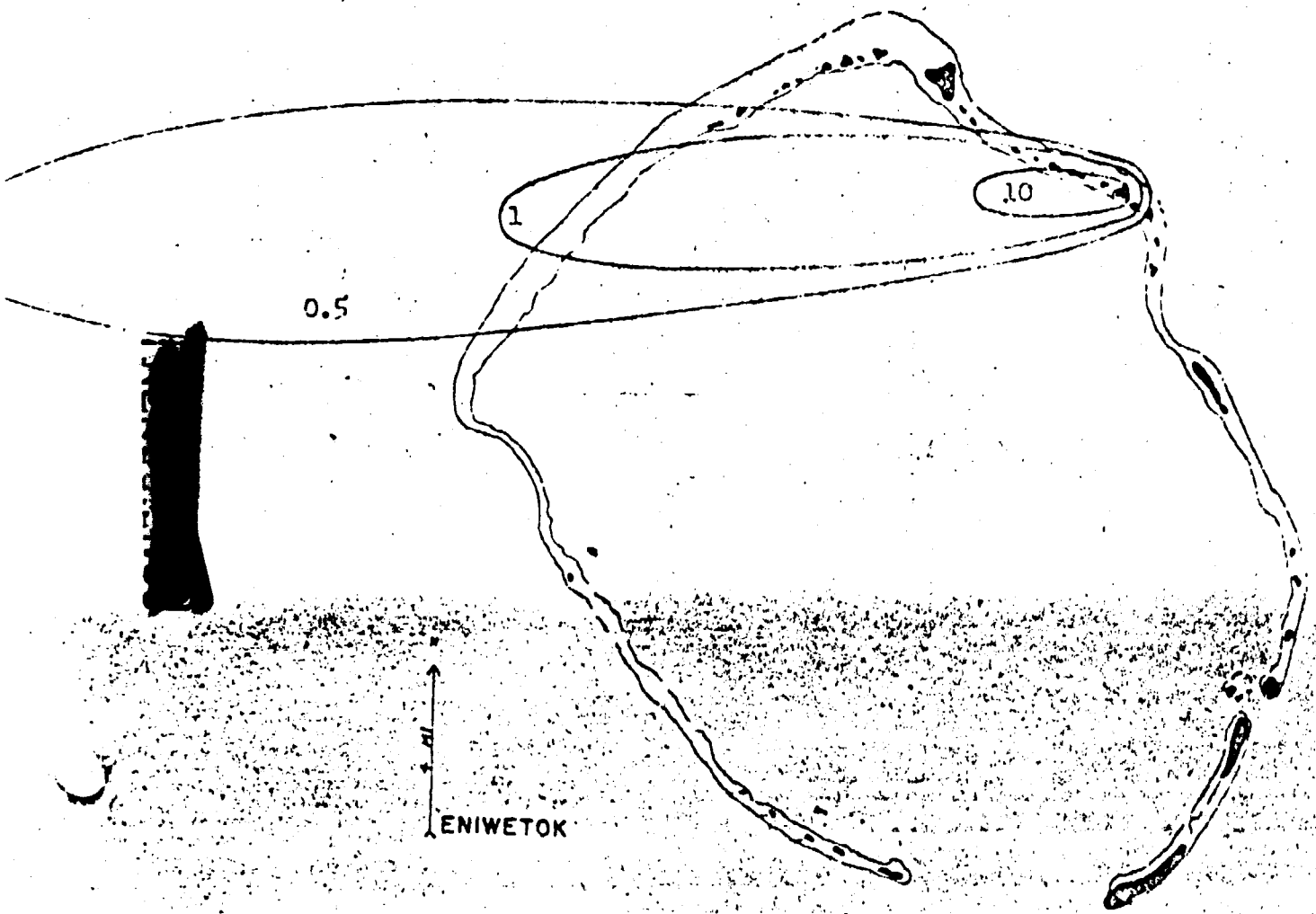
HQ JTF SEVEN LOG NR:

SRD-289-56E-9

[redacted] (PAGE/S)

[redacted]

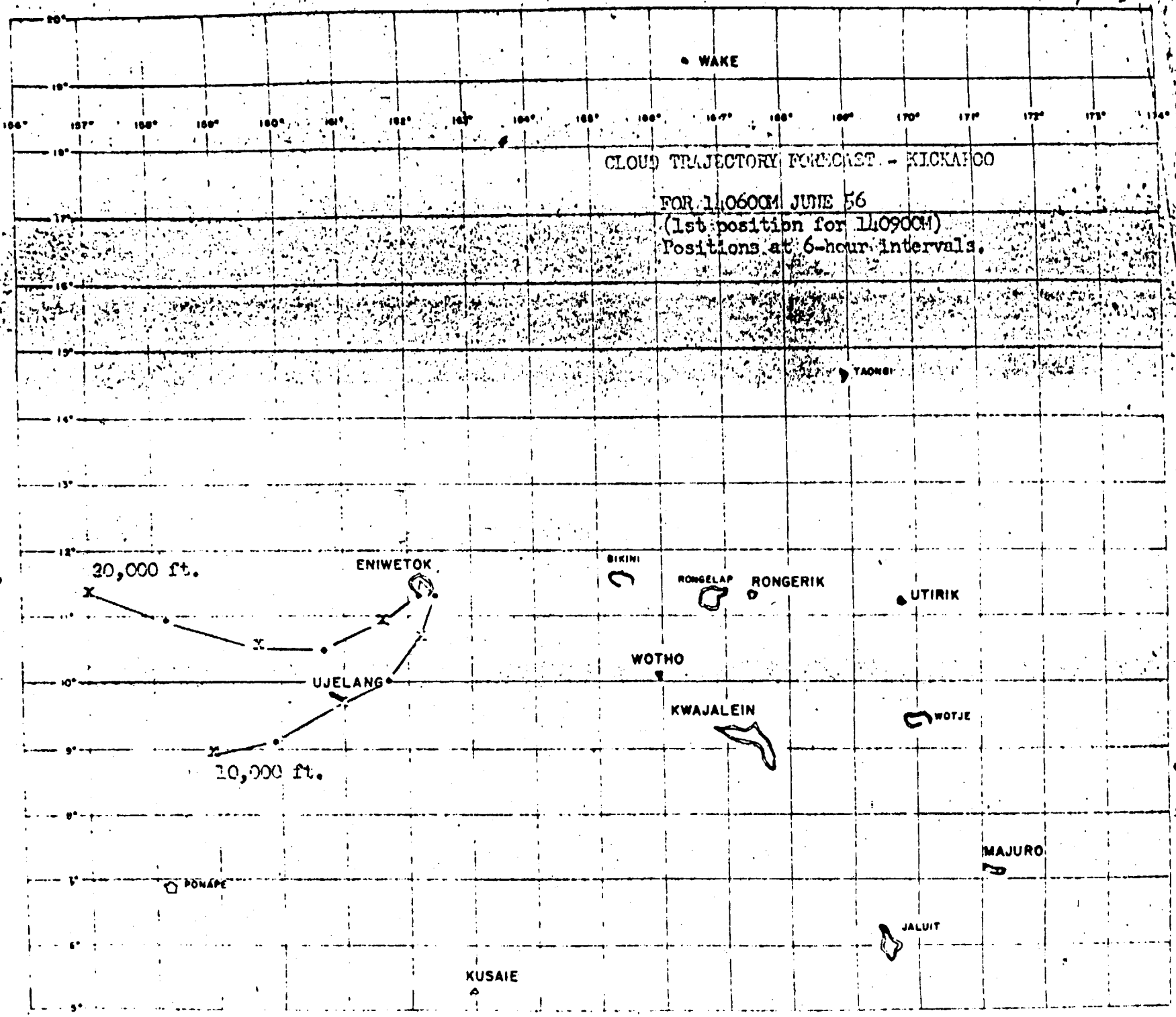
[redacted]

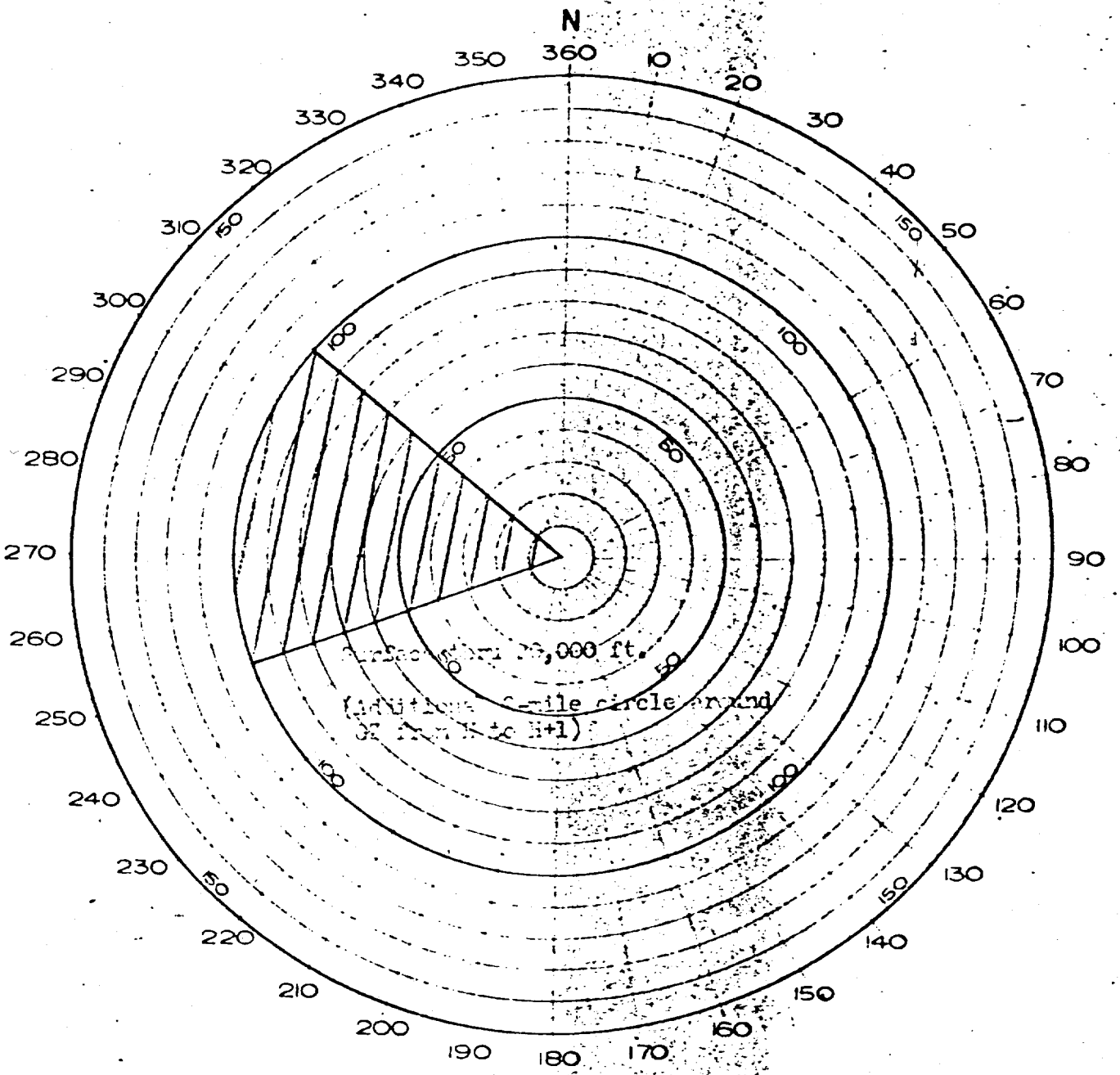


KICKAPOO FALLOUT FORECAST PLOT
VALID 1400600M JUNE 1956

∞ Dose-Roentgens

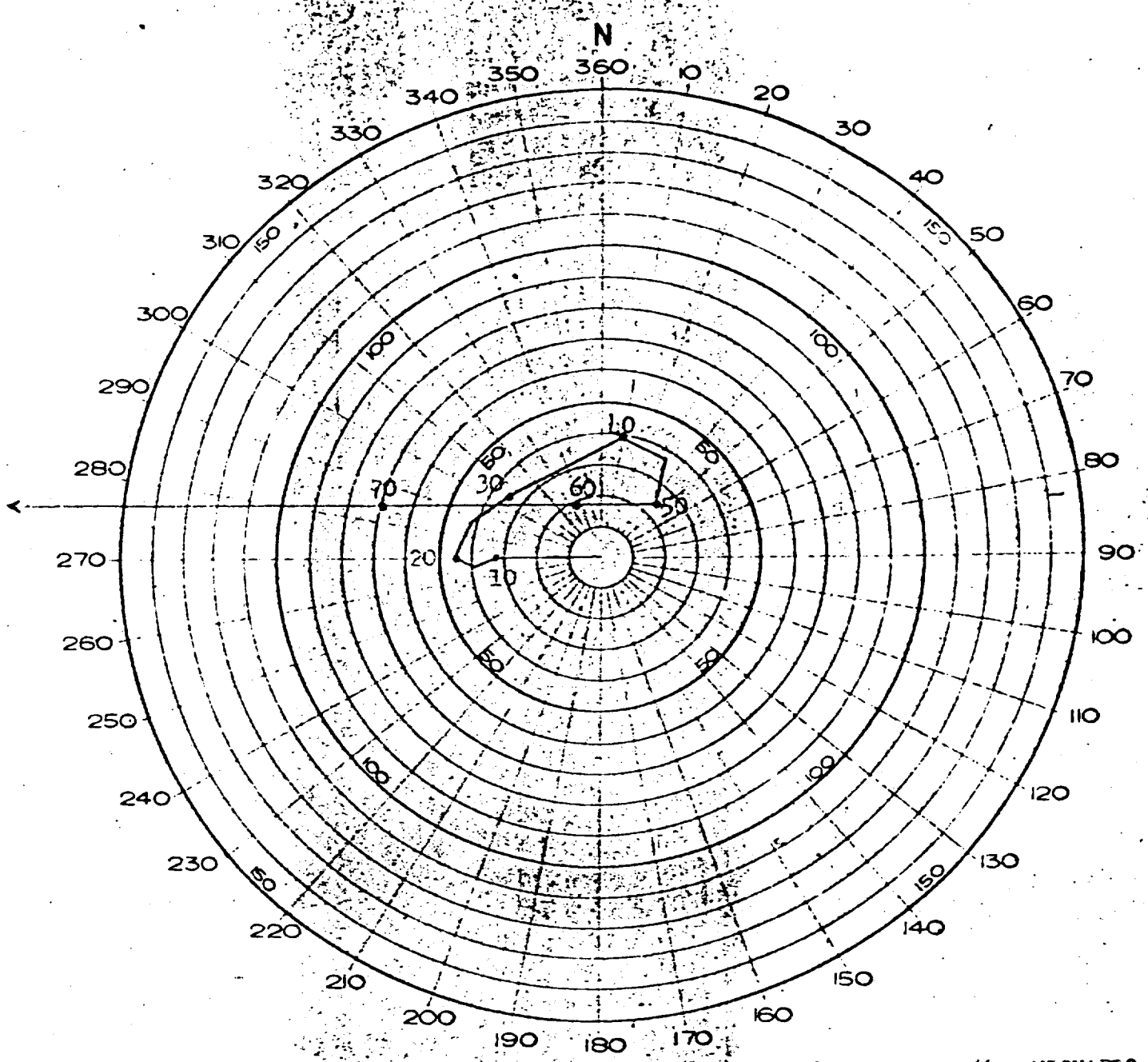
TAB B


WAKE
CLOUD TRAJECTORY FORECAST - KICKAPOO
FOR 110600M JUNE 56
(1st position for 110900M)
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



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

TAB D

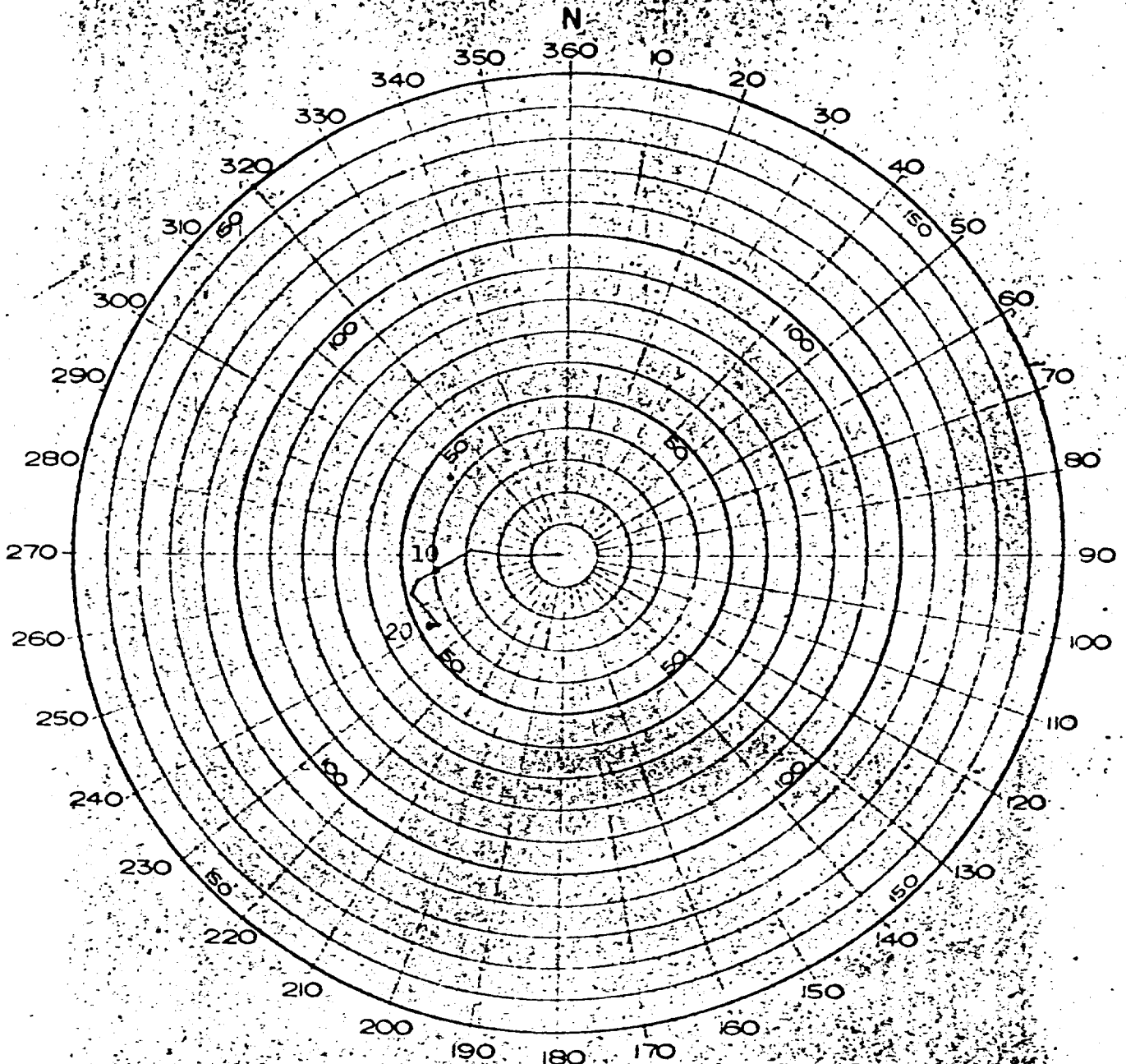


FORECAST FOR 110600H JUNE 1956 - MICHAPSO
(Made 110200H)

TAB E

[redacted]

[redacted]



OBSERVED WINDS FOR 1L0700H June 1956
KICKAPOO Event -

(NOTE: Winds at double scale)

TAB F

[redacted]

[redacted]

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.

[redacted]AL

[redacted]

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

[redacted]

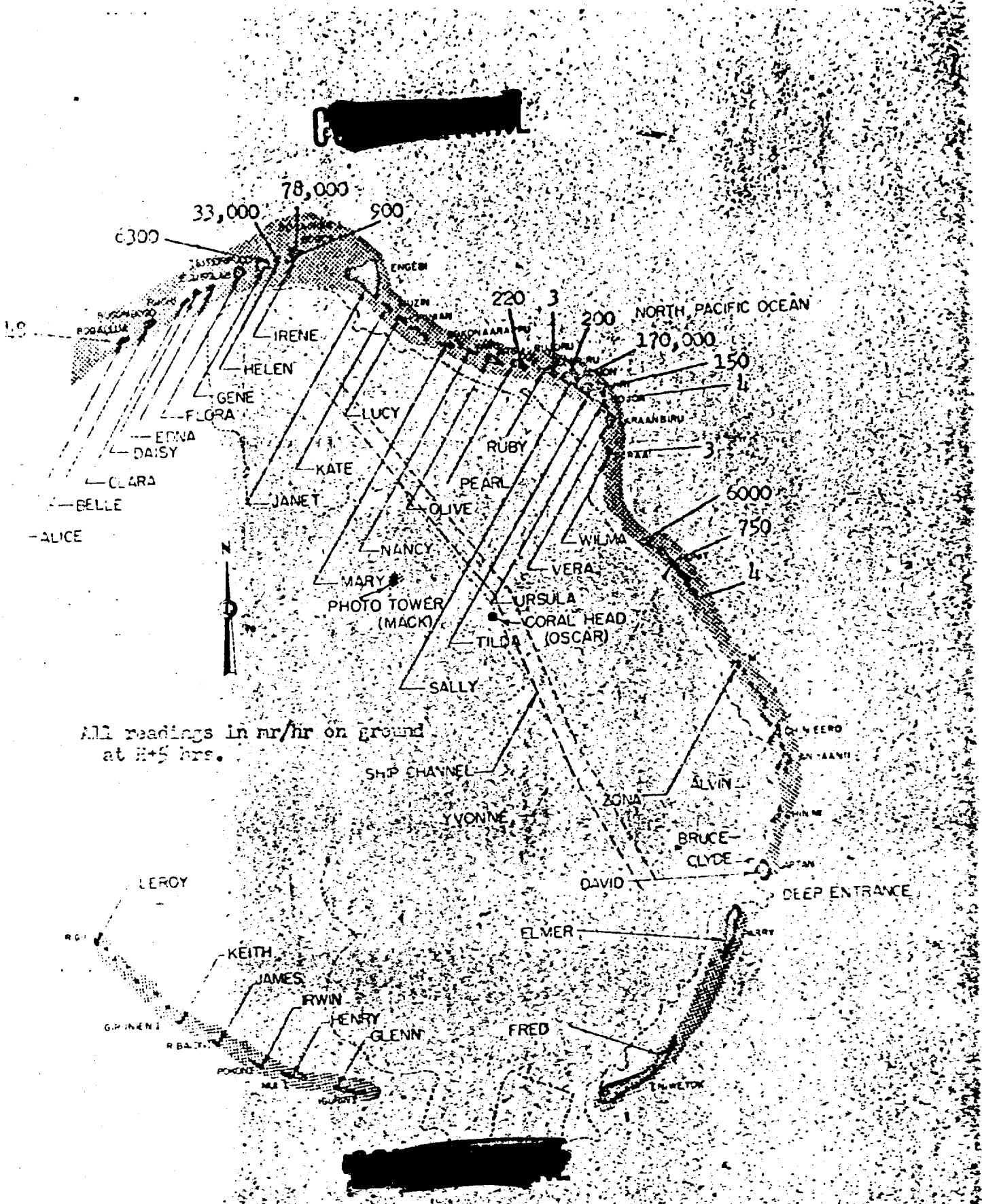
100

C [redacted]

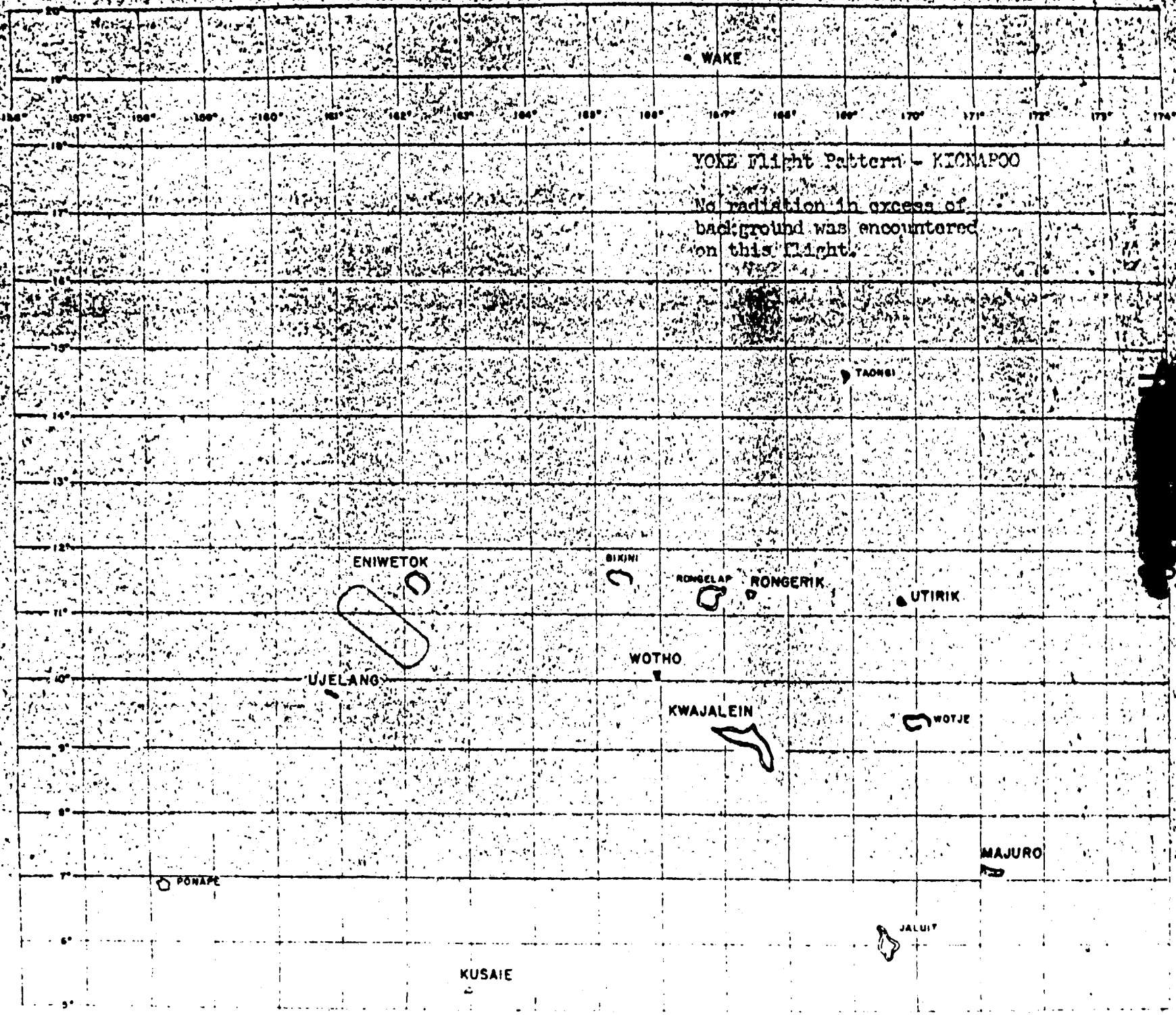
WINDS ALOFT (release time 1115M)

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			

[redacted]


78,000
33,000
900
6300
220
3
200
NORTH PACIFIC OCEAN
170,000
150
4
3
6000
750
4
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
All readings in mr/hr on ground
at H+5 hrs.
SHIP CHANNEL
YVONNE
ZONA
ALVIN
BRUCE
CLYDE
DAVID
DEEP ENTRANCE
LEROY
KEITH
JAMES
IRWIN
HENRY
GLENN
ELMER
FRED

TAB G


WAKE
YOKE Flight Pattern - KICKAPOO
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

[redacted]

INDEX

TAB

A - Summary - OSAGE Event, Operation REDWING

B - Cloud trajectory Forecast

C - Air and Surface RADEX

D - 1. Forecast for 161200M June 1956

2. Observed Winds for 160900M, June 1956

3. ENIWETOK Observed Weather for 16 June 1956

E - Radiological Survey H+2 Hours.

[redacted]

[redacted]

TAB A

OSAGE EVENT

OPERATION REDWING

1. OSAGE device was detonated at 1314M, 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 1500M, 16 June. Air and surface radex notices were withdrawn concurrent with the reentry announcement.

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

HQ JTF SEVEN LOG NR:

SRD-289-56E-10

[redacted]

THIS DOCUMENT CONSISTS OF 2 PAGES
NO. 2 OF 10 COPIES SERIES A

[redacted]

[redacted]

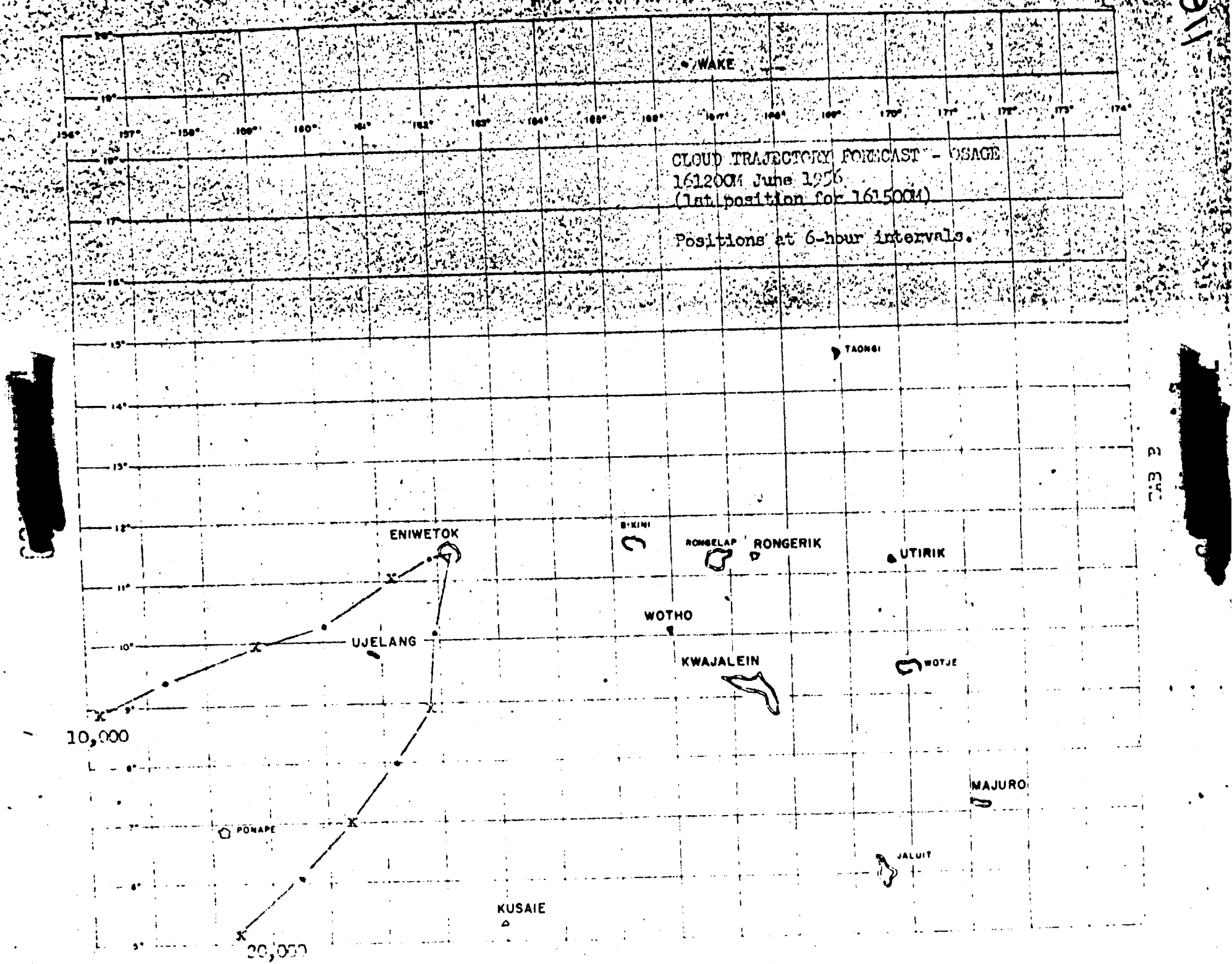
7. Ground monitoring stations at the off-atoll locations reported no increase in background throughout D+2 days. The close-in stations (UTHO, UJELANG and UTIRIK) were placed on an hourly radiation reporting schedule at shot time. The stations were directed to resume the normal [illegible]-day schedule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

8. The fallout forecast for OSAGE was made on the basis of a near-surface burst DELETED Since no significant deviation was expected in the height of burst, the most probable conditions indicate no fallout outside the immediate shot island.

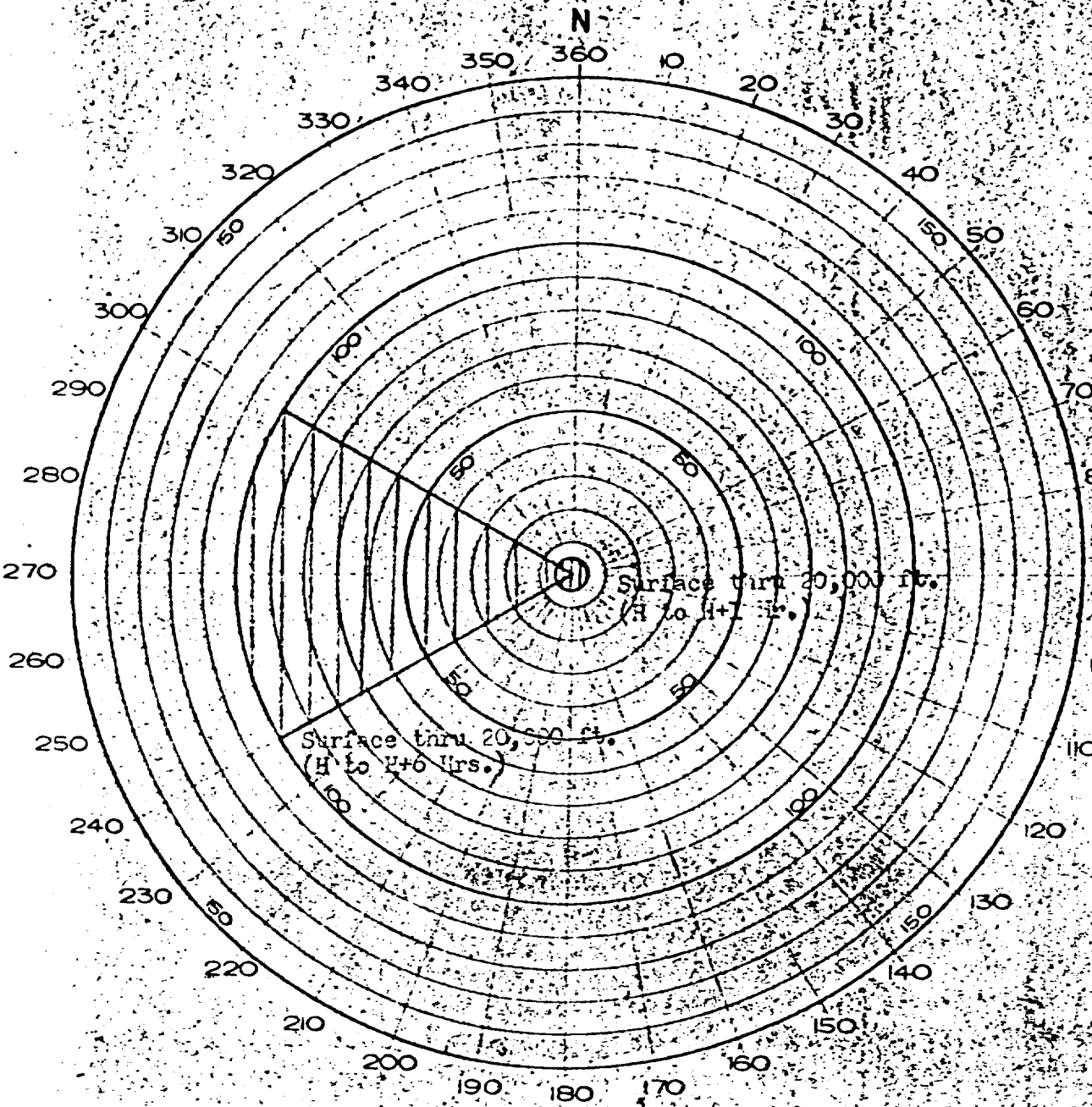
[redacted]

Re[redacted]
At[redacted]54

[redacted]


CLOUD TRAJECTORY FORECAST - OSAGE
1612004 June 1956
(1st position for 1615004)
Positions at 6-hour intervals.
WAKE
TAONGI
ENIWETOK
BIKINI
RONGELAP
RONGERIK
UTIRIK
WOTHO
UJELANG
KWAJALEIN
WOTJE
MAJURO
PONAPE
JALUIT
KUSAIE
10,000
20,000

[redacted]



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

TAB C

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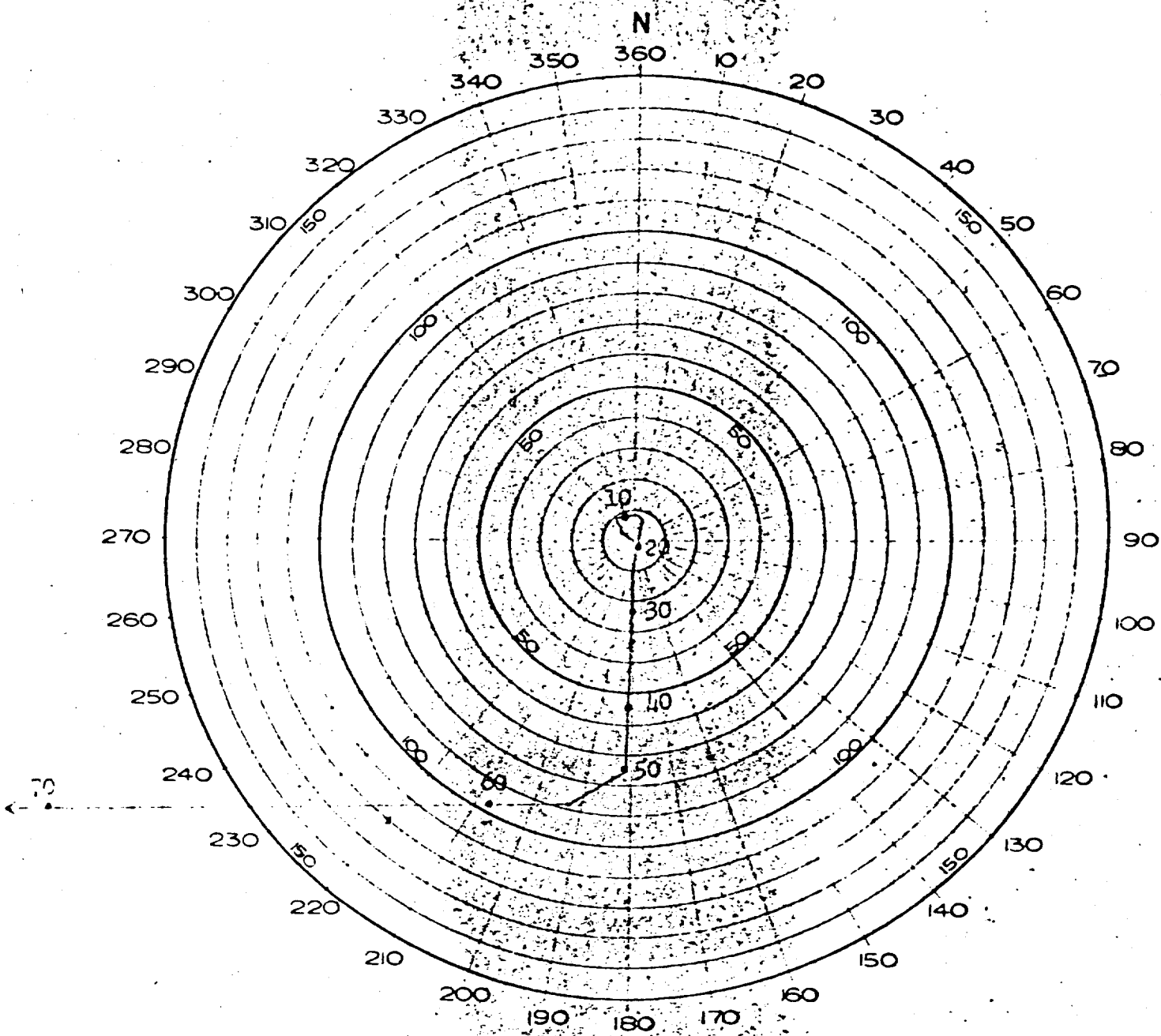
[redacted]



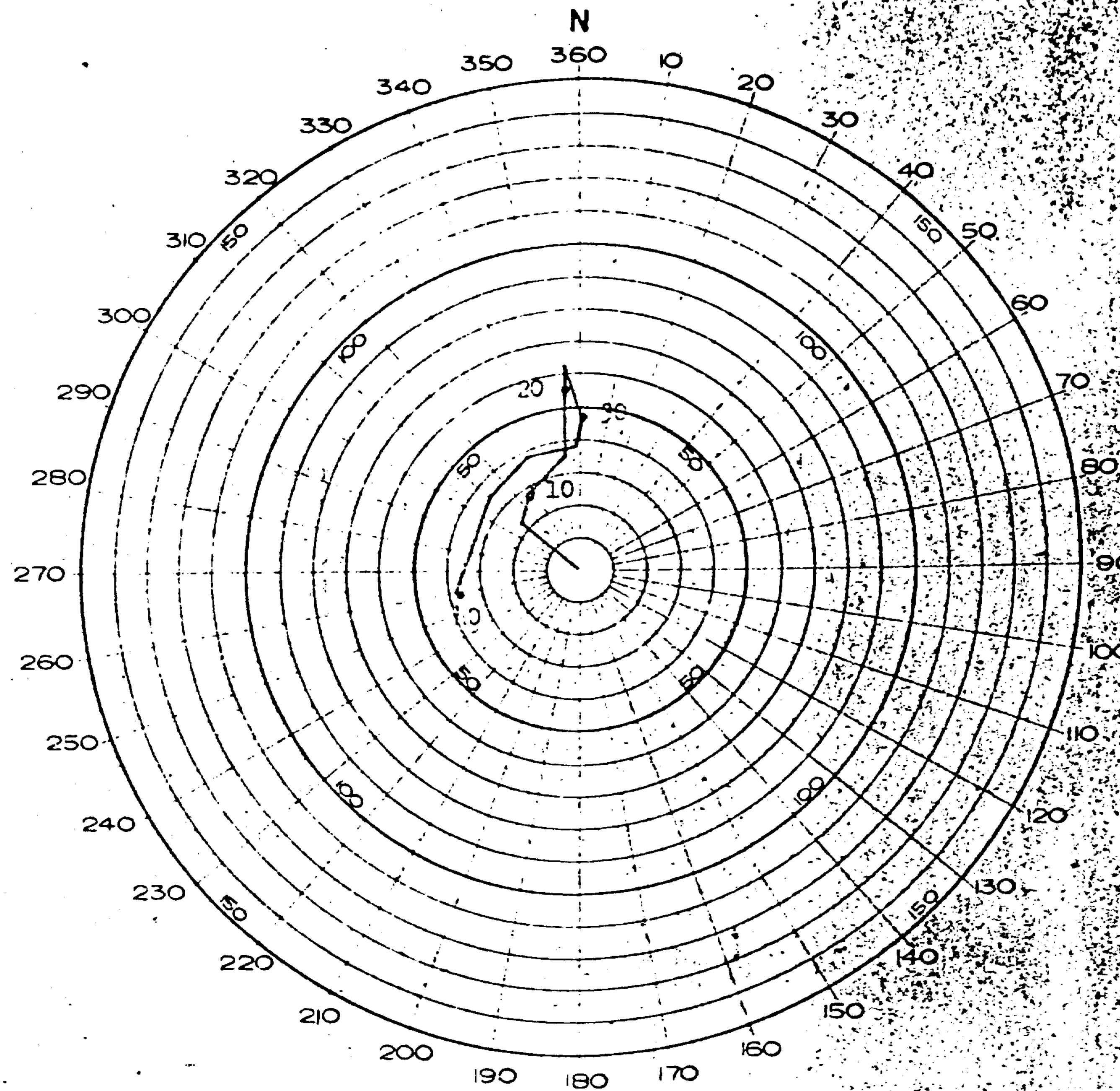
151900H FORECAST - GRACE
Valid 160600Z June 1956

TAB D

1

[redacted]

[redacted]



OBSERVED WINDS FOR 160900M June 1956
OSAGE Event

TAB D

2

[redacted]

[redacted]

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.

[redacted]

[redacted]

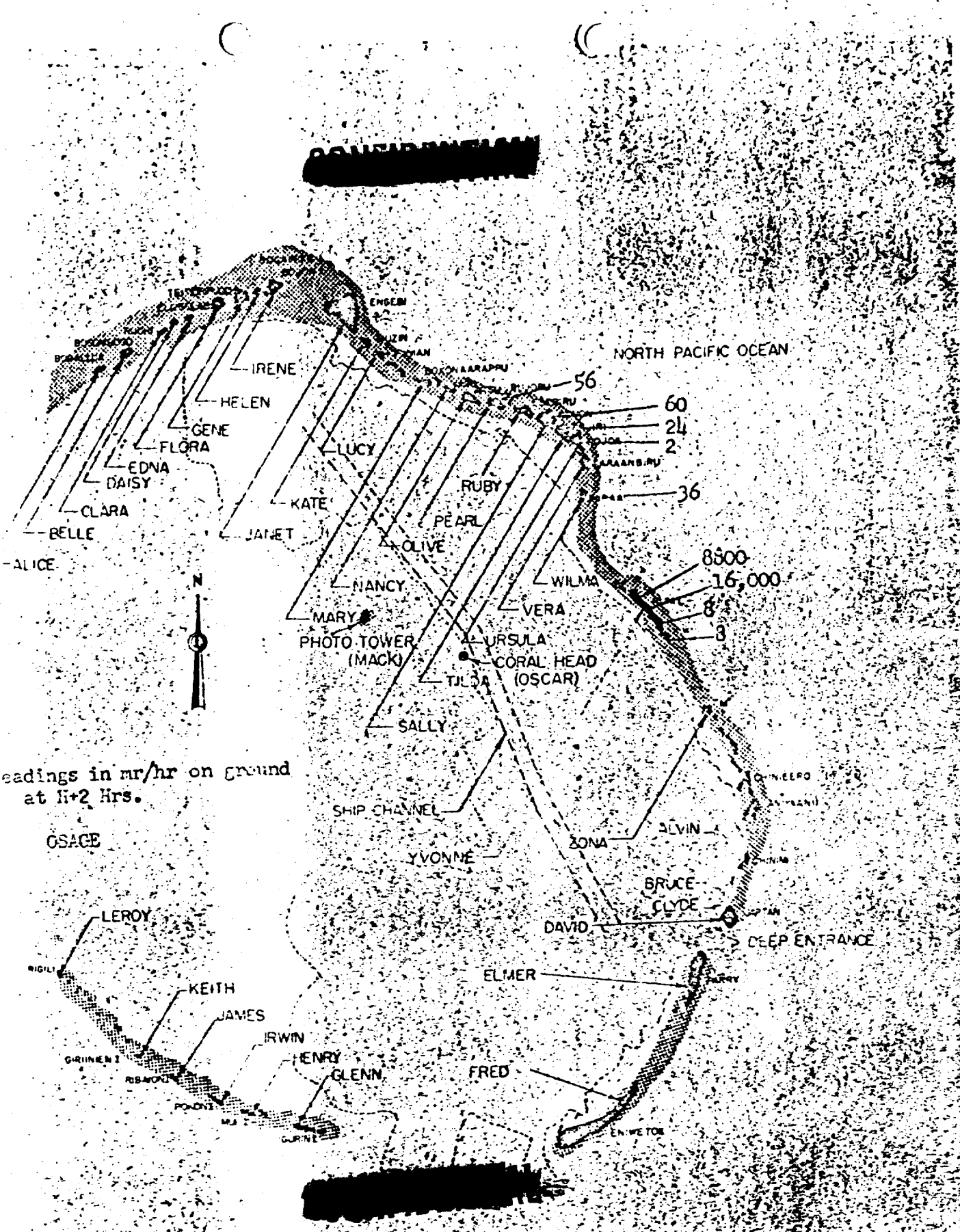
ENIWETOK UPPER AIR SOUNDING (Release time 1230M)

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

[redacted]


NORTH PACIFIC OCEAN
IRENE
HELEN
GENE
FLORA
EDNA
DAISY
CLARA
BELLE
ALICE
JANET
KATE
LUCY
RUBY
PEARL
OLIVE
NANCY
MARY
PHOTO TOWER
(MACK)
URSULA
CORAL HEAD
(OSCAR)
TULSA
SALLY
WILMA
VERA
56
60
24
2
36
8800
16,000
8
3
N
Readings in mr/hr on ground
at H+2 Hrs.
OSAGE
SHIP CHANNEL
YVONNE
ZONA
ALVIN
BRUCE-
CLYDE
DAVID
DEEP ENTRANCE
ELMER
FRED
LEROY
KEITH
JAMES
IRWIN
HENRY
GLENN

TAB B