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HEADQUARTERS

76390

TASK GROUP 7.4

OPERATION ORDER NO. 5-54

HOWELL M. ESTES, JR.
BRIGADIER GENERAL, USAF
COMMANDER

[redacted]

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

OPERATION ORDER NO. 5-54

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. Watkins
c.	Test Services Unit	Lt Colonel Mahlon B. Hammond
d.	Test Support Unit	Colonel James F. Starkey

1. GENERAL SITUATION:

a. In order to add flexibility to the detonation schedule, Task Group 7.4 Operation Order No. 5-54 has been prepared for execution in the event adverse wind conditions prevent detonation in the BIKINI area, this Operation Order will apply. Execution day for this Operation Order will be specified by Joint Task Force SEVEN. At that time and upon notification by this headquarters, this order is a specific directive to all elements of the Air Task Group to execute the assigned missions in support of the ENIWETOK event. This order supplements Task Group 7.4 Operation Order No. 1-53 which is still in effect.

(1) See Annex A, Intelligence, Task Group 7.4 Operation Order No. 1-53.

(2) See Annex B, Organization and Command Relationships, Task Group 7.4 Operation Order No. 1-53.

(a) Task Group 7.3 will provide to Task Group 7.4 aircraft control facilities aboard the Command Ship and the Control Destroyer for the ENIWETOK event. (See Annex A, Check List, this Operation Order, and Annex T, Command Ship CIC Procedures; Annex U, Control Destroyer Procedures).

2. MISSION:

a. To participate in the ENIWETOK operations as directed by Joint Task Force SEVEN.

3. TASKS FOR SUBORDINATE UNITS:

a. Test Aircraft Unit:

(1) Execute assigned mission to include that specified in Annex A.

(2) Provide twelve (12) F-84 aircraft for necessary sampling mission for the ENIWETOK event. (See Annex H)

(3) Provide four (4) B-36 aircraft for control and sampling mission for the ENIWETOK event. (See Annexes G and I, this Order)

(4) Assure adequate sample removal procedures for the ENIWETOK event. (See Annex N)

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

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

(7) Prepare the marshaling plan for all aircraft which will depart from ENIWETOK to participate in the ENIWETOK event, and special missions.

(8) Prepare a post-mission parking plan for all aircraft that will land at ENIWETOK after the completion of their mission.

(9) Prepare a mission execution chart and assure that take-offs and landings are accomplished as specified in Annex C.

(10) Provide for aircraft decontamination.

b. Test Services Unit:

(1) Execute assigned missions, including that specified in Annex A.

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

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

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

(5) Assure adequate pre-mission weather forecasting as required for the ENIWETOK event.

(6) Provide necessary weather briefings and weather reports to the CIC and AOC throughout the ENIWETOK event.

(7) Assure adequate communications facilities throughout the ENIWETOK event.

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

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

(10) Provide for complete care, storage, and issue of personal equipment to all aircrews 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 ENIWETOK event. (See Annex A)

(2) Establish required measures to prevent movement of vehicles from interferring with or endangering air operations throughout the ENIWETOK event.

(3) Provide adequate crash removal and fire fighting protection for all air operations on ENIWETOK event.

(4) Place one (1) H-19 helicopter under the operational control of the SAR Element Commander and one (1) crash boat under the operational control of the AOC from 27 February 1954 and continuing throughout the project. (See Annex F)

(5) Assure adequate refueling and field maintenance support for all aircraft during the ENIWETOK event.

(6) Provide photographic coverage during the ENIWETOK operations for historical purposes.

(7) In coordination with other Test Units, assure adequate transportation schedules from the flight line to the dining halls and billeting areas throughout the ENIWETOK event operations.

(8) Provide for aircraft decontamination.

x. All Units:

(1) Provide liaison officers to assist Headquarters, Task Group 7.4 aircraft controllers in the AOC, on the Command Ship and Control Destroyer as required. (See Annexes S, T and U)

(2) Coordinate with Test Support Unit to arrange required early dining schedules, in-flight lunches, transportation, etc., for the ENIWETOK event.

(3) Adhere to security procedure as outlined in Annex G, Security and Public Information, Task Group 7.4 Operation Order No. 1-53, and other directives.

(4) Emphasize the Flight Safety Program outlined in Annex L, Flighty Safety, Task Group 7.4 Operations Order 1-53, and other directives.

(5) Be prepared to augment existing SAR facilities in emergencies during the ENIWETOK operation.

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

[redacted]

(9) All communications with FRED Tower from H minus 4 hours to H-Hour will be on VHF Channel "H" (HOW), 134.1 mc. No Task Group 7.4 aircraft will transmit on VHF Channel "B" (BAKER), 126.18 mc during this period of time.

4. LOGISTICAL MATTERS:

a. See Annex C, Administration, Task Group 7.4 Operation 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	AEC Control Room (PARRY)
	(a) CIC	USS ESTES (AGC-12)
	(b) AOC	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

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

ANNEXES:

(See Page 5)

DISTRIBUTION:

(See pages 6 & 7)

[redacted]

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 Weather and Rad Safe Flight Procedures

N. Decontamination Procedures

O. B-50 IBDA Flight Procedures

P. (N/A This Oprs Order)

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

Y. Navy Aircraft Flight Procedures

Z. Pre-Shot Blast Precautions

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1	19	Comdr, AMC, Wright-Patterson AFB, Ohio
1	20	Comdr, WADC, Wright-Patterson AFB, Ohio
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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, 76th Air Rescue Sq, 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
1	32	Comdr, 15th Air Force, March AFB, Calif
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5	38 - 42	Comdr, TG 7.1, APO 187, c/o PM, San Francisco, Calif
2	43 - 44	Comdr, TG 7.2, APO 187, c/o PM, San Francisco, Calif
2	45 - 46	Comdr, TG 7.3, APO 187, c/o PM, San Francisco, Calif
4	47 - 50	Comdr, TG 7.5, APO 187, c/o PM, San Francisco, Calif
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1	52	CG, AFSWP, Sandia Base, New Mexico
		ARMY AGENCIES
1	53	C/S U.S. Army, Washington 25, D.C.
1	54	CG, USARPAC, APO 958, c/o PM, San Francisco, Calif
		NAVY AGENCIES
1	55	CNO, Washington 25, D.C.
1	56	CINCPACFLT, Navy #128, c/o FPO, San Francisco, Calif
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1	58	CO, NAVSTA, Kwajalein, Navy #824, c/o FPO, San Francisco, Calif

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10	59 - 68	Comdr, Test Aircraft Unit
10	69 - 78	Comdr, Test Services Unit
6	79 - 83	Comdr, Test Support Unit

HEADQUARTERS, TASK GROUP 7.4, PROVISIONAL, UNITS

1	85	Commander, TG 7.4
1	86	Deputy Commander
1	87	Chief of Staff
5	88 - 92	Director of Operations
2	93 - 94	Director of Personnel
2	95 - 96	Director of Materiel
1	97	Comptroller
1	98	Personnel Security Officer
1	99	Historian
1	100 - 114	Adjutant, Hq, Task Group 7.4 (REAR), Kirtland AFB, NM

ANNEX A

TO

OPERATIONS ORDER NO. 5-54

SCHEDULE OF EVENTS

(Information normally contained in this Annex is of a transitory nature and will be issued separately with an specific Operations Order referencing this Operations Order.)

ANNEX B

TO

OPERATIONS ORDER NO. 5-54

AIRCRAFT PARKING PLAN

(Information normally contained in this Annex is of a transitory nature and will be issued separately with an specific Operations Order referencing this Operations Order.)

ANNEX C

TO

OPERATIONS ORDER NO. 5-54

AIRCRAFT MISSION EXECUTION CHART

(Information normally contained in this Annex is of a transitory nature and will be issued separately with an specific Operations Order referencing this Operations Order.)

ANNEX D

TO

OPERATIONS ORDER NO. 5-54

AIRCRAFT H-HOUR POSITIONS AND FLIGHT PATTERNS

(Information normally contained in this Annex is of a transitory nature and will be issued separately with an specific Operations Order referencing this Operations Order.)

ANNEX "E"

In 6 pages W/5 Appendices

consisting of 20 pages

ANNEX "E"

TO

OPERATIONS ORDER NO. 5-54

COMMUNICATIONS

[redacted]

ANNEX "E"
TO
OPERATIONS ORDER NO. 3-54
COMMUNICATIONS

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o Postmaster
San Francisco, California
7 April 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 (UHP): 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)

[redacted]

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 ISIAND 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.

(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/CPS-6 radar beacons (Racons) on ENIWETOK and BIKINI ATOLLS.

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

[redacted]

(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 conjuction 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.

[redacted]

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
Lt Colonel, USAF
Director of Operations

[redacted]

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

COMMUNICATIONS CIRCUITS

Circuit Number	Circuit and Frequencies
J-205	Eniwetok Armed Forces Radio Station WXLE 1385 kcs Hours of Operation: Mon, Wed, Thurs, 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 Eniwetok Transmit: 72.2 mcs USS Estes Transmit: 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 192.48 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 (For [redacted]-Event, LORAN Station will be off the air from E-4 minutes to E+1 minute
J-400	Eniwetok-Kwajalein, Multiplex RATT (SAMSON) Eniwetok Transmit: Chan A: 3247.5 kcs; Chan B: 5145 kcs; Chan C: [illegible] kcs Kwajalein Transmit: 3340 kcs; 6780 kcs; 9270 kcs

[redacted]

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

Eniwetok Transmit		USS Estes Transmit	
Chan A:	2815 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:	2815 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, 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: 6350 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: 3060 kcs
Chan B: 4917.5 kcs
Chan C: 9310 kcs

[redacted]

[redacted]

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) 2180 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: 10122.5 kcs
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: 98.0 mcs, 99.6 mcs Transmitters: 75.4 mcs, 78.0 mcs
J-414	Eniwetok-Liaison Aircraft & Helicopters, Voice 136.44 mcs
J-415	Voice Time Broadcast 126.1[illegible] 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

[redacted]

[redacted]

Circuit Number	Circuit and Frequencies	
J-416	143.10 mcs	"A" Channel
	146.16 mcs	"G" Channel
	147.6 mcs	C-47 Relay (AOC only)
J-417	Eniwetok Control Tower - Operates Continouously (*AOC also operates)	
	*4765 kcs	(Transmit only)
	*6500 kcs	(Receive only)
	8364 kcs	(Replaces 8280 kcs)
	121.5 mcs	
	126.18 mcs	
	134.1 mcs	
	135.9 mcs	
	236.6 mcs	
	243.0 mcs	
J-418	Eniwetok GCA	
	Hours of Operation:	
	a. Mon thru Sat: 0800 - 1700M	
	b. During all periods TG 7.4 Test Acft are conducting flights.	
	c. On 30 - 40 minute stand-by 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-420	Eniwetok Homing Beacon (GY)	
	345 kcs	
	Operates Continuously	
J-421	Bikini Homing Beacon (BI)	
	272 kcs	
	Operates Only from H ∠ Shock Arrival to end of Sampling Operations	
	NOTE: After H ∠ 15 minutes, the USS CURTISS will operate a radio homing beacon on 400 kcs with identifier AV.	

[redacted]

[redacted]

Circuit Number	Circuit and Frequencies
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) 450 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: 1-2 Bikini: 2-2 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

[redacted]

[redacted]

APPENDIX 2
TO
ANNEX E
OPERATIONS ORDER NO. 5-54
CALL SIGNS AND CODE WORDS
CALL SIGNS

USER	VOICE CALL	CW CALL
AACS Communications Centers:		
Eniwetok	EMOTION	ACD 2Ø
Bikini	EMOTION ONE	4WF
Kwajalein	EMOTION TWO	AGC 2
Aircraft Calls:		
Bikini Helicopter	PEANUT ≠ No	
Eniwetok Helicopter	DAGO ≠ No	
Navy Helicopter	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	V16
Weather Recon WB-29's	WILSON ≠ No	2GA
PBM's Navy	No ≠ LENA	5OH
SA-16 (Airlift Support)	LENA 3 & 4	
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	

[redacted]

[redacted]

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
	THE WAY TO

[redacted]

APPENDIX 3
TO
ANNEX E
OPERATIONS ORDER NO. 5-54
COMMUNICATIONS

COMMUNICATIONS SECURITY

1. GENERAL:

The purpose of the 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.

j. 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) Indoctrination 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 improvment 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 PROCEDURES: 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 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.

APPENDIX 4
TO
ANNEX E
OPERATIONS ORDER NO. 5-54
AIR/GROUND COMMUNICATIONS FOR ENIWETOK EVENTS

AIRCRAFT	CHANNEL											
	A	B	C	D	E	F	G	H	J-410	J-411	J-306	
ELAINE 1		x	#		o			*	# o			
ELAINE 2		x	#		o			*				
WILSON 1		x	#			o		*	# o			
WILSON 2	o	*	#						# o	#		
WILSON 3	o	*	#						# o	#		
PEWTER 1	o	x	#					*	# o			
PEWTER 2	o	x	#					*	# o			
PEWTER 3		x	#				o	*	# o			
HARDTIME 1		x	#				o	*	# o			
HARDTIME 2		x	#				o	*	# o			
HARDTIME 3		x	#				o	*	# o			
VIKING 1		x	# o					*	# o			
VIKING 2		x	# o					*	# o			
VIKING 3		x	# o					*	# o			
VIKING 4		x	# o					*	# o			
STABLE 1		*	#			o			# o			
STABLE 2		*	#			o			# o			
FLOYD 1		*	#		o	o			# o			
FLOYD 2		*	#		o	o			# o			
CASSIDY		x	#		o	o		*	# o			
14 BABYFOOD	o	x	#					*	# o			
TIGER (R, W, B)		*	#		o	o						
TIGER SNIFFERS		x	#		o	o		*				

AOC - CIC Guards

LEDGEND

* Tower
x Time Hack
\# AOC
o CIC
DOLL HOUSE Guards - E, F, and J-410

E4-1

TASK GROUP 7.4
OPRS ORDER NO. 5-54
ANNEX E, APNDX 4

TO
ANNEX "E"
OPERATIONS ORDER NO. 5-54
COMMUNICATIONS
VOICE TIME SCRIPT

The following Voice Time broadcast script will be used in making voice time announcements on 126.18 MC. From FIFTEEN MINUTES through ZERO the script is transmitted from a tape recording and a distinctive TONE replaces the word HACK.

TIME	ANNOUNCEMENT
_____	This is BARRYMORE - Standby for time HACK - Standby for time HACK.
_____	In one minute the time will be - H MINUS THREE HOURS - H MINUS THREE HOURS.
-30	Thirty seconds.
-50	Ten seconds.
-55	Five seconds.
_____	HACK - H MINUS THREE HOURS.
	Next time HACK AT H MINUS TWO HOURS - Next time HACK AT H MINUS TWO HOURS.
_____	This is BARRYMORE - Standby for time HACK - Standby for time HACK.
_____	In one minute the time will be - H MINUS TWO HOURS - H MINUS TWO HOURS.
-30	Thirty seconds.
-50	Ten seconds.
-55	Five seconds.
_____	HACK - H MINUS TWO HOURS.
	Next time HACK at H MINUS ONE AND ONE HALF HOURS - Next time HACK AT H MINUS ONE AND ONE HALF HOURS.
_____	This is BARRYMORE - Standby for time HACK.
_____	In one minute the time will be - H MINUS ONE AND ONE HALF HOURS - H MINUS ONE AND ONE HALF HOURS.
-30	Thirty seconds.
-50	Ten seconds.
-55	Five seconds.
_____	HACK - H MINUS ONE AND ONE HALF HOURS.

Next time HACK at H MINUS ONE HOUR - Next time HACK at H MINUS ONE HOUR.

_____ This is BARRYMORE - Standby for time HACK.

_____ In one minute the time will be - H MINUS ONE HOUR - H MINUS ONE HOUR.

-30 Thirty seconds.

-50 Ten seconds.

-55 Five seconds.

_____ HACK - H MINUS ONE HOUR.

Next time HACK at H MINUS FORTY-FIVE MINUTES - 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.

_____ HACK - H MINUS FORTY-FIVE MINUTES.

_____ Next time HACK at H MINUS THIRTY MINUTES - Next time HACK 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.

_____ HACK - H MINUS THIRTY MINUTES.

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.

Next time TONE at H MINUS FIFTEEN MINUTES.

_____ In one minute the time will be H MINUS FIFTEEN MINUTES - H MINUS FIFTEEN MINUTES.

[redacted]

-30	Thirty seconds until H MINUS FIFTEEN MINUTES.
-50	Ten seconds.
-55 to 60	Five, four, three, two, one.
	TONE - H MINUS FIFTEEN MINUTES.
-30	Thirty seconds until H MINUS FOURTEEN MINUTES.
-50	Ten seconds.
-55 to 60	Five, four, three, two, one.
	TONE - H MINUS FOURTEEN MINUTES .
-30	Thirty seconds until H MINUS THIRTEEN MINUTES.
-50	Ten seconds.
-55 to 60	Five, four, three, two, one.
	TONE - H MINUS THIRTEEN MINUTES.
-30	Thirty seconds until H MINUS TWELVE MINUTES.
-50	Ten seconds.
-55 to 60	Five, four, three, two, one.
	TONE - H MINUS TWELVE MINUTES.
-30	Thirty seconds until H MINUS ELEVEN MINUTES.
-50	Ten seconds.
-55 to 60	Five, four, three, two, one.
	TONE - H MINUS ELEVEN MINUTES.
-30	Thirty seconds until H MINUS TEN MINUTES.
-50	Ten seconds.
-55 to 60	Five, four, three, two, one.
	TONE - H MINUS TEN MINUTES.
-30	Thirty seconds until H MINUS NINE MINUTES.
-50	Ten seconds.
-55 to 60	Five, four, three, two, one.
	TONE - H MINUS NINE MINUTES.
-30	Thirty seconds until H MINUS EIGHT MINUTES.
-50	Ten seconds.
-55 to 60	Five, four, three, two, one.
	TONE - H MINUS EIGHT MINUTES.

[redacted]

-30	Thirty seconds until H MINUS SEVEN MINUTES.
-50	Ten seconds.
-55 to 60	Five, four, three, two, one.
	TONE - H MINUS SEVEN MINUTES.
-30	Thirty seconds until H MINUS SIX MINUTES.
-50	Ten seconds.
-55 to 60	Five, four, three, two, one.
	TONE - H MINUS SIX MINUTES.
-30	Thirty seconds until H MINUS FIVE MINUTES.
-50	Ten seconds.
-55 to 60	Five, four, three, two, one.
	TONE - H MINUS FIVE MINUTES.
-30	Thirty seconds until H MINUS FOUR MINUTES.
-50	Ten seconds.
-55 to 60	Five, four, three, two, one.
	TONE - H MINUS FOUR MINUTES.
-30	Thirty seconds until H MINUS THREE MINUTES.
-50	Ten seconds.
-55 to 60	Five, four, three, two, one.
	TONE - H MINUS THREE MINUTES.
-30	Thirty seconds until H MINUS TWO MINUTES.
-50	Ten seconds.
-55 to 60	Five, four, three, two, one.
	TONE - H MINUS TWO MINUTES.
-30	Thirty seconds until H MINUS ONE MINUTE.
-50	Ten seconds.
-55 to 60	Five, four, three, two, one.
	TONE - H MINUS ONE MINUTE.
	Put on goggles or turn away - Do not remove goggles or face burst until FIRE BALL DISSIPATES.
-30	Thirty seconds to ZERO TIME.

[redacted]

[redacted]

-35	Twenty-five seconds to ZERO TIME.
-40	Twenty seconds to ZERO TIME.
-45	Fifteen 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.

An automatic time tape broadcast will be used from H-15 minutes through H-Hour. This broadcast will be synchronized with the device-firing timer, to insure time broadcast accuracy in relation to actual blast time. This broadcast will be continual, with counts down and hack tones given at each minute increment of the 15 minutes. BOUNDARY TARE will instruct participating aircraft when to switch to VHF Channel "B" for time hacks. Immediately upon determination by the aircraft commander that he has received an adequate time hack, he will return to his assigned control channel. All aircraft will remain on Channel "B" from H-3 minutes through H-Hour. (C-54 Photo Aircraft only are authorized to deviate from these instructions, during the period H-5 minutes through H-Hour, if such deviations are previously agreed upon by the pilots and their controllers.) All aircraft will switch back to assigned control channels immediately following H-Hour. In the event of malfunction of automatic tape broadcast, critical aircraft will be directed by BOUNDARY TARE to return to base or to immediately depart the shot area. Manual voice broadcasts will be made by BARRYMORE if the automatic tape broadcast fails. This procedure will enable non-critical aircraft to complete their mission.

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Annex F

In 5 pages w/1 Appendix

consisting of 2 pages

ANNEX F

TO

OPERATIONS ORDER NO. 5-54

SEARCH AND RESCUE

[redacted]

ANNEX "F"
TO
OPERATIONS ORDER NO. 5-54
SEARCH AND RESCUE

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

References: (a) Search and Rescue Joint Standard Operating Procedures; prepared jointly by Commanders-in-chief, 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, and places certain responsibilities on Commander, JTF SEVEN.

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

d. The overall 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 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 alet during the entire project, and a competent SAR control section in the AOC.

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.

Declassified DOD DIR 5200.10

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h. The Commander, Test Support Unit, will place one (1) helicopter (H-19) under the operational control the the SAR Element Commander and one (1) Crash Boat under the operational control of the AOC 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 7DU1, 2, 3, and 5, as appropriate. Call Signs of all project aircraft and stations are specified in Appendix 2 to Annex "E", this order. STABLE 1, 2 and 3 are SA-16 type aircraft. STABLE 5 is a Helicopter.

b. STABLE 1 and 2 will carry aero-medical technicians, who will also function as radiological monitors. If STABLE 1 or 2 should abort prior to or immediately after take-off, the aero-medical technicians will transfer to STABLE 3, if time permits. 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 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, 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.

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

[redacted]

[redacted]

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, ARC-13 with 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 communications 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 conditions, 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 distress 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 Procedures:

(1) The scene of action ("on-scene) command of SAR operations will be exercised by the SA-16 aircraft. Frequency for

[redacted]

[redacted]

"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 contact with the distressed aircraft, VHF Channel "D" 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, and to effect direct contact with the associated SA-16, on VHF Channel "I".

(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 contact 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 & 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 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:

[redacted]

[redacted]

(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 Appendix 4 to Annex "E", this order, "Air Ground Communications for CASTLE", to facilitate rapid contact in case of emergency.

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 4.025 density filter goggles. Co-pilots should, as an extra precaution, cover their eyes with forearm at zero hour.

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 ARD 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 when accomplished will be similarly transmitted.

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

1 Appendix:
Specific Instructions for Shot and Rehearsal Missions

OFFICIAL:

PAUL H. FACKLER
Lt Colonel, USAF
Director of Operations

[redacted]

TASK GROUP 7.4
OPRS ORDER NO. 6-54

[redacted]

APPENDIX 1
TO
ANNEX F
OPERATIONS ORDER NO. 5-54
SPECIFIC INSTRUCTIONS FOR SHOT AND REHEARSAL MISSIONS

1. MISSION:

a. 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, a Search and Rescue SA-16, call sign STABLE, will take-off as scheduled in Annex "C" (Aircraft Mission Execution Chart). He 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 is proceeding to his assigned H-Hour position as outlined in Annex "D" (Aircraft H-Hour Positions and Flight Patterns). DIRTY FACE will maintain control until STABLE aircraft is approximately 50 miles from ENIWETOK at assigned control point in Annex "D". He will then instruct STABLE 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 and vector him to his H-Hour position.

c. After H-Hour, STABLE will remain under control of BOUNDARY TARE on Channel "F" (139.86) until informed by BOUNDARY TARE to change to Channel "D" (121.5) or other frequency, as directed, for the purposes of a SAR emergency. BOUNDARY TARE will position STABLE approximately at the midpoint between sampling operations and BOUNDARY TARE.

d. For return to base (ENIWETOK), BOUNDARY TARE will provide STABLE a range and bearing to his assigned control point, approximately 50 miles from ENIWETOK, inbound to base, BOUNDARY TARE will instruct STABLE to call DIRTY FACE on Channel "C". DIRTY FACE will establish positive control and provide STABLE with range and bearing to base.

e. On rehearsal and actual shot missions, two (2) Search and Rescue SA-16's, call sign STABLE will occupy a position on the ground at ENIWETOK adjacent to runway (See Annex "B", "Aircraft Parking Plan"; and Annex "C", "Aircraft Mission Execution Chart"). STABLES will be scrambled by the SAR Controller in the AOC by direct communication to Rescue Alert Position. Immediately upon becoming airborne, STABLE will contact DIRTY FACE on Channel "C" for instructions.

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f. On rehearsals, actual shot missions, and during jet practice periods, the Search and Rescue helicopter, call sign STABLE 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 5 will be scrambled by the SAR Controller in the AOC by direct communication to the Rescue Alert Position. Immediately upon becoming airborne, STABLE 5 will contact DIRTY FACE on Channel "C" for instructions.

g. The Crash Boat, call sign GUNSHOT 1, will standby in ENIWETOK LAGOON. GUNSHOT 1 will continually monitor VHF Channel "H" and will be under the operational control of the AOC.

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Annex G

In 2 pages

ANNEX G

TO

OPERATIONS ORDER NO. 5-54

CONTROL RB-36 FLIGHT PROCEDURES

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ANNEX G
TO
OPERATIONS ORDER NO. 5-54
CONTROL RB-36 FLIGHT PROCEDURES

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

1. MISSION:

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

2. RESPONSIBILITIES:

a. The Commander, Test Aircraft Unit, and the Senior Task Group 7.4 Controller, will assure that the provisions of this Annex are carried out.

3. PROCEDURES:

a. On an ENIWETOK event, the Control RB-36, call sign CASSIDY, will take-off as scheduled in Annex "C" (Aircraft Mission Execution Chart). CASSIDY will climb to H-Hour orbit altitude along corridor designated in Annex "D". 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. At control point on designated corridor DIRTY FACE will instruct CASSIDY to contact the CIC, call sign BOUNDARY TARE on VHF Channel "F" for control. IFF will be squawking mode 2.

b. 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. CASSIDY will then proceed on its primary mission. BOUNDARY TARE will provide each element of F-84 samplers, call sign TIGER RED, WHITE or BLUE, with 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 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 FRED, maintaining control until BOUNDARY TARE establishes radio and IFF contact with TIGER aircraft and accepts positive control.

c. In the event of an F-84 emergency, BOUNDARY TARE 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

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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.

d. 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 direct the 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.

e. CASSIDY TWO will provide BOUNDARY TARE with radiological reports each 30 minutes. HF air-ground Channel J-410 or VHF Channel "E" will be used for this reporting.

f. CASSIDY 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.

g. When CASSIDY has completed its mission, to include directing the FB-36 or F-84 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. CASSIDY will normally be turned over to DIRTY FACE control at control point 1 or 2.

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

OFFICIAL:

PAUL H. FICKLER
Lt Colonel, USAF
Director of Operation

[redacted]

Annex H

In 2 pages w/1 Appendix

ANNEX H

TO

OPERATIONS ORDER NO. 5-54

F-84 SAMPLER FLIGHT PROCEDURES

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ANNEX H
TO
OPERATIONS ORDER NO. 5-54
F-84 SAMPLER FLIGHT PROCEDURES

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o Postmaster
San Francisco, California
7 April 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 Sniffers and 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 their assigned control point in Annex D (Aircraft H-Hour Positions and Flight Patterns), 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 either 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 assigned control point approximately fifty (50) 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 CASSIDY 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 their assigned control point, maintaining positive control until

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approximately fifty (50) 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) Sniffers:

(a) TIGER Sniffer 1 and 2.

(2) Samplers:

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

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

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

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

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

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

e. Emergency procedures: See SAR Annex "F".

f. The TIGER crews will be thoroughly briefed on the sniffing, sampling and radiation reporting procedures by the Scientific Task Group Sampling Project Officer prior to each mission.

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

OFFICIAL:

PAUL H. FACKLER
Lt Colonel, USAF
Director of Operations

1 Appendix:
Sampler Acft Landing at KWAJALEIN

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APPENDIX 1
TO
ANNEX "H"
OPERATIONS ORDER NO. 5-54
F-84 SAMPLER AIRCRAFT LANDING AT KWAJALEIN

1. PURPOSE:

a. The purpose of this Appendix is to provide for expeditious removal, preparation, packaging and dispatch to the ZI, of radiological samples contained in F-84 sampler aircraft which are compelled to land at KWAJALEIN after conducting a sampling mission.

2. BACKGROUND:

a. F-84 sampler aircraft normally will return to ENIWETOK upon the completion of a sampling or sampling rehearsal mission. However, two conditions unforeseeably may arise, either of which could necessitate a landing at KWAJALEIN.

(1) A planned landing of one or two of the F-84 sampling elements to increase sampling time when cloud drift is unusually fast.

(2) An emergency landing of an F-84 element, when KWAJALEIN is closer to these aircraft than ENIWETOK.

b. Provisions for the support required at KWAJALEIN have been agreed upon by the Commander, Naval Air Station, KWAJALEIN, and the Commander, Task Group 7.4. These agreements are outlined in paragraph 5.

3. PROCEDURES:

a. CASSIDY TWO will recommend to BOUNDARY TARE whether or not a sampling mission should continue wherein return of the sampler aircraft to ENIWETOK is questionable. If BOUNDARY TARE instructs CASSIDY TWO to continue with the sampling mission and to land F-84 sampler aircraft at KWAJALEIN, procedures as outlined herein apply.

b. Change to Code Name of TIGER aircraft.

NOTE: F-84 SAMPLER AIRCRAFT CODE NAME "TIGER" WILL BECOME "CHILIPEPPER".

c. BOUNDARY TARE will submit in the clear either of the following messages, as applicable, to the ENIWETOK AOC on Circuit J-407 or J-408.

"CHILIPEPPER MESSAGES"

(1) Text of Message:

(a) For emergency landing of F-84 element at KWAJALEIN:

"EMERGENCY CHILIPEPPER ARRIVING AT _____."
TIME

(b) For planned landing of one or more F-84 elements at

[redacted]

KWAJALEIN to increase sampling time:

"EXECUTE CHILIPEPPER PLAN, CHILIPEPPER AIRCRAFT ARRIVING _____."
TIME

(2) Transmission Procedures: Upon receipt of either of the above messages from BOUNDARY TARE, the ENIWETOK AOC will:

(a) Have an officer hand carry the message to the ENIWETOK Communications Center, declare it "Operational Immediate" and insure that it is transmitted in the clear to KWAJALEIN. He will standby in the Communications Center until the message is receipted for. The AOC will then notify the CIC of the time the message was received at KWAJALEIN.

d. CASSIDY TWO will pass on to BOUNDARY TARE the information of the LASL Scientific Director aboard CASSIDY reference his recommended disposition of the samples as follows:

(1) That FLYAWAY TWO depart ENIWETOK on shot day to ferry personnel and equipment to KWAJALEIN. These personnel will remove and package samples for immediate loading into FLYAWAY TWO for airlift to the ZI.

(2) That C-47 aircraft depart ENIWETOK on shot day to ferry personnel and equipment to KWAJALEIN. These personnel will remove and package samples for loading into FLYAWAY THREE on D/1 for airlift to the ZI.

e. BOUNDARY TARE, after considering the recommendation of the LASL Scientific Director, will inform the ENIWETOK AOC as to which of the two above courses of action will be initiated.

f. BOUNDARY TARE will notify all Task Force Aircraft Control agencies that F-84 sampler aircraft will land at KWAJALEIN, giving approximate ETA.

g. F-84 sampler aircraft concerned will contact CASSIDY for range and steer to KWAJALEIN upon completion of the sampling mission. As soon as contact is established with KWAJALEIN tower, the "CHILEPEPPER" Element Leader will request that upon landing, the aircraft be directed to the predesignated CHILIPEPPER parking area.

4. RESPONSIBILITIES:

a. The Director of Operations, Task Group 7.4:

(1) The Air Operation Center will:

(a) Notify the Test Aircraft Unit that F-84 sampler aircraft will land at KWAJALEIN.

(b) Notify the Test Aircraft Unit of the departure time of the aircraft that will depart ENIWETOK to airlift filter recovery party, removal and storage equipment, maintenance personnel and equipment to KWAJALEIN.

(c) Notify the Test Support Unit to alert the aircraft crew for FLYAWAY TWO or the aircraft crew for the C-47, as appropriate, for departure to KWAJALEIN at the time designated by BOUNDARY TARE.

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(d) Notify BOUNDARY TARE of the actual time of departure of FLYAWAY TWO or C-47 from ENIWETOK for KWAJALEIN.

(2) Technical Projects Division will:

(a) Notify Task Group 7.1 that F-84 sampler aircraft will land at KWAJALEIN.

1. Complete coordination with LASL couriers and military couriers to insure that they are available for the FLYAWAY TWO or C-47 airlift to KWAJALEIN.

b. Test Aircraft Unit:

(1) Sample Recovery Party:

(a) Provide a sample recovery party to remove the samples from the F-84 aircraft. One (1) officer and one (1) airman is considered the minimum personnel requirement, consistent with safety, to remove the samples from two (2) F-84 aircraft. If more than two (2) F-84 aircraft land at KWAJALEIN, the Test Aircraft Unit will augment the Sample Recovery Party to the extent considered necessary.

1. Equipment to accompany the Sample Recovery Party will include:

a. T-1B ion chambers and/or GM counters as are considered necessary.

b. IVY type, lead-lined sampler box.

c. Extended diagonal cutters.

d. Filter removal pole.

e. Extended crucible tongs.

f. Rad/Safety disposable clothing and gloves.

g. Rad/Safe signs.

h. Detergent for decontamination.

i. Other equipment as is considered necessary.

(2) Maintenance Personnel:

(a) Provide one (1) F-84 Crew Chief per sampler aircraft that lands at KWAJALEIN.

1. Equipment to accompany the crew chiefs will include:

a. Seat ejection pins.

b. Landing gear external locks.

c. Flight surface control locks.

d. Tool box.

[redacted]

e. Other equipment as is considered necessary.

(3) Estimated Time of Departure for KWAJAIEIN:

(a) Advise the Air Operation Center, ENIWETOK, and the Test Support Unit (Base Operations) as to the estimated time personnel and equipment will be assembled at the MATS terminal for airlift to KWAJAIEIN.

(4) Clothing:

(a) Deliver to the sampler pilots at KWAJALEIN a complete change of clothing.

(5) Filter Removal:

(a) Sample panels will be removed from the aircraft and placed in the IVY type sample box by the Sample Recovery Party. No rolling of the papers will be required. When all papers have been removed, the lead-lined box will be secured and placed aboard the FLYAWAY aircraft, utilizing a fork lift. The Rad/Safe monitoring will be done by the Sample Recovery Party.

(6) Securing F-84 Aircraft:

(a) Crew Chiefs will install seat ejection pins, external landing gear locks and flight surface control locks; insure that aircraft canopies are closed and that the wheels are chocked.

(7) Decontamination: It is assumed that the aircraft will stand for a minimum of 48 hours prior to decontamination and flyaway. Decontamination will not be required if the cockpit reading does not exceed 50 mr/hr, 48 hours post-shot. In any event, unless directed otherwise by Commander, Task Group 7.4, minimum detergent-water decontamination will be effected.

(a) Decontamination will be accomplished by the Sample Recovery Party, assisted by Navy personnel at KWAJALEIN.

(8) Return of F-84 samplers to ENIWETOK: The original pilots will remain at KWAJALEIN to return their F-84's to ENIWETOK when the aircraft have reached a suitable radiation level.

(a) The officer in charge of the Sample Recovery Party will notify the Commander, Task Group 7.4, as to the extent of F-84 contamination. He will include in this notification the estimated date that sampler aircraft can be returned to ENIWETOK and will request airlift for the Sample Recovery Party, Maintenance personnel and equipment.

(b) F-84 pilots will dispatch a message to Commander, Task Group 7.4 at least two hours prior to intended departure from KWAJAIEIN.

5. SUPPORT FROM OTHER AGENCIES:

a. The Commander, Naval Air Station, KWAJALEIN, has agreed to

[redacted]

support this operation to the extent indicated below and therefore will:

(1) Park CHILIPEPPER aircraft immediately.

(2) Meet aircraft with fork lift and pallet to remove the pilot.

(3) Transport the pilot to a shower immediately to insure decontamination.

(4) Provide guards with film badges to guard aircraft.

(5) Provide fork lift and low boy to move and load the lead-lined sample boxes.

(6) Provide housing for the sample recovery operation and parking space for the FLYAWAY aircraft.

(7) Provide fresh water for aircraft decontamination (cockpit level to be reduced to 50 mr/hr).

(8) Provide ground equipment for F-84 aircraft on a "share basis".

[redacted]

Annex I

In 1 page

ANNEX I

TO

OPERATIONS ORDER NO. 5-54

B-36 EFFECTS FLIGHT PROCEDURES

[redacted]

ANNEX "I"
TO
OPERATIONS ORDER NO. 5-54
B-36 EFFECTS FLIGHT PROCEDURES

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o Postmaster
San Francisco, California
7 April 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 ACC, 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 50 miles from Eniwetok, 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 minus three (3) seconds. Positioning will be the responsibility of the aircraft commander. 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 50 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

/s/ Paul E. Fackler

/s/ PAUL H. FACKLER
Lt Colonel, USAF
Director of Operations

TASK GROUP 7.4

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Annex J

In 1 page

ANNEX J

TO

OPERATIONS ORDER NO. 5-54

B-47 EFFECTS FLIGHT PROCEDURES

[redacted]

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ANNEX J
TO
OPERATIONS ORDER NO. 5-54
B-47 EFFECTS FLIGHT PROCEDURES

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o Postmaster
San Francisco, California
7 April 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 ACC, call sign DIRTY FACE, on VHF Channel "C". DIRTY FACE will check all modes of IFF 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 50 miles from Eniwetok at assigned control point, 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 three (3) seconds. Positioning will be the responsibility of the aircraft commander. BOUNDARY TARE will monitor the flight path and issue required 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 his inbound control point by BOUNDARY TARE. ELAINE TWO will remain on Channel "E" until instructed to switch to Channel "C" for DIRTY FACE control.

OFFICIAL:

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

Paul H. Fackler

/s/ PAUL H. FACKLER
Lt Colonel, USAF
Director of Operations

[redacted]

Annex "X"

In 1 page

ANNEX "K"
TO
TO

OPERATIONS ORDER NO. 5 -54

FB-36 SAMPLER FLIGHT PROCEDURES

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ANNEX "K"
TO
OPERATIONS ORDER NO. 5-54
FB-36 SAMPLER FLIGHT PROCEDURES

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

1. MISSION: To obrain 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 RB-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 along a designated corridor, checking all IFF modes enroute. DIRTY FACE will then instruct aircraft commanders to return to mode 2. They will continue on course until turned over to BOUNDARY TARE on VHF Channel "F" at a point approximately fifty (50) miles out from FRED.

b. BOUNDARY TARE will vector FLOYD aircraft to the vicinity of CASSIDY. When BOUNDARY TARE determines that CASSIDY is capable of accepting control of FLOYD aircraft, control of these aircraft will be turned over to CASSIDY on 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 to a designated control point fifty (50) miles from base and turn control of FLOYD aircraft over to DIRTY FACE. DIRTY FACE will vector FLOYD aircraft to base using VHF, Channel "C".

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

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

OFFICIAL:

PAUL H. FACKLER
Lt Colonel, USAF
Director of Operations

[redacted]

Annex "L"

In 2 pages

ANNEX "L"

TO

OPERATIONS ORDER NO. 5-54

C-54 PHOTO FLIGHT PROCEDURES

[redacted]

ANNEX "L"
TO
OPERATIONS ORDER NO. 5-54
C-54 PHOTO FLIGHT PROCEDURES

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

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 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 climbing on corridor designated in Annex "D". DIRTY FACE will maintain control until PEWTER aircraft reach the designated control point, then instruct PEWTER aircraft to contact the CIC, call sign BOUNDARY TARE. PEWTER ONE will call BOUNDARY TARE on VHF Channel "A"; PEWTER TWO on "A"; PEWTER THREE 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 orbit position designated in Annex "D". PEWTER will remain 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 provided 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, tolerances are plus or minus 15 seconds. After H-Hour, PEWTER aircraft will conduct required photographic missions. When missions are complete, aircraft will call BOUNDARY TARE for vector to control point. The BOUNDARY TARE Controller will instruct PEWTER aircraft to switch to Channel "C" for DIRTY FACE control when reaching control point, approximately fifty (50) miles out from base.

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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 minute time hack.

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

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

OFFICIAL:

PAUL H. FACKLER
Lt Colonel, USAF
Director of Operations

[redacted]

ANNEX "M"

In 5 pages W/3 Appendices

consisting of 3 pages

ANNEX "M"

TO

OPERATIONS ORDER NO. 5-54

WB-29 OPERATIONS

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ANNEX "M"
TO
OPERATIONS ORDER NO. 5-54
WB-29 OPERATIONS

HEADQUARTERS
TASK GROUP 7.4, PROVISIONAL
APO 187, c/o Postmaster
San Francisco, California
7 April 1954, 1800I

1. MISSION

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

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 "Up Wind Special" weather information (if required).

(c) 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 Appendices 1 and 2)

(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:

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(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.

5. The 57th Strat Reconnaissance Squadron Radiological Safety Officer.

(b) Weather reconnaissance and cloud tracking aircraft will call the AOC on VHF Channel "C", immediately after take-off, and remain under the direct control of the ENIWETOK AOC on this channel while within VHF range of ENIWETOK. Those aircraft will establish CW HF radio contact with the AOC on HF Circuit J-411 immediately after takeoff 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:

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

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

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(d) The USS ESTES will be located in the Eniwetok Area during shot period. The CIC will continually monitor VHF Channel "D" and HF, Circuit J-410. 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 (WILSON #2 - H + 1:05 to H + 15:00 hours): This flight is to determine the characteristics of the radiological hazard likely to drift and fall out on Ujelang Atoll and the hazard upwind from the shot atoll. WILSON #2 will take off at H + 1:05 hours, climb to 10,000 feet while proceeding to Point "A". (See Appendix 1). WILSON #2 will then begin a 10,000 foot racetrack holding pattern, the eastern edge will be 50 nautical miles west of Ground Zero. This pattern will extend 50 nautical miles from Northwest to Southeast and 15 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. 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. Flight #2 (WILSON #3 - H+00:55 to H+12:00 hours): This flight is the same as flight #1 except that altitude will be 3,000 to 5,000 feet or as is directed by BOUNDARY TARE.

2. Flight #3 (WILSON #4 - 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 #4 (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

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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 #5 (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 Flight #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. Mx-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.

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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 coincide 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 on VHF Channel "C" and on HF Circuit J-410 immediately after take-off. The AOC will vector WILSON ONE out his designated corridor in Annex "D", "Aircraft H-Hour Flight Plan." WILSON ONE will be instructed to contact the CIC on VHF Channel "F". The aircraft will perform weather reconnaissance within a 30 mile radius of the Eniwetok Area and report any significant weather to the AOC or CIC as directed. He will perform an "Upwind" weather run culminating in an H-hour position as required in Annex "D", "H-Hour Positions and Flight Patterns". At approximately H + 1:00 hours, WILSON ONE will be directed by CASSIDY 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 his assigned corridor by the CIC Controller. When 50 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.

(b) Briefing:

1. The WILSON ONE crew will be thoroughly briefed on the radiation reporting procedures 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.

OFFICIAL:

Paul H. Fackler

PAUL H. FACKLER
Lt Colonel, USAF
Director of Operations

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

3 Appendices:
1. Cloud Tracking Chart, Flt #1
2. Cloud Tracking Chart, Flt #2
3. Rad/Safe Code

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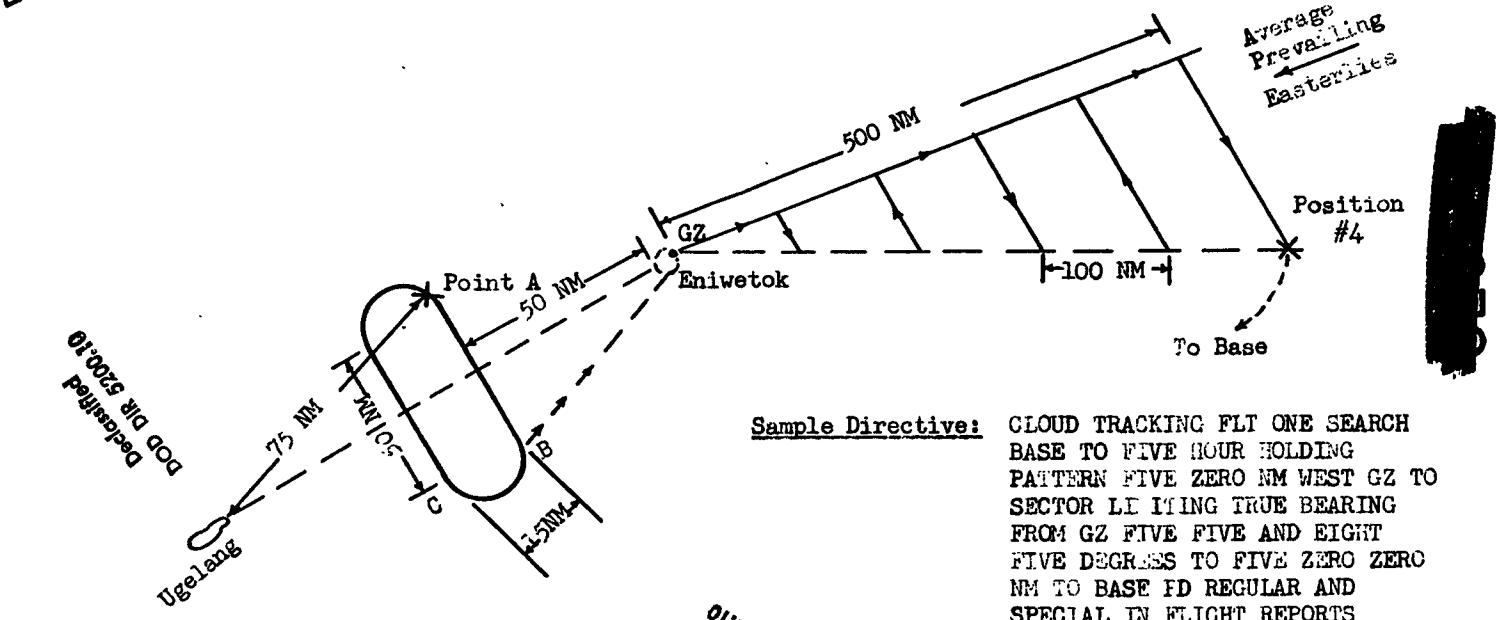
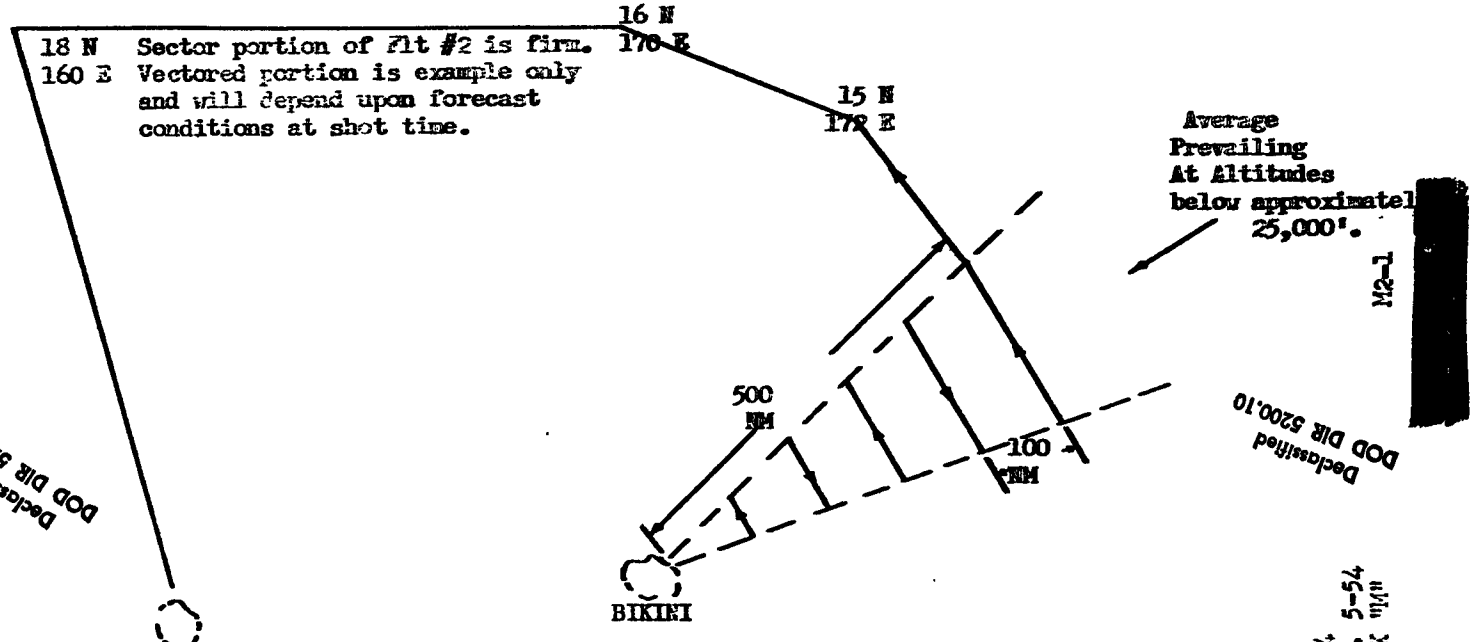
FLIGHT #1, WB-29 SECTOR SEARCH FOR CLOUD TRACKING



Sample Directive: CLOUD TRACKING FLT ONE SEARCH BASE TO FIVE HOUR HOLDING PATTERN FIVE ZERO NM WEST GZ TO SECTOR LIMITING TRUE BEARING FROM GZ FIVE FIVE AND EIGHT FIVE DEGREES TO FIVE ZERO ZERO NM TO BASE RD REGULAR AND SPECIAL IN FLIGHT REPORTS REQUIRED

TASK GROUP 7.4
OPRS ORDER NO. 5-54
APNDX 1, ANNEX "M"

FLIGHT #2, WB-29 SECTOR AND VECTOR SEARCH AND CLOUD TRACKING



Sample Directive: CLOUD TRACKING FLT TWO SEARCH SECTOR LIMITING TRUE BEARING FROM BIKINI FIVE FIVE AND EIGHT FIVE DEGREES TO FIVE ZERO ZERO NM PD REGULAR AND SPECIAL IN FLIGHT REPORTS REQUIRED

TASK GROUP 7.4
OPRS ORDER NO. 5-54
APNDX 2, ANNEX "M"

AFWL/HO