MARSHALL ISLANDS FILE TRACKING DOCUMENT

Record Number: 97

File Name (TITLE): Operation Order No 1-54, Revised

Document Number (ID): 17866

DATE: 2/1954

Previous Location (FROM): CIC

AUTHOR: JTF7/TG 7.4

Addditional Information:

OrMIbox: 5

CyMIbox: 3

17866

TG 7.4 PROVISIONAL
OPERATIONS ORDER NO.
1-54

Declassified
3/13/67/B
DOD Dir 5...

This Document Consists Of
104 PAGE(S) No. 10 F
150 Copies A Series

J-23415

SECRET

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o POSTMASTER
San Francisco, California
9 February 1954, 1800 M

OPERATIONS ORDER NO. 1-54

CHART REFERENCES:

a. World Aeronautical Charts (748, 749, 848, 849, 850) 1:1,000,000.

b. USAF Aeronautical Planning Chart (AP-14) 1:5,000,000.

TASK ORGANIZATION:

a. Headquarters Task Group 7.4, Provisional — Brigadier General Howell M. Estes, Jr.

b. Test Aircraft Unit — Lt Colonel James A. [illegible]

c. Test Services Unit — Lt Colonel Mah[illegible]

d. Test Support Unit — Colonel [illegible]

1. GENERAL SITUATION:

Joint Task Force SEVEN and its [illegible] Groups are in place and operational in the forward area. The conduct of realistic, maximum effort, on-site training programs are essential to the successful accomplishment of the CASTLE (CONFIDENTIAL) mission. Accordingly, Task Group 7.4 will conduct one full scale pre-shot rehearsal, in addition to supplementary, element training exercises (See Annex A, Schedule of Events). The goal of this training program will be progressive, thorough preparation for the first actual operation. This order is a specific directive to all units for the execution of the full scale rehearsal. Instructions for SAR and WB-29 operations are included herein for the entire operation. Detailed element training instructions will be issued by the Test Units. This order supplements Task Group 7.4 Operations Order 1-53 which is still in effect.

a. See Annex A, Intelligence, TG 7.4 Operations Order 1-53.

b. See Annex B, Organization and Command Relationships, TG 7.4 Operations Order 1-53.

(1) Task Group 7.3 will provide, to Task Group 7.4, aircraft control facilities aboard the Command Ship and the Control Destroyer during the full scale rehearsal and during certain element training exercises (See Annex A, Schedule of Events; Annex T, Command Ship CIC Procedures; Annex J, Control Destroyer Procedures).

(2) B-50 aircraft of the 97th Bomb Wing (Medium) will participate in the rehearsal (See Annex O, B-50 IBDA Flight Procedures and Annex A, Schedule of Events).

2. MISSION:

To conduct a full scale air rehearsal, on 22 February 1954, preparatory to the first CASTLE (CONFIDENTIAL) operation, and to perform supplementary training as required.

3. TASKS FOR SUBORDINATE UNITS:

a. Test Aircraft Unit:

(1) Execute required element training to include that specified in Annex A.

SECRET

(2) Provide twelve (12) F-84 aircraft for necessary sampling missions during the full scale rehearsal. (See Annex H).

(3) Provide four (4) B-36 aircraft for control, effects and sampling missions during the rehearsal. (See Annexes G, I and K).

(4) Provide one (1) B-47 aircraft for an effects mission during the rehearsal. (See Annex J).

(5) Integrate the operations of three (3) B-50 aircraft into the rehearsal. (See Annex O).

(6) Assure adequate sample removal training during the rehearsal. (See Annex R).

(7) Augment the field maintenance facilities of the Test Support Unit as required.

(8) Provide for complete care, storage and issue of personal equipment to all air crews of the Test Aircraft Unit.

(9) Prepare the marshalling plan for all aircraft which will depart from ENIWETOK to participate in the rehearsal, and special missions.

(10) Coordinate with TG 7.3 Liaison Officer (AOC) to preclude the possibility of conflict in aircraft departure and arrival schedules on both rehearsal days.

(11) Assure that take-offs and landings are accomplished as specified in Annex C.

b. Test Services Unit:

(1) Execute required element training, including that specified in Annex A.

(2) Provide three (3) C-54 photographic aircraft and crews for the rehearsal. (See Annex L).

(3) Provide adequate SA-16 and other required SAR support to the AOC and CIC for operational control throughout the training period. (See Annex F).

(4) Provide adequate WB-29 weather reconnaissance, cloud tracking and sampling services throughout the training period. (See Annex M).

(5) Assure adequate pre-mission weather forecasting and complete communications facilities throughout the training period.

(6) Provide necessary weather briefings and weather reports to the CIC and AOC throughout the training period.

(7) Augment the field maintenance facilities of the Test Support Unit as required.

(8) Coordinate with Test Aircraft Unit to assure that Test Services Unit aircraft are marshalled as required by that unit.

(9) Provide for complete care, storage and issue of personal equipment to all air crews of the Test Services Unit.

c. Test Support Unit:

(1) Assure that transient traffic and airlift operations do not interfere with or endanger test aircraft operations during the training period. (See Annex A).

(2) Provide two (2) C-47 aircraft for VHF relay for the rehearsal and other test missions as required. (See Annex P).

(3) Establish required measures to prevent movement of vehicles from interfering with or endangering air operations throughout the training period.

(4) Provide adequate crash removal and fire fighting protection for all air operations during the training period.

(5) Place one (1) H-19 helicopter and one (1) AVR crash boat under the operational control of the AOC for SAR alert during the training period. (See Annex F).

(6) Assure adequate refueling and field maintenance support for all aircraft during the training period.

(7) Provide photographic coverage during phases of the training period, for historical purposes.

(8) In coordination with other Test Units, assure adequate transportation schedules from the flight line to the dining halls and billeting areas throughout the training period.

(9) Coordinate with Test Aircraft Unit to assure that C-47 reflector aircraft are marshalled as required by that unit.

(10) Provide for aircraft decontamination training.

x. All Units:

(1) Provide liaison officers to assist Headquarters TG 7.4 aircraft controllers in the AOC, on the Command Ship and Control Destroyer as required. (See Annex K, Aircraft Control, TG 7.4 Operations Order 1-53).

(2) Coordinate with Test Services Support to arrange required early dining schedules, in-flight lunches, transportation, etc.

(3) Adhere to security procedures as outlined in Annex G, Security and Public Information, TG 7.4 Operations Order 1-53.

(4) Emphasize the Flight Safety Program outlined in Annex L, Flight Safety, TG 7.4 Operations Order No. 1-53 and other directives.

(5) Be prepared to augment existing SAR facilities in emergencies during the training period.

(6) Be prepared to postpone execution of the mission for such periods as are made necessary by adverse weather or other unforeseeable events. (See Annex V).

(7) Assure proper reporting of radiation encountered by multi-engine aircraft. (See Annex "W")

(8) Conduct briefings as required. (See Annex "X")

4. LOGISTICAL MATTERS: See Annex "C", Administration, TG 7.4 Operations Order No. 1-53.

5. COMMAND AND SIGNAL MATTERS:

a. Communications: (See Annex "E")

b. Time: Zone "M" (Local) Time.

c. Command Posts:

(1)	Task Group 7.4	USS ESTES (AGC-12)
	(a) Eniwetok Operations	Building #90, Eniwetok Island
(2)	Test Aircraft Unit	Building 135, Eniwetok Island
(3)	Test Services Unit	Building 135, Eniwetok Island
(4)	Test Support Unit	Building 135, Eniwetok Island

/s/ James H. Estes, Jr.
HOWELL M. ESTES, JR.
Brigadier General, U. S. A. F.
Commander

ANNEXES:

See page 5.

DISTRIBUTION:

See pages 6 and 7

SECRET

ANNEXES:

A.	Schedule of Events
B.	Aircraft Parking Plan
C.	Aircraft Mission Execution Chart
D.	Aircraft H-Hour Positions and Flight Patterns
E.	Communications
F.	SAR Plan
G.	Control RB-36 Flight Procedures
H.	F-84 Sampler Flight Procedures
I.	B-36 Effects Flight Procedures
J.	B-47 Effects Flight Procedures
K.	B-36 Hi-Altitude Sampler Flight Procedures
L.	C-54 Photo Flight Procedures
M.	WB-29 Wx and Rad Safe Flight Procedures
N.	Decontamination Procedures
O.	B-50 IBDA Flight Procedures
P.	C-47 Relay Flight Procedures
Q.	Observer Aircraft Flight Procedures
R.	Sample Recovery Procedures
S.	AOC Procedures
T.	CIC Procedures
U.	Control Destroyer Procedures
V.	Aircraft Abort Criteria
W.	Multi-Engine Aircraft Rad Safe Reporting Code
X.	Briefings

SECRET

SECRET

DISTRIBUTION LIST

COPIES	COPY NO.	
		AIR FORCE AGENCIES
1	1	C/S, USAF, Washington 25, D.C.
1	2	DCS/Operations, Hq USAF, Washington 25, D.C.
1	3	DCS/Personnel, Hq USAF, Washington 25, D.C.
1	4	DCS/Materiel, Hq USAF, Washington 25, D.C.
1	5	DCS/Development, Hq USAF, Washington 25, D.C.
1	6	DCS/Comptroller, Hq USAF, Washington 25, D.C.
1	7	Director of Plans, Hq USAF, Washington 25, D.C.
2	8 - 9	Director of Operations, Hq USAF, Washington 25, D.C.
1	10	AFOAT, DCS/Operations, Hq USAF, Washington 25, D.C.
1	11	Director of Communications, Hq USAF, Washington 25, D.C.
3	12 - 14	Comdr, AFSWC, Kirtland AFB, New Mexico
3	15 - 17	Comdr, SAC, Offutt AFB, Nebraska
1	18	Comdr, ARDC, Baltimore, Maryland
1	19	Comdr, AMC, Wright-Patterson AFB, Ohio
1	20	Comdr, WADC, Wright-Patterson AFB, Ohio
1	21	Comdr, MATS, Andrews AFB, Washington 25, D.C.
1	22	Comdr, AACS, Andrews AFB, Washington 25, D.C.
1	23	Comdr, AWS, Andrews AFB, Washington 25, D.C.
1	24	Comdr, ARS, Andrews AFB, Washington 25, D.C.
1	25	Comdr, 8th Air Force, Carswell AFB, Texas
1	26	Comdr, PACDIVMATS, APO 953, c/o PM, San Francisco, Calif
1	27	Comdr, 4925th Test Group (ATOMIC), Kirtland AFB, NM
1	28	Comdr, 11th Air Rescue Group, APO 953, c/o PM, San Francisco, Calif
1	29	Comdr, Air Defense Command, Ent AFB, Colorado
1	30	Comdr, Air Proving Ground Command, Eglin AFB, Fla
1	31	Comdr, 78th Air Rescue Sq, Box 26, FPO 824, c/o PM, San Francisco, Calif
		JOINT TASK FORCE SEVEN AGENCIES
5	32 - 36	Comdr, JTF SEVEN, APO 187, c/o PM, San Francisco, Calif
5	37 - 41	Comdr, TG 7.1, APO 187, c/o PM, San Francisco, Calif
2	42 - 43	Comdr, TG 7.2, APO 187, c/o PM, San Francisco, Calif
5	44 - 48	Comdr, TG 7.3, APO 187, c/o PM, San Francisco, Calif
4	49 - 52	Comdr, TG 7.5, APO 187, c/o PM, San Francisco, Calif
		DEPARTMENT OF DEFENSE AGENCIES
1	53	Chief, AFSWP, Box 2610, Washington 25, D.C.
1	54	CG, AFSWP, Sandia Base, New Mexico
		ARMY AGENCIES
1	55	C/S, U.S. Army, Washington 25, D.C.
1	56	CG, USARPAC, APO 958, c/o PM, San Francisco, Calif
		NAVY AGENCIES
1	57	CNO, Washington 25, D.C.
1	58	CINCPACFLT, Navy #128, c/o FPO, San Francisco, Calif
1	59	COMHAWSEAFRON, Navy #128, c/o FPO, San Francisco, Calif
1	60	CO, NAVSTA, Kwajalein, Navy #824, c/o FPO San Francisco, Calif

SECRET

SECRET

COPIES	COPY NO	TASK GROUP 7.4, PROVISIONAL, UNITS
10	61 - 70	Comdr, Test Aircraft Unit
10	71 - 80	Comdr, Test Services Unit
6	81 - 86	Comdr, Test Support Unit

HEADQUARTERS, TASK GROUP 7.4, PROVISIONAL, UNITS

1	87	Commander, TG 7.4
1	88	Deputy Commander
1	89	Chief of Staff
5	90 - 94	Director of Operations
2	95 - 96	Director of Personnel
2	97 - 98	Director of Materiel
1	99	Comptroller
1	100	Personnel Security Officer
1	101	Historian
15	102 - 116	Adjutant, Hq Task Group 7.4 (REAR), Kirtland AFB, NM

Annex "A"

In 6 pages

ANNEX "A"

TO

OPERATIONS ORDER NO. 1-54

SCHEDULE OF EVENTS

9 FEBRUARY THRU 1 MARCH 1954

SECRET

ANNEX "A"
TO
OPERATIONS ORDER NO. 1-54
SCHEDULE OF EVENTS

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o Postmaster
San Francisco, California
9 February 1954, 1800 M

9 FEBRUARY 1954

0800. Commander's Operational Briefing.

C-47 relay aircraft communications check.

Two (2) WB-29's, start of 12 hour daily weather reconnaissance flights.

The B-47 effects aircraft practice runs in Bikini area in coordination with USS ESTES after 1200.

1500. Briefing F-84 sampler pilots, RB-36 crew, search and rescue, for mission on 10 February in Bikini area.

Publish Operations Plan 1-54.

Director of Materiel and Deputy Commander visit all landing sites and inspect maintenance at Bikini.

0730-1200 F-84 test, orientation, and instrument sorties as required.

Sea Survival School.

Determine need for Radar Reflector-after commanders decision notify TG 7.4 (Rear).

Construction in buildings 632, 607, 608 and 609 completed.

10 FEBRUARY 1954

0800. Commander's Operational Briefing.

C-47 relay aircraft communications check.

RB-36, F-84's, SA-16 and FB-36 #1086 participates in practice sampling mission in coordination with CIC, Bikini area. RB-36 pre-crater photographs, as required.

Communications check with USS ESTES at Bikini of all JTF SEVEN channels.

Sea Survival School. (Make up only).

Director of Materiel will publish appropriate Task Group 7.4 Materiel directives and review Test Support Group Supply and Maintenance directives for coverage, procedures and adequacies.

Rad/Safe proficiency checks completed.

1300. Conference with Test Support Unit personnel to determine requirements for interim force.

Downed-pilot demonstration.

SECRET

SECRET

11 FEBRUARY 1954

0800. Commander's Operational Briefing.

C-47 relay aircraft communication check.

Doc Photos. Three C-54's positioning practice runs in coordination with USS ESTES, CIC, Bikini area.

B-36D and B-47 effects aircraft practice positioning runs using the CIC, USS ESTES.

F-84 sampler pilots school with Hal Plank, 0800-1000.

1000. Critique of sampling mission of the 10th.

1500. Combined briefing FB-36, F-84's, Search and Rescue for practice sampling mission on 12 February.

Deputy Commander visits Ponape and Kusaie.

Determine from JTF 7 evacuation airlift requirements from Bikini for the 10 day period prior to the first shot.

First planning meeting with RAF.

12 FEBRUARY 1954

0800. Commander's Operational Briefing.

FB-36 SN 1083 and F-84's practice sampler missions in Bikini area with CIC. Upon return of F-84's conduct sample removal demonstration with CTG 7.4 present.

0900. Positioning conference, 7.1 and 7.4 discuss results of mission on 9 and 11 February.

1300. 7.4 Staff and unit Commanders meeting to discuss status to date, review schedule of events and reestablish schedule of events for third week of February.

Complete Pilot's Handbook of Instructions and distribute.

13 FEBRUARY 1954

0800. Showdown inspection of entire Task Group 7.4 shops, hangars and maintenance areas. This will include standby inspection of aircrews with aircraft and items of personal equipment.

1100. Commander's Operational Briefing.

Publish third week of February Schedule of Events.

1000. Sampling mission critique to include CIC Controllers.

1100. Rad/Safe Briefing.

The Director of Materiel:

Reviews maintenance plan of all activities for meeting first rehearsal commitment and develop overall plan to insure coordinated effort on 16 February.

Makes physical check of all aircraft forms 1 for any deferred maintenance or outstanding TOC's involving safety of flight.

SECRET

Conducts inspection of all fire fighting and crash removal activities.

Obtains fuel requirements for rehearsal and coordinates refueling plan with all concerned.

Review maintenance status of all aircraft and determines maintenance priorities for preparation of all iarcraft for rehearsal.

All IFF recalibrated.

14 FEBRUARY 1954

Operational Briefing for mission on 16th.

The Director of Materiel will review maintenance plan of all activities for meeting first rehearsal commitment and develop overall plan to insure coordinated effort on 16.February.

Make physical check of all aircraft form 1 for any deferred maintenance or outstanding TOC's involving safety of flight.

Obtain fuel requirements for rehearsal and coordinates refueling plan with all concerned.

Review maintenance status of all aircraft and determine maintenance priorities for preparation of all aircraft for rehearsal.

Conduct inspection of all fire fighting and crash removal activities.

15 FEBRUARY 1954

0800. Commander's Operational Briefing.

Test aircraft performing short test flights (as required) to ready aircraft for mission on 16th.

Specialized briefings.

The Director of Materiel will review maintenance plan of all activities for meeting first rehearsal commitment and develop overall plan to insure coordinated effort on 16 February.

Make physical check of all aircraft forms 1 for any deferred maintenance or outstanding TOC's involving safety of flight.

Conduct inspection of all fire fighting and crash removal activities.

Obtain fuel requirements for rehearsal and coordinate refueling plan with all concerned.

Review maintenance status of all aircraft and determine maintenance priorities for preparation of all aircraft for rehearsal.

16 FEBRUARY 1954

First partial rehearsal. Aircraft participating will be F-84 samplers, B-36H samplers, RB-36 control, effects B-36 and B-47, three (3) C-54's Doc Photo, SA-16's and C-47 relay aircraft.

Go-No-Go recommendation from Deputy Commander made to Commander.

17 FEBRUARY 1954

0800. Commander's Operational Briefing.

18 FEBRUARY 1954

0800. Commander's Operational Briefing.

C-47 communications check, relay procedures.

[redacted]

0900. Positioning conference. The Commander, TG 7.4 will attend.

Sampler pilots school with Dr. Plank 0800 to 1000.

1000 to 1200. WB-29 sampler school with Dr. Plank.

1300 to 1500. B-36 sampler school with Dr. Plank.

Director of Materiel will review all supply deficiencies and initiate appropriate action to expedite receipt of required items prior to 27 February 1954.

Conduct inspection of flyaway kits, flight line shop and dock stocks of expendable items and aircraft classes in base supply warehouses.

Spot check memorandum receipt accounts of all responsible officers.

19 FEBRUARY 1954

0800. Commander's Operational Briefing.

0800-1000. F-84 sampler school with Dr. Plank

1000-1200. WB-29 sampler school with Dr. Plank.

0900-1100 and 1300-1500. Effects B-36, B-47 and (IBDA representative if needed after discussion with Col Compton) aircrews attend Blast, Gust and Thermal Indoctrination.

1300. 7.4 Staff and Unit Commanders' staff meeting. Review progress report, review accomplishments on schedule of events and establish schedule of events for fourth week of February. Critique on check of fire and explosion regulation.

Director of Materiel will review all property excesses and take appropriate action to dispose of same prior to 1 March 1954.

Recalibrate all IFF sets.

Completion of Rad-Safe Indoctrination.

20 FEBRUARY 1954

0800. Commander's Operational Briefing.

1400. Briefing, all aircrews for first complete dress rehearsal.

Publish schedule of events for fourth week of February.

The Director of Materiel will review maintenance plan of all activities for meeting first rehearsal commitment and develop overall plan to insure coordinated effort on 22 February.

Make physical check of all aircraft forms 1 for any deferred maintenance or outstanding TOC's involving safety of flight.

Conduct inspection of all fire fighting and crash removal activities.

Obtain fuel requirements for rehearsal and coordinates refueling plan with all concerned.

Review maintenance status of all aircraft and determines maintenance priorities for preparation of all aircraft for rehearsal.

21 FEBRUARY 1954

Aircraft fly short test hop to insure operational availability for dress rehearsal.

Specialized Briefing.

1300. Aircraft placed in take-off order for dress rehearsal mission.

The Director of Materiel reviews maintenance plan of all activities for meeting first rehearsal commitment and develop overall plan to insure coordinated effort on 22 February.

Make physical check of all aircraft forms 1 for any deferred maintenance or outstanding TOC's involving safety of flight.

Conducts inspection of all fire fighting and crash removal activities.

Obtains fuel requirements for rehearsal and coordinates refueling plan with all aoncerned.

Reviews maintenance status of all aircraft and determines maintenance priorities for preparation of all aircraft for rehearsal.

22 FEBRUARY 1954

Execute 1-54. (Full scale rehearsal).

0200. Go-No-Go recommendation from D/C to Commander.

(After completion of the rehearsal, the RB-36 will fly pre-crater photographic mission, if required.)

23 FEBRUARY 1954

0800. Commander's Operational Briefing.

Aircraft check.

24 FEBRUARY 1954

0800. Commander's Operational Briefing.

Publish 2-54.

1400. Mission Critique.

25 FEBRUARY 1954

0800. Commander's Operational Briefing.

0900. Positioning Conference. The Commander, TG 7.4 will attend.

Director of Personnel will resurvey undesirables and take appropriate action.

26 FEBRUARY 1954

0800. Commander's Operational Briefing.

1300. 7.4 Staff and Unit Commanders meeting. Review progress report, review schedule of events accomplishments and affirm schedule of events for first week of March.

Final positioning meeting with Commanders, TG 7.4, 7.1 and JTF SEVEN Scientific Deputy Director.

Re-calibrate all IFF Sets.

[redacted]

27 FEBRUARY 1954

0800. Commander's Operational Briefing.

1000. 3 IBDA B-50's arrive ENIWETOK from GUAM.

1400. Mission briefing for first shot.

The Director of Materiel will review maintenance plan for all activities for meeting first shot commitment and develop overall plan to insure coordinated effort on D-1. Makes physical check of all aircraft forms 1 for any deferred maintenance on outstanding TOC's involving safety of flight.

Conducts inspection of all fire fighting and crash removal activities.

Obtains fuel requirements for D-1 and coordinates reducing plan with all concerned.

Reviews maintenance status of all aircraft and determines maintenance priorities for preparation of all aircraft for D-1.

VIP Briefing.

Close the airfield to all aircraft except authorized traffic.

28 FEBRUARY 1954

Test flight on participating aircraft (as required) to assure operational readiness for first shot.

1 MARCH 1954

Execute 2-54.

0200. Go-No-Go recommendations to Commander, TG 7.4.

Two (2) sample return aircraft arrive ENIWETOK at H-0:15 and H/0:15.

HOWELL M. ESTES, JR.
Brigadier General, U.S.A.F.
Commander

OFFICIAL:

Paul H. Fackler

PAUL H. FACKLER
Lt Colonel, USAF
Director of Operations

SECRET

ANNEX "B"

TO

OPERATIONS ORDER NO. 1-54

AIRCRAFT PARKING PLAN

(To be issued seperately)

SECRET

ANNEX "C"

TO

OPERATIONS ORDER NO. 1-54

AIRCRAFT MISSION EXECUTION CHART

(To be issued separately)

Annex "D"
In 1 page w/5 Appendicies
consisting of 5 pages

ANNEX "D"

TO

OPERATIONS ORDER NO. 1-54

AIRCRAFT H-HOUR POSITIONS AND FLIGHT PATTERNS

ANNEX "D"
TO
OPERATIONS ORDER NO. 1-54
AIRCRAFT H-HOUR POSITIONS AND FLIGHT PATTERNS

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o Postmaster
San Francisco, California
9 February 1954, 1800M

1. H-Hour positions of all airborne aircraft relative to Ground Zero are designated in Appendix 1, "H-Hour A/C Positioning Chart".

2. Detailed H-Hour range, azimuth, attitude, air speed, altitude and route requirements for all airborne aircraft are designated in Appendix 2, "H-Hour A/C Flight Plans".

3. Flight patterns for aircraft airborne at H-Hour in the shot area are designated in the following appendicies:

a. Appendix 3, "B-36 and B-47 Effects Aircraft Pattern".

b. Appendix 4, "C-54 Photographic Aircraft Pattern".

c. Appendix 5, B-50 IBDA Aircraft Pattern".

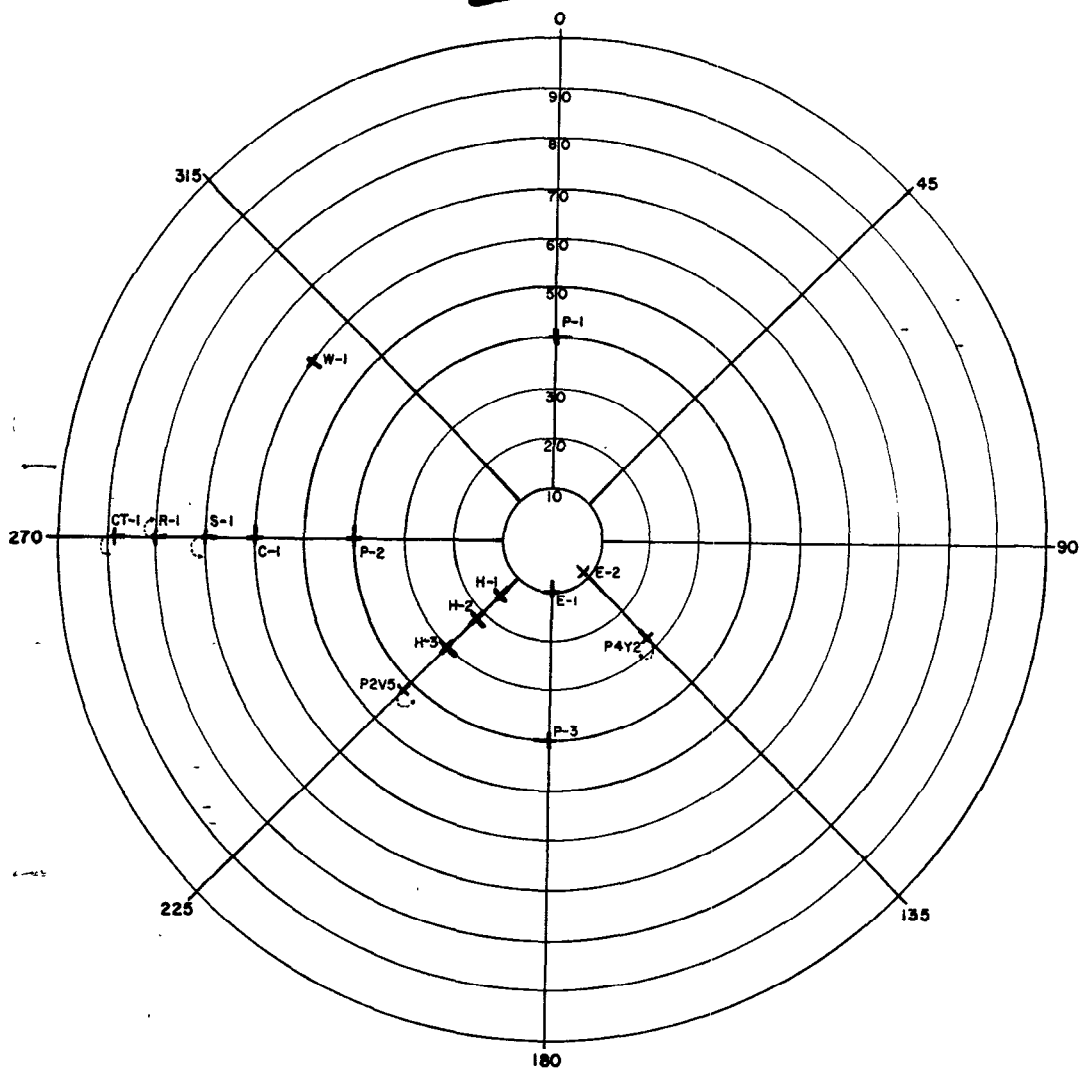
4. All other aircraft will execute orbits at H-Hour Stations.

OFFICIAL:

HOWELL M. ESTES, JR.
Brigadier General, U. S. A. F.
Commander

Paul H. Fackler
PAUL H. FACKLER
Lt Colonel, USAF
Director of Operations

5 Appendicies:
1. H-Hour A/C Positioning Chart
2. H-Hour A/C Flight Plans
3. B-36 and B-47 Effects Aircraft Pattern
4. C-54 Photographic Aircraft Pattern
5. B-50 IBDA Aircraft Pattern



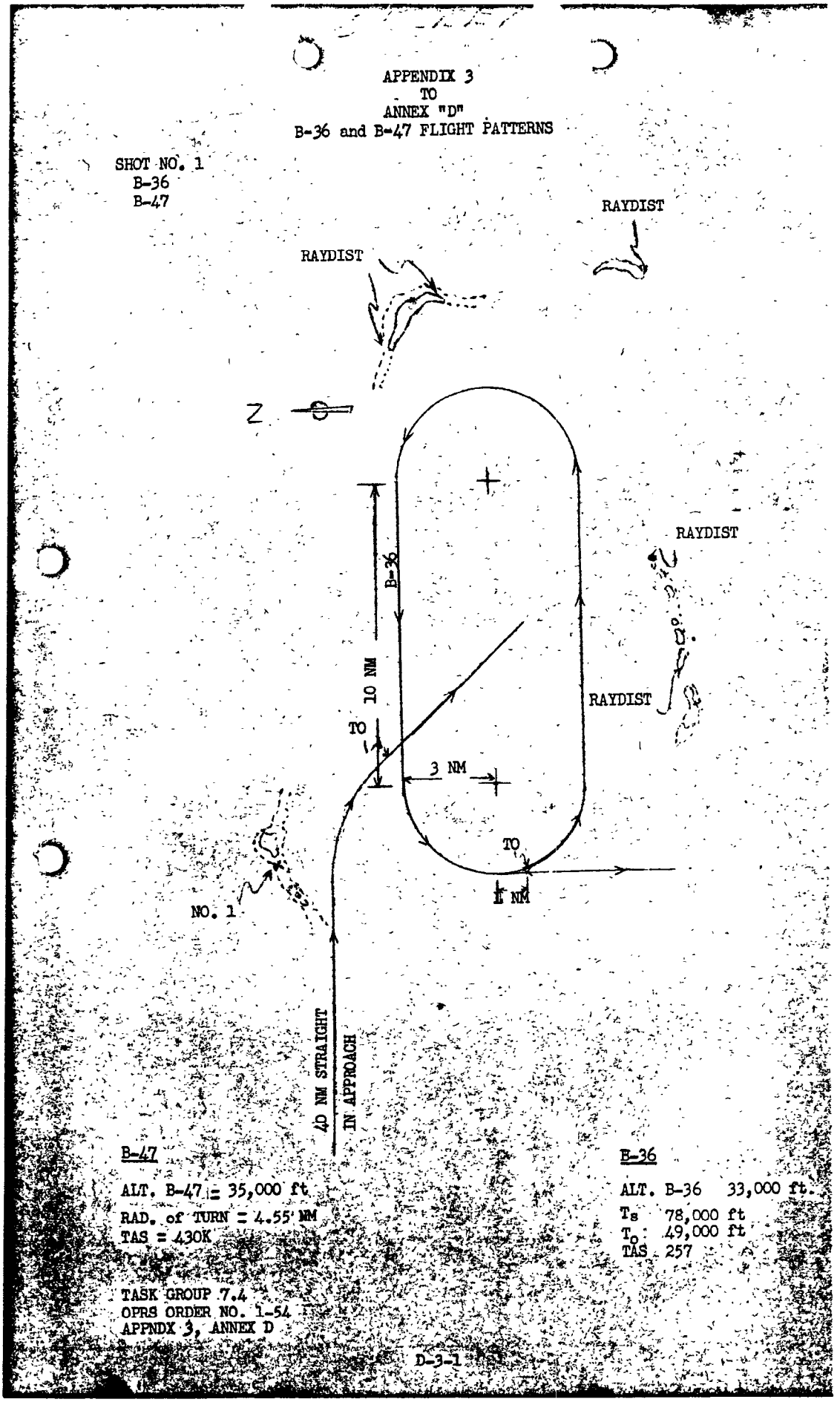
APPENDIX 1
TO
ANNEX - D
OPS ORDER 1-54
H-HOUR A/C POSITIONING CHART
(+ IN ORBIT

[redacted]

APPENDIX 2
TO
ANNEX D
TO
OPERATIONS ORDER NO 1-54
H-HOUR A/C
FLIGHT PLANS

AIRCRAFT	RANGE	AZIMUTH	ATT	TAS	ALT	ROUTE
ELAINE 2 B-47	8 NM X	135°	Tail	430K	35	Direct to Orbit Position
ELAINE 1 B-36	10 NM X	180°	Tail	257K	33	Direct to Orbit Position
CASSIDY 1 B-36 Control	60 NM X	270°	L Side	250K	36	Direct to Orbit Position
HARDTIME 1 B-50 #1	15 NM X	225°	Tail	230K	34	Direct to Orbit Position
HARDTIME 2 B-50 #2	22 NM X	225°	Side	230K	32	Direct to Orbit Position
HARDTIME 3 B-50 #3	30 NM X	225°	Side	230K	31	Direct to Orbit Position
PEWTER 1 C-54 #1	40 NM X	360°	L Side	210K	10	Direct to Orbit Position
PEWTER 2 C-54 #2	40 NM X	270°	Side	210K	12	Direct to Orbit Position
PEWTER 3 C-54 #3	40 NM X	180°	Side	210K	14	Direct to Orbit Position
STABLE 1 SA-16	70 NM X	270°	Orbit	120K	7	Direct to Orbit Position
WILSON 1 WB-29	60 NM X	305°	Tail	210K	3	T.O. H-4 on ENIWETOK Weather Survey proceed to Command Ship to arrive at H-1:50
CLOUD TRACKER #1 WB-29	90 NM X	270°	Orbit	210K	10	Direct to Orbit Position
REFLECTOR 1 C-47	80 NM X	270°	Orbit	130K	7.5	Direct to Orbit Position
P2V 5	43 NM X	225°	L Side	——	8	Direct to Orbit Position
P4Y 2	28 NM X	135°	Tail	——	5	Direct to Orbit Position
VIKING 1	60 NM X	45°	Side	——	7	Direct to Orbit Position
VIKING 2	60 NM X	45°	Side	——	8	Direct to Orbit Position
VIKING 3	60 NM X	45°	Side	——	9	Direct to Orbit Position
VIKING 4	60 NM X	45°	Side	——	10	Direct to Orbit Position
VIKING 5	60 NM X	45°	Side	——	11	Direct to Orbit Position
VIKING 6	60 NM X	45°	Side	——	12	Direct to Orbit Position

APPENDIX 3
TO
ANNEX "D"
B-36 and B-47 FLIGHT PATTERNS



B-47

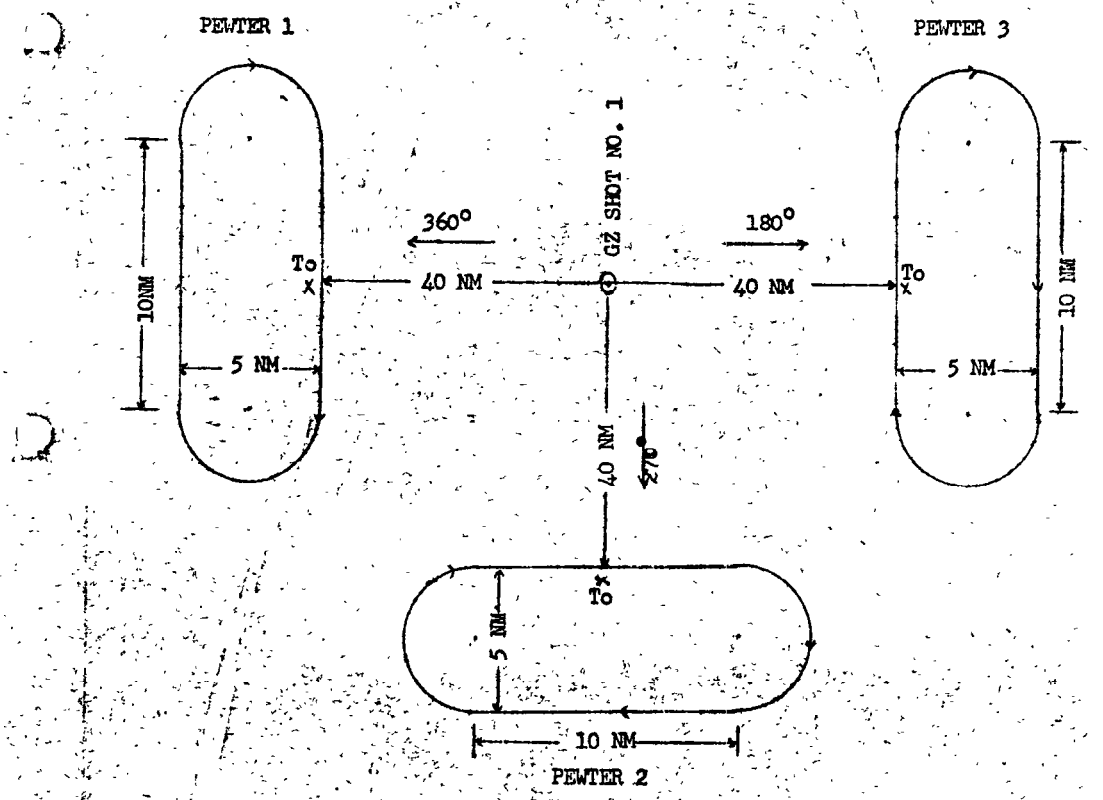
ALT. B-47 = 35,000 ft
RAD. of TURN = 4.55 NM
TAS = 430K

B-36

ALT. B-36 33,000 ft.
T_s 78,000 ft
T_o 49,000 ft
TAS 257

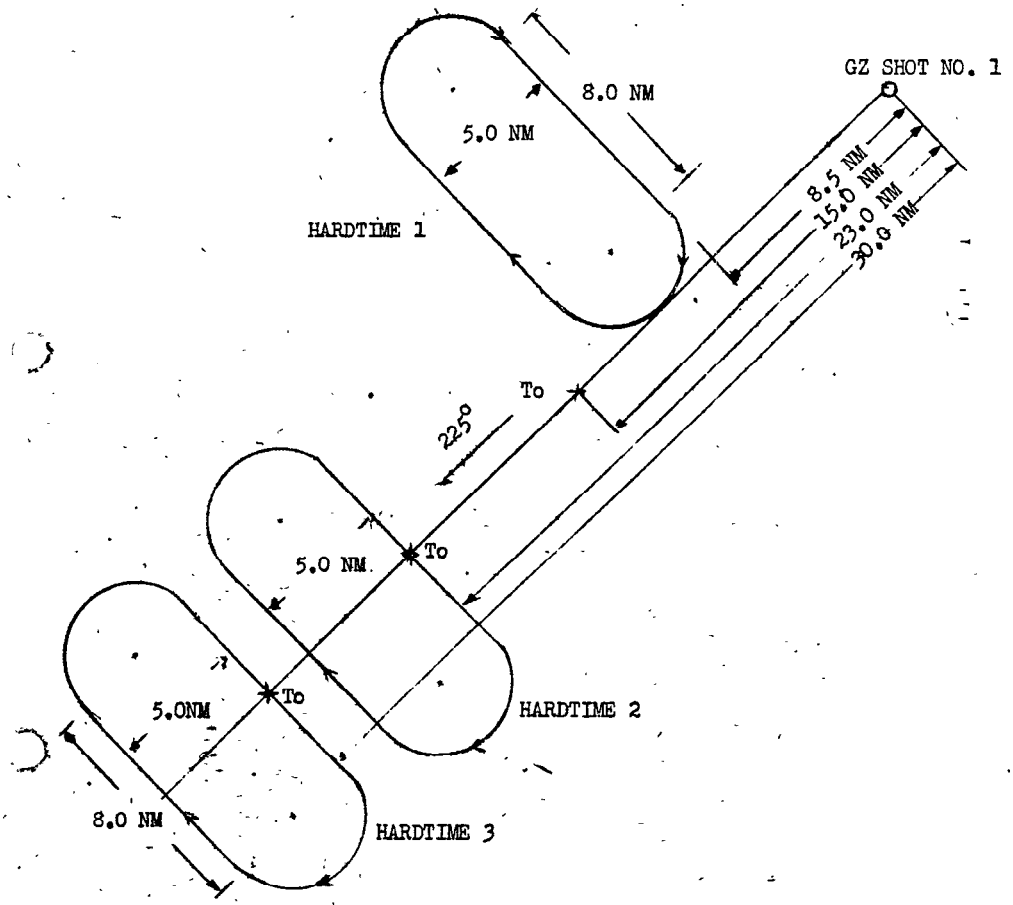
TASK GROUP 7.4
OPRS ORDER NO. 1-54
APPNDX 3, ANNEX D

APPENDIX 4
TO
ANNEX "D"
C-54 FLIGHT PATTERNS



T.E. = 180 K (APPROX)

APPENDIX 5
TO
ANNEX "D"
B-50 IBDA FLIGHT PATTERNS



TAS: 240 K (APRX)

TASK GROUP 7.4
OPRS ORDER NO. 1-54
APPNDX 5, ANNEX D

Annex "E"

In 6 pages w/5 Appendicies

consisting of 18 pages

ANNEX "E"

TO

OPERATIONS ORDER NO. 1-54

COMMUNICATIONS

~~SECRET~~

ANNEX E
TO
OPERATIONS ORDER NO. 1-54
COMMUNICATIONS

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o Postmaster
San Francisco, California
9 February 1954, 1800 M

1. GENERAL CONCEPT OF COMMUNICATIONS OPERATIONS:

a. One permanent relay - crypto center at ENIWETOK will be installed, operated and maintained by Task Group 7.2. Tributary stations serviced by this relay center will include Headquarters Task Group 7.4, which will be responsible for distribution of messages to its subordinate units. For handling of teletype traffic, up to and including SECRET, between major forward and rear echelon task force elements, the following radio teletype circuits will be operated "ON-LINE", using SIGTOT with SAMSON (synchronous mixer):

(1) ENIWETOK-OAHU (UHF): One full duplex radio teletype channel (Provided by TG 7.2).

(2) ENIWETOK-KWAJALEIN: One full duplex multiplex channel (Provided by TG 7.4).

(3) ENIWETOK-BIKINI: One full duplex radio teletype channel (Provided by TG 7.2).

(4) ENIWETOK-LOS ALAMOS: One full duplex radio teletype channel (Provided by TG 7.2).

(5) ENIWETOK-AGC (USS ESTES): One full duplex multiplex channel (Provided by TG 7.4).

b. Traffic not capable of being handled by means of on-line facilities will be enciphered off-line prior to transmission. All TOP SECRET and RESTRICTED DATA traffic will be enciphered off-line. This is necessary to meet AEC requirements and, in addition, terminal communications personnel are not in all instances TOP SECRET or "QUEBEC" cleared.

c. On ENIWETOK and BIKINI ATOLLS, wire telephone facilities cleared for conversations up to and including SECRET will be made available to the Task Group by the Joint Task Force.

d. Voice radio facilities will be available on a closely controlled basis between the following points:

(1) ENIWETOK-BIKINI (HF)

(2) ENIWETOK-KWAJALEIN-BIKINI (HF) (TG 7.4 controlled)

(3) Between ships (UHF, VHF, AN/TRC and HF)

(4) Ship - shore (VHF, AN/TRC and HF)

(5) AOC ENIWETOK-CIC Command Ship-CVE-Control DDE-ENIWETOK Fighter Control DDE (TG 7.4 controlled)

~~SECRET~~

SECRET

e. Internal Task Group communications and navigational aids will be furnished from existing AACS facilities augmented as necessary to fulfil operational requirements. Control of task force aircraft will be centered aboard the Command Ship (AGC) utilizing radar and radio facilities to be furnished by TG 7.3. An Air Operations Center (AOC) on ENIWETOK ISLAND will be responsible for air traffic control and for the maintenance of a plotted picture of the air situation. Airborne communications and electronic aids for aircraft control will consist of the usual installed electronics equipment, together with Mark 10 IFF transponders and interrogators and low frequency radio homing beacons as necessary.

2. MISSION, HEADQUARTERS TASK GROUP 7.4:

a. Prepare communications annexes to operations order as required and supervise the installation, operation, maintenance and utilization of Task Group 7.4 communications and electronic facilities.

b. Establish and supervise a transmission security training program for all intended users of voice radio facilities and a message drafter improvement program to insure most efficient use of limited operational communications facilities. (See Appendix 3)

3. COMMUNICATIONS TASKS FOR SUBORDINATE UNITS:

a. Test Support Unit:

(1) Provide and operate organizational and field maintenance for communications and electronics equipment installed in assigned aircraft.

(2) Provide and operate a task group radio-radar field maintenance shop for electronic equipment. This shop will be augmented by qualified personnel from the Test Aircraft Unit and the Test Services Unit.

(3) Provide and maintain necessary inter-communications and public address systems.

(4) Install, maintain and operate the AN/TTQ-1 Operations Center equipment in the AOC on ENIWETOK ISLAND.

(5) Provide, install and maintain mobile line, crash, security and maintenance control radio equipment.

(6) Prepare task group telephone directory stencils, in format to be designated by the consolidating and issuing agency. (See JTF SEVEN COI 40-1)

(7) Install, maintain and operate a modified Mark 10 interrogator with associated scopes in the AOC, ENIWETOK ISLAND.

(8) Install and maintain necessary radio and associated equipment for the control of liaison aircraft and helicopter operations on ENIWETOK ATOLL.

(9) Maintain a crystal bank for all task group operational frequencies.

(10) A Communications Officer assigned to the Test Support Unit will be responsible to the Senior Aircraft Controller for the supervision of all communications and electronic facilities in the AOC, ENIWETOK ISLAND.

SECRET

(11) Install, maintain and operate VHF relay equipment in two C-47 aircraft.

b. Test Aircraft Unit:

(1) Install, maintain and operate communications and electronics facilities in assigned aircraft to provide:

(a) Air-to-ground mission progress and position reporting.

(b) Air-to-air cloud sampling control.

(c) Air-to-air homing.

(d) Radar for navigation and positioning.

(e) Identification for control and positioning.

(2) To assure these capabilities, communications-electronics equipment will be installed as follows:

(a) F-84G Sampling Aircraft: AN/ARC-3 VHF transmitter-receiver, AN/ARN-6 radio compass, AN/APX-6 IFF transponder, AN/ARA-8 VHF/DF Homing Adapter.

(b) B-36 Sampling Aircraft: Normal C-E equipment to include AN/APX-6 IFF transponder.

(c) B-36 Control Aircraft: In addition to the normal C-E equipment to include the AN/APX-6 transponder, the following will be installed: One AN/ARC-3 VHF transmitter-receiver, one LF radio beacon, modified AN/APX-6 interrogators to operate in conjunction with installed radars and suitable scopes for presentation of IFF returns.

(d) B-36 Effects Aircraft: Normal C-E equipment to include AN/APX-6 transponder.

(e) B-47 Effects Aircraft: Normal C-E equipment to include AN/APX-6 transponder.

(3) Perform organizational maintenance on communications and electronic equipment installed in assigned aircraft and provide augmentation for field maintenance to the Test Support Unit.

c. Test Services Unit:

(1) Provide airways and air communications service in support of JTF operations. The following communications facilities will be installed, operated and maintained:

(a) Communications Center (less code room) on ENIWETOK ISLAND.

(b) ENIWETOK-KWAJALEIN multiplex radio teletype circuit, one (1) channel to be remoted to the Joint Communications Center ENIWETOK for use by TG 7.2.

(c) Pacific weather radio teletype intercept on ENIWETOK ISLAND.

(d) Tokyo weather facsimile intercept on ENIWETOK ISLAND.

(e) ENIWETOK-BIKINI-KWAJALEIN high frequency radio voice net for aircraft movement control and weather.

(f) ENIWETOK-KWAJALEIN-RONGERIK-PONAPE-KUSAIE-MAJURO high frequency radio CW net for collection of weather data and weather island administration.

(g) KWAJALEIN-WAKE crossband circuit.

(h) ENIWETOK-weather reconnaissance aircraft high frequency radio CW and voice net.

(i) ENIWETOK terminal of a multiplex radioteletype circuit between ENIWETOK and the COMMAND SHIP. One channel to be remoted to the Joint Communications Center ENIWETOK for use by TG 7.2. One channel to be remoted to the Weather Central ENIWETOK. Operate the Command Ship Weather channel terminal of this circuit.

(2) Install, maintain and operate the following circuits for use in the AOC on ENIWETOK ISLAND.

(a) Seven (7) VHF radio voice air-ground channels.

(b) One (1) UHF radio voice air-ground channel.

(c) Two (2) high frequency radio voice air-ground channels.

(d) Two (2) high frequency radio voice channels to the CIC aboard the Command Ship.

(3) Install, maintain and operate the applicable facilities as listed in the Radio Facility Charts, Pacific.

(4) In addition to the facilities referred to in subparagraph (3) above, the following aids to aerial navigation will be installed, maintained and operated:

(a) Two (2) channels of UHF in the ENIWETOK control tower.

(b) Control tower with three (3) channels of VHF and one (1) channel of HF on BIKINI.

(c) Radio homing beacon on RONGERIK.

(d) Radio homing beacon on BIKINI.

(e) AN/CPN-6 radar beacons (Racons) on ENIWETOK and BIKINI ATOLLS.

(5) Install, maintain and operate following landline teletype facilities:

(a) One (1) duplex terminal in AACS message center to JTF Joint Relay Center.

(b) One (1) simplex terminal in the weather central ENIWETOK to the Task Force Weather Officer, PARRY ISLAND.

(6) Install, maintain and operate necessary AN/TRC back-up for keying and modulation wire lines on ENIWETOK ISLAND.

(7) Complete maintenance of all ground equipment operated by the Test Services Unit will be performed by that unit.

(8) Perform organizational maintenance of airborne equipment and augment the Test Support Unit for field maintenance of airborne equipment.

(9) Furnish necessary air traffic control personnel for an approach control facility in the ENIWETOK AOC.

(10) Assigned aircraft will have normal communications-electronics equipment installed. All aircraft will be equipped with the AN/APX-6 transponder. In addition, the SA-16's will have a modified AN/APX-6 interrogator operating in conjunction with the installed radar.

4. GENERAL:

a. Signal Officer, TG 7.2, will operate a crystal grinding facility to provide emergency production of crystals for all elements of the task force. However, every effort will be made to procure required crystals through established supply channels prior to commencement of the operational phase.

b. Communications operating instructions (COI's) published by Headquarters, Joint Task Force SEVEN, will include a list of approved radio and wire circuits, call signs and frequencies, and uniform task force communications operating procedure.

c. Task unit commanders are responsible for the suppression of electrical interference being generated by equipment of their task units, and will take necessary action to reduce such noises to a point of non-interference with authorized communications facilities.

d. See Appendix 1 for complete listing of communications circuits and navigational aids available to all elements of Task Group 7.4, together with frequencies assigned, hours of operation and other pertinent information.

e. A list of frequencies authorized for use by all elements of Joint Task Force SEVEN may be found in Communications Operation Instructions (COI) Number 20-1.

f. See Appendix 2 for call signs, code words and identifiers authorized for use by all elements of Task Group 7.4.

g. See Appendix 4 for HF and VHF Aircraft Channelization.

h. See Appendix 5 for Voice Time Script.

HOWELL M. ESTES, JR.
Brigadier General, U.S.A.F.
Commander

5 Appendices
1. Communications Circuits
2. Call Signs and Code Words
3. Communications Security
4. Air-Ground Communications
5. Voice Time Script

OFFICIAL:

Paul H. Fackler

PAUL H. FACKLER
Lt Colonel, USAF
Director of Operations

~~CONFIDENTIAL~~

APPENDIX 1
TO
ANNEX E
OPERATIONS ORDER NO. 1-54

COMMUNICATION CIRCUITS

Circuit Number	Circuit and Frequencies
J-205	Eniwetok Armed Forces Radio Station WXLE 1385 kcs Hours of Operation: Mon, Wed, Thur, Fri: 0600 - 2400M Tue : 0600 - 0800M; 1100 - 2400M Sat : 0600 - 0100M Sun : 0800 - 2400M
J-213	Eniwetok Comm Center-USS Estes, AN/TRC Back-up (Also Eniwetok AOC can operate) Eniwetok Transmit — USS Estes Transmit 72.2 mcs — 93.0 mcs
J-306	Search and Rescue (TG 7.3 Operates) (*Also Eniwetok AOC Operates) 500 kcs 3310 kcs 4475 kcs 7945 kcs *8364 kcs (Replaces 8280 kcs) *121.5 mcs 243.0 mcs (Eniwetok Control Tower & GCA)
J-311	Helicopter Net, USS Estes-USS Bairoko, Voice 126.18 mcs Bikini Control 136.44 mcs Eniwetok and Bikini Control 132.48 mcs Special Missions
J-319	Control Destroyer Homing Beacon (YER) 232 kcs Operates continuously when DDE is on Station
J-322	LORAN Station, Eniwetok (U.S. Coast Guard operated) 1950 kcs
J-400	Eniwetok-Kwajalein, Multiplex RATT (SAMSON) Eniwetok Transmit — Kwajalein Transmit Chan A: 3247.5 kcs — 3340 kcs Chan B: 5745 kcs — 6780 kcs Chan C: 9062.5 kcs — 9270 kcs

~~CONFIDENTIAL~~

Circuit Number	Circuit and Frequencies
J-401	Eniwetok-USS Estes, Multiplex RATT (SAMSON)

Eniwetok Transmit		USS Estes Transmit	
Chan A:	2068 kcs		2478 kcs
Chan B:	4752.5 kcs		4630 kcs
Chan C:	6920 kcs		6507.5 kcs

J-402 Eniwetok-USS Estes, Duplex RATT, Weather (Stand-by Status, Back-up for J-401)

Eniwetok Transmit		USS Estes Transmit	
Chan A:	2068 kcs		2478 kcs
Chan B:	4752.5 kcs		4630 kcs
Chan C:	6920 kcs		6507.5 kcs

J-403 Guam Weather Broadcast (Intercept only)

Chan A: 5452.5 kcs
Chan B: 8105 kcs
Chan C: 11085 kcs
Chan D: 14515 kcs
Chan E: 21810 kcs

J-404 Tokyo Facsimile Broadcast (Intercept only)
(Transmitting Antennas are beamed on Eniwetok)

Chan A: 7938 kcs
Chan B: 15798 kcs
Chan C: 20885 kcs

J-405 Eniwetok-Kwajalein-Bikini Net, Simplex Voice

Chan A: 3190 kcs
Chan B: 6200 kcs
Chan C: 9545 kcs
Chan D: 11550 kcs

J-406 Eniwetok-Ponape-Kusaie-Majuro-Rongerik-Kwajalein Weather Net, Simplex CW

Chan A: 3427.5 kcs
Chan B: 6495 kcs
Chan C: 9180 kcs
Chan D: 12070 kcs

J-407 Eniwetok AOC-USS Estes CIC-USS Bairoko-Control DDE, Fighter Control DDE, Simplex Voice

Chan A: 2212.5 kcs
Chan B: 6010 kcs
Chan C: 9377.5 kcs

J-408 Eniwetok AOC-USS Estes CIC, Simplex Voice

Chan A: 2100 kcs
Chan B: 4917.5 kcs
Chan C: 9310 kcs

CONFIDENTIAL

Circuit Number	Circuit and Frequencies
J-409	Eniwetok AOC-USS Estes CIC-Operational Aircraft, Simplex Voice (Frequencies on Stand-by status, back-up for J-410) 3060 kcs 6745.5 kcs 7835 kcs 13162.5kcs
J-410	Eniwetok AOC-USS Estes CIC-Control Destroyer-Operational Aircraft, Simplex Voice Chan A: 3295 kcs Chan B: 5460 kcs Chan C: 7580 kcs Chan D: 10122.5kcs
J-411	Eniwetok AOC-Weather Recon Aircraft, Simplex Voice/CW Chan A: 4415 kcs Chan B: 7685 kcs Chan C: 14450 kcs
J-412	Maintenance Control & Expediter Net, Simplex Voice 34.7 mcs
J-413	TG 7.4 Comm Center-Transmitters, AN/TRC Back-up Comm Center Transmit — Transmitters 98.0 mcs — 75.4 mcs 99.6 mcs — 78.0 mcs
J-414	Eniwetok-Liaison Aircraft & Helicopters, Voice 136.44 mcs
J-415	Voice Time Broadcast 126.18 mcs
J-416	Eniwetok AOC-USS Estes CIC-Operational Aircraft, Simplex Voice (*Control Destroyer also operates) (** Fighter Control DDE also operates) 119.34 mcs — C-47 Relay (CIC only) *121.50 mcs** — "D" Channel 126.18 mcs** — "B" Channel 128.70 mcs — "E" Channel 134.10 mcs — "H" Channel 137.88 mcs — "C" Channel *139.86 mcs — "F" Channel

CONFIDENTIAL

Circuit Number	Circuit and Frequencies	
J-416	143.10 mcs	"A" Channel
	146.16 mcs	"G" Channel
	148.50 mcs	C-47 Relay (AOC only)
	151.20 mcs	Spare Frequency
J-417	Eniwetok Control Tower - Operates Continuously (*AOC also operates)	
	*4765 kcs (Transmit only)	
	*6500 kcs (Receive only)	
	8364 kcs (Replaces 8280 kcs)	
	121.5 mcs	
	126.18 mcs	
	135.0 mcs (Transmit only)	
	135.9 mcs	
	236.6 mcs	
	243.0 mcs	
J-418	Eniwetok GCA	
	Hours of Operation:	
	a. Mon thru Sat: 0800 - 1700K.	
	b. During all periods TG 7.4 Test Acft are conducting flights.	
	c. On 30 - 40 minute standby at all other times.	
	121.5 mcs	
	134.1 mcs	
	136.8 mcs	
	142.02 mcs	
	146.16 mcs	
	243.0 mcs	
	289.4 mcs	
	335.8 mcs	
	2800 mcs Search	
	9080 mcs Final Approach	
J-419	Bikini Control Tower - Operates Continuously.	
	121.5 mcs	
	126.18 mcs	
	136.44 mcs	
J-420	Eniwetok Homing Beacon (GY)	
	345 kcs	
	Operates Continuously	

Circuit Number	Circuit and Frequencies
J-421	Bikini Homing Beacon (BI) 400 kcs Operates Continuously Note: If at shot time the antenna and/or equipment are damaged beyond early repair, within 15 minutes the USS Curtiss will have a radio homing beacon operational on 400 kcs with identifier AV.
J-422	Rongerik Homing Beacon (RAM) 1675 kcs Hours of Operation: a. During periods of Task Group 7.4 rehearsals. b. On shot days c. Any time F-84 acft are flying other than in local Eniwetok area.
J-423	Control Aircraft Homing Beacon (AXZ) 219 kcs
J-424	Aircraft Altimeter 440 mcs
J-425	Mark X IFF 960-1150 mcs
J-426	Radiosonde 1660-1700 mcs
J-427	Radar Beacon and Aircraft Radar 9310 mcs Identification: Eniwetok: 2-1-1-2 Bikini: 2-2-1-2 Racons on Eniwetok and Enyu Islands will operate Continuously. LOCATION: ENIWETOK: 11° 20' 47.61" N 162° 19' 49.93" E BIKINI: 11° 30' 36.785" N 165° 33' 37.084" E

CONFIDENTIAL

APPENDIX 2
TO
ANNEX E
OPERATIONS ORDER 1-54

CALL SIGNS AND CODE WORDS

CALL SIGNS

USER	VOICE CALL	CW CALL
AACS Communications Centers:		
Eniwetok	EMOTION	AGD 2Ø
Bikini	EMOTION ONE	4WF
Kwajalein	EMOTION TWO	AGC 2
Aircraft Calls:		
Bikini Helicopters	PEANUT / No	
Eniwetok Helicopters	DAGO / No	
Navy Helicopters	No / THUMBTACK	
L-13's	MOSQUITO / No	
C-47's	REFLECTOR / No	
CJTF SEVEN C-54	LORD CALVERT	5AS
Control RB-36	CASSIDY	8KO
Effects B-36, B-47	ELAINE / No	6NS
Photo C-54's	PEWTER / No	CYØ
SAC B-50's	HARDTIME / No	BE8
Sampler B-36's	FLOYD / No	RD4
Sampler F-84's	TIGER	
SAR SA-16's	STABLE / No	7DU
VIP Aircraft	VIKING / No	VL6
Weather Recon WB-29's	WILSON / No	2GA
PBM's Navy	No / LENA	5OH
Aircraft Carrier - USS BAIROKO	THUMBTACK	NKBR
AOC Eniwetok	DIRTY FACE	
CIC USS Estes	BOUNDARY TARE	NWDE
Control DDE	DOLL HOUSE	
Cloud (Tracking Purposes)	GILDA	
Crash Boats:		
Eniwetok	GUNSHOT ONE	
Bikini	GUNSHOT TWO	
Commander, Task Group 7.4	PULLMAN	
Eniwetok Fighter Control DDE	NUT CRACKER	
Homers, Radio:		
Bikini	BI	
Eniwetok	GY	
Rongerik	RAM	
Control RB-36	AXZ	
Control DDE	YER	
USS Curtiss	AV	
Inter Island CW Weather Net		
Eniwetok		1DR
Kusaie		1DR1
Majuro		1DR2
Ponape		1DR3
Rongerik		1DR4
Kwajalein		1DR5
Liaison Aircraft Dispatchers:		
CVE (Navy)	THUMB TACK	
Bikini	BIGAMY / No	
Eniwetok	PINHEAD / No	

CONFIDENTIAL

~~CONFIDENTIAL~~

USER	VOICE CALL	CW CALL
Maintenance Control Net-Eniwetok	MIDWATCH	
Radio & Radar Shop	NETWORK	
Rendezvous Controller	CASSIDY ONE	
Scientific Sampling Controller	CASSIDY TWO	
Task Group 7.4	LAWYER	
Voice Time Broadcast	BARRYMORE	
Weather Central Eniwetok	GOOD HUMOR	
Weather Central USS Estes	BOUNDARY TARE	NWDE
For Assignment by Task Group 7.4:	CITATION	
	EAGER BEAVER	
	FRASER	

CODE WORDS

IDENTIFICATION	VOICE
Bikini Atoll	AUGUSTUS
Eniwetok Atoll	CAVALIER
Eniwetok Island	FRED
Parry Island	ELMER
Guam	DEFIANT
Kusaie	FLAT BROKE
Kwajalein	HAYWORTH
Ponape	WEASEL
Majuro	TWILIGHT
Roi	IDIOT
Rongelap Atoll	FISHHOOK
Rongerik Atoll	EUGENE
Ujae Atoll	UPROAR
Wake	ESCORT
Wotho	FENWAY

IFF CODE

CODE	MEANING
PARROT	IFF MARK 10
SQUAWK	Turn IFF on Normal (Mode 1)
SQUAWK 2	Turn IFF to Mode 2
SQUAWK 3	Turn IFF to Mode 3
SQUAWK MAY DAY	Turn IFF to Emergency
SQUAWK FLASH	Turn IFF to I/P Position
SQUAWK LOW	Turn IFF to LOW Position (Master Control)
SQUAWKING	Showing IFF in Mode and Position Indicated
PARROT LAZY	Turn IFF to Standby position (Master Control)
STRANGLE PARROT	Turn IFF off
PARROT BENT	IFF Malfunctioning or inoperative

NOTE: See COI 20-2 for Radio Call Signs, Address Groups, Routing Indicators used by all elements of Joint Task Force SEVEN.

~~CONFIDENTIAL~~

APPENDIX 3
TO
ANNEX E
OPERATIONS ORDER NO. 1-54
COMMUNICATIONS

COMMUNICATIONS SECURITY

1. GENERAL:

The purpose of this appendix is to set forth the mission, functions, responsibilities, and organization of the communications security program.

2. GUIDING PRINCIPLES:

a. All low, medium and high frequency radio circuits are subject to constant intercept from fixed land positions or possibly from ships, aircraft or submarines. In the same manner and under favorable atmospheric conditions, VHF transmissions are susceptible to possible monitoring.

b. No radio circuit or telephone circuit having a radio link is approved for transmission of classified information in the clear.

c. All TOP SECRET and RESTRICTED DATA traffic will be enciphered offline prior to transmission.

d. Code names will not be assigned to individuals. The use of personal names on voice radio circuits is authorized.

e. All messages for transmission to addressees outside the BIKINI-ENIWETOK Operational Area will be routed through the Joint Relay Center, ENIWETOK, except:

(1) Traffic between Commander, TG 7.4 and the Weather Island Detachments.

(2) Unclassified traffic (i.e., weather, aircraft movement) between AACS, KWAJALEIN and AACS Detachment, ENIWETOK.

(3) Intra-Task Group operational traffic.

(4) Emergency traffic which cannot be delivered to the Joint Relay Center because of circuit failure.

(5) Other traffic as directed by Commander, JTF SEVEN.

f. Radioteletype facilities will be used in lieu of voice radio whenever practicable for communications security reasons.

g. COI's (Communications Operating Instructions) are published and issued by JTF SEVEN for the technical control and coordination of communication agencies throughout the Task Force. COI's are directive in nature.

h. No cover or deception plan is to be employed except for deception offered by the rehearsals and for such traffic security as is provided by the use of SIGTOT-SAMPSON equipment on RATT circuits.

i. No requirements for radio silence are imposed on Task Group

7.4 radio circuits. Commander, Task Group 7.4 may impose radio silence as required for accomplishment of his mission.

f. Since the new phonetic alphabet (ALPHA, BRAVO, COCOA, etc.) is not being used by all services, the old phonetic alphabet (ABLE, BAKER, CHARLIE, etc.) will be used.

3. MONITORING:

a. Communications channels of Task Group 7.4 in the forward area will be monitored by communications security personnel of Joint Task Force SEVEN. They will analyze messages to detect violations of security, to determine the amount of information of an intelligence value being made available to unauthorized agencies, and to make recommendations as to necessary corrective action.

4. RESPONSIBILITY:

a. Commanders are responsible that communications security is observed at all times.

b. A high degree of communications security will minimize the danger of compromise of classified information. The following functions are necessary to establish an acceptable degree of communications security:

(1) Adherence to provisions of ACP 122(B), "Communications Instructions, Security."

(2) Indoctrinations of all personnel in the need for Communications Security.

(3) Operation of all communications facilities in accordance with procedures as prescribed by Joint Task Force SEVEN Communications Operation Instructions (COI's).

c. Commanders of the Task Units of Task Group 7.4 will be responsible for the supervision and coordination of communications security matters within their respective Task Units.

d. It is mandatory that classified matters not be discussed over any voice radio circuits including VHF and UHF radios. Users of voice circuits will be held responsible for security violations.

5. MESSAGE TRAFFIC:

a. Each message written for electrical transmission will be classified according to its contents.

b. The tributary circuit (wire) between Headquarters, Task Group 7.4 and the Joint Communications Center on ENIWETOK is approved for transmission of messages up to and including SECRET.

c. When Task Group 7.4 is based at ENIWETOK, TOP SECRET and RESTRICTED DATA messages will be handcarried between Headquarters, Task Group and the Joint Communications Center.

d. A message drafters improvement program will be placed in effect by all units of Task Group 7.4, with special emphasis on the following:

(1) Proper classification

(2) Proper precedence

(3) Proper abbreviations

e. Task Unit Commanders will bring to the attention of all message drafters the contents of COI No. 10-7 "Preparation of Messages."

f. ACP 124(A) "Communication Instructions - Radio Telegraph Procedure" will be complied with.

6. TELEPHONE USAGE:

a. In the Zone of Interior, no classified information will be discussed over the telephone.

b. In the forward area wire telephone facilities cleared for conversations up to and including SECRET will be available at:

(1) ENIWETOK ISLAND (400 line dial exchange with connecting service to other islands of ENIWETOK ATOLL)

(2) BIKINI ATOLL (connecting service between necessary islands)

(3) PARRY ISLAND (270 line manual with connecting service to other islands of ENIWETOK ATOLL)

(4) Telephone cables to buoys (providing wire telephone service to designated ships)

c. VHF (FM) radio relay equipment will be provided at key points as a back-up for wire and cable telephone facilities, but communications will be limited to unclassified conversations and message traffic when such facilities are in use. TELEPHONE OPERATORS WILL INFORM TELEPHONE USERS IN ALL CASES WHEN CALLS ARE ROUTED OVER VHF RADIO RELAY FACILITIES AND USERS WILL BE INFORMED THAT CONVERSATIONS MUST BE CONFINED TO UNCLASSIFIED MATTERS.

d. ACP 134(A) "Joint Communications Instructions Appendix IV - Telephone Switchboard Operating Procedure" will be complied with.

e. TOP SECRET and AEC RESTRICTED DATA material will not be transmitted in plain language over telephone circuits, either wire or radio relay.

7. RADIO TELEPHONE PROCEDURE: The following information on Communications Security, based in general on material contained in ACP 125(A) "Communications Instruction Radio Telephone Procedure," is published here for the guidance of all personnel and for compliance by those personnel using HF, VHF, or UHF radiotelephone circuits.

a. Communications Security:

(1) In the interest of security, transmission by radiotelephone will be as short and concise as possible consistent with clearness. Since personnel other than trained operators frequently operate radiotelephone equipment, all personnel must be cautioned that transmissions by radiotelephone are subject to enemy interception and therefore have no security.

(2) Adherence to prescribed procedure is mandatory. Unauthorized departures from or variations in prescribed procedure invariably create confusion, reduce reliability and speed, tend to nullify security precautions, and are prohibited. If the procedure prescribed herein does not cover a specific operating requirement, resorting to initiative and common sense should suffice.

(3) The following basic rules are essential to transmission security and shall be strictly enforced on all radiotelephone circuits.

(a) No transmission shall be made which has not been authorized by proper authority.

(b) The following practices are specifically forbidden:

1. Violation of radio silence.

2. Unofficial conversation between operators.

3. Excessive tuning and testing.

4. Transmitting the operator's personal sign or name.

5. Unauthorized use of plain language in place of applicable prowords or operating signals.

6. Use of other than authorized prowords.

7. Unauthorized use of plain language.

8. Linkage or compromise of classified call signs and address groups by plain language disclosures or association with unclassified call signs.

9. Profane, indecent or obscene language.

(c) The following practices are to be avoided:

1. Use of excessive transmitting power.

2. Excessive time consumed in tuning, changing frequency, or adjusting equipment.

3. Transmitting at speeds beyond the capabilities of receiving operators.

b. Phonetic Alphabet:

(1) When necessary to identify any letter of the alphabet, the phonetic alphabet listed below shall be used:

Letter	Spoken as	Letter	Spoken as
A	ABLE	N	NAN
B	BAKER	O	OBOE
C	CHARLIE	P	PETER
D	DOG	Q	QUEEN
E	EASY	R	ROGER

Letter	Spoken as	Letter	Spoken as
F	FOX	S	SUGAR
G	GEORGE	T	TARE
H	HOW	U	UNCLE
I	ITEM	V	VICTOR
J	JIG	W	WILLIAM
K	KING	X	XRAY
L	LOVE	Y	YOKE
M	MIKE	Z	ZEBRA

(2) Difficult words or groups within the text of plain text messages may be spelled using the phonetic alphabet and preceded by the proword "I SPELL." If the operator can pronounce the word to be spelled, he will do so before and after the spelling to identify the word.

(3) Where a text is composed of pronounceable words, they will be spoken as such. Where a text is encrypted, the groups, even though occasionally pronounceable, are to be transmitted by the phonetic equivalents of the individual letters and without using the proword "I SPELL."

c. Pronunciation of numerals:

(1) To distinguish numerals from words similarly pronounced, the proword "FIGURES" may be used preceding such numbers.

(2) When numerals are transmitted by radiotelephone, the following rules for their pronunciation will be observed.

Numeral	Spoken as	Numeral	Spoken as
0	ZERO	5	FI-YIV
1	WUN	6	SIX
2	TOO	7	SEVEN
3	THUH-REE	8	ATE
4	FO-WER	9	NINER

d. Prowords:

Prowords are pronounceable words or phrases which have been assigned meanings for the purpose of expediting message handling on circuits where radiotelephone procedure is employed. In no case shall a proword or a combination of prowords be substituted by the operator for the textual component of a message. The following prowords are authorized for general use.

PROWORD	EXPLANATION
ALL AFTER	The portion of the message to which I have reference is all that which follows _____.
ALL BEFORE	The portion of the message to which I have reference is all that which precedes _____.
CORRECTION	An error has been made in this transmission. Transmission will continue with the last word correctly transmitted. An error has been made in this transmission (or Message indicated). The correct version is _____. That which follows is a corrected version in answer to your request for verification.

DISREGARD THIS TRANSMISSION	This transmission is in error. Disregard it. This proword shall not be used to cancel any message that has been completely transmitted and for which receipt or acknowledgement has been received.
FIGURES	Numerals or numbers follow.
I READ BACK	The following is my response to your instructions to read back.
I SAY AGAIN	I am repeating transmission or portion indicated.
I SPELL	I shall spell the next word phonetically.
I VERIFY	That which follows has been verified at your request and is repeated. To be used only as a reply to VERIFY.
OUT	This is the end of my transmission to you and no answer is required or expected.
OVER	This is the end of my transmission to you and a response is necessary. Go ahead; transmit.
READ BACK	Repeat this entire transmission back to me exactly as received.
RELAY (TO)	Transmit this message to all addressees or to the address designations immediately following.
ROGER	I have received your last transmission satisfactorily.
SAY AGAIN	Repeat all of your last transmission. Followed by identification data means "Repeat _____ (portion indicated."
SILENCE	Cease transmission immediately. Silence will be maintained until instructed to resume.
SILENCE LIFTED	Silence can be lifted only by the station imposing it or higher authority.
SPEAK SLOWER	Your transmission is at too fast a speed. Reduce speed of transmission.
THAT IS CORRECT	You are correct, or what you have transmitted is correct.
VERIFY	Verify entire message (or portion indicated) with the originator and send correct version. To be used only at the discretion of or by the addressee to which the questioned message was directed.
WAIT	I must pause for a few seconds.
WAIT OUT	I must pause longer than a few seconds.
WILCO	I have received your message, understand it, and will comply. To be used only by the addressee. Since the meaning of ROGER is included in that of WILCO, the two prowords are never used together.
WORD AFTER	The word of the message to which I have reference is that which follows _____.

WORD BEFORE - - - The word of the message to which I have reference is that which precedes.

WORDS TWICE - - - Communications is difficult. Transmit (ting) each phrase (or each code group) twice. This proword may be used as an order, request or as information.

WRONG - - - - - - - Your last transmission was incorrect. The correct version is _____.

e. General:

(1) To utilize circuit time more efficiently all messages or their substance should be written down prior to transmission. Those messages which must be delivered by the receiving operator to another person or which are preceded by the proword "MESSAGE FOLLOWS" shall be written down.

(2) Transmissions by radiotelephone shall be as short and concise as practicable consistent with clarity. The use of standard phraseology enhances brevity.

(3) Transmission over radiotelephone should be clear with natural emphasis on each word except the prescribed pronunciation of numerals, and should be spoken in natural phrases, not word by word.

(4) To avoid interfering with other traffic, an operator shall listen in to make certain that a circuit is clear before making any transmissions thereon.

f. Establishing Communications:

Before conducting regular traffic over radiotelephone circuits, it may be necessary to make contact with the other station (s) involved to ascertain that communications is possible.

g. Signal Strength and Readability:

(1) A station is understood to have good signal strength and readability unless otherwise notified. Strength of signals and readability will not be exchanged unless one station cannot clearly hear another station.

(2) A station that wishes to inform another of his signal strength and readability will do so by means of a short and concise report of actual reception, such as "Weak, but readable," "Strong, but distorted," Loud and clear," etc. Reports such as "Five by five," "Four by four," etc., will not be used to indicate strength and quality of reception. A station desiring to know how his transmission is being received will transmit "How do you hear me?", "What is my readability?", "Report my signals," etc.

8. AUTHENTICATION:

Authentication for voice or telegraphic transmissions, if required, will be in compliance with COI 30-3. The Communications Officer, Test Support Unit, will issue authentication tables as necessary.

CONFIDENTIAL

---AIR-GROUND COMMUNICATIONS FOR CASTLE---

VHF CHANNELS

CHANNEL	FREQ.	DESCRIPTION	F-84 "TIGER"	RB-36 "CASSIDY"	B-36 "FLOYD"	B-36 B-47 "KLAIRE"	C-54 PENTER	SA-16 STABLE	WB-29 WILSON	B-50 HARDTIME	C-47 REFLECTOR	VIP VIKING	KB1 FIGHTER CONTROL, DDE "NUT CRACKER"	CONTROL DDE	AOC DIRTY FACE	CIC BOUNDARY TARE
A	143.1 MC	CIC PRIMARY CONTROL PRE-SHOT: PENTER ONE ALL VIKING POST-SHOT WILSON ONE					PRE-SHOT PENTER ONE TO CIC		POST-SHOT WILSON ONE TO CIC			PRE-SHOT TO CIC				PRE-SHOT:TO PENTER ONE TO VIKING ONE,TWO & THREE (SCOPE CONTROLLER SEVEN) POST-SHOT:TO WILSON ONE (SCOPE CONTROLLER TWO)
B	126.18 MC	CONTROL TOWERS ENIWTOK BIKINI AOC APPROACH CONTROL GUNSHOT ONE & TWO GUARDS	← PRIMARY TO CONTROL TOWERS TO AOC FOR APPROACH CONTROL CIC GUARDS →										GUARDS		TO ALL ACFT FOR APPROACH CONTROL	GUARD MONITOR TIME HACK (SCOPE CONTROLLER ONE)
C	137.88 MC	AOC AREA CONTROL IFF CHECKS CIC BACKUP ENI""TOK VHF/DF	← PRIMARY TO AOC FOR AREA CONTROL & IFF CHECKS →												TO ALL ACFT FOR AREA CONTROL & IFF CHECKS	BACKUP FOR ALL CHANNELS (NOT GUARDED)
D	121.5 MC	EMERGENCY AOC CIC VHF/DF GUNSHOT ONE & TWO GUARDS BOUNDARY TARE ENI'ETOK	← EMERGENCY → TO AOC-CIC-CONTROL TOWERS VHF/DF ENIWETOK-BOUNDARY TARE										GUARDS	GUARDS	GUARDS	PRE-SHOT:TO ALL AIRCRAFT IN EMERGENCY (SCOPE CONTROLLER ONE) POST-SHOT:TO ALL AIRCRAFT IN EMERGENCY (SCOPE CONTROLLER ONE)
E	128.7 MC	PRIMARY SAMPLING CONTROL CASSIDY-TWO TO ALL TIGER & FLOYD ACFT & CIC CIC PRIMARY CONTROL PRE-SHOT KLAIRE ONE & TWO	PRIMARY TO CASSIDY TWO FOR SAMPLING CONTROL	PRIMARY TO ALL TIGER & FLOYD FOR SAMPLING CONTROL	PRIMARY TO CASSIDY TWO FOR SAMPLING CONTROL	PRE-SHOT TO CIC									SPECIAL MISSION CONTROL	PRE-SHOT:KLAIRE ONE & TWO (SCOPE CONTROLLERS FOUR & SIX) POST-SHOT:TO CASSIDY TWO TO ALL TIGER AIRCRAFT TO FLOYD ONE & TWO (SCOPE CONTROLLERS FOUR GUARDS)
F	139.86 MC	CIC PRIMARY CONTROL, PRE-SHOT CASSIDY,WILSON ONE,ALL STABLE CIC,CASSIDY ONE,CONTROL DDE RENDEZVOUS CONTROL POST SHOT: ALL TIGER FLOYD & STABLE ACFT,ARA-8 HOMING	PRIMARY TO CIC CASSIDY ONE& STABLE FOR RENDEZVOUS CONTROL ARA-8 HOMING	PRIMARY TO CIC, ALL TIGER,FLOYD & STABLE FOR RENDEZVOUS CONTROL PRE-SHOT TO CIC FOR PRIMARY CONTROL	PRIMARY TO CIC & CASSIDY ONE FOR RENDEZVOUS CONTROL			PRE-SHOT TO CIC POST-SHOT TO CIC,CASSIDY, ALL TIGER & FLOYD	PRE-SHOT WILSON ONE TO CIC				GUARDS	SPECIAL MISSION CONTROL	PRE-SHOT:TO CASSIDY ONE,TO STABLE ONE & TWO,TO WILSON ONE POST-SHOT:TO CASSIDY ONE,TO STABLE ONE & TWO,TO ALL TIGER AIRCRAFT TO FLOYD ONE & TWO (SCOPE CONTROLLER FIVE)
G	146.16 MC	CIC PRIMARY CONTROL PRE-SHOT PENTER THREE ALL HARDTIME GCA SEARCH	←				PRE-SHOT PENTER THREE TO CIC	— GCA SEARCH —		PRE-SHOT TO CIC	→					PRE-SHOT:TO PENTER THREE,TO HARDTIME ONE,TWO & THREE (SCOPE CONTROLLER THREE) POST-SHOT:BACK UP FOR ALL CHANNELS (NOT GUARDED)
H	134.1 KC	CIC PRIMARY CONTROL PRE-SHOT PENTER TWO GCA FINAL	←				PRE-SHOT PENTER TWO TO CIC	— GCA FINAL →								PRE-SHOT:TO PENTER TWO (SCOPE CONTROLLER TWO) POST-SHOT:BACKUP FOR ALL CHANNELS (NOT GUARDED)
VHF RELAY	119.34 MC 148.5 MC	119.34MC CIC TO REFLECTOR 148.5 MC AOC TO REFLECTOR	←								VHF RELAY 119.34MC TO CIC 148.5MC TO AOC	→				PRE-SHOT:TO AOC (VHF RELAY MONITOR-TELLER) POST-SHOT:TO AOC (VHF RELAY MONITOR-TELLER)
		← HF CHANNELS →														
J 409	6500 KC ACFT XMIT 4765 KC ACFT REC	ACFT TO ENIWETOK & BIKINI TOWERS & AOC AIR ROUTE CONTROL AIR SEA RESCUE		← TO CONTROL TOWERS—AOC →											GUARDS	
J 410	3295 KC 5460 KC 7580 KC 10122.5 KC	AOC-CIC-CONTROL DDE TO ALL MULTI-ENGINE AIRCRAFT		← TO AOC—CIC—CONTROL DDE →										TO ALL MULTI-ENGINE ACFT	TO ALL MULTI-ENGINE ACFT	TO ALL MULTI-ENGINE ACFT
J 411	4415 KC 7685 KC 14450 KC	AOC ENIWETOC TO ALL WILSON							WEATHER & POSITION REPORTING TO AOC, ENIWETOK							
J 306	8364 KC	INTERNATIONAL DISTRESS													GUARDS	GUARDS

TASK GROUP 7.4
OPRS ORDER NO. 1-54
ANNEX E, APNDX 4

CONFIDENTIAL

APPENDIX 5
TO
ANNEX E
OPERATIONS ORDER NO. 1-54
COMMUNICATIONS

VOICE TIME SCRIPT

All voice time broadcasts for BIKINI SHOTS will originate in the Control Room, Building #70 on ENYU, and for ENIWETOK SHOT in the Control Room, Building #311 on PARRY. The following script will be used in making voice time announcements on 126.18 MCS and 152.99 MCS. Throughout the voice time broadcast the exact time will be indicated by the initial sound of a distintive TONE signal.

SCRIPT

TIME	ANNOUNCEMENT
_____	This is BARRYMORE - Standby for time TONE - Standby for time TONE.
_____	In one minute the time will be _____ H MINUS THREE HOURS - H MINUS THREE HOURS.
-30	Thirty seconds.
-50	Ten seconds.
-55	Five seconds.
-3 hrs	TONE _____ H MINUS THREE HOURS. Next time TONE at H MINUS TWO HOURS - Next time TONE at H MINUS TWO HOURS.
_____	This is BARRYMORE - Standby for time TONE - Standby for time TONE.
_____	In one minute the time will be _____ H MINUS TWO HOURS - H MINUS TWO HOURS.
-30	Thirty seconds.
-50	Ten seconds.
-55	Five seconds.
-2 hrs	TONE _____ H MINUS TWO HOURS. Next time TONE at H MINUS ONE HOUR - Next time TONE at H MINUS ONE HOUR.
_____	This is BARRYMORE - Standby for time TONE.
_____	In one minute the time will be _____ H MINUS ONE HOUR - H MINUS ONE HOUR.
-30	Thirty seconds.
-50	Ten seconds.
-55	Five seconds.

TIME	ANNOUNCEMENT
-1 hr	TONE ___ H MINUS ONE HOUR. Next time TONE at H MINUS FORTY-FIVE MINUTES - Next time TONE at H MINUS FORTY-FIVE MINUTES.
_____	In one minute the time will be H MINUS FORTY-FIVE MINUTES - H MINUS FORTY-FIVE MINUTES.
-30	Thirty seconds.
-50	Ten seconds.
-55	Five seconds.
-45 min	TONE - H MINUS FORTY-FIVE MINUTES. Next time TONE at H MINUS THIRTY MINUTES - Next time TONE at H MINUS THIRTY MINUTES.
_____	In one minute the time will be H MINUS THIRTY MINUTES - H MINUS THIRTY MINUTES.
-30	Thirty seconds.
-50	Ten seconds.
-55	Five seconds.
-30 min	TONE - H MINUS THIRTY MINUTES. Next time TONE at H MINUS FIFTEEN MINUTES.
_____	In one minute the time will be H MINUS FIFTEEN MINUTES - H MINUS FIFTEEN MINUTES.
-30	Thirty seconds until H -15 minutes.
-50	Ten seconds until H -15 minutes.
-55	Five seconds until H -15 minutes.
-15 min	TONE - H MINUS FIFTEEN MINUTES.
-10 min	This is BARRYMORE - There will be an important safety announcement, at H MINUS SEVEN MINUTES.
-7 min	At H MINUS ONE MINUTE observers having special density goggles or lenses put them on - those not having special goggles or lenses, face away from ZERO POINT — Do not face ZERO POINT or remove goggles until FIRE BALL DISSIPATES.
	To avoid eye injury binoculars or telescopes must not be used to view burst.
	In the event of no detonation - Do not remove goggles and hold position until advised. In the event of no detonation - Do not remove goggles and hold position until advised.
_____	In one minute the time will be H MINUS FIVE MINUTES - H MINUS FIVE MINUTES.
-30	Thirty seconds until H -5 minutes.

TIME	ANNOUNCEMENT
-50	Ten seconds until H -5 minutes.
-55	Five seconds until H -5 minutes.
-5 min	TONE - H MINUS FIVE MINUTES.
	In thirty seconds H MINUS FOUR MINUTES.
-50	Ten seconds.
-55	Five seconds.
-4 min	TONE - H MINUS FOUR MINUTES.
	In thirty seconds H MINUS THREE MINUTES.
-50	Ten seconds.
-55	Five seconds.
-3 min	TONE - H MINUS THREE MINUTES.
	In thirty seconds H MINUS TWO MINUTES
-50	Ten seconds.
-55	Five seconds.
-2 min	TONE - H MINUS TWO MINUTES.
	In thirty seconds H MINUS ONE MINUTE.
-50	Ten seconds.
-55	Five seconds.
-1 min	TONE - H MINUS ONE MINUTE Put on goggles or turn away - Do not remove goggles or face burst until FIRE BALL DISSIPATES.
-15	45 seconds to ZERO TIME.
-30	30 seconds to ZERO TIME.
-35	25 seconds to ZERO TIME.
-40	20 seconds to ZERO TIME.
-45	15 seconds to ZERO TIME.
-50 to 60	Ten, nine, eight, seven, six, five, four, three, two, one, TONE.
+ 10 sec	The shock wave will arrive in a few minutes - Keep firm footing until wave passes.

Annex "F"

In 6 pages w/1 Appendix

consisting of 2 pages

ANNEX "F"

TO

OPERATIONS ORDER NO. 1-54

SEARCH AND RESCUE

SECRET

ANNEX "F"
TO
OPERATIONS ORDER NO. 1-54
SEARCH AND RESCUE

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o Postmaster
San Francisco, California
9 February 1954, 1800M

References: (a) Search and Rescue Joint Standard Operating Procedures; prepared jointly by Commander-in-Chiefs, Caribbean (CINCARIB), Far East (CINCFE), Pacific (CINCPAC) and Alaska (CINCAL).

1. RESPONSIBILITIES:

a. Responsibilities of commanders for Search and Rescue (SAR) operations within their respective commands are set forth in reference (a). Specifically, as relates to the area of primary concern to Commander, JTF SEVEN, responsibility for Search and Rescue is assigned to CINCPAC.

b. These references further provide that:

"For tactical aircraft, operating on unit combat or training missions, the primary responsibility for SAR rests with the commander exercising operational control of the aircraft, regardless of the area of operation. This responsibility may be delegated to subordinate commanders. Commanders holding SAR responsibility as defined above shall insure that their operating forces are familiar with the rescue facilities and procedures of the SAR area in which they are operating and shall request assistance as necessary from the appropriate area SAR Commander. Once the area SAR Commander has been requested to provide assistance he assumes SAR control."

The paragraph quoted is applicable to Operation CASTLE (CONFIDENTIAL), and places certain responsibilities on Commander, JTF SEVEN.

c. Over-all responsibility for search and rescue within JTF SEVEN is delegated to TG 7.4. TG 7.4 is therefore responsible for the over-all control of all JTF SEVEN SAR operations. This over-all responsibility, however, in no way relieves the individual Task Group Commander of his inherent SAR responsibilities as pertain to his own forces.

d. The over-all control of Joint Task Force SAR forces during shot and rehearsal periods is delegated to the Senior Air Controller on the ~~Command Ship~~ by the Commander, Task Group 7.4. During all other periods this control will be delegated to the Senior Air Controller in the AOC, and will be exercised by the SAR section of the AOC.

e. The Commander, Test Services Unit, will be responsible for providing two (2) SA-16 aircraft for shot and rehearsal periods, one (1) SA-16 for backup and for twenty-four (24) hour airstrip alert during the entire project, and a competent SAR control section in the AOC.

SECRET

f. All pilots, and all AOC, CIC and SAR personnel will be responsible for a detailed knowledge of all information outlined in this Annex.

g. The Commander, Test Services Unit, will be responsible for providing SAR briefings to all participating 7.4 aircrews.

h. The Commander, Test Support Unit, will place one (1) SAR helicopter and one (1) Crash Boat under the operational control of the AOC from 27 February 1954 and continuing throughout the project.

2. GENERAL SAR PLAN:

a. SAR aircraft will be identified by the voice Call Sign STABLE 1,2,3, and 5 and by CW Call Sign 7DV 1,2,3 and 5, as appropriate. Call signs of all project aircraft and stations are specified in Appendix 3 to Annex "D", Operations Order No. 1-53, and in Annex "E", this order. STABLE 1,2 and 3 are SA-16 type aircraft. STABLE 5 is a Helicopter.

b. STABLE 1,2 and 3 will carry aero-medical technicians, who will also function as radiological monitors. Reference: Paragraph 11c (3), page H1-3, Appendix 1, Annex "H", Operations Order No. 1-53.

c. During operational periods, control and coordination of SAR aircraft will be exercised by the Air Operations Center (AOC) until such time as positive control is accepted by BOUNDARY TARE (CIC aboard the Command Ship), in accordance with the provisions of Appendix 1 to this Annex.

d. One (1) SA-16 will be maintained on continual airstrip alert (ground) during the entire project.

e. One (1) H-19 or H-13 helicopter will be maintained on continual airstrip alert (ground) during the entire project.

f. One (1) Naval AVR Crash Boat, Voice Call Sign GUNSHOT ONE (1) will be maintained on continual SAR alert in the ENIWETOK Lagoon during the entire project.

g. Inspections and periodic maintenance of SAR SA-16 aircraft will be performed at KWAJALEIN by the 78th Air Rescue Squadron.

h. The SAR Element will bring a thirty (30) day flyaway kit of aircraft spares, with resupply from AF 714 SO, Hickam AFB, through the MATS Service Stock at KWAJALEIN.

i. Resupply of the SAR Element will be the responsibility of the Commander, Test Services Unit, Provisional, through AF 714 SO, Hickam AFB, and the MATS Service Stock at KWAJALEIN.

j. Applicable personnel supply and administrative procedures are those outlined in Annex "C" and pertinent appendicies of Operations Order No. 1-53.

k. SAR Element training will be accomplished as outlined in Annex "F", Operations Order No. 1-53 and in this Annex.

l. Matters pertaining to Security will be found in Annex "G", Operations Order No. 1-53 e.g. Security Clearances, Classification Criteria, Photography, etc.

3. STRIP ALERT AIRCRAFT OPERATIONAL PROCEDURES:

a. Intercept and Escort:

(1) The SA-16 on strip alert at ENIWETOK will provide rescue facilities for all aircraft in distress within the vicinity during non-operational periods. Its call sign will be STABLE 3.

(2) Upon notification of distress from any aircraft or surface vessel, the ENIWETOK AOC will notify all proper agencies, including the SAR alert crew and SAR Controller.

(3) When notified of the distress by the ENIWETOK AOC, the SAR aircraft will become airborne as quickly as possible. The SAR aircraft will contact DIRTY FACE on Channel "C" for vector to the craft in distress.

(4) The SAR aircraft will contact the distressed craft on the latter's operating frequency. When within VHF range of aircraft in distress, the SAR aircraft will contact the aircraft in distress on Channel "D" (121.5 megacycles).

(5) The SAR aircraft will be cleared by ENIWETOK AOC to the altitude requested and the intercept will be accomplished using scope control directions from the AOC, DR, Loran O-17 Low Frequency Oscillator, AN/ARA-8, VHF Homing Adapter, APS-31, Mark 10 transponder, flares, Aldis Lamp and landing lights as necessary.

(6) Escort will be given to the closest landing area, depending upon the urgency of the situation.

(7) Every effort will be made to maintain SAR communication with the distressed aircraft on its operating HF frequency. All other radio traffic will be directed to discontinue using the frequency and to maintain radio silence until further notice.

b. Ditching:

(1) If ditching is imminent, the SAR aircrew will give all directions and assistance to the distressed aircraft including:

(a) Sea Conditions.

(b) Wind Conditions.

(c) Best Ditching Heading.

(d) Best location for ditching if near atoll.

(e) Parachute flare for night ditching.

(f) Drop PP-1 flotation equipment to personnel, which consists of two (2) 20 man life rafts, three (3) emergency sustenance kits, URC-4 radio, etc.

(2) If pick-up of personnel is not possible, due to sea condition, for example, the SAR aircraft will circle the area and assist in directing helicopter and/or surface craft support to the distress target. The SAR aircraft will transmit requests for additional rescue facilities to the AOC on 6500 Kilocycles, HF, VHF Channel "C", or on the operating frequency of the distressed aircraft.

(3) If a water pick-up is accomplished, survivors will be evacuated and given necessary medical attention by the aero-medical technician crew member. STABLE aircraft will advise the ENIWETOK AOC if medical facilities will be required upon landing at the base.

c. SAR Coordination Procedure:

(1) The scene of action ("on-scene") command of SAR operations will be exercised by the SA-16 aircraft. Frequency for "on-scene" coordination and control will be VHF Channel "D" and HF Circuit J-417. Overall control will be retained at the AOC, and control of individual SAR unit at the scene of action will be exercised through the "on-scene" commander. SAR units will come under the "on-scene" command when they are in the scene of action area, and communications are established with the "on-scene" commander.

(2) Outlined below are procedures which will be employed by the SA-16, helicopter, and crash boat to coordinate rescue operations within the AOC control area:

(a) SA-16 Aircraft: Initial contact with the AOC will be on VHF Channel "C". If the AOC has VHF contact with the distressed aircraft, the rescue aircraft will contact the distressed aircraft on the same frequency. After contact has been established between the rescue and distressed aircraft, or if the AOC does not have ~~VHF~~ HF contact with the distressed aircraft, ~~VHF Channel "D"~~ Guard Channel will be used to establish communications between the rescue and the distressed aircraft.

(b) SAR Helicopter: Initial contact with the AOC will be on ~~VHF~~ Channel ~~"C"~~, Frequency control will be exercised by the AOC to coordinate, contact, and to effect direct contact with the associated SA-16, on ~~VHF~~ Channel ~~"D"~~.

(c) Crash Boat: The crash boat will guard ENIWETOK tower frequency, VHF Channel ~~"B"~~, and circuit J-417 at all times. The crash boat will be dispatched and controlled by the AOC through ENIWETOK tower. Frequency control will be exercised by the AOC to effect direct control with the associated SA-16, on VHF Channel "D".

4. REHEARSAL AND SHOT PROCEDURES:

a. The SAR Element, Provisional, will provide three (3) SA-16 aircraft for rescue activities during rehearsal and actual shot periods. Primary SAR missions will be performed by two of the SA-16's; the third aircraft will provide back-up support.

b. The two (2) primary SAR aircraft will be required to fly eight (8) hour missions during these periods and will be known as STABLE #1 and #2.

c. The third aircraft will remain at ENIWETOK on a twenty-four (24) hour strip alert status and will be utilized, if necessary, as a back-up aircraft for STABLE #1 and #2. This aircraft is designated as STABLE #3.

d. During operational periods, STABLE aircraft will turn APX-6 IFF to Position Two (2) on take-off and remain on that position until further advised.

e. Detailed operating instructions for STABLE aircraft are contained in Appendix 1, this Annex.

5. EMERGENCY PROCEDURES FOR STABLE AIRCRAFT:

a. Upon notification of an emergency on Channel "F", from either BOUNDARY TARE or CASSIDY, STABLE aircraft will:

(1) Turn to vector given by control or obtained on APS-31 scope from emergency IFF blips transmitted by the distressed aircraft.

(2) Proceed to area using METO power.

(3) Standby on Channel "F" and HF Circuit J-410 for further information.

(4) Make rescue plan to fit the situation and advise proper control.

(5) If F-84 type aircraft is in distress, AN/ARA-8 Homing may be obtained on VHF Channel "F".

(6) Be prepared to coordinate with helicopters or surface vessels for search/rescue missions.

b. Additional intercept/escort/ditching procedures will be used as outlined in previous paragraphs.

6. STABLE AIRCRAFT SPECIFIC OPERATING INSTRUCTIONS:

a. STABLE aircraft will carry inclosure to Appendix 4, Annex "D", Operations Order No. 1-53, "Air Ground Communications for CASTLE", to facilitate rapid contact in case of emergency. (NOTE: Check revised Operations Order for revised Appendix designator, etc.).

b. STABLE aircraft will carry maps approved by Task Group 7.4; also maps of ENIWETOK and BIKINI ATOLLS, scale 1:100,000, showing depth of water, in fathoms, should water landings be necessary for emergency pick-ups.

c. STABLE aircraft will not fly in or near GILDA (Atomic Cloud) after H-hour. Area downwind of GILDA should be avoided to prevent fall-out contamination, and no flight should be conducted closer than ten (10) nautical miles from the visible or rising cloud unless specifically directed otherwise.

d. Pilots and Co-pilots in the air at shot time shall use modified, all purpose .1 density filter goggles. Co-pilots should, as an extra precaution, cover their eyes with forearm at zero hour.

SECRET

e. All persons in aircraft at shot time, or at subsequent times when engaged in operations in or near the cloud or radex track, shall wear film badges.

7. MISSION REPORTING:

a. All incidents pertaining to SAR operations will be reported to Headquarters, Air Rescue Service through the 78th Air Rescue Squadron, KWAJALEIN M.I., as directed by ARS Regulation 55-16 and CTG 7.4.

b. Rescue operations conducted in the ENIWETOK - BIKINI area will include SARCC at Pearl Harbor and SAR Center at USNA KWAJALEIN - flash information will be sent out on teletype circuit and actual intercept rescue and closing of mission reported when accomplished.

HOWELL M. ESTES, JR.
Brigadier General, U. S. A. F.
Commander

APPENDICES:

1 - Specific Instructions for Shot and Rehearsal Missions.

OFFICIAL:

Paul H. Fackler
PAUL H. FACKLER
Lt Colonel, USAF
Director of Operations

SECRET

APPENDIX 1
TO
ANNEX F
OPERATIONS ORDER NO. 1-54
SPECIFIC INSTRUCTIONS FOR SHOT AND REHEARSAL MISSIONS

1. MISSION: To provide Search and Rescue service to all Joint Task Force air and surface craft in distress.

2. RESPONSIBILITIES:

a. The Commander, Test Aircraft Unit, will insure that aircraft meet take-off schedules as outlined in Annex "C".

b. The AOC Senior Air Controller will be responsible for the operational control of SAR aircraft while operating in the ENIWETOK area.

c. The SAR Controller in the AOC will be responsible for scrambling SAR aircraft as directed by the Senior Air Controller, and for advising the Senior Air Controller on SAR operations.

d. The CIC Senior Air Controller will be responsible for the operational control of the SA-16 Search and Rescue aircraft while operating in the Command Ship area on rehearsals or actual shots.

3. PROCEDURES:

a. On rehearsal and actual shot missions, the Search and Rescue SA-16's, call sign STABLE ONE (1) and TWO (2), will take-off as scheduled in Annex "C" (Aircraft Mission Execution Chart). They will call the AOC, call sign DIRTY FACE, on VHF Channel "C". DIRTY FACE will check all modes of IFF, and HF air ground Channel J-410, while STABLE aircraft are proceeding to their assigned H-hour positions as outlined in Annex "D" (Aircraft H-hour Positions and Flight Patterns). DIRTY FACE will maintain control until STABLE aircraft are approximately 90 miles from BIKINI, will then instruct STABLE aircraft to contact the CIC, call sign BOUNDARY TARE on VHF Channel "F", with IFF squawking Mode 2.

b. The BOUNDARY TARE Controller will establish positive control of STABLE ONE (1) and vector him to a position outside CASSIDY, from the cloud, or at sufficient distance to avoid cloud fallout. This distance is to be recommended by the JTF SEVEN Rad-Safe Officer and transmitted to CASSIDY and STABLE by the BOUNDARY TARE Controller.

c. STABLE ONE (1) will remain under control of CASSIDY on channel "F" (139.86) until informed by CASSIDY to change to Channel "D" (121.5) or other frequency, as directed, for the purposes of a SAR emergency.

d. For return to base (ENIWETOK), CASSIDY will provide STABLE ONE (1) a range and bearing to BOUNDARY TARE, and BOUNDARY TARE will accept control upon establishing radio and IFF contact and provide STABLE ONE (1) with range and bearing to ENIWETOK. When STABLE ONE (1) is approximately 90 miles from BIKINI, inbound to base, BOUNDARY TARE will instruct STABLE ONE (1) to call DIRTY FACE on Channel "D". DIRTY FACE will establish positive control and provide STABLE ONE (1) with range and bearing to base.

e. The BOUNDARY TARE Controller will establish positive control of STABLE TWO (2) on Channel "F" and vector him to orbit position as outlined in Annex "D".

STABLE TWO (2) will remain under control of BOUNDARY TARE on Channel "F" (139.86) until informed by BOUNDARY TARE to switch to Channel "D" (121.5) or other frequency, as directed, for the purpose of a SAR emergency. STABLE TWO (2) will monitor Channel "F" and standby to receive range and bearing from BOUNDARY TARE to any aircraft in distress. STABLE TWO (2) will remain in the Command Ship area until all sampling is completed and he is released by BOUNDARY TARE to return to base. BOUNDARY TARE will provide range and bearing to ENIWETOK and when STABLE TWO (2) is approximately 90 miles from BIKINI, inbound to ENIWETOK, BOUNDARY TARE will instruct STABLE TWO (2) to contact DIRTY FACE on Channel "C". DIRTY FACE will establish positive control and provide STABLE TWO (2) with range and bearing to base.

f. On rehearsal and actual shot missions, the Search and Rescue SA-16, call sign STABLE THREE (3) will occupy a position on the ground at ENIWETOK adjacent to runway (See Annex "B", "Aircraft Parking Plan", and Annex "O", "Aircraft Mission Execution Chart"). STABLE THREE (3) will be scrambled by the SAR Controller in the AOC by direct communication to Rescue Alert Position. Immediately upon becoming airborne, STABLE THREE (3) will contact DIRTY FACE on Channel "C" for instructions.

g. On rehearsals, actual shot missions, and during jet practice periods, the Search and Rescue helicopter, call sign STABLE FIVE (5), will be maintained in a ground alert status and will assume a position adjacent to runway (See Annex "B", "Aircraft Parking Plan", and Annex "C", "Aircraft Mission Execution Chart"). STABLE FIVE (5) will be scrambled by the SAR Controller in the AOC by direct communication to the Rescue Alert Position. Immediately upon becoming airborne, STABLE FIVE (5) will contact DIRTY FACE on Channel "C" for instructions.

h. The Crash Boat, call SHOTGUN ONE (1), will standby in ENIWETOK lagoon. SHOTGUN ONE (1) will continually monitor VHF Channel "B" and will be under the operational control of the AOC.

Annex "G"

In 3 pages w/1 Appendix

consisting of 2 pages

ANNEX "G"

TO

OPERATIONS ORDER NO. 1-54

CONTROL RB-36 FLIGHT PROCEDURES

SECRET

ANNEX "G"
TO
OPERATIONS ORDER NO. 1-54
CONTROL RB-36 FLIGHT PROCEDURES

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o Postmaster
San Francisco, California
9 February 1954, 1800M

1. MISSION: To control all aircraft in the sampling area; to direct F-84 and RB-36 sampling missions as required; to accomplish certain photographic missions; to provide required radiological data to the Command Ship.

2. RESPONSIBILITIES: The Commander, Test Aircraft Unit, and the Senior Task Group 7.4 Controller, will assure that the provisions of this regulation are carried out.

3. PROCEDURES:

a. The Control RB-36 will conduct one vertical mapping mission of Bikini and Eniwetok Atolls between 7 and 15 Feb 54. Specific requirements for this mission will be supplied by Task Group 7.1.

b. On R minus one (1) day, the Control RB-36, call sign CASSIDY ONE will take off as scheduled in Annex "C" (Aircraft Mission Execution Chart). The pilot will call the AOC, call sign DIRTY FACE, on VHF Channel "C". DIRTY FACE will check all modes of IFF and HF air ground Channel J-410 while CASSIDY is proceeding to his assigned H-Hour position as designated in Annex "D" (Aircraft H-Hour Positions and Flight Patterns). DIRTY FACE will maintain control until CASSIDY is approximately 90 miles from Bikini, then instruct CASSIDY to contact the CIC, call sign BOUNDARY TARE on VHF Channel "E" for control. IFF will be squawking mode 2.

c. The BOUNDARY TARE Controller will establish radio and IFF contact with CASSIDY and provide the aircraft with range and bearing to its assigned H-Hour position, to perform cloud measurement photography. Details of this mission will be supplied by Task Group 7.1. CASSIDY will hold at this position with BOUNDARY TARE providing range and bearing information, as required, from ground zero. At H-Hour, cloud measurement photographs will be accomplished. At H-Hour plus 15 minutes CASSIDY will proceed to the Command Ship, and standby to accept positive control of the SAR Aircraft, call sign STABLE ONE (1). Rendezvous of CASSIDY and STABLE ONE (1) will be accomplished by BOUNDARY TARE through radar control on VHF Channel "F". CASSIDY will then proceed on primary mission, with STABLE ONE (1) under its positive control. STABLE ONE (1) will hold on CASSIDY, through use of radio compass and maintain a safe distance from GILDA to avoid fall out. STABLE ONE (1) will remain on "F" Channel, showing mode 2 IFF. CASSIDY will use downward looking radar, if operation 1, to maintain control of STABLE. BOUNDARY TARE will provide each element of F-84 samplers, call sign TIGER RED, WHITE or BLUE, with range and bearing to CASSIDY on VHF Channel "F". When TIGER aircraft are within radar range of CASSIDY the BOUNDARY TARE Controller will notify the CASSIDY Rendezvous Controller, call sign CASSIDY ONE, the TIGER

SECRET

element's relative position. Continuous positions will be given to both CASSIDY ONE and TIGER aircraft until CASSIDY ONE makes positive radio and IFF contact with TIGER aircraft. CASSIDY ONE will then assume control. CASSIDY ONE will turn control of the TIGER element over to sampler Controller, call sign CASSIDY TWO on VHF Channel "E". CASSIDY TWO will direct the TIGER aircraft sampling mission. Upon completion thereof, CASSIDY TWO will instruct the TIGER element to return to "F" Channel and call CASSIDY ONE. CASSIDY ONE will rendezvous the TIGER element and give the lead aircraft a bearing and range to BOUNDARY TARE or DIRTY FACE, maintaining control until BOUNDARY TARE or DIRTY FACE establishes radio and IFF contact with TIGER aircraft and accepts positive control.

d. In the event of an F-84 emergency, CASSIDY ONE will direct STABLE ONE to the aircraft in distress, on Channel "F". If the SAR aircraft is not in the immediate area or cannot be contacted, CASSIDY ONE may direct another aircraft in the area to orbit over the distressed aircraft until the SAR aircraft arrives and assumes control of the rescue operation.

e. BOUNDARY TARE will continually monitor the sampling operation on VHF Channel "E" and "F", and standby on "D" for emergency. All aircraft positions will be monitored by BOUNDARY TARE throughout the sampling operation to assist CASSIDY in positioning any aircraft, on request, or to take over control of SAR operations if required. BOUNDARY TARE will provide CASSIDY with any weather or rad/safe information requested on Channel "E" or "F". If the sampling area drifts from BOUNDARY TARE's radio coverage, communications between BOUNDARY TARE and CASSIDY will be established on the HF air ground Channel J-410 or through use of a VHF relay aircraft.

f. CASSIDY TWO (2) will provide BOUNDARY TARE with radiological reports each 30 minutes, as outlined in Appendix 1. HF air-ground channel J-410 or VHF Channel "E" will be used for this reporting.

g. CASSIDY ONE (1) will be instructed by BOUNDARY TARE to switch to Channel "B" for the following time hacks:

(1) H-2 hours 2 minutes for H-2 hour time hack.

(2) H-1 hour 2 minutes for H-1 hour time hack.

(3) H-32 minutes for H-30 minutes time hack.

(4) H-3 minutes and remain on B until after H hour.

h. When CASSIDY has completed its mission, to include directing the B-36 or Canbera samplers, if required, BOUNDARY TARE will vector CASSIDY to Eniwetok and maintain positive control until DIRTY FACE establishes radio and IFF contact with CASSIDY. At this time, DIRTY FACE will assume positive control of CASSIDY and vector the aircraft to base for landing.

i. In the event of a cloud movement toward Eniwetok, BOUNDARY TARE may direct DIRTY FACE to send F-84's direct to CASSIDY ONE (1). CASSIDY ONE (1) will normally send departing F-84's to DIRTY FACE by way of BOUNDARY TARE. If deemed more practical, considering fuel remaining, cloud position, etc., F-84's may be sent directly back to DIRTY FACE or by way of the Control Destroyer. BOUNDARY TARE will be immediately notified of any such action.

SECRET

APPENDICIES:
1. Sequence Cloud report for Control B-36 Sampling Operations

HOWELL M. ESTES, JR.
Brigadier General, U.S.A.F.
Commander

OFFICIAL:

Paul H. Fackler

PAUL H. FACKLER
Lt Colonel, USAF
Director of Operations

TASK GROUP 7.4
OPRS ORDER NO. 1-54
ANNEX #G

G-3

SECRET

SECRET

APPENDIX 1
TO
ANNEX "G"
OPERATIONS ORDER NO. 1-54
SEQUENCE CLOUD REPORT FOR CONTROL B-36 SAMPLING OPERATIONS

1. This report code has been designed to provide information on the initial break-up and radiation intensities in the cloud during the period H to H plus 6 hours. Information to be reported includes approximations of the altitudes of tops of each of the major cloud segments and an estimate of successive positions and diameters of these segments. Further, pertinent information will be reported on penetrations by the sampling aircraft as indicated below.

2. The report will be formulated by the scientific director in the Control B-36 and reported in the following sequence: (Item C, D,E,F and G and item O will be encoded as below, the code changing for each shot. New codes will be distributed by JTF SEVEN five (5) days prior to each shot.)

ITEM	INFORMATION	REPORT
A	Local time of report.	0800
B	Number of major cloud segments	4
C	Top of first (highest) segment (coded, Est Alt in thousands)	66
D	Top of second segment (coded, Est Alt in thousands)	33
E	Top of third segment (coded, Est Alt in thousands)	00
F	Top of fourth segment (coded, Est Alt in thousands)	88
G	Top of fifth segment (coded, Est Alt in thousands)	Negative
H	Estimated position and extent of first (highest) segment (in NM with respect to GZ, in degrees from GZ and diameter in NM).	80 by 90 by 40
I	Estimated position and extent of second segment (in NM with respect to GZ, in degrees from GZ and diameter in NM)	75 by 45 by 30
J	Estimated position and extent of third segment (in NM with respect to GZ and diameter in NM)	50 by 00 by 40
K	Estimated position and extent of fourth segment (in NM with respect to GZ, in degrees from GZ and diameter in NM)	40 by 250 by 30
L	Estimated position and extent of fifth segment (in NM with respect to GZ, in degrees from GZ and diameter in NM)	Negative
M	Average penetration altitude (in thousands) (Negative if no penetration involved)	45
N	Average time of penetration (in seconds from 1.0 r/hr to 1.0 r/hr) (Negative if no penetration involved)	125
O	Average maximum intensity encountered (in r/hr) (Neg if no penetration involved)	44

SECRET

3. Reports should be made atleast hourly. In addition, at least one abbreviated report will be made for each penetration of F-84 samplers, B-36 featherweights and the heavy nuclide sampler. Short reports should be identified as such (i.e. "ABBREVIATED REPORT") and should contain Items A (local time) plus M, N and O.

EXAMPLE: "This is _____/GILDA REPORT/0800/4/66/33/00/88/Negative/80 by 90 by 40/75 by 45 by 30/50 by 00 by 40/40 by 250 by 30/Negative/45/125/44/Over."

or for abbreviated report

"This is_____/ABBREVIATED GILDA REPORT/0800/45/125/44/Over."

4. The altitudes of the top of the various segments will be encoded as follows: (Code is example only and will be changed for each shot. Encode to nearest altitude).

Altitude (In feet)	CODE
10,000	55
20,000	88
30,000	00
40,000	44
50,000	11
60,000	33
70,000	99
80,000	77
100,000	22
120,000	66

5. The average maximum intensity of radiation encountered on cloud penetrations will be encoded as follows; (Code is example only and will be changed for each shot. Encode to nearest intensity reading).

Intensity (In r/hr)	CODE
10	22
50	66
100	88
150	33
200	77
250	99
300	55
350	44
400	00
500	11

Annex "H"

In 2 pages

ANNEX "H"

TO

OPERATIONS ORDER NO. 1-54

F-84 SAMPLER FLIGHT PROCEDURES

SECRET

ANNEX H
TO
OPERATIONS ORDER NO. 1-54
F-84 SAMPLER FLIGHT PROCEDURES

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o Postmaster
9 February 1954, 1800M

1. MISSION: To obtain cloud samples as directed by the scientific observer in the Control RB-36.

2. RESPONSIBILITIES: The Commander, Test Aircraft Unit, will insure that all F-84 pilots are familiar with this Annex and that its provisions are carried out.

3. PROCEDURES:

a. F-84 Samplers, call sign TIGER, will take off in two (2) ship elements as scheduled in Annex C (Aircraft Mission Execution Chart). These take offs may be rescheduled during the operation by direction of BOUNDARY TARE. Such directions will be issued to DIRTY FACE for relay to F-84 operations. When airborne, each element will call the AOC, call sign DIRTY FACE, on VHF Channel "C". DIRTY FACE will take over direct control of the F-84's at this point and vector them to the sampling area, checking all IFF modes enroute. DIRTY FACE will then instruct the TIGER lead aircraft to return to mode 2. In the event that radio or IFF is inoperative on any aircraft, the two (2) ship element will be instructed by DIRTY FACE to abort mission. With radio and IFF functioning properly, the TIGER element will continue on course to the sampling area and when approximately ninety (90) miles from Eniwetok, DIRTY FACE will instruct them to contact the CIC, BOUNDARY TARE, for control on Channel "F".

b. The BOUNDARY TARE, TIGER Controller, will establish radio and IFF contact with TIGER elements as soon as possible and accept positive control. If radio or IFF is inoperative in either aircraft of a TIGER Element, BOUNDARY TARE will direct the TIGER Element to abort. With radio and IFF functioning properly, BOUNDARY TARE will vector the TIGER Element to the CASSIDY rendezvous controller, call sign CASSIDY ONE, who is also on VHF Channel "F". When CASSIDY ONE establishes radio and IFF contact, he will accept positive control notifying the TIGER Element and BOUNDARY TARE simultaneously. CASSIDY will vector the F-84's to its position, then instruct the F-84's to switch to VHF Channel "E" for sampler control. This control will be exercised by the Sampler Controller aboard the Control RB-36 whose call sign is CASSIDY TWO. Sampling will be conducted at altitudes and areas as directed by CASSIDY TWO. When this mission is completed, or in the event an F-84 becomes lost, CASSIDY TWO will instruct the aircraft to switch back to VHF Channel "F" and CASSIDY ONE will vector the F-84's back to the Sampler Controller or to BOUNDARY TARE, as appropriate.

c. When BOUNDARY TARE establishes radio and IFF contact with the F-84's, inbound to base from the sampling area, he will notify CASSIDY ONE and the F-84's simultaneously on VHF Channel "F", and assume positive control of the F-84's at this point. BOUNDARY TARE will give the F-84's a vector to Eniwetok, maintaining positive control until approximately ninety (90) miles from base. At this point the F-84's will be instructed to switch to VHF Channel "C" and DIRTY FACE will assume positive control when radio contact is established.

d. F-84 call signs will be as follows:

(1) 1st Flight - TIGER RED 1 and 2.

(2) 2d Flight - TIGER RED 3 and 4.

SECRET

(3) 3rd Flight - TIGER WHITE 1 and 2.

(4) 4th Flight - TIGER WHITE 3 and 4.

(5) 5th Flight - TIGER BLUE 1 and 2.

(6) 6th Flight - TIGER BLUE 3 and 4.

e. Emergency procedures: See SAR Annex F.

f. In event the cloud moves to the vicinity of Eniwetok, BOUNDARY TARE will direct the AOC to vector fighters directly to CASSIDY for control. In this event, appropriate functions of BOUNDARY TARE, as outlined above, will be performed by DIRTY FACE.

OFFICIAL:

Paul H. Fackler

PAUL H. FACKLER
Lt Colonel, USAF
Director of Operations

HOWELL M. ESTES, JR.
Brigadier General, U.S.A.F.
Commander

Annex "I"

In 1 page

ANNEX "I"

TO

OPERATIONS ORDER NO. 1-54

B-36 EFFECTS FLIGHT PROCEDURES

ANNEX "I"
TO
OPERATIONS ORDER NO. 1-54
B-36 EFFECTS FLIGHT PROCEDURES

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o Postmaster
San Francisco, California
9 February 1954 1800M

1. MISSION: To measure and record certain blast and thermal effects in the immediate target area during Operation CASTLE in order to obtain required effects data.

2. RESPONSIBILITIES:

a. The Commander, Test Aircraft Unit, is responsible for the readiness of the aircraft to meet take-off schedules for rehearsals and actual shots.

b. The Senior Air Controller on the Command Ship will be responsible for the operational control of the B-36 Effects aircraft while operating in the test area.

c. Task Group 7.1 will be responsible for the calibration, maintenance and operation of the special instrumentation installed in the B-36 Effects aircraft.

3. PROCEDURES:

a. The Effects B-36, call sign ELAINE ONE, will take-off as scheduled in Annex C (Aircraft Mission Execution Chart). The pilot will call the AOC, call sign DIRTY FACE, on VHF Channel "C". DIRTY FACE will check all modes of IFF and HF air-ground Channel J-410, while ELAINE ONE is proceeding to H-hour position as designated in Annex D (Aircraft H-Hour Position and Flight Patterns). DIRTY FACE will maintain control until ELAINE ONE is approximately 90 miles from Bikini, then instruct ELAINE ONE to contact the CIC, call sign BOUNDARY TARE, on VHF Channel "E" with IFF squawking mode 2.

b. The BOUNDARY TARE Controller will establish radio and IFF contact with ELAINE ONE and provide the aircraft with range and bearing to pre-H-hour orbit position. Upon reaching orbit position, the aircraft will establish wind run patterns to culminate in H-hour position as specified in Annex D. H-hour position tolerances are plus or minues five (5) seconds. Positioning will be the responsibility of the aircraft commander and his navigator. BOUNDARY TARE will monitor the flight path and issue any required emergency instructions. BOUNDARY TARE will provide weather and high altitude wind information, as required, and instruct ELAINE ONE to switch to Channel "B" for all time hacks. ELAINE ONE will maintain radio silence on Channel "B" at all times. Immediately following H hour, ELAINE ONE will be provided range and bearing to base by BOUNDARY TARE, ELAINE ONE will remain on Channel "E" until instructed to switch to Channel "C" for DIRTY FACE control when approximately 90 miles from base. If at any time ELAINE ONE cannot contact DIRTY FACE on Channel "C", or BOUNDARY TARE on "E", HF air-ground circuit J-410 will be used as an alternate.

OFFICIAL:

HOWELL M. ESTES, JR.
Brigadier General, U.S.A.F.
Commander

PAUL H FACKLER
Lt Colonel, USAF
Director of Operations

Annex "J"

In 2 pages

ANNEX "J"

TO

OPERATIONS ORDER NO. 1-54

B-47 EFFECTS FLIGHT PROCEDURES

ANNEX "J"
TO
OPERATIONS ORDER NO. 1-54
B-47 EFFECTS FLIGHT PROCEDURES

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o Postmaster
San Francisco, California
9 February 1954 1800M

1. MISSION: To measure and record certain blast and thermal effects in the immediate target area during Operation CASTLE in order to obtain required effects data.

2. RESPONSIBILITIES:

a. The Commander, Test Aircraft Unit, is responsible for the readiness of the aircraft to meet take off schedules for rehearsals and actual shots.

b. The Senior Air Controller on the Command Ship will be responsible for the operational control of the B-47 effects aircraft while operating in the test area.

c. Task Group 7.1 will be responsible for the calibration, maintenance, and operation of the special instrumentation installed in the B-47 Effects aircraft.

3. PROCEDURES:

a. The Effects B-47, call sign ELAINE TWO, will take off as scheduled in Annex C (Aircraft Mission Execution Chart). The pilot will call the AOC, call sign DIRTY FACE, on VHF Channel "C". DIRTY FACE will check all modes of IFF and HF air-ground channel J-410, while ELAINE TWO is proceeding to H-Hour position designated in Annex D (Aircraft H-Hour Position and Flight Patterns). DIRTY FACE will maintain control until ELAINE TWO is approximately 90 miles from Bikini, then instruct ELAINE TWO to contact the CIC, call sign BOUNDARY TARE, on VHF Channel "E", with IFF squawking mode 2.

b. The BOUNDARY TARE Controller will establish radio and IFF contact with ELAINE TWO and provide the aircraft with range and bearing to pre-H-Hour orbit position. Upon reaching orbit position, the aircraft will establish wind run patterns to culminate in H-Hour position designated in Annex D. H-Hour position tolerances are plus or minus five (5) seconds. Positioning will be the responsibility of the aircraft commander and his navigator. BOUNDARY TARE will monitor the flight path and issue required emergency instructions. BOUNDARY TARE will provide weather and high altitude wind information, as required, and instruct ELAINE TWO to switch to Channel "B" for all time hacks. ELAINE TWO will maintain radio silence on Channel "B" at all times. Immediately following H-Hour, ELAINE TWO will be provided range and bearing to base by BOUNDARY TARE. ELAINE TWO will remain on Channel "E" until instructed to switch to Channel "C" for DIRTY FACE control when approximately 90 miles from base. If at any time ELAINE TWO (2) cannot contact DIRTY FACE

SECRET

on Channel "C" or BOUNDARY TARE on Channel "E", HF air-ground circuit J-410 will be used as alternate.

OFFICIAL:

HOWELL M. ESTES, JR.
Brigadier General, U. S. A. F.
Commander

Paul H. Fackler

PAUL H. FACKLER
Lt Colonel, USAF
Director of Operations

SECRET

Annex "K"

In 1 page

ANNEX "K"

TO

OPERATIONS ORDER NO. 1-54

FB-36 SAMPLER FLIGHT PROCEDURES

ANNEX "K"
TO
OPERATIONS ORDER NO. 1-54
FB-36 SAMPLER FLIGHT PROCEDURES

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o Postmaster
San Francisco, California
9 February 1954, 1800M

1. MISSION: To obtain cloud samples at extreme altitudes as directed by the Scientific Observer on the control RB-36.

2. RESPONSIBILITIES: The Commander, Test Aircraft Unit, will insure that both FB-36 pilots are familiar with this Annex and that its provisions are carried out.

3. PROCEDURES:

a. Two (2) FB-36 samplers, call sign FLOYD ONE AND TWO, will take off as scheduled in Annex "C" (Aircraft Mission Execution Chart). When airborne, each aircraft will call the AOC, call sign DIRTY FACE, on VHF Channel "C". DIRTY FACE will take over direct control of the FB-36's at this point and vector them to the sampling area, checking all IFF modes enroute. DIRTY FACE will then instruct aircraft commanders to return to mode 2. They will continue on course until approximately 90 miles out, at this point they will be instructed to switch to VHF Channel "F" for control by BOUNDARY TARE.

b. BOUNDARY TARE will vector FLOYD aircraft to the vicinity of CASSIDY. When BOUNDARY TARE determines that CASSIDY is capable of excepting control of FLOYD aircraft, control of these aircraft will be turned over to CASSIDY Channel "E" or "F". Actual sampling operations will be controlled by CASSIDY. Upon completion of sampling operation control of FLOYD aircraft will be turned over to BOUNDARY TARE, Channel "F".

c. BOUNDARY TARE will vector FLOYD aircraft toward base. When 90 miles out from base BOUNDARY TARE will turn control of FLOYD aircraft over to DIRTY FACE. DIRTY FACE will vector FLOYD aircraft to base using VHF, Channel "C".

d. In the event the cloud moves to the vicinity of ENIWETOK, BOUNDARY TARE will direct the AOC to vector FLOYD aircraft directly to CASSIDY for control.

4. Personnel and Decontamination procedures for aircraft and crew are outlined in Annex "N".

OFFICIAL:

Paul H. Fackler

PAUL H. FACKLER
Lt Colonel, USAF
Director of Operations

HOWELL M. ESTES, JR.
Brigadier General, U. S. A. F.
Commander

Annex "L"

In 2 pages

ANNEX "L"

TO

OPERATIONS ORDER NO. 1-54

C-54 PHOTO FLIGHT PROCEDURES

ANNEX "L"
TO
OPERATIONS ORDER NO. 1-54
C-54 PHOTO FLIGHT PROCEDURES

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o Postmaster
San Francisco, California
9 February 1954 1800 M

1. MISSION: To conduct aerial photographic coverage of all CASTLE shots to obtain required documentary still and motion picture photography.

2. RESPONSIBILITIES:

a. The Commander, Test Services Unit, will be responsible for the training of the air crews and for the readiness of photographic aircraft to meet take-off schedules for rehearsals and actual shots.

b. The Senior Controller on the Command Ship will be responsible for the operational control of photographic aircraft while in the test area.

c. Task Group 7.1 will be responsible for the readiness of photographic equipment for rehearsals and actual shots, for the operation and maintenance of photographic equipment, and for the processing and dissemination of all film.

3. PROCEDURES:

a. The photographic C-54's, call sign PEWTER ONE, TWO and THREE, will take off as scheduled in Annex C (Aircraft Mission Execution Chart). They will call the AOC, call sign DIRTY FACE, on VHF Channel "C". DIRTY FACE will check all modes of IFF, and HF air-ground channel J-410, while PEWTER aircraft are proceeding to their H-Hour positions as designated in Annex D (Aircraft H-Hour Positions and Flight Patterns). DIRTY FACE will maintain control until PEWTER aircraft are approximately 90 miles from Bikini, then instruct PEWTER aircraft to contact the CIC, call sign BOUNDARY TARE. PEWTER ONE will call BOUNDARY TARE on VHF Channel "A"; PEWTER TWO (2) on "H"; PEWTER THREE (3) on "G". All PEWTER aircraft will squawk IFF mode 2.

b. The BOUNDARY TARE Controllers will establish radio and IFF contact with PEWTER aircraft and provide them with range and bearing to their H-Hour positions. PEWTER aircraft will remain under the direct control of BOUNDARY TARE on assigned VHF channels until completion of their missions, except when directed to switch to Channel "B" for time hacks. PEWTER aircraft will maintain radio silence on Channel "B", returning to assigned mission channel immediately after receiving the time hacks. Each PEWTER aircraft will begin wind runs to achieve its H-Hour position as designated in Annex D. Each PEWTER aircraft will be required to make good its designated H-Hour position, with BOUNDARY TARE providing range from ground zero each time the aircraft passes through its assigned true bearing from ground zero. This procedure will be followed so that in the event of VHF radio failure, just prior to H-Hour, aircraft may still make good designated H-Hour positions. Position tolerances are plus or minus 15 seconds. After H-Hour, PEWTER aircraft will conduct required photographic missions. One aircraft may be directed by BOUNDARY TARE to act as VHF relay aircraft between BOUNDARY TARE and CASSIDY, until H/6 hours. When missions are complete, aircraft will call BOUNDARY TARE for a range and bearing to base. When approximately 90 miles from Bikini, inbound to base, the BOUNDARY TARE Controller will instruct PEWTER aircraft to switch to Channel "C" for DIRTY FACE control.

c. PEWTER aircraft will be instructed by BOUNDARY TARE to switch to Channel "B" for the following time hacks:

(1) H - 2 hours 2 minutes for H-2 hour time hack.

(2) H - 1 hour 2 minutes for H-1 hour time hack.

(3) H - 32 minutes for H-30 minutes time hack.

(4) H - 3 minutes and remain on B until after H-Hour.

OFFICIAL:

PAUL H. FACKLER
Lt Colonel, USAF
Director of Operations

HOWELL M. ESTES, JR.
Brigadier General, U. S. A. F.
Commander

Annex "M"
In 6 pages w/4 Appendicies
consisting of 7 pages

ANNEX "M"

TO

OPERATIONS ORDER NO. 1-54

WB-29 OPERATIONS

~~SECRET~~

ANNEX "M"
TO
OPERATIONS ORDER NO. 1-54
WB-29 OPERATIONS

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o POSTMASTER
San Francisco, California
9 February 1954, 1800 M

1. MISSION:

To conduct weather reconnaissance, typhoon reconnaissance, cloud tracking and such other operations as required during Operation CASTLE (UNCLASSIFIED).

2. RESPONSIBILITIES:

The Commander, Test Services Unit, will be responsible for planning and for maintaining a capability to execute the WB-29 mission as outlined in this Annex.

3. PROCEDURES:

a. Sortie Requirements: The Test Services Unit will be capable of performing:

(1) Two (2) daily weather reconnaissance sorties, of approximately twelve (12) hours duration, beginning on first shot minus twenty (20) days and extending through first shot minus five (5) days and, as directed, on any other than those days on which sorties are required by the following paragraphs.

(2) Three (3) daily weather reconnaissance sorties, of approximately twelve (12) hours duration, beginning each shot minus four (4) days and extending through each shot minus one (1) day.

(3) One (1) sortie, of approximately twelve (12) hours duration, on each shot day, to perform the following tasks:

(a) Provide preshot reports on weather in the Eniwetok Area affecting aircraft operations.

(b) Provide preshot route reports on weather between ENIWETOK and BIKINI.

(c) Provide preshot reports on weather in the BIKINI Area affecting aircraft operations.

(d) Provide preshot "Up Wind Special" weather information (if required).

(e) Perform postshot heavy particulate sampling.

(4) Two daily combination cloud tracking-weather reconnaissance flights, of approximately twelve (12) hours duration, beginning at H-Hour on each shot day and extending through H+48 Hours. The primary mission of these flights will be cloud tracking. (See Appendicies 1 and 2).

~~SECRET~~

(5) Any special typhoon reconnaissance sorties required to discharge typhoon reconnaissance responsibility in the area bounded by the equator, latitude 25° North, the Meridian of 180° and longitude of 157° 31' East. The Joint Task Force Weather Central will coordinate this effort.

b. Flight Procedures:

(1) Weather Reconnaissance and Cloud Tracking Sorties:

(a) The Commander, Test Services Unit, will insure that a thorough briefing of all personnel concerned is held in the Weather Central prior to each weather reconnaissance and cloud tracking flight. This briefing will include tracks to be flown and communications, control reporting and emergency procedures. The following personnel will attend the briefing:

1. The Weather Reconnaissance Aircraft Crew.

2. The Weather Officer, who will be on duty in the Weather Central during the mission.

3. The AOC and SAR Controllers who will be on duty during the mission.

4. The 57th Strat Reconnaissance Squadron Radiological Safety Officer

(b) Weather reconnaissance and cloud tracking aircraft will call the AOC on VHF channel "G", immediately after take-off, and remain under the direct control of the ENIWETOK AOC on this channel while within VHF range of ENIWETOK. These aircraft will establish CW HF radio contact with the AOC on HF Circuit J-411 immediately after take-off and remain under the AOC control throughout the mission on this circuit. Crews will submit position, weather and/or rad/safe reports to the AOC at 100 nautical miles intervals. The rad/safe code is included as Appendix 3 to this Annex. The weather code will be in accordance with Air Weather Service Manual 105-34, 1 August 1953, Recco Code. The Senior AOC Controller will insure that these reports are forwarded immediately to the ENIWETOK Weather Central. The ENIWETOK Weather Central will forward required reports to the USS ESTES Weather Central. The USS ESTES Weather Central will forward all rad/safe reports received to the JTF SEVEN rad/safe officer in the JOC. The ENIWETOK AOC will continually plot the position of weather reconnaissance and/or cloud tracking aircraft. Upon completion of weather reconnaissance and cloud tracking missions, WB-29's will call the ENIWETOK AOC on VHF Channel "C" when 100 miles out from ENIWETOK and will remain under AOC control until base is in sight and instructions are received from the AOC to switch to Approach Control or Tower Frequency. Aircraft on specific weather reconnaissance flights will include reports of radiation, along with their primary mission weather reports, during the period H-Hour until H/48 Hours.

(c) Any weather reconnaissance or cloud tracking aircraft experiencing an emergency within VHF radio range of ENIWETOK will notify the ENIWETOK AOC on VHF Channel "C". The ENIWETOK AOC will initiate SAR intercept and implement the SAR Plan. If the emergency is experienced out of VHF range of ENIWETOK, the following action will be taken:

The WB-29 radio operator will immediately notify the ENIWETOK AOC of the emergency on Circuit J-411 and announce the pilots intentions.

2. The AOC will initiate required emergency action, maintaining contact with the aircraft in distress on J-411 until VHF contact is possible.

(d) The USS ESTES will be located in the BIKINI Area during shot periods. The CIC will continually monitor VHF Channel "D" and HF Frequency 8364 kcs. WB-29's may contact this station for emergency assistance, including GCI radar vectors, VHF/DF steers and SAR intercept, at the discretion of the aircraft commander.

(e) Although crews will be thoroughly briefed on all aspects of each mission as specified in paragraph 3b(1) above, the following cloud tracking information is provided for planning purposes:

1. Flight #1 (H to H/12 Hours): This flight is to determine the characteristics of the radiological hazard likely to drift and fall out on ENIWETOK or UJELANG ATOLLS and the hazard upwind from the shot atoll. This aircraft will take-off, climb to 10,000 feet and hold at a position 90 nautical miles West of Ground Zero until H/5 minutes. The aircraft will then begin a 10,000 foot racetrack holding pattern of approximately five (5) hours duration, the eastern edge of which will be 50 nautical miles West of Ground Zero. This pattern will extend 100 nautical miles from north to south and 25 miles from east to west (see Appendix 1). Upon encountering radiation, the entire pattern is to be shifted westward to follow the leading edge of the radiation field. Upon completion of this phase of the mission, a search upwind from the shot atoll will be made in a 30 degree sector with apex on ground zero and centered on the average prevailing easterlies. "E" type search pattern at 10,000 feet will be employed. Specific instructions for this mission will be forwarded by CJTF SEVEN to CTG 7.4, ATTN: Commander, Test Services Unit, not later than H minus eight (8) hours.

2. Flight #2 (H plus 12 hours to H plus 24 Hours): This flight is to determine the characteristics of the radiological hazard existing upwind from the native populated atolls in the southeast quadrant and the hazards existing on, or near, air routes of interest to commands external to the Task Force Area of responsibility (Appendix 2). "E" type flight patterns at 10,000 feet will be employed. Search of air routes will be at 10,000 feet and along the routes, or through the area forecast to be upwind from such routes, for representative distances as determined by the estimated limits of accuracy of the air RADEX. The attempt here will be to determine the contamination status of the air on the routes, or of the potential hazards likely to drift across the routes. The air routes of interest are those through Wake and the Marshall Islands. Specific instructions will be forwarded by CJTF SEVEN to CTG 7.4, ATTN: Commander, Test Services Unit, not later than H plus four (4) hours.

3. Flight #3 (H/24 to H/36 Hours): This flight will attempt to determine the extent of drift of other major segments of the atomic cloud as practicable and as required by existing meteorological influences. Areas and altitude of search are to be specified later and will be contingent upon the above influences and the results of flight #1 and #2. Specific instructions for this mission will be forwarded by CJTF SEVEN to CTG 7.4, ATTN: Commander, Test Services Unit, not later than eight (8) hours prior to scheduled aircraft take-off.

4. Flight #4 (H/36 to H/48 Hours): The necessity for scheduling this flight will be determined by CJTF SEVEN on the basis of the result of Flights #1, #2, #3 and other sources.

5. Mission instructions from CJTF SEVEN will be routed through normal command and communications channels. However, to insure that advance details get to TG 7.4 sufficiently in advance of the missions, informal mission instructions will be transmitted through USS ESTES Weather Central - ENIWETOK Weather Station RATT channels by mission take-off time minus eight (8) hours for each flight.

6. The basic requirement for cloud tracking flights is to provide data of sufficient accuracy to support conclusions and decisions relating to health hazards, and to confirm or modify forecast cloud segment drift. In general, the missions are to be flown on the tracks specified with maximum emphasis on complete coverage of the designated areas. It is not anticipated that in flight analysis of the overall situation will be necessary, except that tracking aircraft crews should recognize cloud boundaries and leading edges. Deviations from the prescribed track and reporting positions should be made only in the event of entry into highly contaminated areas. For cloud tracking mission, turn-out will be executed when intensities of 3.0 r/hr are approached. Following such turn-out, appropriate in-flight adjustment of track should be made by the aircraft commander in the interest of maximum coverage of the designated area. The rad/safe monitor will exercise discretion on turn-out from contaminated areas, carefully considering crew personnel dosages and the anticipated length of flight through the radiation field. Since precise measurements are not required, suitable RADIAC equipment and reporting codes have accordingly been specified below:

7. Each flight will have on board sufficient instruments of the following types to insure reasonable expectation of proper functioning of at least one (1) of each type:

a. AN/PDR-T1B.

b. IM-5 or any equivalent military instrument such as the AN/PDR-27, capable of direct reading in milliroentgens per hour.

8. An additional survey instrument of the scintillation counter type will be made available and will be forwarded by JTF SEVEN Rad/Safe Officer to WB-29 operational personnel for additional RADIAC backup.

9. In-flight reports on radiation will be made in conjunction with the standard weather reporting messages used for weather reconnaissance flights. Special reports are to be transmitted for any positions where radiation intensity reaches a maximum along a segment of the flight track, regardless of whether or not such positions concide with points of regular 100-mile weather reports. Additional special reports should be made at critical positions in the flight track, such as positions which define a cloud boundary, a turn out point, or any other unusual situation.

(2) Heavy Particulate Sampling Sorties:

(a) One (1) WB-29, call sign WILSON ONE, will take off at approximately H-5 hours. Exact take-off time will be specified in Annex "C","Mission Execution Schedule". This aircraft will contact the ENIWETOK AOC in VHF Channel "C" and on HF Circuit J-410 immediately after take-off. The aircraft will perform weather reconnaissance within 50 miles of the ENIWETOK Area and report any significant weather to the AOC. WILSON ONE will then proceed to BIKINI reporting weather enroute. When 90 miles out from ENIWETOK, WILSON ONE will be instructed by the AOC to call the COMMAND SHIP CIC for control and further instructions on VHF Channel "F". The COMMAND SHIP Controller will instruct WILSON ONE to report any further significant enroute weather, over VHF Channel "F", or HF Circuit J-410. WILSON will then be instructed to perform local weather reconnaissance in the BIKINI Area and to perform an "Upwind" weather run culminating in an H-Hour position as required in Annex "D", "H-Hour Positions and Flight Patterns". Immediately after H-Hour, WILSON ONE will be instructed to change to VHF Channel "A". At approximately H/2 hours, WILSON ONE will be directed by the CIC Controller to conduct the Heavy Particulate Sampling Operation. The time of this Operation will be decided by the Scientific Director in the Control B-36. WILSON ONE will also be provided all significant rad/safe forecasts, prior to the sampling operation, by the CIC Controller. Safeguarding of the aircraft and crew, however, will be the responsibility of the rad/safe monitor aboard WILSON ONE. After the sampling operation is completed, WILSON ONE will be vectored back to ENIWETOK by the CIC Controller. When 90 miles out from ENIWETOK, WILSON ONE will be instructed to call the ENIWETOK AOC on VHF Channel "C" for control and further instructions. The ENIWETOK AOC will vector WILSON ONE to ENIWETOK for landing.

SECRET

(b) Briefing:

1. The WILSON ONE crew will be thoroughly briefed on the sampling operation by the Scientific Task Group Sampling Project Officer prior to each mission. The weather phase of the briefing will be conducted by Commander, Test Services Unit.

HOWELL M. ESTES, JR.
Brigadier General, U. S. A. F.
Commander

OFFICIAL:

Paul H. Fackler

PAUL H. FACKLER
Lt Colonel, USAF
Director of Operations

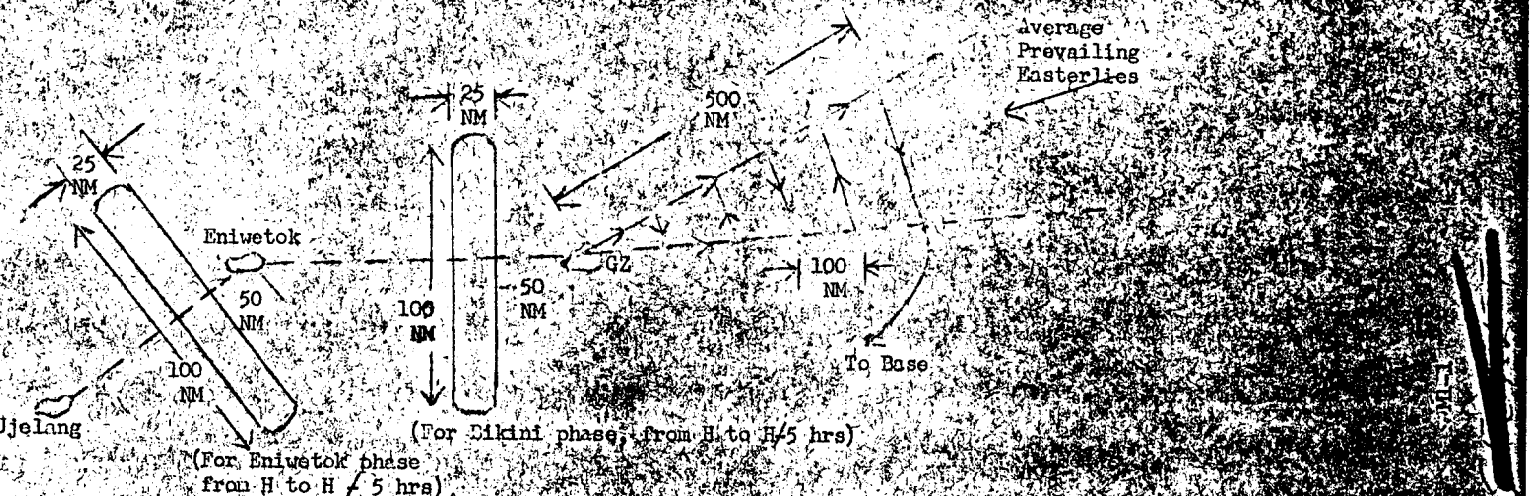
4 Appendicies:
1. Cloud Tracking Chart. Flt #1
2. " " " " #2
3. Rad/Safe Code
4. Sequence Cloud report for WB-29 Sampling Operations

TASK GROUP 7.4
OPRS ORDER NO. 1-54
ANNEX "M"

SECRET

SECRET

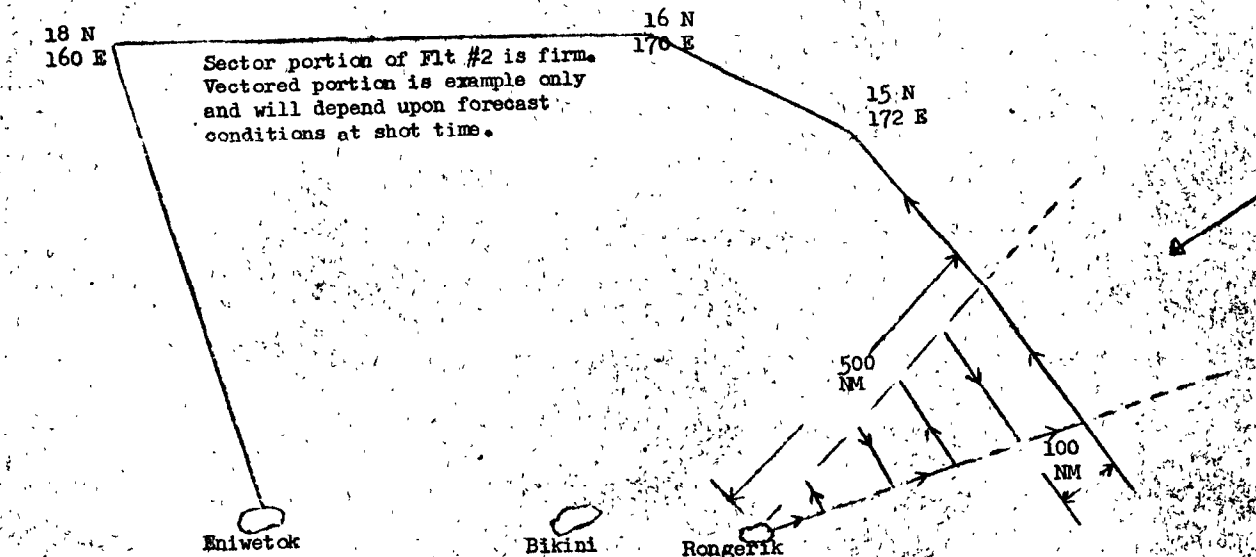
Flight #1, WB-29 Sector Search Mission for Cloud Tracking



Sample directive: "CLOUD TRACKING FLT ONE SEARCH BASE TO FIVE HOUR HOLDING PATTERN FIVE ZERO NM WEST GZ TO SECTOR LIMITING TRUE BEARINGS FROM GZ FIVE FIVE AND EIGHT FIVE DEGREES TO FIVE ZERO ZERO NM TO BASE PD REGULAR AND SPECIAL IN-FLIGHT REPORTS REQUIRED."

TASK GROUP 7.4
OPRS ORDER NO. 1-52
APPENDIX 1, TO ANNEX "M"

Flight #2, WB-29 Sector and Vector Search for Cloud Tracking



Sample Directive:

CLOUD TRACKING FLT TWO SEARCH SECTOR LIMITING TRUE BEARING FROM RONGERIK FIVE FIVE AND EIGHT FIVE DEGREES TO FIVE ZERO ZERO NM PD FOLLOW WITH VECTOR TO ONE FIVE NORTH ONE SEVEN TWO EAST CMM ONE SIX NORTH ONE SEVEN ZERO EAST CMM ONE EIGHT NORTH ONE SIX ZERO EAST TO BASE PD REGULAR AND SPECIAL IN-FLIGHT REPORTS REQUIRED

TASK GROUP 7.4 OPRS ORDER NO. 1-54 APPENDIX 2, ANNEX "M"

APPENDIX 3
TO
ANNEX M
OPERATIONS ORDER NO. 1-54

PART 1 - WB-29 RAD/SAFE CODE FOR CLOUD TRACKING OPERATIONS

The code for in-flight reporting of radiation will be used in conjunction with the five digit groups normally devoted to AFOAT-1 reporting. Position, time and altitude will be as normally reported on weather reconnaissance flights. The first group of the five digits group will be used to encode the radiation observations. Readings and general observations are to be coded in sequence and if conformance with the code below. Should the first five digit group not adequately describe the report, successive five-digit groups should be used. To indicate such amplification, the first digit of the first five digit group should be coded accordingly. The numbers indicated for coding the desired information below are examples only. Formal random code numbers will be assigned by CJTF SEVEN prior to the first shot for successive three-hour periods starting at H-hour and terminating at H plus 48 hours. Copies of formal code numbers will be furnished to the Weather Central and the operating agency.

EXAMPLE

*CODE NUMBERS FOR PERIODS IN HOURS AFTER H HOUR				RADIATION MESSAGE
6 to 9	9 to 12	12 to 15	15 to 18	
				First Digit (Report Identification)
4	6	1	7	No detectable radiation above background
9	2	6	8	Radiation (gamma only) report follows
7	0	4	2	Radiation (gamma only) report follows with one amplifying five-digit group
8	4	7	1	Radiation (gamma only) report follows with two amplifying five-digit groups
3	9	8	6	Radiation (gamma only) report follows with three amplifying five-digit groups
1	5	3	0	Dummy
5	1	9	3	Dummy
6	8	0	5	Dummy
2	3	5	9	Dummy
0	7	2	4	Dummy
				Second Digit (Intensity reading above estimated aircraft background)
2	6	5	3	Less than 10 mr/hr, but above background
7	2	8	6	10 to 50 mr/hr.
5	7	2	0	50 to 100 mr/hr.
3	4	0	8	100 to 500 mr/hr.
9	1	3	4	500 to 1000 mr/hr.

6	5	9	1	1 to 5 r/hr.
8	9	1	5	5 to 10 r/hr.
1	8	6	4	More than 10 r/hr.
4	0	7	9	Dummy
0	3	4	7	Dummy
				Third Digit (Pertinent additional information on reading reported)
8	9	2	6	No comment on reported readings, or this is an amplifying five-digit group.
5	7	0	3	Instruments (RADIAC) malfunctioning.
2	5	1	9	Readings fluctuating.
6	2	3	5	Spotty radiation levels encountered.
0	3	5	2	Radiation levels in the area are higher, but flying on fringe and taking observations at lower levels of radiation.
3	4	7	0	Having passed through rain shower, background is definitely higher.
1	6	4	8	Readings fluctuating because of intermittent showers.
4	0	6	1	Radiation intensity approximately constant since last report.
7	8	9	4	Radiation intensity steadily increasing since last report.
9	1	8	7	Radiation intensity steadily decreasing since last report.
				Fourth Digit (General trends of mission and other pertinent information)
5	7	2	4	Rad/Safe mission progressing satisfactorily.
1	4	5	2	Changed track (for rad/safe reasons) to that indicated in the clear at end of this message. (Indicate track change in approximate full degrees of latitude and longitude from present position).
2	1	3	0	Having mechanical difficulties which effect Rad/Safe mission or designated track. (Amplify at end of message, in the clear, if desired).
3	0	4	9	Cloud is visible.
6	2	0	3	Cloud is not visible.
0	5	6	7	No comment.
4	9	8	5	Dummy.
7	3	9	8	Dummy.
9	8	1	6	Dummy.
8	6	7	1	Dummy.

Fifth Digit (For amplification of previous information)

2	5	7	1	No comment.
4	2	0	3	Executed turn-out at intensity indicated in second digit of this report.
1	9	4	2	Operating position relative to cloud is unknown.
7	1	9	0	Working leading edge of cloud.
9	6	5	4	Working cloud boundary.
0	8	6	5	Dummy.
3	4	8	6	Dummy.
5	7	2	9	Dummy.
6	0	3	8	Dummy.
8	3	1	7	Dummy.

EXAMPLE: (H plus 14 hour message).

"\.....40549 34125 64321 83679....."

for

"Radiation report follows with one amplifying five-digit group, 100 to 500 mr/hr, radiation levels in the area are higher but flying on fringe and taking observations at lower levels of radiation, cloud is visible, working leading edge of cloud, dummy, reading fluctuating, Rad/Safe mission progressing satisfactorily, dummy, plus two dummy five-digit group"

*Actual code numbers for each shot will be assigned and distributed by JTF SEVEN five (5) days prior to shot time.

APPENDIX 4
TO
ANNEX M
OPERATIONS ORDER NO. 1-54

SEQUENCE CLOUD REPORT FOR WB-29 SAMPLING OPERATIONS

1. This report code has been designed to provide information on the initial break-up and radiation intensities in the cloud during the period H to H plus 6 hours. Information to be reported includes approximations of the altitudes of tops of each of the major cloud segment and an estimate of successive positions and diameters of these segments. Further, pertinent information will be reported on penetrations by the sampling aircraft as indicated below.

2. The report will be formulated by the WB-29 Sampler Crew and reported in the following sequence: (Item C,D,E,F and G and item O will be encoded as below. The code changing for each shot).

Item	Information	Report
A	Local time of report	0800
B	Number of major cloud segment	4
C	Top of first (highest) segment (coded, Est Alt in thousands)	66
D	Top of second segment (coded, Est Alt in thousands)	33
E	Top of third segment (coded, Est Alt in thousands)	00
F	Top of fourth segment (coded, Est Alt in thousands)	88
G	Top of fifth segment (coded, Est Alt in thousands)	Negative
H	Estimated position and extent of first (highest) segmrnt (in NM with respect to GZ, in degrees from GZ and diameter in NM)	80 by 90 by 40
I	Estimated position and extent of second segment (in NM with respect to GZ, in degrees from GZ and diameter in NM)	75 by 45 by 30
J	Estimated position and extent of third segment (in NM with respect to GZ and diameter in NM)	50 by 00 by 40
K	Estimated position and extent of fourth segment (in NM with respect to GZ, in degrees from GZ and diameter in NM)	40 by 250 by 30
L	Estimated position and extent of fifth segment (in NM with respect to GZ, in degrees from GZ and diameter in NM)	Negative
M	Average penetration altitude (in thousands) (Negative if no penetration involved)	45
N	Average time of penetration (in seconds from 1.0 r/hr to 1.0 r/hr)(Negative if no penetration is involved)	125
O	Average maximum intensity encountered (in r/hr(Neg if no penetration involved)	44

3. Reports should be made atleast hourly. In addition, at least one abbreviated report will be made for each penetration of F-84 samplers, B-36 Featherweight and the heavy nuclide samples. Short reports should be identified as such (i.e., "ABBREVIATED REPORT") and should contain Item A (local time) plus M, N and O.

EXAMPLE: "This is _____/GILDA REPORT/0800/4/66/33/00/88/Negative/80/by 90 by 40/75 by 45 by 30/50 by 00 by 40/40 by 250 by 30/Negative/

or for abbreviated report
"This is_____/ABBREVIATED GILDA REPORT/0800/45/125/44/Over".

4. The altitude at the top of the various segment will be encoded as follows: (Code is example only and will be changed for each shot. Encode to nearest altitude).

ALTITUDE (In feet)	CODE
10,000	55
20,000	88
30,000	00
40,000	44
50,000	11
60,000	33
70,000	99
80,000	77
100,000	22
120,000	66

5. The average maximum intensity of radiation encountered on cloud penetrations will be encoded as follows; (Code is example only and will be changed for each shot. Encode to nearest intensity reading).

INTENSITY (In r/hr)	CODE
10	22
50	66
100	88
150	33
200	77
250	99
300	55
350	44
400	00
500	11

Annex "N"

In 3 pages

ANNEX "N"

TO

OPERATIONS ORDER NO. 1-54

DECONTAMINATION

ANNEX "N"
TO
OPERATIONS ORDER NO. 1-54
DECONTAMINATION

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o Postmaster
San Francisco, California
9 February 1954, 1800M

1. MISSION: To provide, operate and maintain facilities for personnel and aircraft decontamination and for personnel dosimetry.

PART 1
AIRCRAFT DECONTAMINATION

2. RESPONSIBILITIES:

a. Test Support Unit:

(1) Provide primary aircraft decontamination facilities on ENIWETOK ISLAND.

(2) Furnish necessary supplies and equipment to decontaminate all effected Air Force aircraft.

(3) Be prepared to assist TG 7.3 in the decontamination of Navy aircraft.

b. Test Aircraft Unit:

(1) Furnish representatives from communications to advise the decontamination officer concerning any communications equipment involved in the washdown of affected aircraft.

(2) Furnish ground crew members to assist in washing down organizational aircraft.

c. Test Services Unit:

(1) In the event of an accidental contamination, furnish representatives of communications and ground crews of the affected aircraft to assist in decontamination operations.

3. PROCEDURES: Procedures to be followed are listed below in chronological sequence of execution. These procedures will be thoroughly rehearsed.

a. On D-Day, sampler F-84's, WB-29 and FB-36 will be parked in designated "hot" decay areas.

b. All other aircraft will be checked upon landing for evidence of radiological contamination. If an aircraft is contaminated, above 25 mr/hr, it will be isolated and posted.

c. The Sampler B-36's will be parked on the decontamination pad and checked for radiation intensities by the same monitor used in a. and b. above.

d. Unless urgency necessitates, no aircraft decontamination will be attempted until D plus 1 day, at which time the B-36's will be decontaminated first.

e. As soon as the radiation intensities are reduced to tolerable levels, to be determined by the Aircraft Decontamination Officer, Test Support Unit, the B-36's will be returned to there normal parking space.

f. Second priority for decontamination will be F-84 sampler aircraft.

g. Third priority for decontamination will be WB-29 aircraft.

h. Fourth priority for decontamination will be those aircraft accidentally contaminated.

i. Before aircraft are cleared for flying, the intensity of radiation at crew positions must be less than 10 mr/hr.

j. As aircraft are decontaminated, they will be released to maintenance, until all aircraft have been released from the aircraft decontamination section.

PART II
PERSONNEL DECONTAMINATION

4. RESPONSIBILITIES:

a. Test Support Unit:

(1) Provide primary personnel decontamination facilities for all personnel on ENIWETOK ISLAND.

(2) Provide protective clothing for use by sampler aircraft crews, aircraft decontamination crews, maintenance crews, etc.

(3) Provide all film badges and dosimeters for use by sampler aircraft crews and for all other individuals who will enter a radiation field of more than 10mr/hr.

(4) Maintain individual records of dosage received so that personnel may be withdrawn from exposure to radiation before exceeding their maximum permissible exposure of 3.9 roentgens for the operation.

b. Test Aircraft Unit:

(1) Brief personnel concerning all procedures to be followed in personnel decontamination.

c. Test Services Unit:

(1) Brief personnel concerned on procedures to be followed in personnel decontamination.

5. PROCEDURES: The personnel Decontamination Section of the Test Support Unit will:

a. On D minus 10 days, furnish to J-7 Division, TG 7.1, estimates of number of film badges needed on shot and subsequent days.

b. On D minus 1 day, obtain dosimeters and calibrated radiac instruments from the Instrumentation Section of the Test Aircraft Unit.

c. On D minus 1 day, install film badges and other special radiation detection controls in designated aircraft.

d. On D Day, issue protective clothing, film badges and dosimeters to all aircrew members of sampling aircraft and to aircrew members of aircraft which will be flying within 100 miles of the shot site at H Hour.

e. On D Day, issue protective clothing, film badges and dosimeters to all individuals who will be utilized as rad-safe monitors by Air Force Task Units.

f. On D Day, operate the personnel decontamination center for all individuals who have been issued film badges. Level of tolerance acceptable on any skin surface is 1 mr/hr; on clothing it is 7 mr/hr; and on underclothing it is 2 mr/hr.

g. On D Day, assist in removing aircrew members from sampler aircraft and provide transportation to the personnel decontamination center.

h. On D plus 1 day, launder contaminated clothing until levels of intensity are reduced substantially to that of background. When clothing has been decontaminated sufficiently, it will be returned to the issue section and re-used. Shoes will be isolated and allowed to undergo natural decay processes until the level of radiation intensity is sufficiently lowered.

i. Each day, deliver to J-7 Division, TG 7.1, all exposed film badges. Record the results of each day's operations on individual cumulative radiation exposure cards. If any individual has reached 3.0 roentgens cumulative dosage during the preceding twenty-four hour period, his name will be reported immediately to his commander and to the Rad-Safe Officer, TG 7.4.

HOWELL M. ESTES, JR.
Brigadier General, U. S. A. F.
Commander

OFFICIAL:

Paul H. Fackler

PAUL H. FACKLER
Lt Col, USAF
Director of Operations

Annex "O"

In 3 pages

ANNEX "O"

TO

OPERATIONS ORDER NO. 1-54

B-50 IBDA FLIGHT PROCEDURES

SECRET

ANNEX O
TO
OPERATIONS ORDER NO 1-54
B-50 IBDA FLIGHT PROCEDURES

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o Postmaster
San Francisco, California
9 February 1954, 1800 M

1. MISSION:

a. To provide Strategic Air Command and other interested agencies with IBDA data.

b. To familiarize Strategic Air Command crews with the phenomena associated with thermonuclear detonations.

2. RESPONSIBILITIES:

a. The SAC detachment commander will be responsible for proper crew selection and for the procedures outlined in paragraph 3 below until arrival of the aircraft at Eniwetok, and for that portion subsequent to crew debriefing.

b. The Test Aircraft Unit Commander will be responsible for that portion of the procedures outlined in paragraph 3 below subsequent to arrival of the aircraft at Eniwetok and until completion of debriefing.

3. PROCEDURES:

a. Three (3) Guam based B-50 aircraft and crews, to include a qualified Rad-Safe monitor, will be selected and dispatched sufficiently in advance of each shot so as to arrive at Eniwetok not later than 1000 hours in D minus two (2) days.

(1) No more than four (4) maintenance personnel will accompany each aircraft to Eniwetok. These personnel will be qualified to perform any maintenance necessary to assure proper preparation of the aircraft for its mission.

(a) A small enroute maintenance kit will accompany each aircraft to Eniwetok (No. B-50 parts will be available).

(b) One R-4360 built-up engine, complete with power pack, will be prepositioned at Eniwetok and this level will be maintained throughout the operation.

(2) All crews and maintenance personnel concerned will be briefed on Pacific Proving Grounds restriction on contraband items such as Firearms, Cameras, Narcotics, etc., as prescribed in Task Group 7.4 Operations Order 1-53.

(3) All of the above personnel will possess a minimum security clearance of SECRET.

SECRET

[redacted]

(4) All crews will be capable of assuming any position in flight to provide for a replacement in the event the leader or number two (2) aircraft is forced to abort.

b. Immediately upon landing, the crews will be checked through security and billeting. The Flight Commander will then report to the Test Aircraft Unit Commander to receive instructions on:

(1) Crystallization of aircraft with proper test frequencies.

(2) Briefings to attend.

(3) Spotting of aircraft in take-off order.

(4) Procurement of Film Badges and Dosimeters.

c. The B-50's, call sign HARDTIME 1, 2 and 3, will take off on D day as scheduled in Annex C (Aircraft Mission Execution Chart). HARDTIME ONE (1) will call the AOC, call sign DIRTY FACE, on VHF Channel C. HARDTIME TWO (2) and THREE (3) will standby on Channel C. DIRTY FACE will check all modes of IFF and the HF air-ground Channel J-410 on all aircraft. Aircraft will proceed in a night cell formation to the H-hour position assigned by Annex D (Aircraft H-hour Positions and Flight Patterns). DIRTY FACE will maintain control until the flight is approximately 90 miles from Bikini, then will instruct HARDTIME ONE (1) to contact the CIC, call sign BOUNDARY TARE, on VHF Channel "A", with IFF squawking mode 2. HARDTIME TWO (2) and THREE (3) will switch to Channel "A" at this time but will not squawk IFF unless instructed to do so by BOUNDARY TARE. In the event HARDTIME ONE (1) is forced to abort, HARDTIME TWO (2) will assume the lead together with HARDTIME ONE's H-hour position, with HARDTIME THREE (3) assuming HARDTIME TWO's H-hour position.

d. BOUNDARY TARE Controller will establish radio and IFF contact with HARDTIME ONE (1) and provide him with range and bearing to his H-hour position. Upon reaching his prescribed orbit pattern he will establish wind run patterns to culminate in his H-hour position as prescribed in Annex D. H-hour position tolerances are plus or minus five (5) seconds. Positioning will be the responsibility of the aircraft commander and his navigator. BOUNDARY TARE will provide range from Ground Zero, and will issue any required emergency instructions. HARDTIME TWO (2) and THREE (3) will position themselves on HARDTIME ONE (1), as prescribed by Annex D, with BOUNDARY TARE Controller periodically checking their relative positions. BOUNDARY TARE will provide weather and upper wind information as required and will instruct HARDTIME ONE (1) to switch to Channel "B" for all time hacks. HARDTIME TWO (2) and THREE (3) will automatically switch to Channel "B" when HARDTIME ONE (1) is instructed to do so for time hacks. All HARDTIME aircraft will maintain radio silence on Channel "B" at all times. Immediately upon completion of IBDA photography (approximately H plus 15 minutes), the three (3) aircraft will rejoin in formation over the Command Ship or at a point in space as directed by the Controller, and advise BOUNDARY TARE that mission is complete. At no time will these aircraft enter the atomic cloud or maneuver closer than 20 nautical miles from Ground Zero. BOUNDARY TARE will provide range and bearing to base and will retain control until the flight is approximately 90 miles from Bikini. At this time HARDTIME ONE (1) will be instructed to switch to Channel "C" and call DIRTY FACE. HARDTIME TWO (2) and THREE (3) will also switch to Channel "C" at this time. If at any time HARDTIME aircraft cannot contact DIRTY FACE on Channel "C" or BOUNDARY TARE on Channel "A", HF air-ground circuit J-410 will be used as an alternate.

[redacted]

e. Crews will be debriefed immediately upon landing; mission VHF crystals, film badges and dosimeters will be turned in; aircraft will be refuled; maintenance personnel will be picked up; and the aircraft will depart for Guam without delay. Normal OATC procedures will be used.

f. Participation will be in shots BRAVO, UNION, YANKEE, NECTAR, ROMEO and KOON.

HOWELL M. ESTES, JR.
Brigadier General, U. S. A. F.
Commander

OFFICIAL:

PAUL H. FACKLER
Lt Col, USAF
Director of Operations

Annex "P"

In 1 page

ANNEX "P"

TO

OPERATIONS ORDER NO. 1-54

C-47 RELAY FLIGHT PROCEDURES

ANNEX P
TO
OPERATIONS ORDER NO 1-54
C-47 RELAY FLIGHT PROCEDURES

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o Postmaster
San Francisco, California
9 February 1954 1800M

1. MISSION: To provide long range VHF communications between the AOC and CIC.

2. RESPONSIBILITIES:

a. The Test Support Unit Commander is responsible for the readiness of C-47 relay aircraft to meet take off schedules.

b. Senior Controllers on the Command Ship and AOC are responsible for the operational control of C-47 relay aircraft while on mission station.

c. The Test Support Unit Commander is responsible for installation, maintenance and operations of special relay equipment, assisted by technical personnel of Task Group 7.4.

3. PROCEDURES:

a. One (1) C-47 aircraft, call sign REFLECTOR ONE, equipped with automatic VHF radio relay equipment, will take off at time specified in Annex C (Aircraft Mission Execution Chart). Long range fuel tanks will be installed in the aircraft. This aircraft will contact DIRTY FACE on the Reflector VHF channel (VHF channel C is back up) when airborne. DIRTY FACE will control REFLECTOR until pre H-hour orbit position and altitude designated in Annex D is reached. REFLECTOR IFF will be squawking Mode 2.

b. When REFLECTOR reaches orbit position, DIRTY FACE will instruct the aircraft to call BOUNDARY TARE for control. This call will be made on the VHF reflector channel with VHF channel C as back up.

c. Immediately following H-hour, DIRTY FACE will vector REFLECTOR to a position approximately 100° and 120 miles from Eniwetok. REFLECTOR will relay VHF messages between the CIC and AOC automatically if equipment is operational and manually if not. BOUNDARY TARE will exercise complete control of REFLECTOR during this period, adjusting the aircraft's position as required to accomplish the relay mission.

d. Upon completion of the relay mission at time designated in Annex C, REFLECTOR will be vectored to base by BOUNDARY TARE. When 90 miles out from base, BOUNDARY TARE will instruct REFLECTOR to contact DIRTY FACE for control on VHF channel C. DIRTY FACE will vector REFLECTOR to base for landing.

OFFICIAL:

HOWELL M. ESTES, JR.
Brigadier General, U. S. A. F.
Commander

PAUL H. FACKLER
Lt Colonel, USAF
Director of Operations

ANNEX "Q"

TO

OPERATIONS ORDER NO. 1-54

(To be published if required)

Annex "R"

In 2 pages

ANNEX "R"

TO

OPERATIONS ORDER NO. 1-54

SAMPLE RECOVERY PROCEDURES

~~SECRET~~

ANNEX R
TO
OPERATIONS ORDER NO. 1-54
SAMPLE RECOVERY PROCEDURES

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o Postmaster
San Francisco, California
9 February 1954 1800M

1. MISSION: The purpose of this Annex is to outline tasks to be accomplished by this headquarters and by subordinate Task Units in sample recovery operations.

2. RESPONSIBILITIES:

a. Sample recovery operations encompasses three (3) separate operations: Sample removal, Sample packaging, and Sample return. The Air Task Group Rad-Safe responsibilities will be executed in the following manner: Test Aircraft Unit will be responsible for sample removal; Test Support Unit will be responsible for providing assistance and normal support for sample return. Sample packaging is the responsibility of Task Group 7.1

b. The extent to which the Air Task Group is responsible in each of these three (3) operations is as follows:

(1) The Test Aircraft Unit will:

(a) Park and secure aircraft.

(b) Assist pilot from aircraft, and remove film badges.

(c) Provide one trained Rad-Safe monitor to stand-by during sample removal to insure that exposure to radiological hazard is reduced to a minimum.

(d) Provide personnel for removal of radiochemical samples from aircraft.

(e) Provide personnel to support Task Group 7.1 in their packaging responsibilities.

(2) The Test Support Unit will:

(a) Isolate parking area, using ropes, radiation signs and military or air police guards to enforce the quarentine as required.

(b) Refuel sample return aircraft as required.

(c) Provide meals and inflight lunches.

(d) Provide billeting for the crews of sample return aircraft.

(e) Assure timely loading to accomplish take-off schedule as listed in g below.

(f) Insure that samples will not present a radiological hazard on the return flight as a result of improper packaging.

(g) Assure the departure of four (4) R6D sample return aircraft from Eniwetok Island on the following schedule:

~~SECRET~~

SECRET

1. Two (2) aircraft as early as H/5:00, to be determined by progress of sampling.

2. One (1) aircraft departs Eniwetok approximately H/36:00.

3. One (1) aircraft departs Eniwetok approximately H/72:00.

(3) The MATS will arrange for the arrival of sample return aircraft at Eniwetok on the following schedule:

(a) Priority I trips will arrive at 0600M on 27 February 1954 and will be operated with heavy type transport equipment.

(b) Priority II trip will be in position and ready for departure at Eniwetok Island with a back-up aircraft at Kwajalein Island at 1800M on 1 March 1954 and will be operated with medium type transport equipment.

(c) Priority III trip will be in position and ready for departure at Eniwetok Island at 0600 on 4 March 1954 and will be operated with medium type transport equipment.

3. PROCEDURES: Specific detailed operating procedures for the accomplishment of the above will be prepared by the Test Unit responsible. These procedures will be thoroughly rehearsed during the full scale rehearsal.

OFFICIAL:

Paul H. Fackler

PAUL H. FACKLER
Lt Colonel, USAF
Director of Operations

HOWELL M. ESTES, JR.
Brigadier General, U. S. A. F.
Commander

Annex "S"

In 2 pages

ANNEX "S"

TO

OPERATION'S ORDER NO. 1-54

AOC PROCEDURES

SECRET

ANNEX "S"
TO
OPERATIONS ORDER NO. 1-54
AOC PROCEDURES

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o Postmaster
San Francisco, California
9 February 1954, 1800M

1. PURPOSE: To outline all control procedures and functions of AOC personnel for Operation CASTLE.

2. SCOPE: This Annex discribes in detail all procedures to be used in the AOC to conform with the policies and responsibilities as outlined in Annex "K", Operations Order No. 1-53.

3. PROCEDURES:

a. The AOC (DIRTY FACE) will exercise operational control of all aircraft operating in the ENIWETOK area and will supervise and coordinate operations of ENIWETOK control tower, Approach control, GCA, Area control and SAR control. A Senior Controller will be assigned to the AOC for the purpose of supervising the operation of the AOC during all periods of operation. During all shot and rehearsal periods he will be under the supervisory control of the Senior Air Controller of the CIC (BOUNDARY TARE) and will work with and assist the CIC (BOUNDARY TARE) in accomplishing the aircraft missions as outlined in Annexes "F" through "M", "O" through "Q" and "U". The Area Controllers, Status Controllers, Approach Controllers, SAR Controllers, Plotters and radio operators of the AOC will be personnel assigned to the operational control of Headquarters, Task Group 7.4 by Test Units for the purpose of operating the AOC on a twenty-four (24) hour basis and to man the AOC to maximum strength during all shot and rehearsal periods. Personnel will report to duty as scheduled and will check the facilities and equipment assigned to perform their mission to insure it is functioning properly. The status and plotting boards will be checked for proper display of information.

b. All aircraft will take off as scheduled in Annex "C" contacting DIRTY FACE (AOC) on 137.88MC (Channel C). DIRTY FACE will check all modes of IFF equipment and HF air-ground communications on all aircraft. If any F-84 aircraft fails to respond to the proper IFF or communications check they will be aborted and returned to base. The above checks will be conducted while on course to assigned mission. DIRTY FACE will maintain positive IFF and VHF control until BOUNDARY TARE (CIC) establishes positive radar and radio control.

c. VHF channels, IFF modes and mission instructions for aircraft are specified in aircraft mission briefings and individual controller instructions.

d. The Status Controller will be responsible, through information received and told to his plotters and radio operators, for the maintaining of the appropriate status boards. On the mission status board, position one (1) and six (6) will be obtained from the control tower, posted and told forward to BOUNDARY TARE. Positions two (2) through five (5) will be received from BOUNDARY TARE. Position five (5) will be confirmed by the Area Controller. Positions are:

(1) Position one (1) - Actual take off time of aircraft.

(2) Position two (2) - Actual time CIC establishes contact and accepts control from AOC (approximately 90 miles from ENIWETOK).

SECRET

(3) Position three (3) - Actual time aircraft arrives at assigned mission station.

(4) Position four (4) - Actual time aircraft departs mission station.

(5) Position five (5) - Actual time AOC establishes contact and accepts control from CIC. (Approximately 90 miles out).

(6) Position six (6) - Actual time aircraft lands.

e. Plotting will be the responsibility of the Status Controller through his assigned plotters and tellers. Aircraft will be plotted from position one (1) to position two (2) and from position five (5) to position six (6) at three minute intervals from positions received from the Area Controllers scope. After aircraft depart position two (2) they will be plotted by one arrow with time and call sign as told forward from the CIC. During all continuous plotting three plots for each aircraft will remain on the plotting board for the purpose of showing direction.

f. SAR missions in the ENIWETOK area will be conducted as set forth in Annex "F" and will be controlled from the AOC as directed in "Emergency Rescue Operating Procedure (AOC)."

OFFICIAL:

PAUL H. FICKLER
Lt Colonel, USAF
Director of Operations

HOWELL M. ESTES, JR.
Brigadier General, U. S. A. F.
Commander

Annex "T"

In 3 pages w/2 Appendicies

consisting of 8 pages

ANNEX "T"

TO

OPERATIONS ORDER NO. 1-54

CIC PROCEDURES

SECRET

ANNEX T
TO
OPERATION ORDER NO. 1-54

CIC PROCEDURES

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o Postmaster
San Francisco, California
9 February 1954, 1800M

1. PURPOSE: To outline all control procedures and functions of CIC personnel for Operation CASTLE.

2. SCOPE: This annex covers all detail procedures for use in the CIC. The overall aircraft control policies and responsibilities are outlined in Annex K, Operations Order 1-53.

3. PROCEDURES:

a. Supervisory control of the air operation will be exercised from the CIC on the USS ESTES, call sign "Boundary Tare." Boundary Tare as a supervisory control agency, will work with and assist the AOC (Dirty Face) and the RB-36 Control Aircraft (Cassidy) in accomplishing the aircraft missions as outlined in Annexes F through M, O through Q and U. To provide maximum coordination and assistance, the senior air controller, Task Group 7.4 will delegate to six (6) assistant controllers (from USS ESTES CIC complement) direct control of specified aircraft. The plotters, tellers, monitor-tellers and status personnel to coordinate CIC operations with the AOC and JOC will be the enlisted personnel of the CIC complement. An officer controller of the CIC complement will supervise the status display and plotting procedures under the overall supervision of the Senior Controller of Task Group 7.4. Personnel will report for duty as specified in specific instructions for each assigned position. Upon reporting for duty they will thoroughly check the electronic equipment assigned to perform their mission to insure it is functioning properly. The aircraft status boards and plotting boards will be checked for proper information pertaining to their assigned aircraft.

b. All aircraft will take off as scheduled in Annex C contacting the AOC on VHF Channel C. Dirty Face will check all modes of Mark 10 IFF on all aircraft immediately after take off and HF airground communications on all aircraft except jets. The aircraft will take off and proceed on course to assigned mission station making the above electronic checks enroute. Dirty Face will maintain positive IFF and VHF control until Boundary Tare establishes positive radar and radio control (to maximum capabilities of electronic equipment). Aircraft equipped with HF air ground equipment will establish radio contact on assigned HF air ground frequency.

c. VHF channels, IFF modes and mission instructions for aircraft are specified in specific aircraft mission briefings and individual controller instructions.

d. The controller will be responsible, through his teller, to maintain and display on the appropriate status boards positions two (2) through five (5) on each aircraft assigned for his control. Positions One (1) and six (6) will be received from the AOC and be the responsibility of the status supervisor for proper display, and provide the AOC with positions two (2) through five (5).

SECRET

(1) Position one (1) - Actual take-off time of aircraft.

(2) Position two (2) - Actual time CIC establishes and accepts control from AOC. (Approximately 90 miles out).

(3) Position three (3) - Actual time aircraft arrives at assigned mission station.

(4) Position four (4) - Actual time aircraft departs mission station.

(5) Position five (5) - Actual time AOC establishes and accepts control from CIC.

(6) Position six (6) - Actual time aircraft lands.

e. Plotting will be the responsibility of the controller through his assigned teller. Aircraft will be plotted from positions two (2), to three (3) and positions four (4) to five (5) with three arrows with the lead arrow designating the last position of the aircraft. The time will be plotted in minutes below each arrow with the letter designating the aircraft call sign (- - → - - → -E-1- - - - - - →). While aircraft are at
08 11 14
position three (3) (on mission station) one (1) arrow will be used to reduce congested plotting on the operation board. Plots will be displayed on each aircraft at a maximum interval of three minutes.

f. Aircraft in emergency and the assisting aircraft or ships will be plotted with three arrows at an interval not to exceed one (1) minute to maintain an accurate position, direction and time. Emergencies will take priority over other aircraft plots to maintain an up to the minute displa .

g. Controllers will be thoroughly familiar with specific aircraft flight procedures, Annex C through M, and O through Q; H-hour aircraft position and flight patterns, Annex D; Communications, Annex E; and SAR Plan Annex F.

h. Scope Controller Assignments:

(1) Controller #1: Scope #1, Guard channels B and D as emergency controller for all aircraft.

(2) Controller #2: Scope #2, C-54 Photo Aircraft, call sign: Pewter 2. WB-29 Weather Aircraft, call sign: Wilson 1.

(3) Controller #3: Scope #3, C-54 Photo Aircraft, call sign: Pewter 3 and SAC B-50's IBDA Aircraft, call sign: Hard-time 1, 2 & 3.

(4) Controller #4: Scope #4, B-36 Effects Aircraft, call sign: Elaine 1.

(5) Controller #5: Scope #5, RB-36 Control, call sign: Cassidy. SA-16 Search and Rescue, call sign: Stable. F-84 Sampler Aircraft, call sign: Tiger Red, White and Blue. B-36 Sampler Aircraft, call sign: Floyd 1 and 2.

(6) Controller #6: Scope #6, B-47 Effects Aircraft, call sign: Elaine 2.

(7) Controller #7: Scope #7, C-54 Photo Aircraft, call sign: Pewter 1 and observer aircraft call sign: Viking 1, 2 and 3.

HOWELL M. ESTES, JR.
Brigadier General, U.S.A.F.
Commander

2 Appendices
1. Scope Controller Instructions
2. CIC Plotter Teller Instructions

OFFICIAL:

Paul H. Fackler

PAUL H. FACKLER
Lt Colonel, USAF
Director of Operations

SECRET

APPENDIX 1
TO
ANNEX T
OPERATIONS ORDER NO. 1-54
SCOPE CONTROLLER INSTRUCTIONS

SCOPE CONTROLLER #1: Will begin his duties when Boundary Tare excepts control of the first mission aircraft. He will monitor VHF channel B on AN/ARC-1 at scope #1 equipped with URD-2. The AN/ARC-1 will provide automatic guard on D channel (Emergency). He will monitor all time hacks on B to assure they are going out over the air. Upon receiving a call on D channel, the controller will switch to D as primary and take bearings on all transmissions on channel D. He will be prepared to furnish the appropriate scope controller with this bearing or assume control of aircraft in emergency. If the emergency requires a Stable Aircraft Scope Controller #5 will provide Controller #1 with a range, bearing and call sign of appropriate Stable aircraft and switch Stable to channel D with Controller #1 assuming control. Immediately after H-hour Controller #1 will switch to D channel as primary and continue to monitor to receive any emergency calls. He will be thoroughly familiar with all emergency procedures in Annex F (SAR Plan) and sea conditions in the sampling area. Aircraft in emergency and aircraft or ships assisting in emergencies will be plotted continuously on the operations board to depict an accurate position and time. Controller #1's teller will be Teller #1 to Plotter #1 to display aircraft in emergency and assisting aircraft.

SCOPE CONTROLLER #2: Will begin his duties at start engine time for Pewter 2 in Annex C (Aircraft Mission Execution Chart). He will check scope #2 and VHF channel H to insure they are functioning properly and have his teller check his communications with the effects status clerk and plotter #1. He will monitor VHF channel H from take off for Pewter 2 in Annex C, to receive a call from Pewter 2 when approximately ninety (90) miles from ENIWETOK on course to assigned mission station in Annex D (Aircraft H-hour Positions and Flight Pattern). When positive control is established with Pewter 2, the teller will give the status clerk the time control is accepted and start three minute position reporting to the plotter. The Controller will give Pewter 2 range and bearing to his assigned mission station. When Pewter 2 reaches mission station, position three (3) will be reported to the status clerk. The Controller will place Pewter 2 in a starboard race track pattern with approximately three (3) minute legs broadside to Ground Zero. The controller will provide Pewter 2 in a starboard race track pattern with approximately three (3) minute legs broadside to Ground Zero. The controller will provide Pewter 2 with range from Ground Zero each time he passes through his assigned true bearing from Ground Zero. Range will be given on both North and South headings. The controller will provide position reports and necessary vectors to insure Pewter 2 meeting his H-hour position within accepted tolerance of plus or minus fifteen (15) seconds. Immediately after H-hour, Pewter 2 will fly at his own discretion to photograph cloud for approximately fifteen (15) minutes. The controller will continue to track Pewter 2 and give him range and bearing to base upon completion of mission. When Pewter 2 departs cloud area for base, the teller will give position four to the status clerk. The Controller will maintain control until control is accepted by Dirty Face at which time position five will be told to the status clerk. Scope Controller #2 will have Pewter 2 switch to channel B for the following time hacks:

H - 2 hours and 2 minutes for H - 2 hour time hack
H - 1 hour and 2 minutes for H - 1 hour time hack

SECRET

H - 32 minutes for H - 30 minute time hack

H - 3 minutes and remain on B until after H-hour

Immediately after Dirty Face excepts control of Pewter 2, Controller #2 will switch to channel A and notify controller #5 he is ready to accept control of Wilson 1. Controller #5 will provide Controller #2 with range and bearing of Wilson 1. Controller #2 upon accepting control of Wilson 1 will continue to track and report his position to the plotter. At approximately H / 2 hours, Wilson 1 will be directed to conduct Sampling Operation. The time of this operations will be decided by the JTF SEVEN Rad-safe Officer. Wilson 1 will be provided all significant Rad-safe forecasts prior to the Sampling Operation. Upon completion of Sampling Mission by Wilson 1 the controller will provide a bearing and range to ENIWETOK. When Wilson 1 is approximately ninety (90) miles from ENIWETOK he will switch to channel C and Call Dirty Face for control.

SCOPE CONTROLLER #3: Will begin his duties at start engine time for Pewter 3 or Hardtime aircraft determined by the first to take off in Annex C (Aircraft Mission Execution Chart). He will check scope 3 and VHF channel G to insure they are functioning properly and have his teller check his communications with the effects status clerk and plotter #1. He will monitor VHF channel G from take off time in Annex C to receive a call from Pewter 3 and Hardtime aircraft when approximately ninety (90) miles from ENIWETOK on course to assigned mission station in Annex D (Aircraft H-hour Positions and Flight Patterns). When positive control is established with Pewter 3 and Hardtime aircraft the teller will give the status clerk the time control is accepted and start three minute position reporting to the plotter. The controller will give Pewter 3 and Hardtime aircraft range and bearing to assigned mission stations. When Pewter 3 and Hardtime aircraft reach respective mission stations position three will be reported to the status clerk. The controller will place Pewter 3 in a starboard race track pattern with approximately three (3) minute legs broadside to Ground Zero. The Controller will provide Pewter 3 with range from Ground Zero each time he passes through his assigned true bearing from Ground Zero. Range will be given on both East and West headings. The Controller will provide position reports and necessary vectors to insure Pewter 3 meeting his H-hour position within accepted tolerance of plus or minus fifteen (15) seconds. Immediately after H-hour, Pewter 3 will fly at his own discretion to photograph cloud for approximately fifteen minutes. The Controller will continue to track Pewter 3 and give him range and bearing to base upon completion of mission. When Pewter 3 departs cloud area for base, the teller will give position four to the status clerk. The controller will maintain control until control is accepted by Dirty Face at which time position five will be told to the status board. Scope Controller #3 will have Pewter 3 switch to channel B for the following time hacks:

H - 2 hours and 2 minutes for H - 2 hour time hack

H - 1 hour and 2 minutes for H - 1 hour time hack

H - 32 minutes for H - 30 minute time hack

H - 3 minutes and remain on B until after H-hour

Hardtime 1 will be lead aircraft for formation and be the only aircraft showing IFF. The controller will vector Hardtime 1 to his assigned mission station in Annex D. Hardtime 2 and 3 will positon themselves on Hardtime 1. The controller will periodically check Hardtime 2 and 3's position relative to Hardtime 1 and issue necessary instructions to aid them in meeting H-hour positions. After H-hour, mission complete, Hardtime 1 will

assu me lead aircraft position and be given a range and bearing to ENIWETOK.

SCOPE CONTROLLER #4: Will begin his duties at start engine time for Elaine 1 in Annex C (Aircraft Mission Execution Chart). He will check scope #4 and VHF channel E to insure they are functioning properly and have his teller check his communications with the effects status clerk and plotter #2. He will monitor VHF channel E from takeoff time for Elaine 1 in Annex C to receive initial call from Elaine 1 when approximately ninety (90) miles from ENIWETOK on course to assigned mission station in Annex D (Aircraft H-hour Positions and Flight Patterns). When positive control is established with Elaine 1, the teller will give the status clerk position two and the time control is accepted from the AOC and start giving three minute positions to the plotter. The Controller will give Elaine 1 range and bearing to assigned mission station. When Elaine 1 reaches mission station, position three, it will be reported to the status clerk. The controller will continually monitor Elaine 1 in his flight pattern in Annex D. Elaine 1 will primarily position himself and will normally require no assistance if his equipment functions properly; although the controller will be responsible to closely monitor his position and see that the track is plotted to assure the Senior Controller that Elaine 1 will be in position at H-hour. Scope Controller #4 will instruct Elaine 1 to switch to channel B for all time hacks. Immediately after H-hour, Elaine 1 will proceed to base receiving range and bearing from the Controller. Upon departing position three, mission station, the teller will give position four to the status clerk. The controller will continue to track and have Elaine 1 plotted until approximately ninety (90) miles from ENIWETOK at which time he will instruct Elaine 1 to switch to channel C and contact Dirty Face. He will continue to monitor E channel until position five is confirmed by Dirty Face. After releasing Elaine 1, Controller #4 will monitor the sampler operations on channel E to detect any emergency while Tiger aircraft are under the control of the Sampler Controller aboard Cassidy. He will report all unusual happenings or emergencies to Controller #5. If Tiger aircraft are unable to contact Cassidy 1 or Boundary Tare on F channel after sampling, Controller #4 will assume control on channel E and vector Tiger aircraft to ENIWETOK reporting positions four and five and maintaining continuous plots on Tiger aircraft.

SCOPE CONTROLLER #5: Will begin his duties at start engine time for Wilson 1, in Annex C (Aircraft Mission Execution Chart). He will check scope #5 and VHF channel F to insure they are functioning properly and have his teller check his communication with sampler status clerk and plotter #2. He will monitor VHF channel F from takeoff time for Wilson 1 in Annex C, to receive a call from Wilson 1, after he has checked the weather in the ENIWETOK area. Wilson 1 will contact Boundary Tare when approximately ninety (90) miles from ENIWETOK on course to assigned mission station in Annex D (Aircraft H-hour Positions and Flight Patterns). When positive control is established with Wilson 1 the teller will give the status clerk position two and start giving three minute positions to the plotter. The Controller will give Wilson 1 range and bearing to his mission station and stand by to receive weather reports from Wilson 1. When Wilson 1 reaches weather reconnaissance area over Ground Zero, position three will be told to the status clerk. After H-hour Wilson 1 will be turned over to Controller #2 on VHF channel A to sample in the cloud area. Cassidy and Stable will be controlled in the same manner as Wilson through position three. After H-hour Cassidy will direct sampling operation in cloud area and assume control of Stable. Stable 1 will fly at 11,000 ft and due to possible fall out will remain outside Cassidy position from cloud and receive position assistance from Controller #5. Stable 2 will remain under the control of Boundary Tare and standby for specific emergency instructions. Cassidy will assume control of Tiger aircraft when radio and IFF contact is made or when Tiger aircraft have

Cassidy in sight and have established radio contact. This will be position three for Tiger aircraft and the time reported to the Sampler Status Clerk. Cassidy upon accepting control of Tiger aircraft will complete rendezvous and turn samplers over to Cassidy Sampler Controller, on VHF channel E. Scope Controller #4 will monitor channel E and be prepared to assist Cassidy and brief controller #5 in case of unusual occurrences or emergencies. The Cassidy Sampler Controller upon completion of mission will return Tiger aircraft to channel F, Cassidy control will accomplish a rendezvous with the assistance of Boundary Tare, if required, and vector them to Boundary Tare. Boundary Tare upon establishing radio and IFF contact will accept control from Cassidy and report position four to the status clerk. Controller #5 will then turn Tiger element over to controller #6, for control to position five, approximately ninety (90) miles from ENIWETOK. Dirty Face will accept control upon establishing radio and radar contact. The B-36 Samplers call sign Floyd 1 and 2 will be a back up for Cassidy if Cassidy should abort mission. Controller #5 will be prepared to position Floyd 1 or 2 in replacement position for Cassidy; although the primary mission of Floyd aircraft will be cloud sampling with Floyd 2 taking off when Floyd 1 returns to base. Floyd aircraft during sampling will position themselves with the controller maintaining a positive displayed position on all aircraft through his teller. Controller #5 will be prepared to furnish Rad-safe information to Cassidy 1 and Floyd aircraft during sampling operation and sea conditions to Stable aircraft and aircraft in emergency.

SCOPE CONTROLLER #6: Will begin his duties at start engine time for Elaine 2 in Annex C (Aircraft Mission Execution Chart). He will check scope #6 and VHF channel E to insure they are functioning properly and have his teller check his communications with the effects status clerk and plotter #2. He will monitor VHF channel E from take off time for Elaine 2 in Annex C to receive a call from Elaine 2 when approximately ninety (90) miles from ENIWETOK on course to assigned mission station in Annex D (Aircraft H-hour Positions and Flight Patterns). When positive control is established with Elaine 2, the teller will give the status clerk position two and the time control is accepted from Dirty Face and start giving three minute positions to the plotter. The Controller will give Elaine 2 range and bearing to assigned mission station. When Elaine 2 reaches mission station, position three, it will be reported to the status clerk. The controller will continually monitor Elaine 2 in his flight pattern in Annex D. Elaine 2 will primarily position himself and will normally require no assistance if his equipment functions properly; although the controller will be responsible to closely monitor his position and see that the track is plotted to assure the Senior Controller that Elaine 2 will be in position at H-hour. Scope Controller #6 will instruct Elaine 2 to switch to channel B for all time hacks. Immediately after H-hour, Elaine 2 will proceed to base receiving range and bearing to base from the Controller. Upon departing position three, mission station, the teller will give position four to the status clerk. The Controller will continue to track and have Elaine 2 plotted until approximately ninety (90) miles from ENIWETOK at which time he will instruct Elaine 2 to switch to channel C and contact Dirty Face. He will continue to monitor channel E until position five (5) is confirmed by Dirty Face. After Dirty Face assumes control of Elaine 2 Scope Controller #6 will switch to channel F and stand by to assume control of the Tiger aircraft proceeding to the Sampling Area. Controller #6 will assume control of Tiger aircraft and vector them to the Command Ship area. He will notify Controller #5 when Tiger aircraft approach the Command Ship area and Controller #5 will assume control and vector them to the sampling area. Controller #5 will turn Tiger aircraft over to Controller #6 for control upon departing the Command Ship area, mission complete, and returning to base. Controller #6 will maintain control of

Tiger elements until Dirty Face assumes control approximately ninety (90) miles from ENIWETOK.

SCOPE CONTROLLER #7: Will begin his duties at Start Engine Time for Pewter 1 (Annex C, Aircraft Mission Execution Chart). He will check scope #7 and VHF channel A to insure they are functioning properly and have his teller check his communications with the effects status clerk and plotter number 1. He will monitor VHF channel A from take-off time for Pewter 1 in Annex C to receive a call from Pewter 1 when approximately ninety (90) miles from ENIWETOK on course to assigned mission station in Annex D (Aircraft H-hour Position and Flight Patterns). When positive control is established with Pewter 1, the teller will give the status clerk the time control is accepted and start three minute position reporting to the plotter. The controller will give Pewter 1 range and bearing to assigned mission station. When Pewter 1 reaches mission station, position three will be reported to the status clerk. The Controller will place Pewter 1 in a starboard race track pattern with approximately three (3) minute legs broadside to Ground Zero. The Controller will provide Pewter 1 with range from Ground Zero each time he passes through his assigned true bearing from Ground Zero. Range will be given on both East and West headings. The Controller will provide position reports and necessary vectors to insure Pewter 1 meeting his H-hour position within accepted tolerance of plus or minus fifteen (15) seconds. Immediately after H-hour, Pewter 1 will fly at his own discretion to photograph cloud approximately fifteen (15) minutes. The controller will continue to track Pewter 1 and give him range and bearing to base upon completion of mission. When Pewter 1 departs cloud area for base, the teller will give position four to the status clerk. The controller will maintain control until control is accepted by Dirty Face at which time position five will be told to the status clerk. Scope Controller #7 will have Pewter 1 switch to channel B for the following time hacks:

H - 2 hours and 2 minutes for H - 2 hour time hack

H - 1 hour and 2 minutes for H - 1 hour time hack

H - 32 minutes for H - 30 minute time hack

H - 3 minutes and remain on B until after H-hour

Scope Controller #7, in addition to controlling Pewter 1, will position the observer aircraft, call sign Viking 1, 2 and 3. Takeoff times are given in Annex C and mission station in Annex D. Viking aircraft will call Dirty Face on takeoff, contact Boundary Tare when approximately ninety (90) miles from mission station. The Controller will be responsible to position Viking aircraft as outlined in Annex D monitoring their position to insure that no Viking aircraft porceed nearer to Ground Zero at H-hour than prescribed in Annex D. Position reports, telling and plotting will be used for Viking aircraft as outlined for Pewter 1.

SECRET

APPENDIX 2
TO
ANNEX T
OPERATIONS ORDER NO 1-54
CIC PLOTTER-TELLER INSTRUCTIONS

STATUS CONTROLLER: The Status Controller is the Senior Controller's assistant and will supervise operational control of the two HF point to point operators, HF air to ground operator, and the VHF relay operator to insure that positions one through six are properly displayed on the aircraft status boards. He will receive positions one (1) and six (6) from DIRTY FACE over one of the HF point to point circuits or through the VHF relay circuit and will give positions two (2) through five (5) to DIRTY FACE. Every effort will be made to keep all circuits open for operations with the clearest circuit being used to interchange information between DIRTY FACE and BOUNDARY TARE. All communication difficulties will be reported to the Electronics Officer for Corrective action. The HF air to ground circuit will be continually monitored and when VHF contact cannot be made with an aircraft the air ground circuit will be used. An additional selector switch is provided for all circuits for coordination by the Senior Controller in the CIC.

A status log (Attachment 1) will be kept up to date by the status controller to insure positions one (1) and six (6) are received from the AOC and properly displayed on the CIC status boards and that positions two (2) through five (5) are told to the AOC. Positions will be told between the AOC and CIC by giving call sign, position and time (PEWTER 2, positions three, one zero two zero). Aircraft in emergency and assisting aircraft or ships will take priority over other aircraft plots to insure accurate positions. The Status Controller will be directly responsible to the Senior Controller.

TELLERS: The Tellers will provide their plotter with a position on each aircraft at least, each three minutes. In case an aircraft is in an emergency, the frequency of plots will be increased to depict a constant heading and position. The teller will give the plotter call sign for aircraft, bearing and range. (WILSON 1 zero two five at forty). The Teller and Plotter will use head and chest sets for reporting on a direct circuit. The Teller for scopes four, five and six will give positions two through five to the Sampler Status Clerk and three minutes positions on CASSIDY 1, WILSON 1, STABLE 1 and 2, FLOYD 1 and 2, ELAINE 1 and 2, and TIGER aircraft to plotter #2. The Teller for scopes two, three and seven will give positions two through five to the effects Status Clerk, and three minute positions on PEWTER 1, 2 and 3, HARDTIME 1 and VIKING aircraft to Plotter #1. The tellers will be responsible to see that the plotted positions are maintained on the operation board each three minutes on all aircraft. He may read positions direct from controllers scope or obtain call sign, range and bearing from the scope controllers. His position will be behind and to the side of the Controller. After H-hour and the scope controllers release control of assigned aircraft to DIRTY FACE the tellers will be required, one for controllers #4 and 5 and the second for controllers #1 and 6 for duration of mission.

HF AND VHF RELAY OPERATIONS: The HF point-to-point monitor-tellers will make every effort, through the Electronics Officer, to keep these circuits operational to the AOC. The primary purpose of these circuits will be to pass aircraft positions and maintain coordination on operational matters between the CIC and the AOC. The VHF relay will be a back up for the HF point-to-point circuits and provide an additional means of communications between the AOC and CIC. The HF air-ground monitor-teller will

SECRET

continually monitor this circuit to receive any messages from aircraft out of VHF range and pass necessary messages to the aircraft. The HF air-to-ground circuit may be used by the Senior Controller for coordination or by the Controller on scope five if the sampler element (CASSIDY exceeds VHF range). Positions one and six will be received from the AOC and positions two through five will be given to the AOC. Positions will be given using the aircraft call sign, position and time aircraft reaches the position (PEWTER 1 position two at zero six one five). The operator receiving the positions from the AOC will write the positon information on a slip of paper and give it to the Status Controller (PEWTER 1 position two at zero six one five). The Status Controller will provide the monitor teller with the same information for positions to be told to the AOC.

PLOTTER NUMBER ONE: Plotter Number One will receive positions on PEWTER 1, 2 and 3, HARDTIME 1, and VIKING aircraft from teller for scopes two, three and seven. The Teller will give aircraft call sign, bearing and range. (PEWTER 1, zero nine zero at forty). Arrows will be used to plot the position of aircraft with the point of the arrow designating the position of aircraft. Aircraft arriving and departing mission positions will have three arrows showing flight path. Upon plotting fourth arrow, number 1 will be removed. ($\rightarrow$ 08 $\rightarrow$ 11 $\rightarrow$ E-1 $\rightarrow$). Aircraft upon reaching assigned mission position will be plotted with only one arrow, the last plotted position. The time will be placed by each arrow in minutes. The teller will normally give a position on each aircraft each three minutes, although in case an aircraft is in an emergency, a position and time will be plotted each minute. Aircraft in emergency will take priority over other aircraft plots to insure constant plotting with three arrows to depict aircraft heading and position. After H-hour, the communications of Teller #1 will be used by Teller at scope six to provide plots on TIGER aircraft, from position two until taken over by the Controller on scope five approaching positions three and on TIGER aircraft released by scope five to scope six after departing position four for position five.

PLOTTER NUMBER TWO: Plotter Number Two will receive positions on ELAINE 1, ELAINE 2, CASSIDY, STABLE, WILSON and TIGER from Teller on scopes four (4), five (5) and six (6). The Teller will give aircraft call sign, bearing and range (ELAINE 2, 180 at 10), arrows will be used to plot the position of aircraft with the point of the arrow designating the position of aircraft. Aircraft arriving and departing mission position will have three arrows showing flight path and upon plotting the fourth, arrow number one (1) will be removed. ($\rightarrow$ 08 $\rightarrow$ 11 $\rightarrow$ C-1 $\rightarrow$ 14). Aircraft upon reaching mission station will be plotted leaving only one (1) arrow. The last plotted position. The time will be placed by each arrow in minutes. The Teller will normally give a position on each aircraft each three minutes. In case of an aircraft emergency, a position and time will be plotted each minute. Aircraft in emergency will take priority over other aircraft plots to insure constant plotting with three arrows to depict aircraft heading position and time.

EFFECTS STATUS CLERK: The Effects Status Clerk will enter the time each aircraft reaches positions one through six in the appropriate space as received from the status controller and tellers over his direct circuit. The Teller will state aircraft call sign, position and time (PEWTER 2 position one 0705). The only entry made by the Status Clerk will be the time in the appropriate position opposite aircraft call sign. Positions one and six will be told to the Effects Status Clerk by the Status Supervisor. Positions two through five for PEWTER One, Two and Three, HARDTIME, and VIKING aircraft will be received from the Teller for scopes Two, Three and Seven. The Teller on scopes Four and Six will give position Two through Five for ELAINE One and Two respectively.

SAMPLER STATUS CLERK: The Sampler Status Clerk will enter the time each aircraft reaches positions One through Six in the appropriate space as received from the Status Supervisor and Teller over his direct circuit. The Teller will state aircraft call sign, position and time (CASSIDY position 2, 0710). The only entry made by the status clerk will be the time in the appropriate position opposite the aircraft call sign. Positions 1 and 6 will be told to the Sampler Status Clerk by the Status Controller. Positions Two through Five will be received from the Teller.

Annex "U"

In 2 pages

ANNEX "U"

TO

OPERATIONS ORDER NO. 1-54

CONTROL DESTROYER PROCEDURE

SECRET

ANNEX "U"
TO
OPERATION ORDER NO. 1-54
CONTROL DESTROYER PROCEDURE

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o Postmaster
San Francisco, California
9 February 1954, 1800M

1. MISSION:

a. To control aircraft as directed by the USS Estes.

b. To assist in SAR Operation in coordination with the USS Estes.

c. To provide navigational aids to aircraft during rehearsal and shot periods.

d. To provide back-up control facilities for the USS Estes and the AOC ENIWETOK.

2. RESPONSIBILITIES:

a. The Senior Air Controller, Control Destroyer is responsible for executing the provisions of this Operations Order.

b. Task Group 7.4 will provide a Senior Air Controller for the Destroyer to:

(1) Assist in planning CIC Operations.

(2) Supervise CIC Operations during rehearsal periods.

3. PROCEDURES:

a. The Control Destroyer will be positioned as agreed by Task Group 7.3 and 7.4.

b. The initial destroyer position will be approximately 090°, 100 N.M. from ENIWETOK at H-Hour.

c. The Control Destroyer will be requested to change position after H-Hour as required by cloud movement and jet aircraft control requirements. Requests for position changes will be transmitted directly to the Control Destroyer by CIC, USS Estes on Circuit J-407.

d. Detailed Control Destroyer CIC SOP's will be prepared by the Senior Air Force Controller on the Control Destroyer in coordination with the Senior Controller Task Group 7.4.

4. COMMUNICATIONS REQUIREMENTS:

a. Two (2) VHF radio channels.

b. One (1) AN/SPS-6 Radar and MARK 10 IFF.

SECRET

c. One (1) LF beacon.

d. One (1) HF radio channel to CIC, Command Ship.

5. SPECIFIC CONTROL DESTROYER CIC FUNCTIONS: (During rehearsals and shot periods).

a. Maintain a plotting board showing the planned positions of all aircraft and times aircraft are in positions one (1) thru six (6). (See Annex T).

b. Exercise control of JTF SEVEN SAR Forces as directed by USS Estes.

c. Take initial SAR action and keep CIC USS Estes informed of all emergencies within Control Destroyer radar coverage.

d. Maintain positive control of such JTF SEVEN aircraft as may be delegated by USS Estes.

e. Detect, identify and positively track by Radar such aircraft as delegated by USS Estes.

f. Assist in passing jet aircraft to USS Estes and AOC ENIWETOK when requested.

g. Relay, upon request, information to and from aircraft operating in the test area.

HOWELL M. ESTES, JR.
Brigadier General, U. S. A. F.
Commander

OFFICIAL:

Paul H. Fackler
PAUL H. FACKLER
Lt Colonel, USAF
Director of Operations

Annex "V"

In 2 pages

ANNEX "V"

TO

OPERATIONS ORDER NO. 1-54

MISSION ABORT CRITERIA

ANNEX "V"
TO
OPERATIONS ORDER NO. 1-54
MISSION ABORT CRITERIA

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o Postmaster
San Francisco, California
9 February 1954, 1800 M

1. PURPOSE: To establish minimum criteria for aborting CASTLE missions.

2. SCOPE: These criteria apply to all Task Group 7.4 aircraft participating in Operation CASTLE (UNCLASSIFIED). These criteria are those considered minimum and will be waived only by the Task Group Commander or his deputy. The establishment of these minimum abort criteria do not restrict aircraft commanders from aborting missions for any additional, valid reasons.

3. RESPONSIBILITY: Test Unit Commanders are responsible for insuring that all aircraft commanders are thoroughly familiar with the provisions of this Annex.

4. ABORT CRITERIA:

a. Prior to Take-Off:

(1) Incomplete crew (members considered critical by aircraft or unit commander concerned.)

(2) Failure of engine to check out according to Technical Order or other major preflight discrepancy which might effect the safe completion of the mission.

(3) Inoperative Rad-Safe equipment, essential to the mission.

(4) Inoperative HF Homer or IFF responder or interrogator equipment in Control RB-36.

(5) Inoperative positioning radar in Effects B-36 or B-47.

(6) Inoperative IFF in F-84 Samplers.

(7) Inoperative VHF radio in F-84 Samplers.

(8) Inoperative HF Radio in WB-29's.

(9) Inoperative sampling equipment in F-84 or RB-36 sampling aircraft.

b. After Take-Off:

(1) Inability to establish or maintain radio contact with control agencies.

(2) Failure of an engine or any primary aircraft system such as hydraulic, oxygen, electric, controls, flight instruments, etc.

(3) Failure of Rad-Safe or any other specialized equipment essential to the completion of the mission.

(4) Serious injury to or incapacitating illness of a crew member.

(5) Failure of APX-6 IFF equipment in F-84's or SAR aircraft.

(6) Failure of VHF Radio equipment in F-84's.

(7) Failure of positioning radar in effects aircraft.

(8) Inability of Control RB-36 to establish or maintain radio contact with F-84's.

(9) Failure of IFF interrogator and/or HF Homer in Control RB-36 (Discretion of Senior Controller).

5. GENERAL:

a. F-84's: In the event one (1) F-84 from a two (2) ship element is forced to abort the other aircraft of that element will accompany it to base.

b. Control RB-36: In the event the Control RB-36 is forced to abort prior to take off, the scientific and control team will board the back up Control RB-36 and take off with as little delay as possible. In the event the Control RB-36 is forced to begin an abort prior to H plus two (2) hours, upon landing the scientific and control team will board the back up B-36 control aircraft which will be standing by with engine running. The CIC will take over control of all airborne F-84's and SAR aircraft for the duration of any period in which the B-36 Control aircraft is not available and will coordinate all readjustments necessary in F-84 flight plans. In the event of abort by the Control RB-36 after H plus two (2) hours, the sampling operation will be cancelled, unless otherwise directed by CTG 7.4. Instructions pertinent to this situation will be relayed to all concerned agencies by the CIC, USS ESTES.

OFFICIAL:

Paul H. Fackler

PAUL H. FACKLER
Lt Colonel, USAF
Director of Operations

HOWELL M. ESTES, JR.
Brigadier General, U. S. A. F.
Commander

TASK GROUP 7.4
OPRS ORDER NO. 1-54
ANNEX "A"

Annex W

In 2 pages

ANNEX "W"

TO

OPERATIONS ORDER NO. 1-54

MULTI-ENGINE AIRCRAFT RADIOLOGICAL REPORTING CODE

DRAFT

ANNEX W
TO
OPERATIONS ORDER NO. 1-54

MULTI-ENGINE AIRCRAFT RADIOLOGICAL REPORTING CODE

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o Postmaster
San Francisco, California
9 February 1954, 1800 T

1. PURPOSE:

To provide a code system for reporting radiation encountered by multi-engine aircraft in flight. It will be used by all multi-engine aircraft, except those specifically assigned separate radiological reporting codes. This code has been developed primarily for voice air-to-ground transmission, to either the ACC or the CIC, on HF circuit J-410.

2. APPLICATION:

Multi-engine aircraft to which this code applies will, upon encountering radiation, transmit the information enumerated below in accordance with the following sequence:

a. Aircraft call sign.

b. The report will be identified as a "Sweet-Sour Report."

c. Approximate local time, position and altitude of aircraft will be given in the clear.

d. Actual code numbers for each shot will be assigned and distributed by JTF SEVEN prior to first shot.

e. Code for radiation intensity reading (above estimated aircraft background). (Code numbers will be re-designated by CJTF SEVEN for each shot. The numbers appearing below are for example only),

55 No detectable radiation above background

77 Less than 10 mr/hr, but above background

33 10 to 50 mr/hr

66 50 to 100 mr/hr

11 100 to 500 mr/hr

99 500 to 1000 mr/hr

22 1 to 5 mr/hr

00 5 to 10 mr/hr

88 More than 10 mr/hr

44 Dummy

f. Code name for the cloud is "GILDA".

g. The size of the contaminated area will be given in approximate nautical miles in the north-south direction, followed by the approximate nautical miles in the east-west direction e.g., "50 slash 20."

h. The approximate center of the contaminated area should be given in nautical miles, in relation to a known fix.

i. If determinable, the leading edge of the contaminated area should be identified by the code name "GILDA ABLE", and its approximate distance from a known fix should be given in nautical miles.

3. EXAMPLE:

"This is SAND BLASTER TWO/Sweet-sour-report/one six three zero/four zero west of (fix)/ten thousand/one one/GILDA six zero/four zero/five zero northwest of (fix)/ GILDA ABLE six zero west of (fix)."

"SAND BLASTER TWO radiation report for 1630 local, 40 NM west of (fix), 10,000', 100 to 500 mr/hr, area of cloud 60 NM north-south by 40 NM east-west, centered at 50 NM northwest of (fix), leading edge is at 60 NM east-west of (fix)."

HOWELL M. ESTES, JR.
Brigadier General, U. S. A. F
Commander

OFFICIAL:

PAUL H. FACKLER
Lt Colonel, USAF
Director of Operations

ANNEX "X"

TO

OPERATIONS ORDER No. 1-54

BRIEFINGS

(To be issued when available)